APPENDIX B

TRAFFIC IMPACT STUDY

Draft

Traffic Impact Study

for the

East Campus Integration Program
Environmental Impact Statement

National Security Agency

Fort George G. Meade, Maryland

January 2016

DRAFT

TRAFFIC IMPACT STUDY
FOR THE
EAST CAMPUS INTEGRATION PROGRAM
ENVIRONMENTAL IMPACT STATEMENT
FORT MEADE, MARYLAND
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ACRONYMS AND ABBREVIATIONS

ADT	average daily traffic
ATR	automated traffic recorder
BWI	Baltimore-Washington International Airport
DoD	Department of Defense
ECIP	East Campus Integration Program
EIS	Environmental Impact Statement
ECPS	East Campus Parking Structure
ft^2	square feet
HCM	Highway Capacity Manual
I	Interstate
LOS	level of service
MARC	Maryland Area Regional Commuter
mph	miles per hour
NSA	National Security Agency
pc/hr/ln	passenger cars per hour per lane
PHF	peak hour factor
PTV	Planung Transport Verkehr
s/veh	seconds per vehicle
TIS	Traffic Impact Study
TMC	turning movement count
V	volume
v/c	volume/capacity
VCP	vehicle control point
V_p	15-minute peak period volume
vpd	vehicles per day
vph	vehicles per hour

1. Introduction

This Traffic Impact Study (TIS) analyzes the potential traffic impacts on the study area and surrounding roadway network as a result of the Department of Defense's (DoD's) East Campus Integration Program (ECIP) for the National Security Agency's (NSA) complex at Fort George G. Meade (Fort Meade) in Maryland. The ECIP would construct office and operational spaces consisting of approximately 2.9 million square feet (ft^2), and 1.9 million ft^2 of buildings would be demolished.

The DoD proposes to continue integrating the NSA East Campus with the NSA Main Campus through development of an operational complex and headquarters space in both the northern portion of the East Campus and in the 9800 Troop Support Area (i.e., the Proposed Action). Implementation of the ECIP entails construction and operation of 2,880,000 ft^2 of new facilities for operational and headquarters space within the 150-acre ECIP project area (see **Figure 1-1**), and demolition of approximately 1,880,000 ft^2 of buildings and infrastructure. In addition, two off-post alternatives are considered at the National Business Park and Annapolis Junction Business Park sites (see **Figure 1-2**). These off-post alternatives would both assume up to 1,000,000 ft^2 of office space and transfer of 4,400 personnel from the NSA Main Campus. Construction of East Campus Building 3, smaller buildings, and associated parking facilities on the northern portion of the East Campus would still occur under the off-post alternatives.

In addition to the 2015 Baseline Conditions (existing) analysis, this TIS addresses the traffic capacity and level of service (LOS) impact that the following alternatives have on the internal Fort Meade Campus and surrounding external roadway systems:

- 2029 No Action Alternative
- 2029 Proposed Action (**Figure 1-1**)
- 2029 Alternative 1: National Business Park/East Campus (see **Figure 1-2**)
- 2029 Alternative 2: Annapolis Junction Business Park/East Campus (see **Figure 1-2**).

In addition to the internal and external roadway networks described in **Sections 1.1** and **1.2**, the study area for this TIS is generally bounded by the following routes:

- Maryland State Route (MD) 32 from Interstate (I)-95 to U.S. Route 1
- Baltimore-Washington Parkway/MD 295 from MD 198 to MD 100
- MD 175 from I-95 to MD 32.

1.1 Internal Roadway Network (On-Post)

Fort Meade is well connected internally though arterial and collector roadways. The following describes primary and secondary roadways on Fort Meade, with emphasis on the NSA Campus and ECIP project area:

- Rockenbach Road (MD 713) is a four-lane undivided roadway connecting MD 175 (Annapolis Road) to the east, Canine Road and the NSA Main Campus to the west, and borders the East Campus to the north. The posted speed limit is 45 miles per hour (mph).
- Reece Road is a two-lane undivided roadway connecting MD 175 to the east and Cooper Avenue to the west, providing access to the Normandy Bluffs military housing area to the eastern side of MD 175. The posted speed limit is 25 mph.

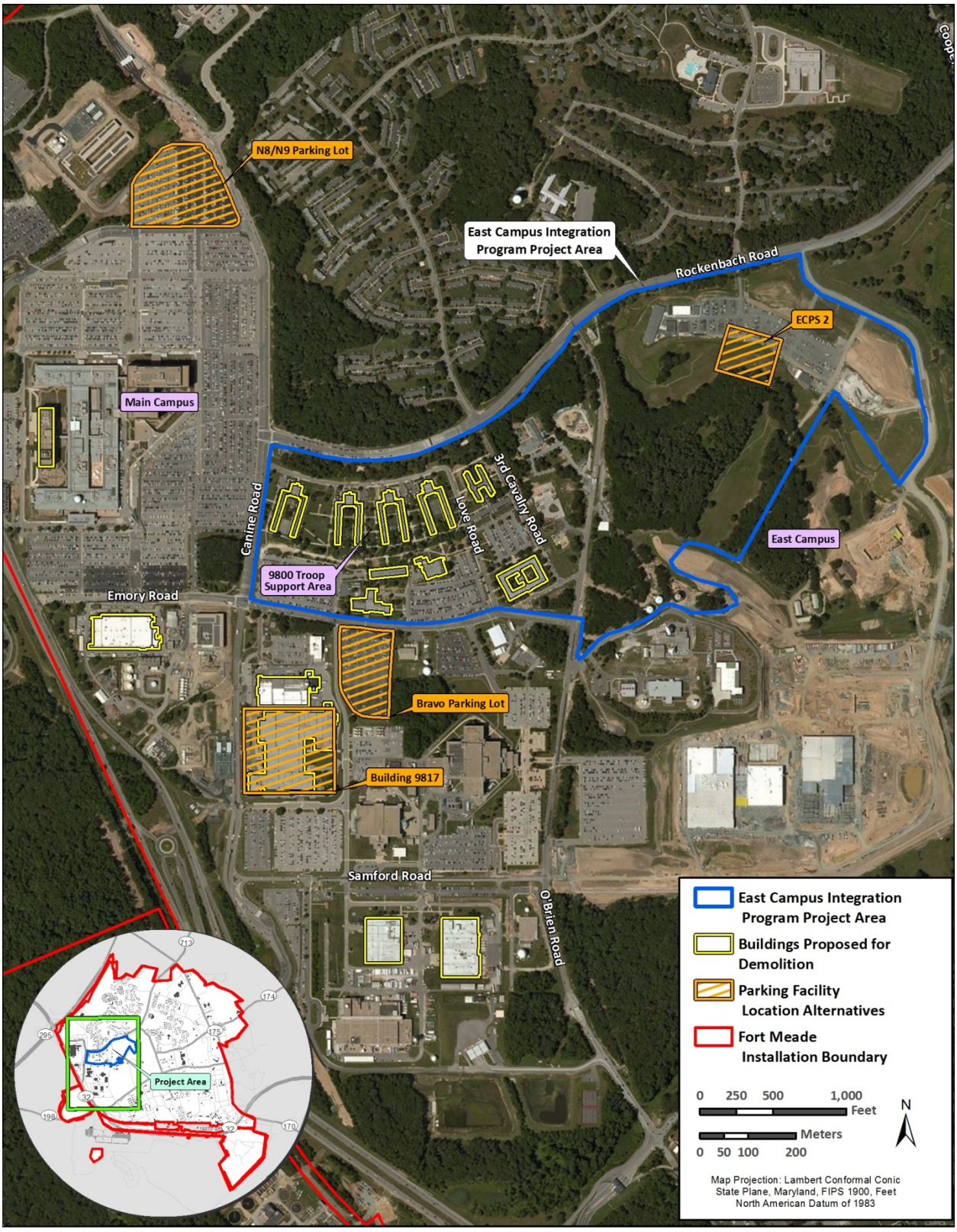
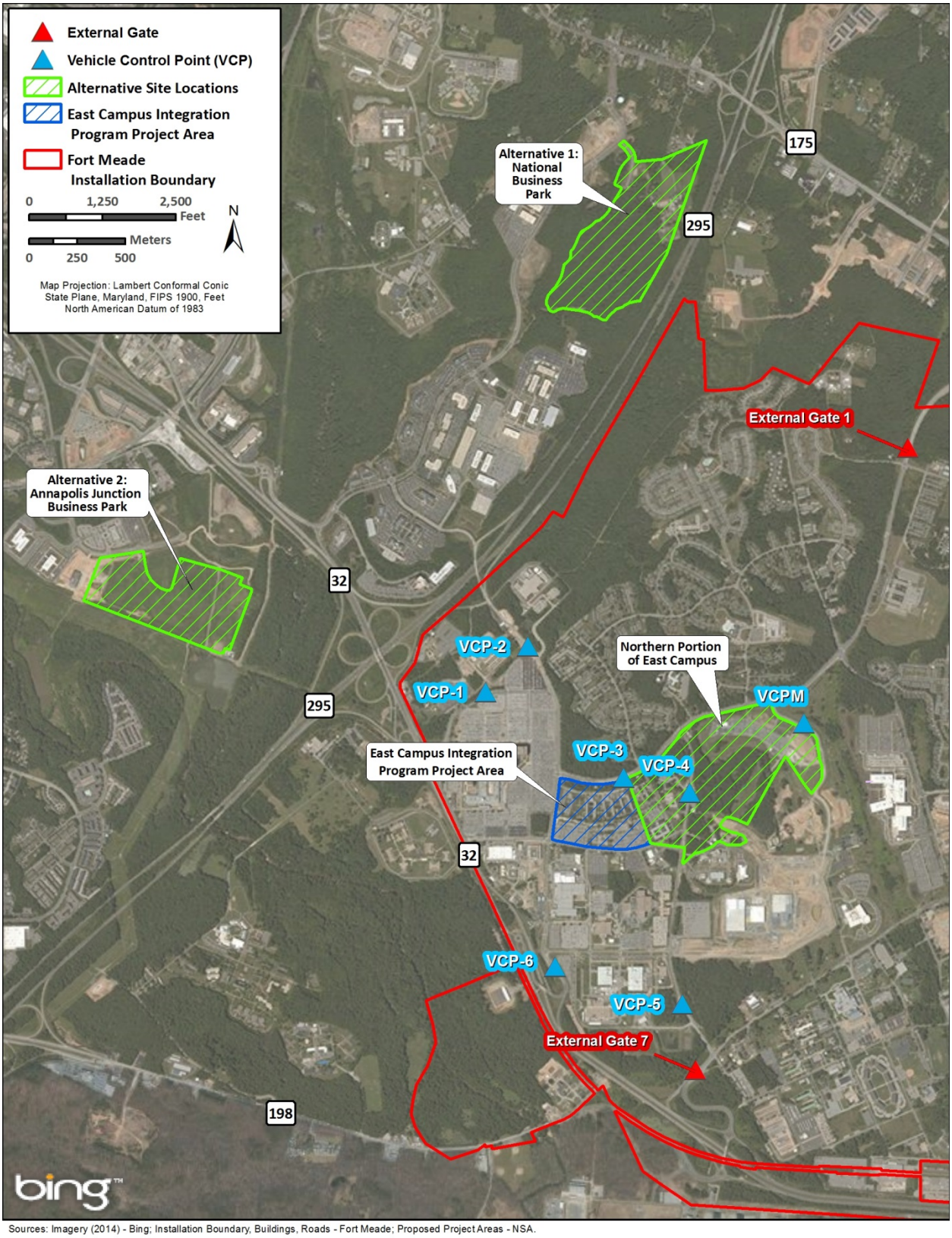


Figure 1-1. Proposed Action and Surrounding Areas



Sources: Imagery (2014) - Bing; Installation Boundary, Buildings, Roads - Fort Meade; Proposed Project Areas - NSA.

Figure 1-2. Proposed Action Location Alternatives Outside of Fort Meade

- Mapes Road is a two-lane undivided roadway connecting MD 175 to the east and External Gate 7 (see *External Gates* descriptions in **Section 3.1** below and see **Figure 1-2**) to the west, and a four-lane divided roadway from External Gate 7 outside the installation to the MD 32 interchange, which terminates into MD 198 (south of the East Campus). The posted speed limit is 30 mph.
- Canine Road varies between a three- and four-lane road within the NSA Campus. It has two connections with MD 32 (one west and one south of East Campus) and borders the west side of the 9800 Troop Support Area.
- Cooper Avenue is a two-lane undivided roadway to the east of the East Campus connecting Llewellyn Avenue to the south and Rockenbach Road to the north. Cooper Avenue traverses farther north of Rockenbach Road and provides access to the Midway Common military housing area. The posted speed limit is 25 mph.
- Other primary roadways on Fort Meade and the NSA Campus include Clark Road, O'Brien Road, MacArthur Road, Taylor Avenue, Ernie Pyle Road, Connector Road, and Samford Road.

1.2 External Roadway Network (Off-Post)

Primary highways serving Fort Meade and the traffic study area include I-95, the Baltimore-Washington Parkway/MD 295, MD 32, MD 175, and Fort Meade Road (MD 198). The following describes each of these roadways:

- The Baltimore-Washington Parkway/MD 295 is located along the west side of Fort Meade. It traverses in a north-south direction connecting Baltimore to the north and Washington, DC to the south. It carries two lanes of traffic in each direction. According to the Highway Capacity Manual (HCM), the Baltimore-Washington Parkway/MD 295 is classified as a freeway for capacity analysis.
- I-95 is located along the west side of the traffic study area. It traverses in a north-south direction connecting Baltimore and Washington, DC and carries four lanes of traffic in each direction. According to the HCM, I-95 is classified as a freeway for capacity analysis.
- Patuxent Freeway (MD 32) forms the southern boundary of Fort Meade. It connects I-95 to the northwest and beyond to I-97 to the southeast. It carries two lanes of traffic in each direction. According to the HCM, MD 32 is classified as a freeway for capacity analysis.
- Annapolis Road (MD 175) forms the northeastern boundary of Fort Meade connecting I-95 to the north and MD 32 to the south. It is a two- to four-lane road in the vicinity of Fort Meade with auxiliary lanes at intersections.
- Fort Meade Road (MD 198) is a two-lane undivided roadway east of the Baltimore-Washington Parkway to MD 32. It widens to a four-lane divided roadway west of the Baltimore-Washington Parkway. It connects Fort Meade near External Gate 7 (Mapes Road) to the east and the Baltimore-Washington Parkway to the west.
- Dorsey Run Road is a two-lane road that connects MD 32 to Annapolis Junction Business Park near Junction Drive. It widens with exclusive turning lanes at the intersection with the entrance to the business park and ends in the park.
- National Business Parkway is a four-lane unrestricted access road that connects to MD 32 to the south and MD 175 to the north.

2. Background Traffic Data

2.1 Traffic Data Collection

In order to evaluate the existing traffic conditions throughout the study area, traffic counts were collected to provide background information. Turning movement counts (TMCs), automated traffic recorder (ATR) counts at key locations, and lane configurations were collected from March to May 2015. These data were not seasonally adjusted. See **Figure 2-1** for traffic data collection locations.

Turning Movement Counts

The TMCs were collected at 22 key intersections in the study area. At each of these locations, vehicles at the intersection were recorded by direction and turning movement. The data were collected from 6:00 a.m. to 9:00 a.m. and 3:00 p.m. to 6:00 p.m. These data were tabulated in 15-minute increments in order to determine the AM peak hour, PM peak hour, and peak hour factors (PHFs). The PHF is a measure of the demand fluctuation within the peak hour period, usually expressed as $PHF = V/(4 \times v_p)$, where V is the total volume during the peak hour and v_p is the peak 15-minute volume occurring during the peak hour. By averaging peak hour times at each individual intersection, common AM and PM peak hours were determined to be from 7:15 a.m. to 8:15 a.m. and from 4:45 p.m. to 5:45 p.m., respectively.

Automated Traffic Recorders

ATRs were used to collect 48-hour traffic counts at 13 key locations in the study area. ATR data were collected in 1-hour increments and used to determine the corridor's average daily traffic (ADT) volumes and truck percentages. Vehicles are classified according to the Federal Highway Administration vehicle classifications. These classifications are distinguished by the number of axles in contact with the road. For this analysis, vehicles with three or more axles and buses were considered trucks. **Table 2-1** summarizes the ADT volumes and truck percentages for key commuter corridors adjacent to Fort Meade.

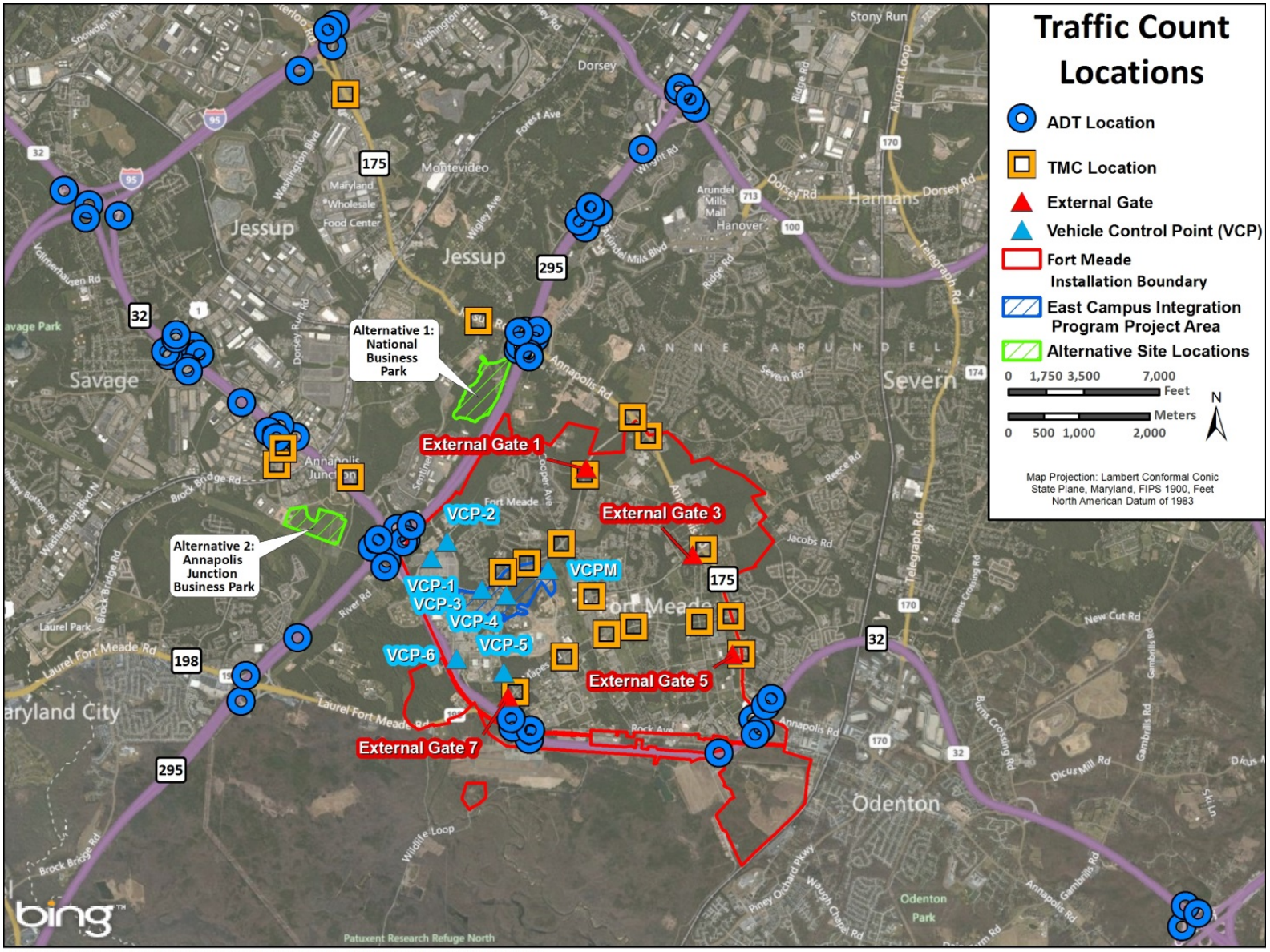
Table 2-1. Summary of Average Daily Traffic Volumes for Key Corridors

	ADT (vpd)	Truck Percent
Baltimore-Washington Parkway/MD 295 (northbound)	51,948	2%
Baltimore-Washington Parkway/MD 295 (southbound)	59,061	2%
MD 32 (eastbound)	34,858	6%
MD 32 (westbound)	41,255	3%

Key: vpd = vehicles per day

2.2 Alternative Transportation Modes

To support reducing single-vehicle trips to Fort Meade, transit, shuttle/vanpool, and pedestrian/bicycle options are available (NSA 2010). Fort Meade also maintains a commuter website titled *MeadeRide* (www.meaderide.com) which provides information and links related to commuter options, on-post shuttle services, and alternative transportation modes. Links to the various commuter service providers are also provided for the latest information. Fort Meade also participates in the Guaranteed Ride Home program. Other transportation modes are discussed in detail below.



Sources: Imagery (2014) - Bing; Installation Boundary, Buildings, Roads - Fort Meade; Proposed Project Areas - NSA.

Figure 2-1. Traffic Count Locations

Train Service

- Maryland Area Regional Commuter (MARC) Train Service, operated by the Maryland Transit Administration, provides rail services from Washington, DC and Baltimore to Odenton Station and Savage Station in the Fort Meade area. The Odenton Station in Anne Arundel County and Savage Station in Howard County are along the Penn line and Camden line, respectively. Both train stations are within a 4-mile radius of Fort Meade. Between 5:00 a.m. and 10:00 a.m., there are 18 trips departing from Baltimore and 12 trips departing from Washington, DC (Union Station) to these Fort Meade area stations. Between 3:00 p.m. and 7:00 p.m., there are 8 trips departing from Baltimore and 14 trips departing from Washington, DC. Additional limited service north of Baltimore includes stops at Martin Airport, Edgewood, Aberdeen, and Perryville.
- The closest Washington Metropolitan Area Transit Authority train station to Fort Meade is the Greenbelt Metro Station. It is located in Prince George's County on the Green Line.

Bus Service

- The K Route, operated by Central Maryland Regional Transit, provides peak hour service to Fort Meade. It operates from Arundel Mills to the Odenton MARC Rail Station. This route operates with 30- to 60-minute headway (depending on the time of day) and provides 9 trips between 6:45 a.m. and 11:45 a.m. and 15 afternoon/evening trips between 12:45 p.m. and 10:45 p.m. Stops at Fort Meade include Reece Road Gate (External Gate 3) and Mapes Gate (External Gate 5).
- Route 202, operated by the Maryland Transportation Administration, provides service from the Metropolitan Grove MARC Station to Fort Meade. This route operates on 60-minute headways between 5:10 a.m. and 7:10 a.m. (inbound) and 3:00 p.m. to 5:00 p.m. (outbound). There is also a mid-day trip at 12:00 p.m. (outbound) from Fort Meade.

2.3 Existing Shuttle/Vanpool

- The NSA provides shuttle service between the MARC Rail Station at Odenton and the NSA Campus and Fort Meade to employees and civilians with proper identification. The shuttle operates six morning trips from the Odenton MARC Rail Station to the NSA Campus and the post, and six return trips in the evening from the NSA Campus to the Odenton MARC Rail Station.
- The Link Shuttle is operated by the Baltimore-Washington International Airport (BWI) Business Partnership, a public policy organization. The shuttle circulates in and around the BWI Hotel District. The shuttle provides services between the BWI Business Park Light Rail Station and the Friendship Annex 3 Building. It operates Monday through Friday from 5:45 a.m. to 5:55 p.m.
- A shuttle departs the Greenbelt Metro Station and travels directly to Fort Meade. The shuttle departs the Greenbelt Metro Station on the half-hour between 6:00 a.m. and 7:30 a.m. and arrives approximately 30 minutes later. Return trips run between 3:30 p.m. and 5:00 p.m. There is also a mid-day trip at 11:00 a.m. (NSA 2010, NSA 2013).

2.4 Existing Pedestrian Accessibility

Pedestrians were counted along with vehicles at each TMC location. The daily pedestrian crossing volumes at the key intersections were observed to be low and for the purposes of this study have negligible impacts to overall intersection operations. However, there is typically a substantial influx of pedestrian movements during the AM and PM peak hours as personnel walk to and from the parking lots

and their workplace. There are sidewalks on at least one side of most primary roadways within Fort Meade and the NSA Campus, including Reece Road, Cooper Road, and sections of Canine Road, O'Brien Road, and Mapes Road.

External Gate 6, located along Rock Avenue adjacent to the MD 32 to MD 175 westbound off ramp, is open only to bicyclists and pedestrians. It is open between 6:00 a.m. and 4:00 p.m. Monday through Friday.

2.5 Existing Parking

The existing parking on the NSA Main Campus is primarily surface lots with approximately 15,500 spaces available (NSA 2013). The ECIP project area currently has three parking lots serving the 9800 Troop Support Area and one lot currently used for construction staging and worker parking for activities in the southern portion of the East Campus. There are additional parking areas provided for deliveries and other special uses adjacent to specific buildings.

3. Traffic Modeling and Analysis Procedures

To assess the existing conditions and constraints in the study area, analyses were performed for the 2015 Baseline Conditions, 2029 No Action Alternative, 2029 Proposed Action, 2029 Alternative 1: National Business Park/East Campus and 2029 Alternative 2: Annapolis Junction Business Park/East Campus during the AM and PM peak hours. These analyses were completed using the modeling software and assumptions described below.

3.1 PTV Vistro 3.00-02

Planung Transport Verkehr (PTV) Vistro 3.00-02 was used to conduct signal timing optimization and record intersection LOS and delays. Vistro has the capability to develop a large network with multiple scenarios and conduct trip generation assignments. Using Google Maps, field data, and traffic data, a comprehensive network was coded into Vistro to study the AM and PM peak hour traffic impacts. By applying a growth rate of 7 percent (see **Section 5.1**) to the base existing model's traffic volumes, the 2029 No Action Alternative AM and PM peak scenarios were analyzed using Vistro. After further augmenting the model with the trip generation data, Vistro distributed the additional traffic for the 2029 Proposed Action, 2029 Alternative 1, and 2029 Alternative 2 AM and PM peak scenarios.

The trips generated by each proposed site (Proposed Action, Alternative 1, and Alterative 2) were assigned to each alternative's proposed "zone." A "zone" is an origin or destination area associated with a specific trip generator. As access to Fort Meade is controlled by gates, traffic was routed to the Fort Meade access points using a weighted distribution model based on Maryland State Highway Administration 2013 Average Annual Weekday Traffic. The weighted distribution model was created to allocate generated trips to/from the gates and zones. After the distribution model was entered into Vistro, trip assignments were logically routed through the network from the gates to zone, and vice versa. Similarly, access to Alternatives 1 and 2 are through intersections and the new trips developed by these alternatives were distributed to/from these intersections. These additional trips were added to the 2029 No Action Alternative AM and PM peak hour volumes to create an all-inclusive traffic model for each alternative scenario.

Using Vistro intersection optimization capabilities, traffic signals in all scenarios were automatically optimized based on volume/capacity (v/c) balancing, including the 2015 Baseline Conditions, which allowed for a similar comparison between alternatives. Vistro's intersection analyses identify measures of effectiveness including approach movement, group, and average delays. These measures of effectiveness are calculated analogous to the HCM 2010 procedures.

During the modeling process, it was determined that Vistro was unable to replicate the operations of a gate to accurately represent the processing of vehicles. To provide an estimation of LOS at the gates, an independent Synchro model was developed to represent the gate operations. However, it should be noted that based on field observations, there is an interdependent relationship between the gates and the intersections located adjacent to them.

Several assumptions were made in the development of the model:

- No roadway or intersection improvements were assumed for the network.
- Dorsey Run Road Extension – Only 1 million ft^2 are assumed for the Alternative 2 (Annapolis Junction Business Park/East Campus) development (not full build-out of 2.3 million ft^2 for the business park proposed by the site owners); therefore, a proposed extension of Dorsey Run Road to MD 32 eastbound is not incorporated into the model.
- Intersection control type was modeled as summarized in **Table 3-1.**

Table 3-1. Intersection Control Type Summary

Intersection	Control Type
MD 175 at Llewellyn Ave	Signalized
MD 175 at Mapes Rd	Signalized
MD 175 at Reece Rd	Signalized
MD 175 at Disney Rd	Signalized
MD 175 at MD 713	Signalized
Rockenbach Rd at Clark Rd	Two-way stop
Rockenbach Rd at Cooper Ave	Signalized
Rockenbach Rd at 29th Division Rd	Two-way stop
Rockenbach Rd at O'Brien Rd	Two-way stop
Mapes Rd at Ernie Pyle Rd	Signalized
Mapes Rd at MacArthur Rd	Signalized
Mapes Rd at Cooper Ave	Signalized
Mapes Rd at O'Brien Rd	Signalized
Cooper Ave at Reece Rd	Signalized
MD 32 Westbound Ramps at National Business Park	Roundabout
MD 32 Eastbound Ramps at Dorsey Run Rd	Signalized
Dorsey Run Rd at Junction Dr	Two-way stop
Mapes Rd at Taylor Ave	Signalized
Brock Bridge Rd at Jessup Rd	Signalized
MD 175 at U.S. Route 1	Signalized

External Gates. Access to Fort Meade, not including the NSA Campus, is provided via several external gates. These gates are regulated and staffed by Fort Meade personnel. Inspections are conducted for all inbound vehicles at each gate. Four external gates are located on Rockenbach Road, Reece Road, Mapes Road, and Llewellyn Avenue, respectively, west of MD 175. External Gate 4, Mapes Road at MD 175, is closed at this time. External Gate 2 is permanently closed and is therefore not included in the Vistro model. For accuracy, the model reflects gate hours and other information.

- **External Gate 1: Rockenbach Road**
  - 5:30 a.m. to 9:00 p.m., Monday–Friday
  - 9:00 a.m. to 9:00 p.m., weekends, closed holidays

- **External Gate 3: Reece Road and MD 175**
  - Demps Visitor Control Center Gate (24-hour access)
  - Demps Visitor Control Center hours: 7:30 a.m. to 3:30 p.m., Monday–Friday

- **External Gate 4: Mapes Road and MD 175**
  - Closed until further notice. This gate was closed during the traffic data collection. For consistency, the Vistro model was built to reflect this closure.

- **External Gate 5: Llewellyn Avenue and MD 175**
  - 6:00 a.m. to 9:00 a.m., Monday–Friday for inbound traffic
  - 3:00 to 6:00 p.m., Monday–Friday for outbound traffic.

- **External Gate 6: Pepper Road and MD 32**
  - 6:00 a.m. to 4:00 p.m., Monday–Friday
  - Pedestrian and cyclists only. No motor vehicles.

- **External Gate 7: Mapes Road and MD 32**
  - 5:30 a.m. to 9:00 p.m., Monday–Friday
  - 9:00 a.m. to 9:00 p.m., weekends and holidays.

Vehicle Control Points (VCP). NSA maintains seven VCPs to provide access to the NSA Campus. All of the VCPs are inside of Fort Meade, and VCPs 1, 2, and 6 are directly accessible from off the installation as noted below:

- VCP 1: Canine Road (accessible from MD 32)
- VCP 2: Connector Road (accessible from northbound Baltimore-Washington Parkway)
- VCP 3: Rockenbach Road
- VCP 4: O'Brien Road near Rockenbach Road
- VCP 5: O'Brien Road near Perimeter Road
- VCP 6: Samford Road (accessible from MD 32/Samford Road)
- VCP M: Rockenbach Road (currently under construction).

3.2 Level of Service Criteria

The *Policy on Geometric Design of Highways and Streets 2011* by the American Association of State Highway and Transportation Officials provides guidelines for the selection of design LOS. Various factors are considered in the calculations and differ depending on what is being analyzed (i.e., ramp merge/diverge, freeway, intersection, and roundabout). These factors include, but are not limited to, lane width, speed, grade, truck percent, traffic volume, PHF, and intersection control. A reasonable LOS for an urban freeway like I-95 is LOS C. A reasonable LOS for an urban collector and arterial is LOS D and LOS C, respectively.

The criteria provided in Exhibits 10-7, 13-2, 16-2, 17-2, and 21-1 of the HCM were used to determine the LOS for the intersections in the study area. For signalized intersections, Vistro reports a delay and LOS for each movement, approach, and intersection. The signalized intersection LOS is based on a weighted average of the movement volumes and delays. At unsignalized intersections, Vistro reports the delay and LOS for the approaches controlled by the stop signs. All LOS results reported in this TIS are based on intersection LOS for signalized locations and the worst stop-controlled approach for unsignalized intersections.

Methods described in the HCM were used to evaluate freeway segments, and freeway ramp merge/diverge locations. For this analysis, weave locations were analyzed as ramp merge/diverge locations and not as weave sections described in the HCM. To determine the acceleration/deceleration lengths in weave areas, the weave distance between interchanges were divided in half. As the interchanges are closely spaced, evaluating the merge/diverge locations provides a more conservative evaluation of operations. Also, a default PHF of 0.95 was used for freeways (HCM recommends a general default of 0.95 for urban freeway sections).

Tables 3-2, **3-3**, and **3-4** provide a summary of the HCM thresholds.

Table 3-2. Summary of HCM Intersection LOS Thresholds

	Control Delay per Vehicle (s/veh)		LOS Description
	Signalized (HCM Exhibit 16-2)	Unsignalized[1]/ Roundabout (HCM Exhibit 17-2/21-1)	
A	≤ 10	≤ 10	Stable operations.
B	> 10–20	> 10–15	Stable operations, minimal delays.
C	> 20–35	> 15–25	Stable operations, acceptable delays.
D	> 35–55	> 25–35	Constricted operations, regular delays.
E	> 55–80	> 35–50	Maximum capacity, extended delays. Volumes at or near capacity. Long queues form upstream from intersection.
F[2]	> 80	> 50 or v/c 1.0	Restricted operations, excessive delays. Represents jammed conditions. Intersection operates below capacity with low volumes. Queues might block upstream intersections.

Key: s/veh = seconds per vehicle
Notes:
1. Unsignalized LOS is for the stop-controlled minor approach.
2. Max lane group v/c > 1.0 results in LOS F regardless of delay.

Table 3-3. Summary of HCM Ramp Merge/Diverge LOS Thresholds

	Density (pc/mi/ln) (HCM Exhibit 13-2)	LOS Description
A	≤ 10	Unrestricted Operations
B	> 10–20	Merging and diverging maneuvers noticeable to drivers
C	> 20–28	Influence area speeds begin to decline
D	> 28–35	Influence area turbulence becomes intrusive
E	> 35	Turbulence felt by virtually all drivers
F	Demand Exceeds Capacity	Ramp and freeway queues form

Key: pc/mi/ln = passenger cars per hour per lane

Table 3-4. Summary of HCM Freeway LOS Thresholds

	Density (pc/mi/ln) (HCM Exhibit 10-7)
A	≤ 11
B	> 11–18
C	> 18–26
D	> 26–35
E	> 35–45
F	>45 or v/c>1.00

Key: pc/mi/ln = passenger cars per hour per lane

3.3 Parking Facility Analysis

To evaluate impacts that the proposed parking facilities would have on the surrounding adjacent intersections under the Proposed Action, LOS were calculated for the intersections adjacent to the proposed parking facility locations under both the 2029 No Action Alternative (as a baseline) and the Proposed Action. As described further in **Section 8**, the following three multi-level parking facilities were assumed under the 2029 Proposed Action: the East Campus Parking Structure (ECPS) 2, Bravo, and Building 9817 parking facility alternative locations (see **Figure 1-1**). These parking facility alternatives were identified for the analysis due to their proximity to the ECIP project area. The amount of parking that would be constructed is based on the assumed capacity required for full occupancy of the proposed buildings. The exact space requirements, including sizes of parking facilities, would become more refined as the detailed design process progresses. It was assumed that approximately 33 percent of ECIP traffic would be directed to ECPS 2 and the remaining 45 percent and 22 percent of employees would be distributed to the Building 9817 and Bravo parking facilities, respectively. It was also assumed the existing traffic control devices, including traffic signals and stop signs, would still be in place in 2029. For the analysis of intersections adjacent to the proposed facility locations and the VCP locations, volumes from the NSA *2014 Traffic Count Updates, Final Report* were used (NSA 2014). As per the HCM, the average intersection delay was used for signalized intersections and the highest delay per approach (highest control delay) was used for unsignalized intersections.

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4. 2015 Baseline Conditions

The 2015 Baseline Conditions were analyzed to document existing traffic flow, distributions, gate usage, and overall performance along the perimeter and inside of the study area. The 2015 Baseline Conditions analyses are based on existing traffic volumes in the vicinity of Fort Meade.

4.1 Volume Development

As explained in **Section 2.1**, traffic data were collected with TMCs and ATRs throughout the study area. The 2015 Baseline Conditions AM and PM peak hours were determined, and the volumes were entered into the Vistro model. In locations where volumes were not collected, Maryland State Highway Administration 2013 Average Annual Weekday Traffic volumes were used to supplement the data. No growth was applied, as it was assumed the 0.45 percent per year growth rate (see **Section 5.1**) over 2 years was negligible. For VCP analysis, volumes from the NSA *2014 Traffic Count Updates, Final Report* were used (NSA 2014).

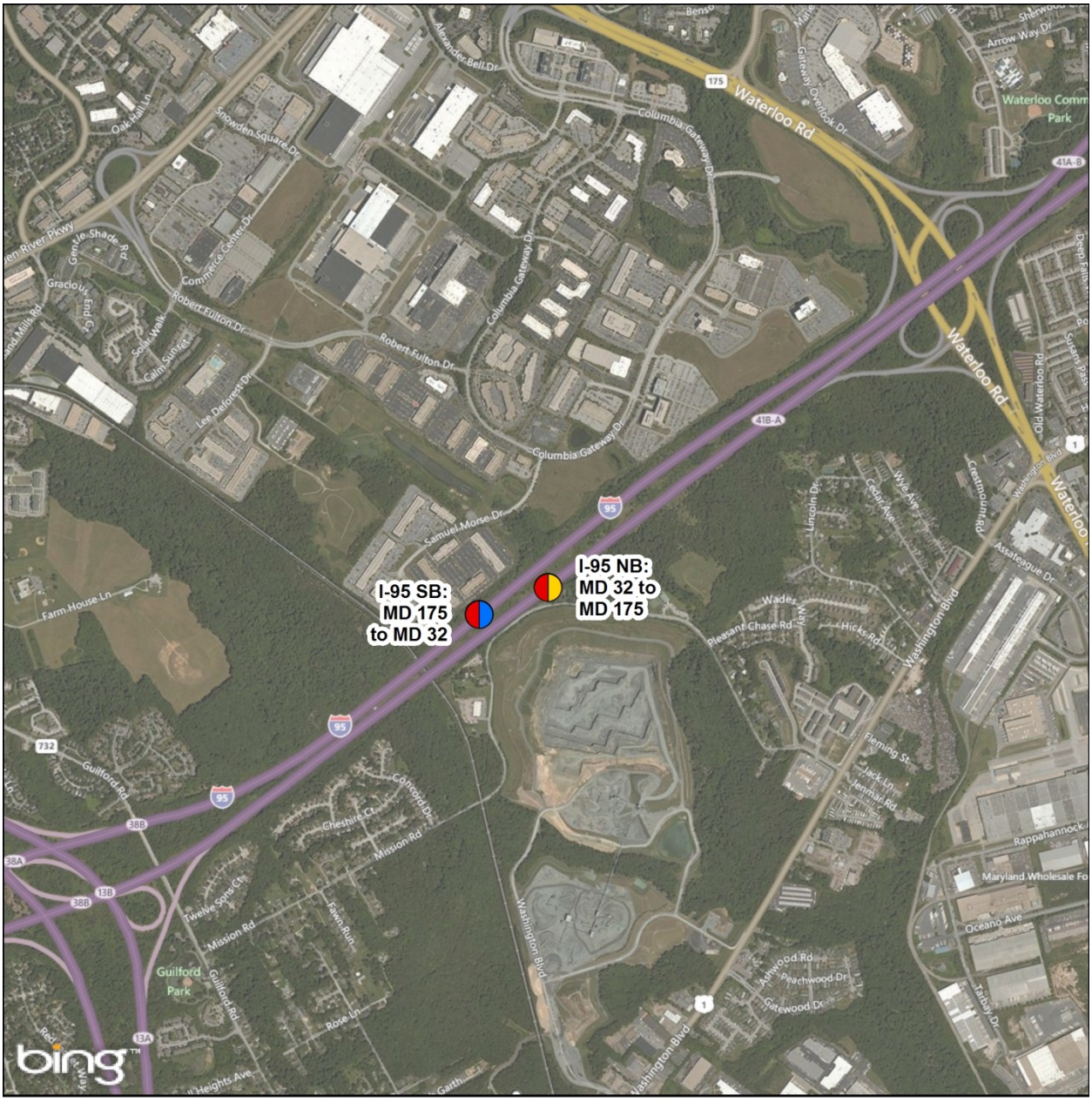
4.2 Capacity Analyses

The capacity analyses for the 2015 Baseline Conditions are presented in LOS for the roadway segments (see **Figures 4-1** through **4-3**), interchange ramp merge/diverge (see **Figures 4-4** through **4-6**), and key intersections (see **Figure 4-7**) throughout the study area. Tables presenting the 2015 Baseline Conditions LOS values for the ramps and intersections are presented in **Section 9** of this TIS to facilitate comparison with the Proposed Action and alternatives.

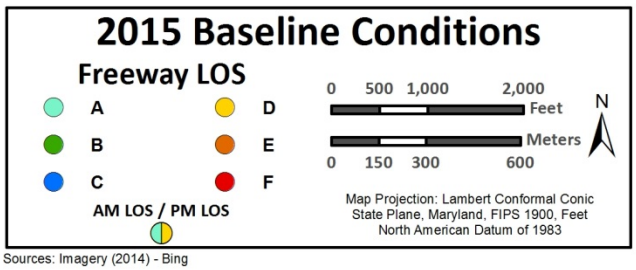
Under the 2015 Baseline Conditions, I-95, MD 32, and the Baltimore-Washington Parkway/MD 295 operate between LOS C and LOS F. These freeways function between LOS C and LOS E in both AM and PM peak hours, except three locations in the AM scenario that function at LOS F (Baltimore-Washington Parkway/MD 295 southbound between MD 175 and Arundel Mills Boulevard and I-95 both northbound and southbound between MD 175 and MD 32).

The LOS at the intersections also vary; almost half function at LOS B or C in either the AM or PM peak hours. Only two intersections (Dorsey Run Road at Junction Drive and Rockenbach Road at Clark Road) operate at LOS F in both AM and PM peak hours. MD 175 at U.S. Route 1 and Mapes Road at O'Brien Road operate at LOS F in the PM peak hour.

During the AM peak hour, the NSA VCPs operate at LOS C or worse except for VCP 3, which operates at LOS A. VCPs 1, 2, and 6 operate at LOS F at this time. In the PM peak hour, all VCPs operate at LOS A except VCP 2, which operates at LOS C.



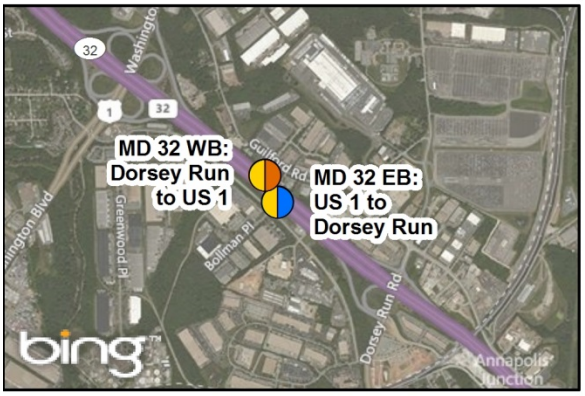
I-95 between MD 32 and MD 175



Sources: Imagery (2014) - Bing

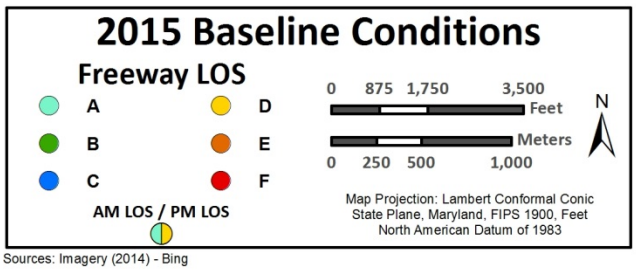
Figure 4-1. Freeway LOS for the 2015 Baseline Conditions (1 of 3)

MD 32 between I-95 and US 1



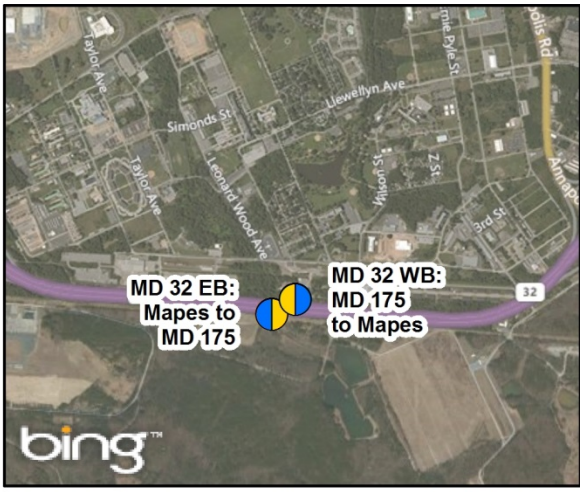
MD 32 between US 1 and Dorsey Run

MD 32 between Dorsey Run and MD 295



Sources: Imagery (2014) - Bing

MD 32 between MD 295 and Mapes



MD 32 between Mapes and MD 175

MD 32 between MD 175 and MD 3

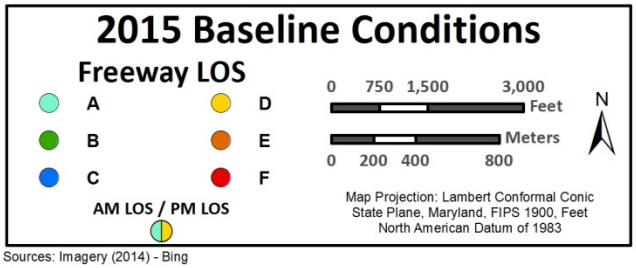
Figure 4-2. Freeway LOS for the 2015 Baseline Conditions (2 of 3)

MD 295 between Arundel Mills and MD 100

MD 295 between MD 175 and MD 32

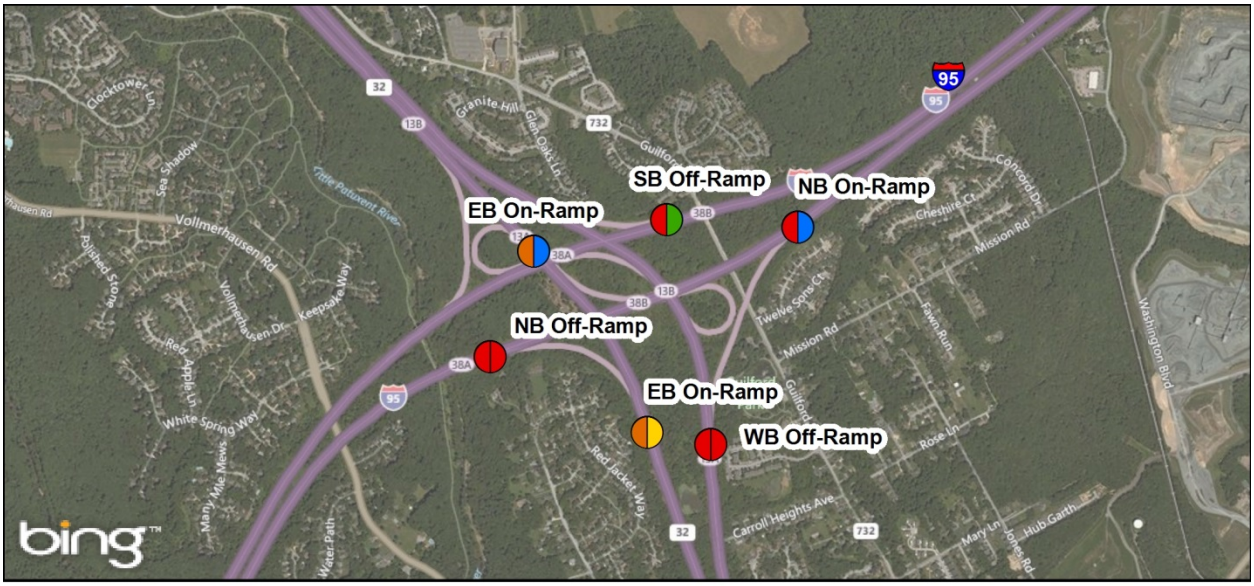
MD 295 between Arundel Mills and MD 175

MD 295 between MD 32 and MD 198



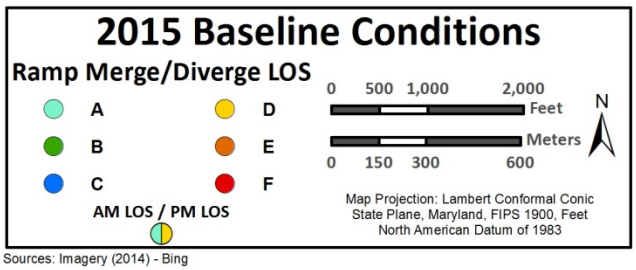
Sources: Imagery (2014) - Bing

Figure 4-3. Freeway LOS for the 2015 Baseline Conditions (3 of 3)



I-95 with MD 32 Interchange

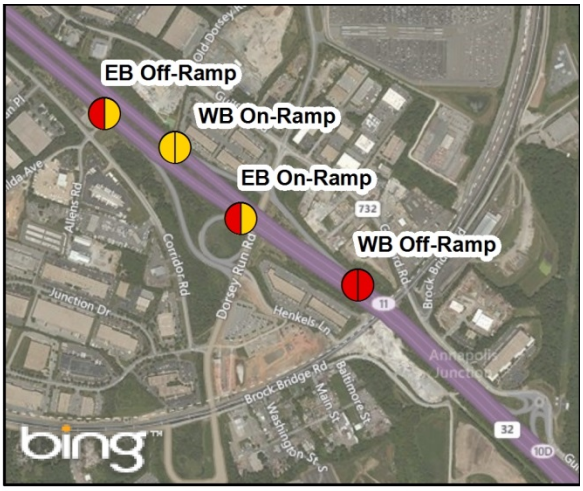
I-95 with MD 175 Interchange



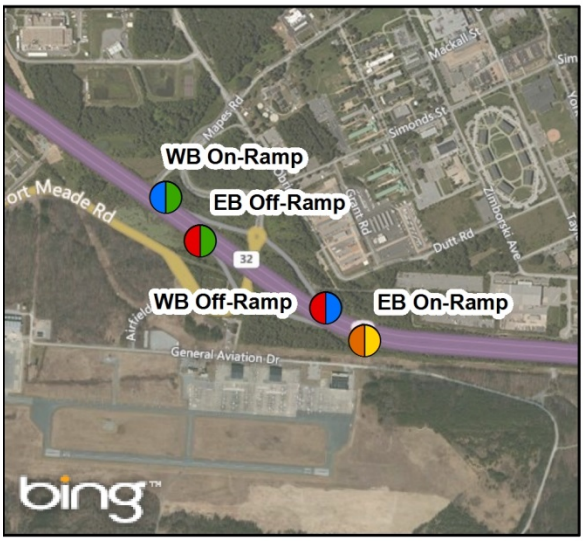
Sources: Imagery (2014) - Bing

Figure 4-4. Ramp Merge/Diverge LOS for the 2015 Baseline Conditions (1 of 3)

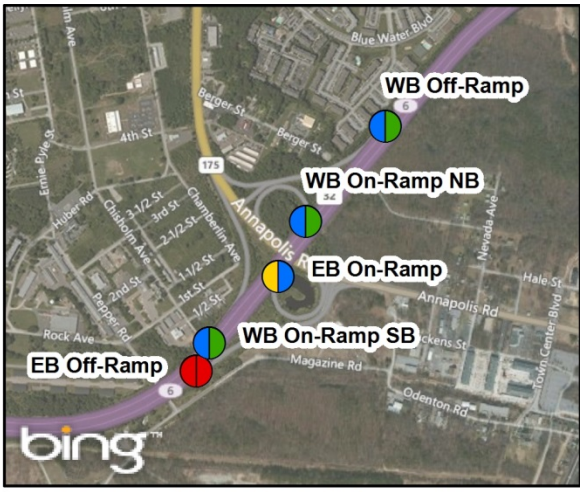
MD 32 with US 1 Interchange



MD 32 with Dorsey Run Interchange

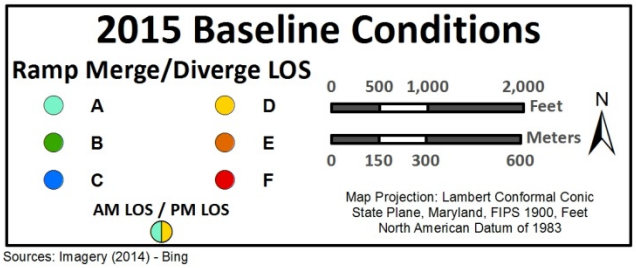


MD 32 with Mapes Rd. Interchange



MD 32 with MD 175 Interchange

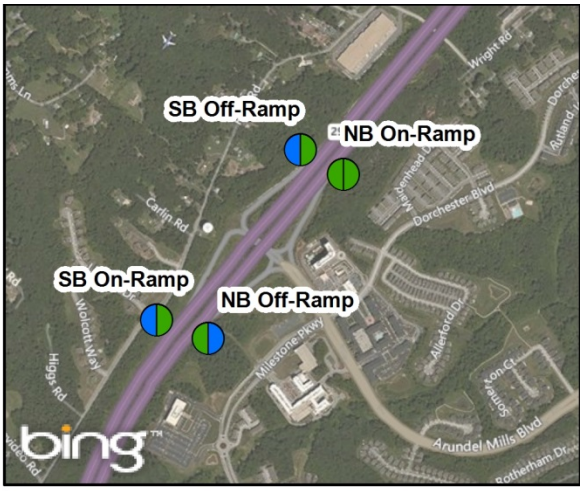
MD 32 with MD 3 Interchange



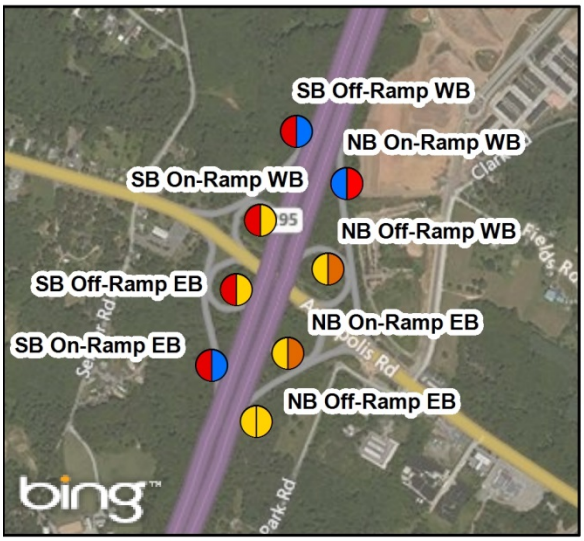
Sources: Imagery (2014) - Bing

Figure 4-5. Ramp Merge/Diverge LOS for the 2015 Baseline Conditions (2 of 3)

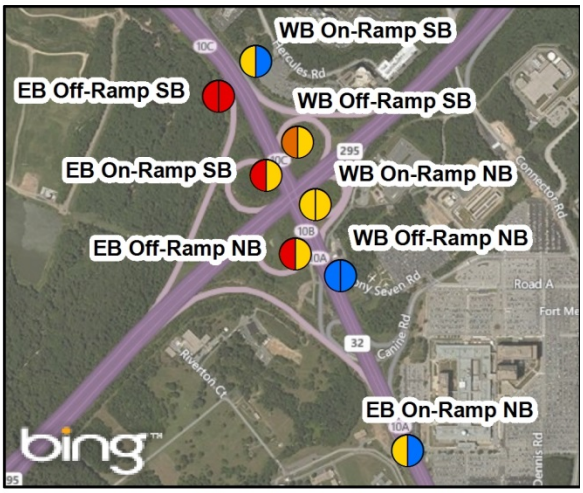
MD 295 with MD 100 Interchange



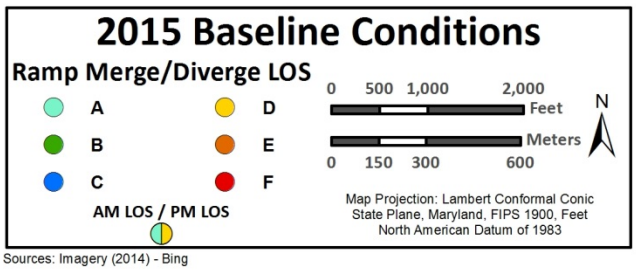
MD 295 with Arundel Mills Interchange



MD 295 with MD 175 Interchange



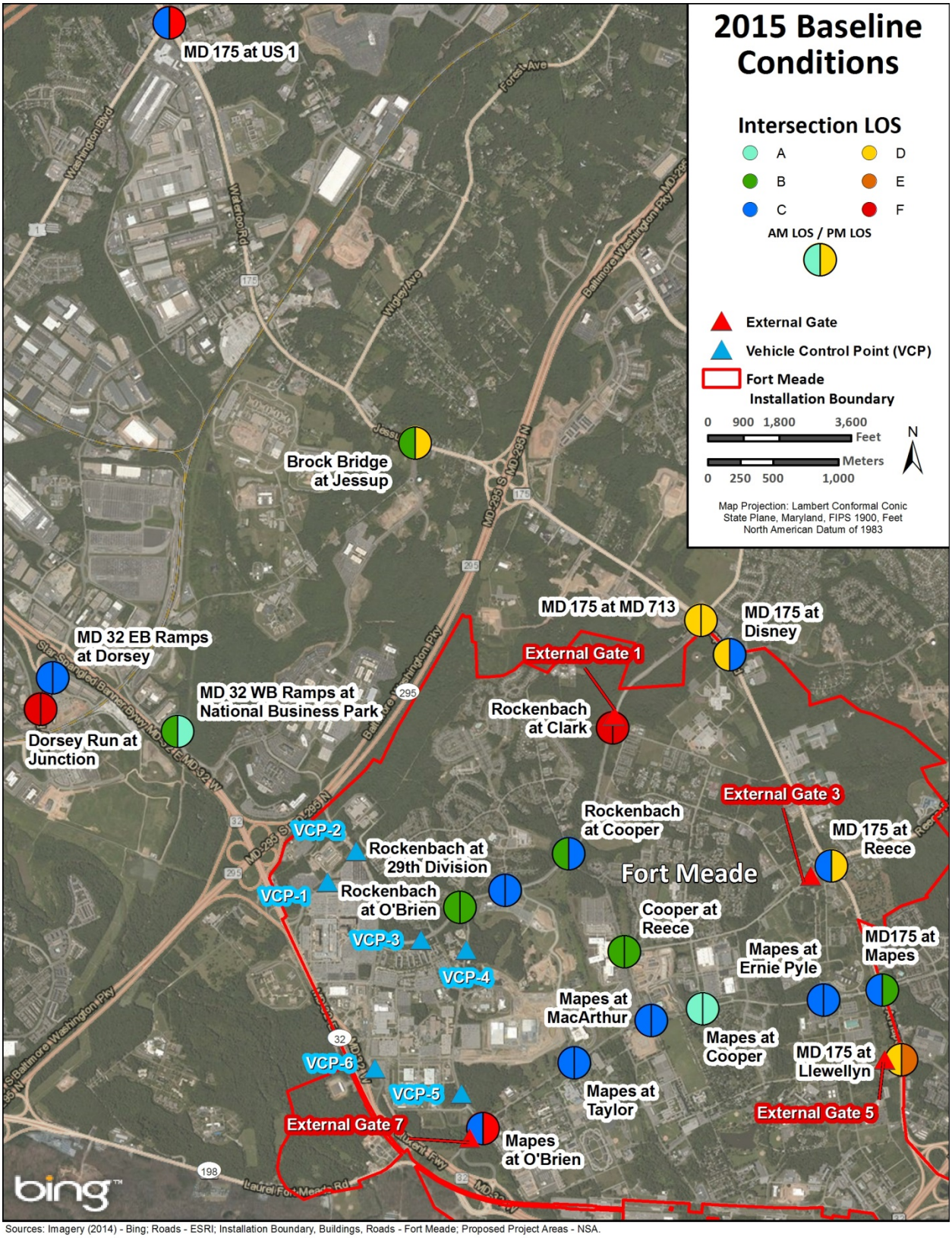
MD 295 with MD 32 Interchange



Sources: Imagery (2014) - Bing

MD 295 with MD 198 Interchange

Figure 4-6. Ramp Merge/Diverge LOS for the 2015 Baseline Conditions (3 of 3)



Sources: Imagery (2014) - Bing; Roads - ESRI; Installation Boundary, Buildings, Roads - Fort Meade; Proposed Project Areas - NSA.

Figure 4-7. Intersection LOS for the 2015 Baseline Conditions

5. 2029 No Action Alternative

The 2029 No Action Alternative is used as a future threshold to compare the three proposed alternatives to assess traffic impacts. Under the 2029 No Action Alternative, the DoD would not construct and operate approximately 2.9 million ft^2 of operations and headquarters facilities on the northern portion of the East Campus and the 9800 Troop Support Area.

5.1 Volume Development

Under the 2029 No Action Alternative, the NSA would not implement the ECIP. Fort Meade would continue to operate under current conditions within current facilities.

The 2029 No Action Alternative AM and PM peak hour volumes were estimated by applying a seven percent global growth rate (0.45 percent compounded annually over 14 years [2015–2029]) to the 2015 Baseline Conditions peak hour volumes to both on- and off-installation traffic. The growth rate was developed based on the Population Growth Rate reported in the Baltimore Region Transportation Board's *Maximize 2040* report (BRTB 2014). Growth rate calculations are provided in **Attachment A**. *Maximize 2040* incorporates the known and reasonably foreseeable future growth in the region, including the area around Fort Meade. **Section 2.5.2** of the ECIP Environmental Impact Statement (EIS) provides a detailed listing of known and reasonably foreseeable future projects in the vicinity of Fort Meade. The projected regional growth in this TIS includes these developments.

5.2 Capacity Analyses

The 2029 No Action Alternative capacity analyses are presented in LOS for the freeway segments (see **Figures 5-1** through **5-3**), interchange ramp merge/diverge (see **Figures 5-4** through **5-6**), and key intersections (see **Figure 5-7**) throughout the study area. **Section 9** provides tables comparing the LOS values for the Proposed Action and alternatives.

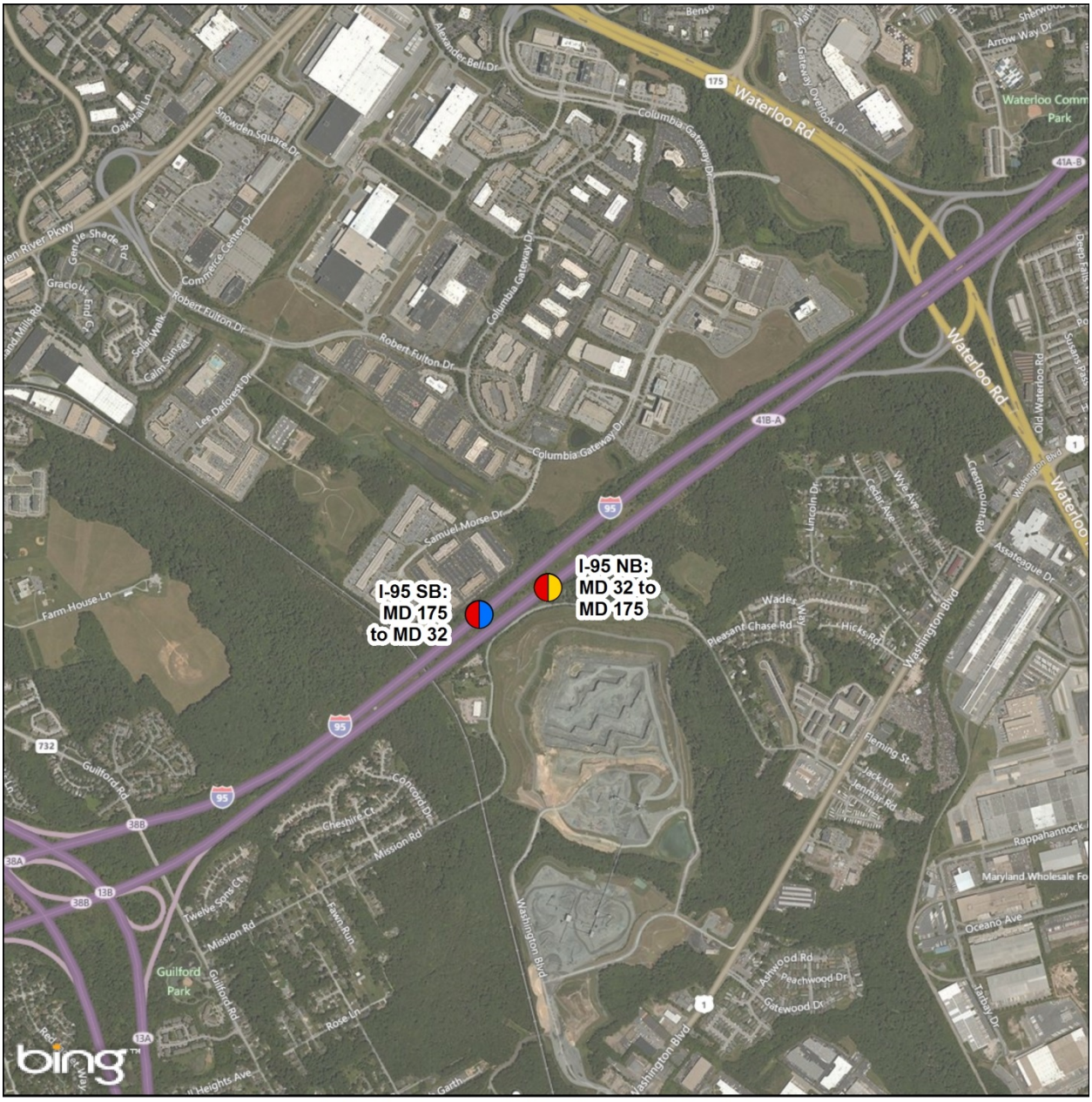
I-95 operates at LOS F in both directions during the AM peak hour under the 2029 No Action Alternative. The LOS improves in the PM peak hour to a LOS C in the southbound lanes and LOS D in the northbound lanes. Most segments along MD 32 operate at a LOS C, D, or E in both the AM and PM peak hours. The LOS of the Baltimore-Washington Parkway/MD 295 varies greatly between LOS C and LOS F in the AM peak hour, and is consistently a LOS C or D in the PM peak hour, except for the segment from MD 32 to MD 198 which operates at a LOS E.

The LOS at each ramp merge/diverge within the study area vary by interchange. Along MD 32, the interchanges with I-95, U.S. Route 1, and Dorsey Run Road operate with the greatest delay when compared to the remaining MD 32 interchanges within the study area. All interchanges along the Baltimore-Washington Parkway/MD 295 operate poorly (with a majority being LOS D–F), except the interchange with Arundel Mills Boulevard.

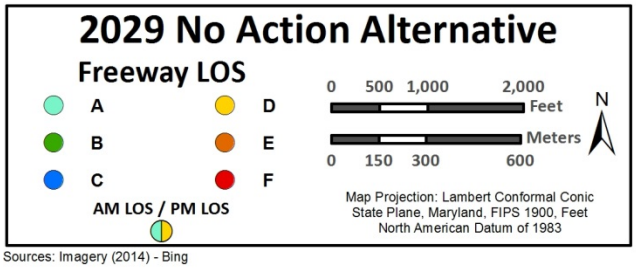
In both the AM and PM peak hours, MD 175 intersections adjacent to Fort Meade operate at LOS E or better. Farther west along MD 32, Dorsey Run Road at Junction Drive operates at LOS F in both AM and PM peak hours.

Analyses were completed for several intersections adjacent to the ECIP project area to identify and measure impacts caused by the proposed parking facility locations. The LOS for these intersections are included in **Figure 5-8**. The analysis of the impacts of the parking facilities, including a comparison of the 2029 Proposed Action with the 2029 No Action Alternative and assumptions for analysis of

intersections near the parking facilities and parking facility design and location, are included in **Section 6** and **Section 8**. **Figure 5-8** shows the LOS for intersections adjacent to the proposed locations of the Bravo and Building 9817 parking facilities to demonstrate how the intersections would fare without the parking facilities under the 2029 No Action Alternative for comparison with the 2029 Proposed Action. Analysis of ECPS 2 was not included in the 2029 No Action Alternative because there are generally no existing intersections in the vicinity of this proposed parking facility that would remain unchanged by the 2029 Proposed Action. Analysis of proposed future intersections for this facility is also provided for the 2029 Proposed Action in **Sections 6** and **8**.



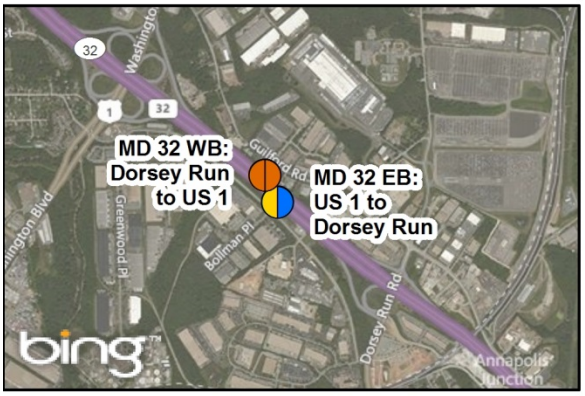
I-95 between MD 32 and MD 175



Sources: Imagery (2014) - Bing

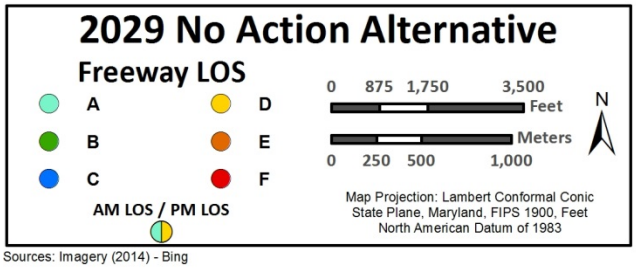
Figure 5-1. Freeway LOS for the 2029 No Action Alternative (1 of 3)

MD 32 between I-95 and US 1

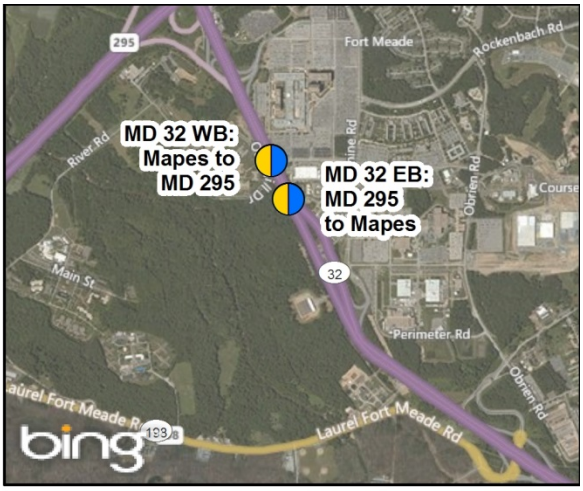


MD 32 between US 1 and Dorsey Run

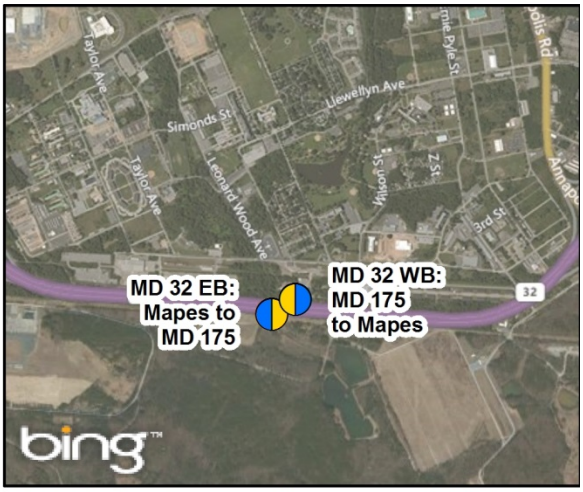
MD 32 between Dorsey Run and MD 295



Sources: Imagery (2014) - Bing



MD 32 between MD 295 and Mapes



MD 32 between Mapes and MD 175

MD 32 between MD 175 and MD 3

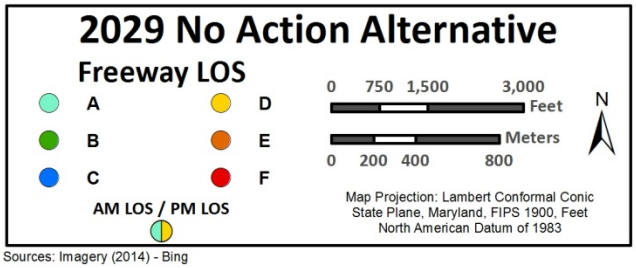
Figure 5-2. Freeway LOS for the 2029 No Action Alternative (2 of 3)

MD 295 between Arundel Mills and MD 100

MD 295 between MD 175 and MD 32

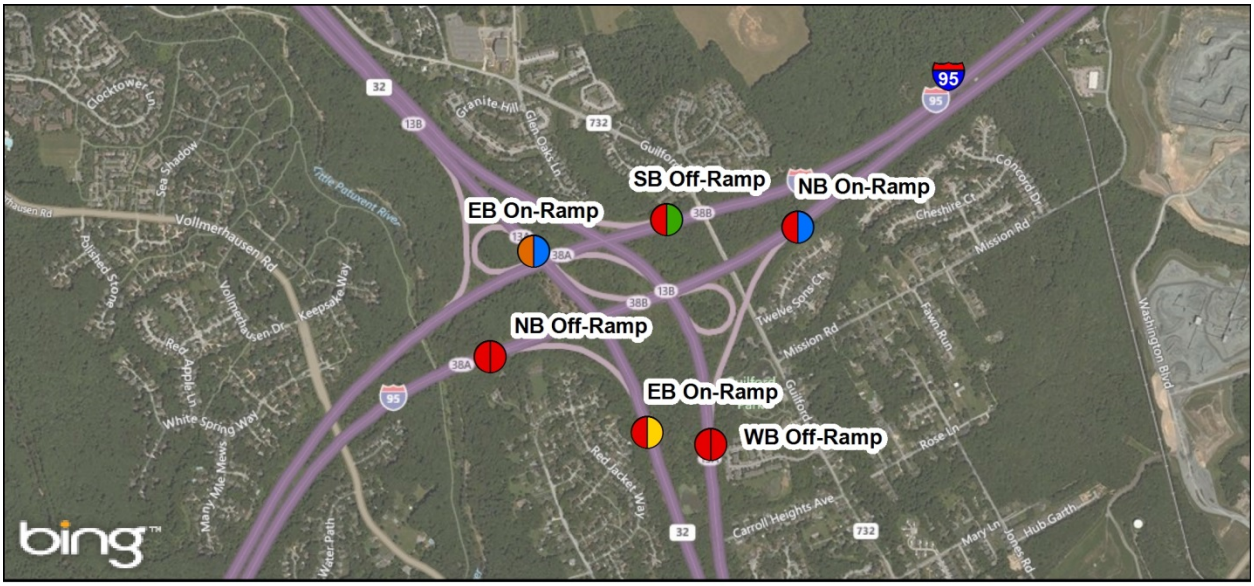
MD 295 between Arundel Mills and MD 175

MD 295 between MD 32 and MD 198



Sources: Imagery (2014) - Bing

Figure 5-3. Freeway LOS for the 2029 No Action Alternative (3 of 3)



I-95 with MD 32 Interchange

I-95 with MD 175 Interchange

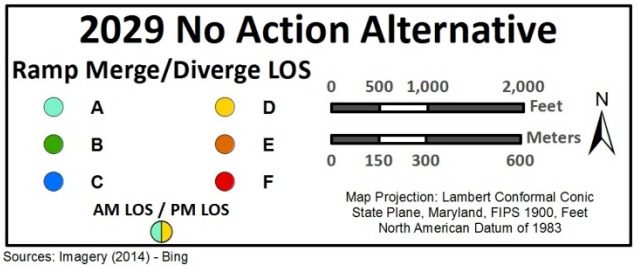
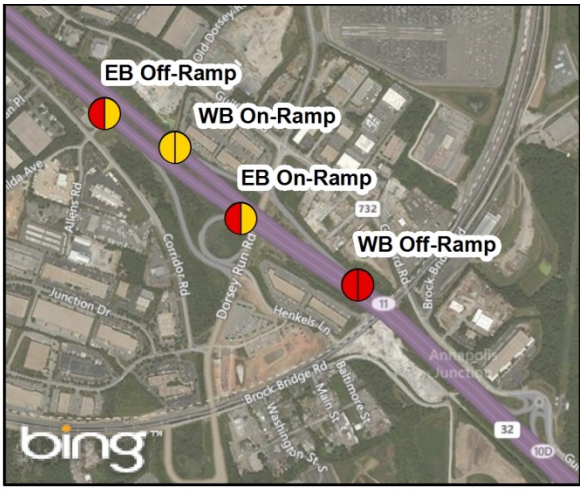
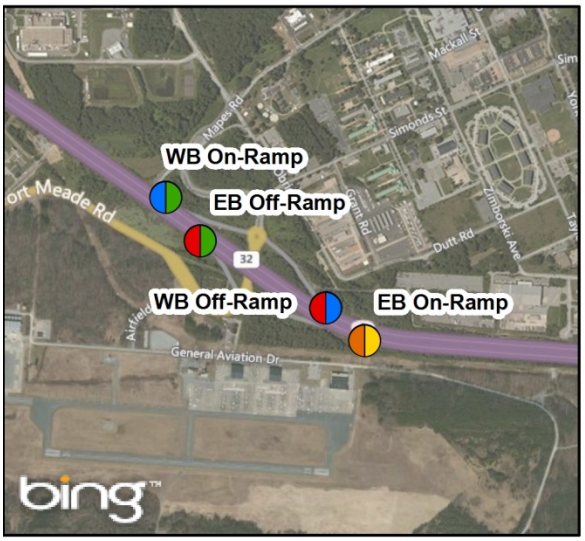


Figure 5-4. Ramp Merge/Diverge LOS for the 2029 No Action Alternative (1 of 3)

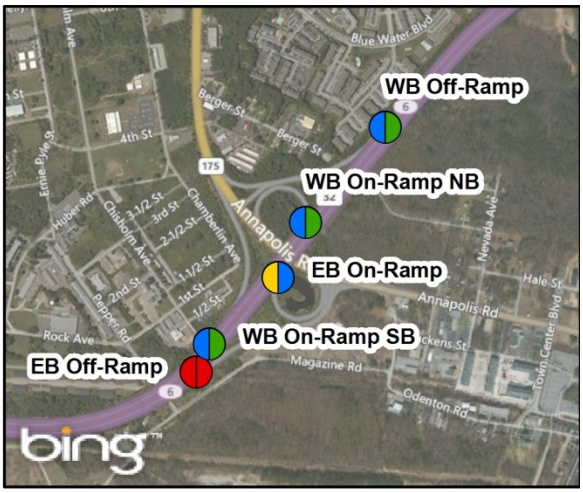
MD 32 with US 1 Interchange



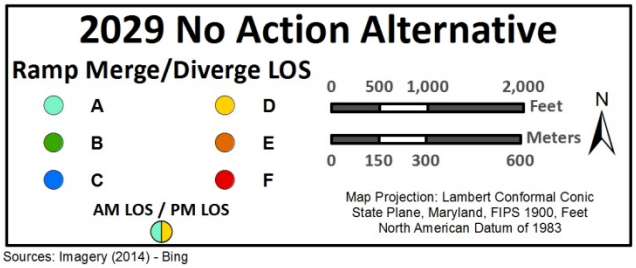
MD 32 with Dorsey Run Interchange



MD 32 with Mapes Rd. Interchange



MD 32 with MD 175 Interchange

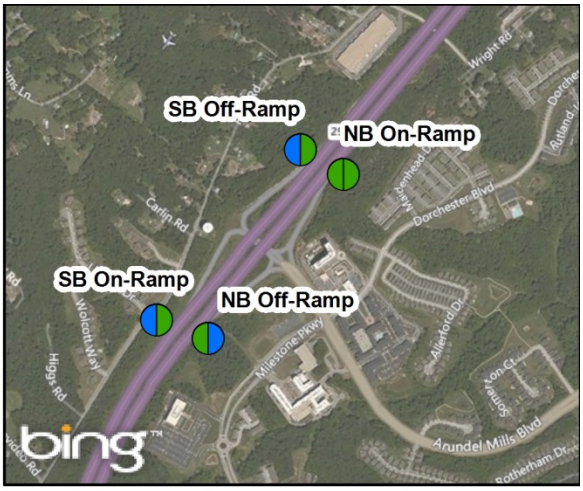


Sources: Imagery (2014) - Bing

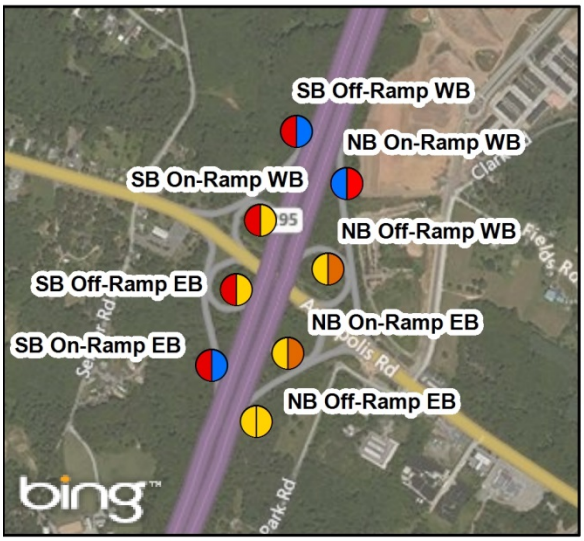
MD 32 with MD 3 Interchange

Figure 5-5. Ramp Merge/Diverge LOS for the 2029 No Action Alternative (2 of 3)

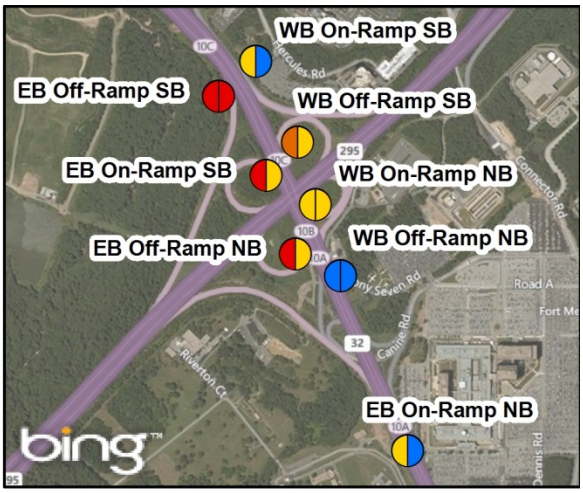
MD 295 with MD 100 Interchange



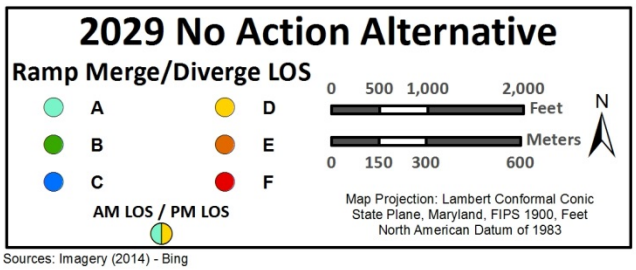
MD 295 with Arundel Mills Interchange



MD 295 with MD 175 Interchange



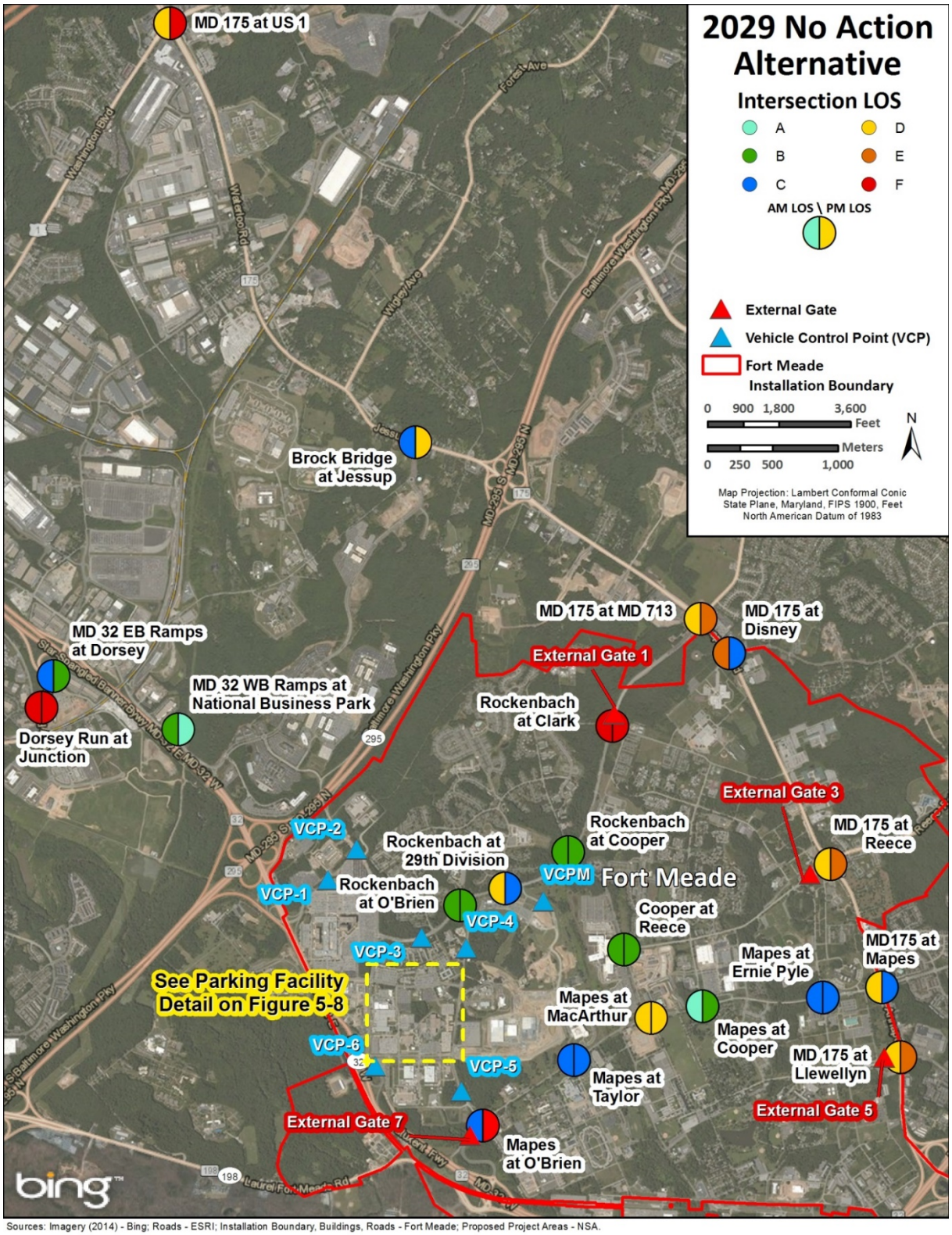
MD 295 with MD 32 Interchange



Sources: Imagery (2014) - Bing

MD 295 with MD 198 Interchange

Figure 5-6. Ramp Merge/Diverge LOS for the 2029 No Action Alternative (3 of 3)



Sources: Imagery (2014) - Bing; Roads - ESRI; Installation Boundary, Buildings, Roads - Fort Meade; Proposed Project Areas - NSA.

Figure 5-7. Intersection LOS for the 2029 No Action Alternative

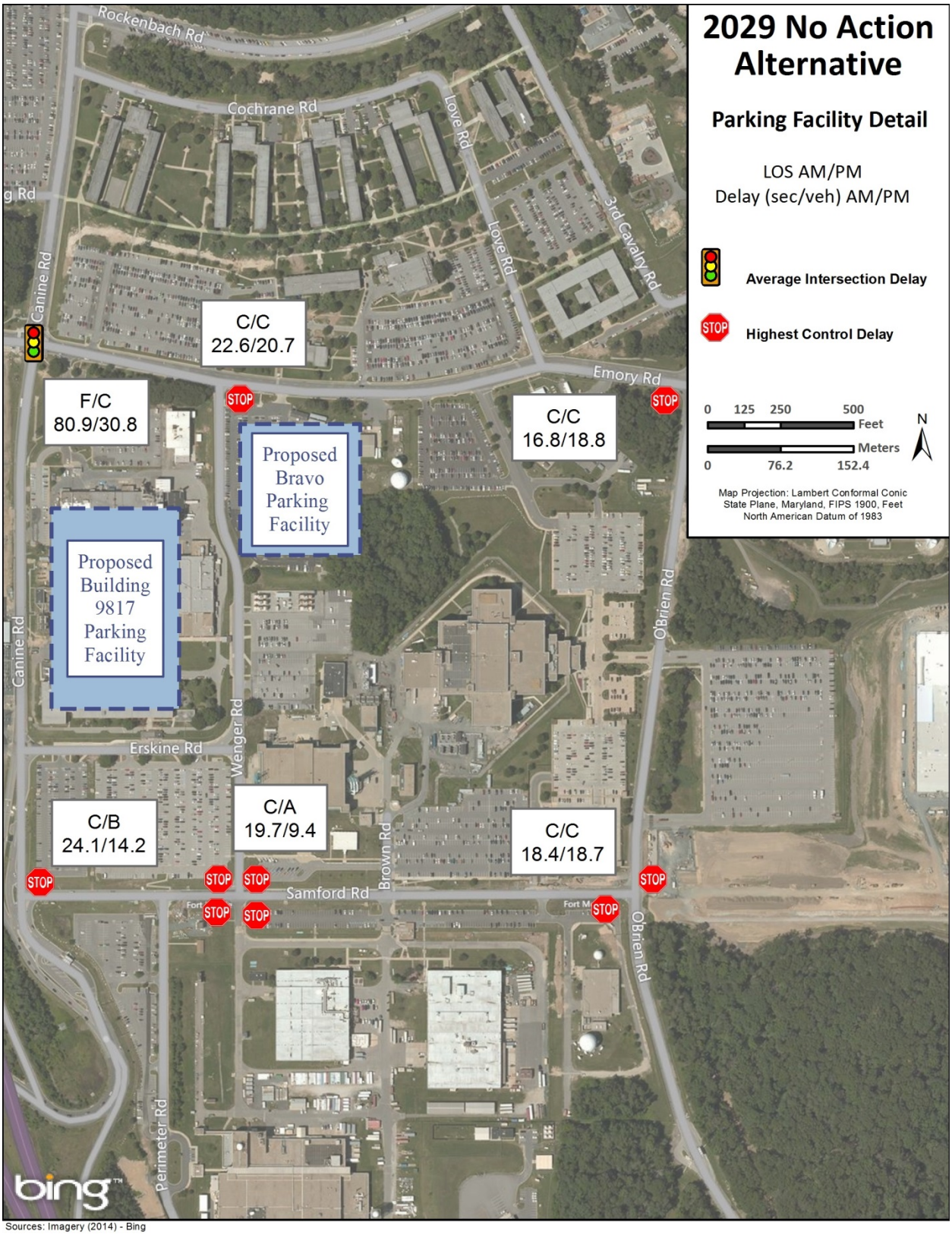


Figure 5-8. Intersection LOS for Parking Facility Locations under the 2029 No Action Alternative

6. 2029 Proposed Action

Under the Proposed Action, the DoD proposes to construct and operate approximately 2.9 million ft^2 of operational complex and headquarters space consisting of five buildings and demolish approximately 1.9 million ft^2 of buildings and infrastructure on the NSA Main Campus (1,291,206 ft^2) and the 9800 Troop Support Area (592,269 ft^2). All nine buildings in the 9800 Troop Support Area would be demolished to provide room for the proposed facilities and supporting infrastructure. After construction of each of the proposed facilities on the East Campus and 9800 Troop Support Area are completed and personnel transferred to the facilities, several buildings on the NSA Main Campus would be vacated and demolished. By doing this, it is assumed the NSA would provide administrative capacity for up to 13,300 personnel, including 6,100 personnel who currently work on the existing NSA Campus and 7,200 personnel currently located off-site. The personnel located outside of Fort Meade are in other Intelligence Community locations throughout the Baltimore-Washington metropolitan area.

6.1 Volume Development

The trips generated by the ECIP were estimated using the Institute of Transportation Engineers *Trip Generation Handbook*, 9th Edition. Because the proposed development is for office space, the Land Use 710 – General Office Space section of the handbook was used to estimate the trips generated by the proposed transfer of 7,200 additional employees reporting to the NSA East Campus. The trip generation analysis estimates how much traffic the Proposed Action would create (both entering and exiting vehicles). It was assumed these calculated trips would be reduced by 5 percent as a result of mass transit, vanpools, carpools, and shuttle options (NSA 2010).

Table 6-1 summarizes the development-generated trips, and **Attachment A** provides the complete method.

Table 6-1. Summary of Proposed Action Development Generated Trips

Land Use 710 - General Office Building	Weekday (vpd)			Weekday, AM Peak (vph)			Weekday, PM Peak (vph)		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Proposed Action	11,952	11,952	23,904	3,041	415	3,456	563	2,749	3,312
Alternative Mode Reduction (5 Percent)	598	598	1,195	152	21	173	28	137	166
Total Trips	11,354	11,354	22,708	2,889	394	3,283	535	2,612	3,146

Key: vpd = vehicles per day, vph = vehicles per hour

6.2 Trip Distribution

A total of 13,300 personnel would work at the ECIP project area (see **Figure 6-1**). Of this total, 7,200 personnel would be transferred from off-site locations in the Baltimore-Washington metropolitan area.

Many roadways including state and U.S. routes surround the installation and many different travel routes could be used by commuters to access the NSA Campus. The trips generated by the 2029 Proposed Action and alternative site developments (referred to as "proposed development sites" as shown on **Figure 6-2**) were distributed to and from the commuting destinations (i.e., parking facilities) by the following method. Origin-destination (O-D) points were selected immediately adjacent to the key

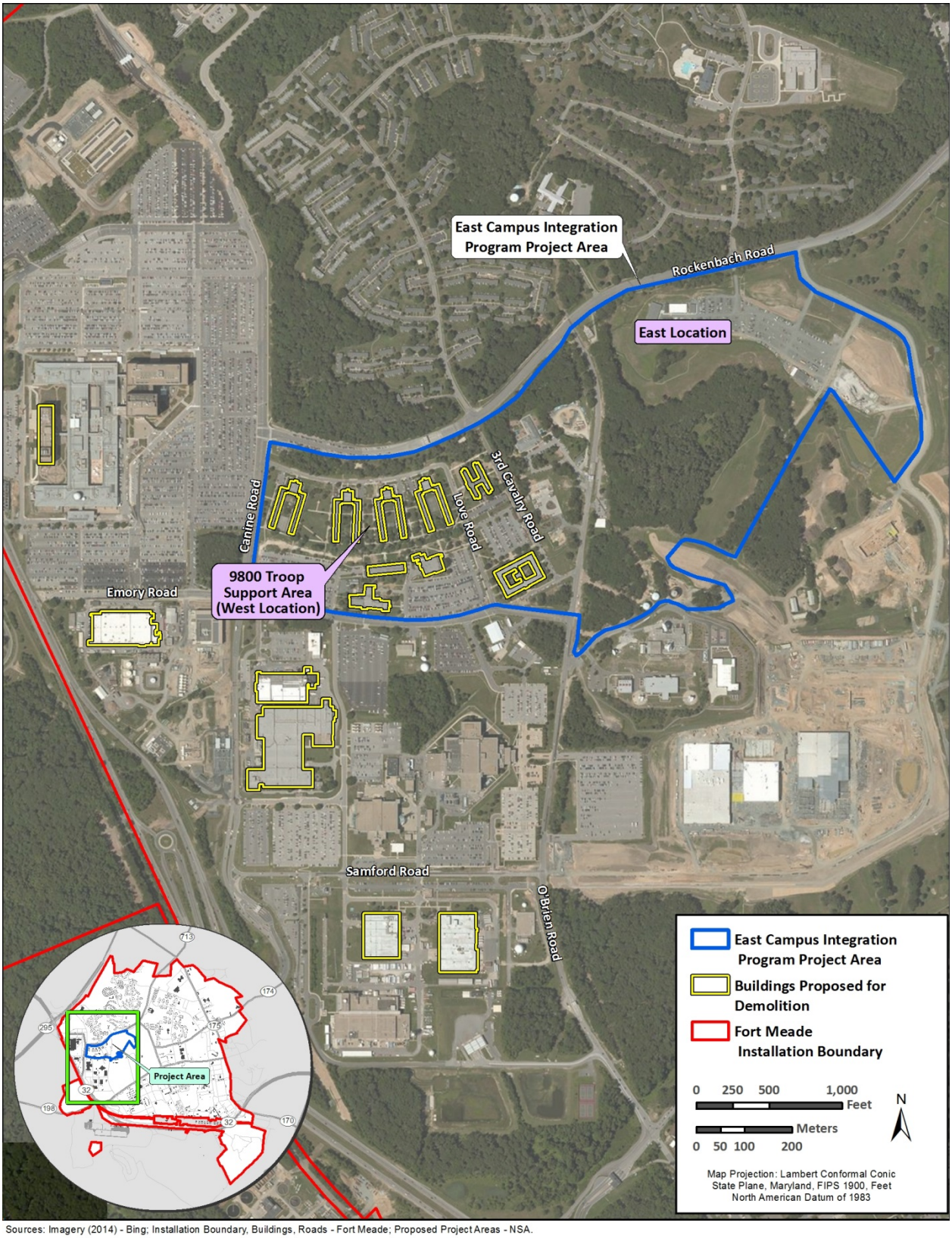
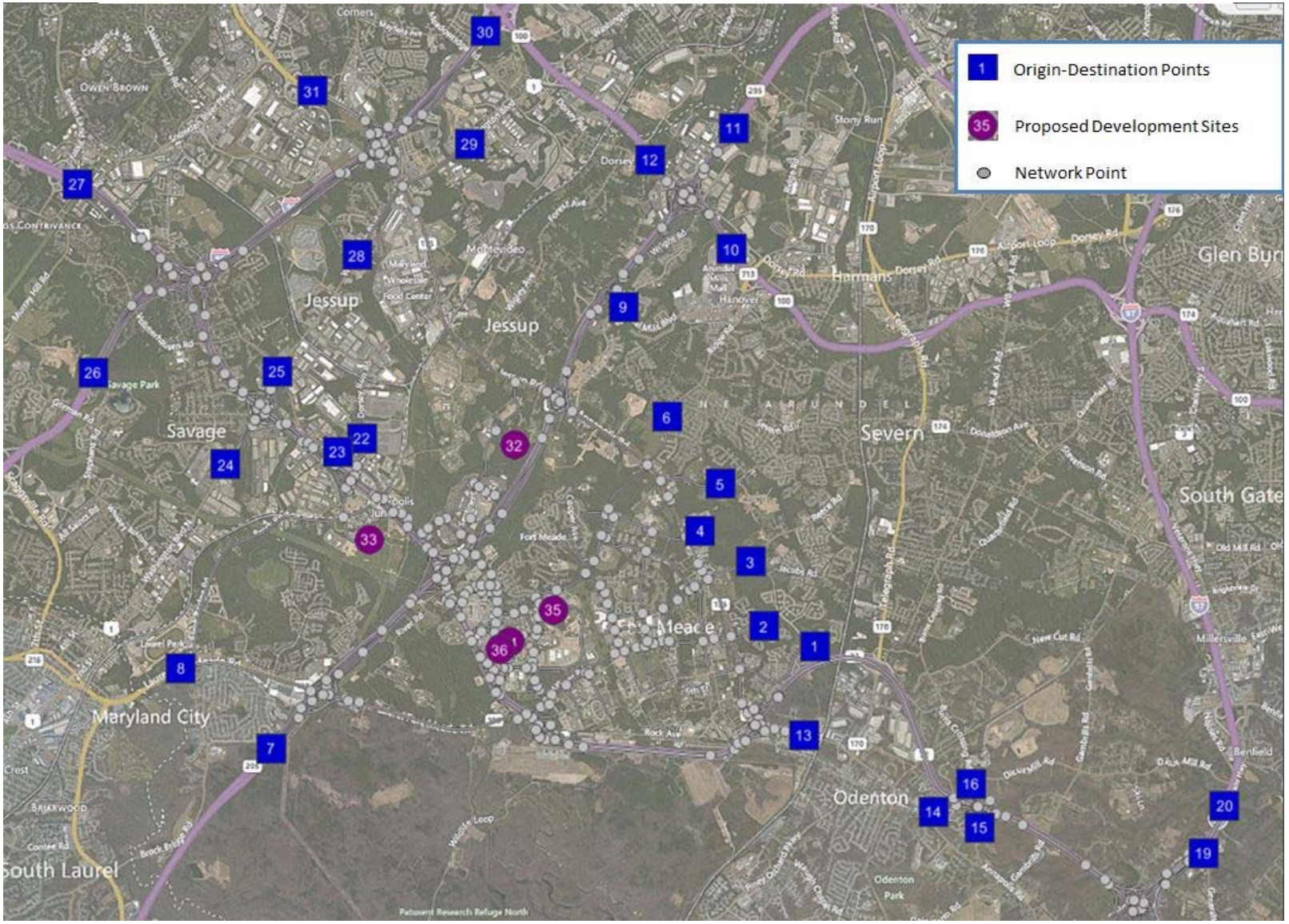


Figure 6-1. Proposed Action



Note: The Proposed Action was split up into three sites, one for each parking facility (Points 34-36). Points 32 and 33 are the sites for Alternatives 1 and 2, respectively.

Figure 6-2. Origin/Destination (O-D) Points

corridors in the study area as entry and exit points for access to and from the corridors. Using a weighted flow method to distribute the generated trips throughout the study corridor, the Maryland State Highway Administration's 2013 Annual Average Weekday Traffic volumes were used to weight the traffic distribution. These weights "pull" the generated trips to and from the O-D points. For example, the higher the Annual Average Weekday Traffic volume at the O-D point, the higher the attraction of the generated trips to that O-D point. **Table 6-2** summarizes the weighted distribution percentage of vehicles from the 30 O-D points adjacent to the study corridors. **Figure 6-2** shows the O-D points in reference to Fort Meade.

Table 6-2. Origin/Destination (O-D) Points Distribution Percentages

O-D Point (on Figure 6-2)[1]	Description	Distribution To/ From O-D Point
1	Blue Water Blvd	**0.73%**
2	Charter Oaks Blvd	**0.53%**
3	Reece Rd	**0.73%**
4	21st St	**0.00%**
5	Disney Rd	**0.46%**
6	Ridge Rd	**1.10%**
7	Baltimore-Washington Parkway/MD 295 South of MD 198	**6.02%**
8	MD 198 West of Baltimore-Washington Parkway/MD 295	**2.64%**
9	Arundel Mills Blvd	**1.45%**
10	MD 100 East of MD 29	**4.95%**
11	MS 295 North of MD 100	**6.08%**
12	MD 100 West of Baltimore-Washington Parkway/MD 295	**6.08%**
13	MD 175 East of MD 100	**1.37%**
14	Sappington Station Rd	**0.66%**
15	Burns Crossing Rd South	**0.39%**
16	Burns Crossing Rd North	**0.35%**
17	MD 3N South of I-97	**4.32%**
18	I-97 East of MD 3N	**6.86%**
19	MD 3N North of MD 32	**0.73%**
20	I-97 North of MD 32	**8.28%**
22	Dorsey Run Rd North of MD 32	**0.55%**
23	Guilford Rd	**0.97%**
24	US 1 South of MD 32	**2.66%**
25	US 1 North of MD 32	**2.50%**
26	I-95 South of MD 32	**12.38%**
27	MD 32 West of I-95	**6.21%**
28	US 1 South of MD 175	**1.84%**
29	US 1 North of MD 175	**1.91%**
30	I-95 North of MD 175	**12.73%**
31	MD 175 West of I-95	**4.50%**
	Total[2]	**100%**

Note:
1. O-D Point 21 was combined with O-D Point 8.
2. Total does not add up to precisely 100.00 percent due to rounding.

As discussed in **Section 8**, it was assumed all personnel would commute to one of three proposed parking facilities. It was assumed parking facilities Building 9817, Bravo and ECPS 2 would be constructed under the Proposed Action. The following are the general routes that inbound traffic would take to the parking facilities on the NSA Campus when coming from O-D points near the study area boundaries. The outbound route is generally reversed. These likely routes tend to make up the higher percentages in the weighted distribution:

- Traffic coming from the east along MD 32 would exit onto MD 175 for the ECPS 2 parking facility, or MD 198 for Building 9817 and Bravo parking facilities.
- Traffic coming from the west along MD 32 would exit onto Canine Road for all proposed parking facilities.
- Traffic coming from the south along the Baltimore-Washington Parkway/MD 295 would exit on to eastbound MD 32 and then exit onto Canine Road for all proposed parking facilities.
- Traffic coming from the north along the Baltimore-Washington Parkway/MD 295 would exit on to Connector Road and travel south along Canine Road to the Building 9817 and Bravo parking facilities, or would exit onto MD 175 for the ECPS 2 parking facility.
- Traffic coming from the north along I-95 would exit on to eastbound MD 32 and then exit onto Canine Road for all proposed parking facilities.

O-D points in close proximity to the commuting destinations, which tend to be lower percentages in the weighted distribution, would be used by commuters who take a series of local roads to their destinations, resulting in a shortest path that would avoid MD 32, the Baltimore-Washington Parkway/MD 295, and MD 175 if possible.

6.3 Capacity Analysis

The capacity analyses for the 2029 Proposed Action are presented in LOS for the freeway segments (see **Figures 6-3** through **6-5**), interchange ramp merge/diverge (see **Figures 6-6** through **6-8**), and key intersections (see **Figure 6-9**) throughout the study area. The tables in **Section 9** provide comparisons of the LOS values for highway interchanges and roadway intersections, and LOS and density (passenger cars/mile/lane) values for freeway segments for the Proposed Action and all alternatives. The key observations when compared to the 2029 No Action Alternative are summarized below:

- Minor impacts on the Baltimore-Washington Parkway and I-95 in AM or PM peak hours under the Proposed Action above and beyond the existing significantly deteriorated conditions would be expected. The Baltimore-Washington Parkway/MD 295 segments and interchange ramps demonstrate minor additive impacts or increased traffic levels as a result of the Proposed Action in both AM and PM peak hours. Some segments of the Baltimore-Washington Parkway/MD 295, I-95, and MD 32 operate at the same LOS (either E or F) under both the No Action Alternative and the Proposed Action. The Arundel Mills Blvd. to MD 175 and MD 100 to Arundel Mills Blvd. segments of the Baltimore-Washington Parkway/MD 295 southbound would be LOS F for the No Action Alternative and Proposed Action in the AM peak hour. The densities for both of these segments would be approximately 7 percent higher under the Proposed Action as compared to the No Action Alternative. In the AM peak hour, I-95 would be LOS F under the No Action Alternative and Proposed Action, and the densities for the freeway segments are identical, including the MD 32 to MD 175 segment on which demand would exceed capacity. Four segments of MD 32 would be LOS E under the No Action Alternative and Proposed Action during the PM peak hour. The densities of the I-95 to U.S. Route 1 and the Dorsey Run Road to

the Baltimore-Washington Parkway/MD 295 segments of eastbound MD 32 would increase approximately 6 percent under the Proposed Action as compared to the No Action Alternative. However, the U.S. Route 1 to I-95 and the Dorsey Run Road to U.S. Route 1 segments of westbound MD 32 would decrease approximately 8 percent and 6 percent, respectively due to the additional Proposed Action traffic exiting onto Dorsey Run Road.

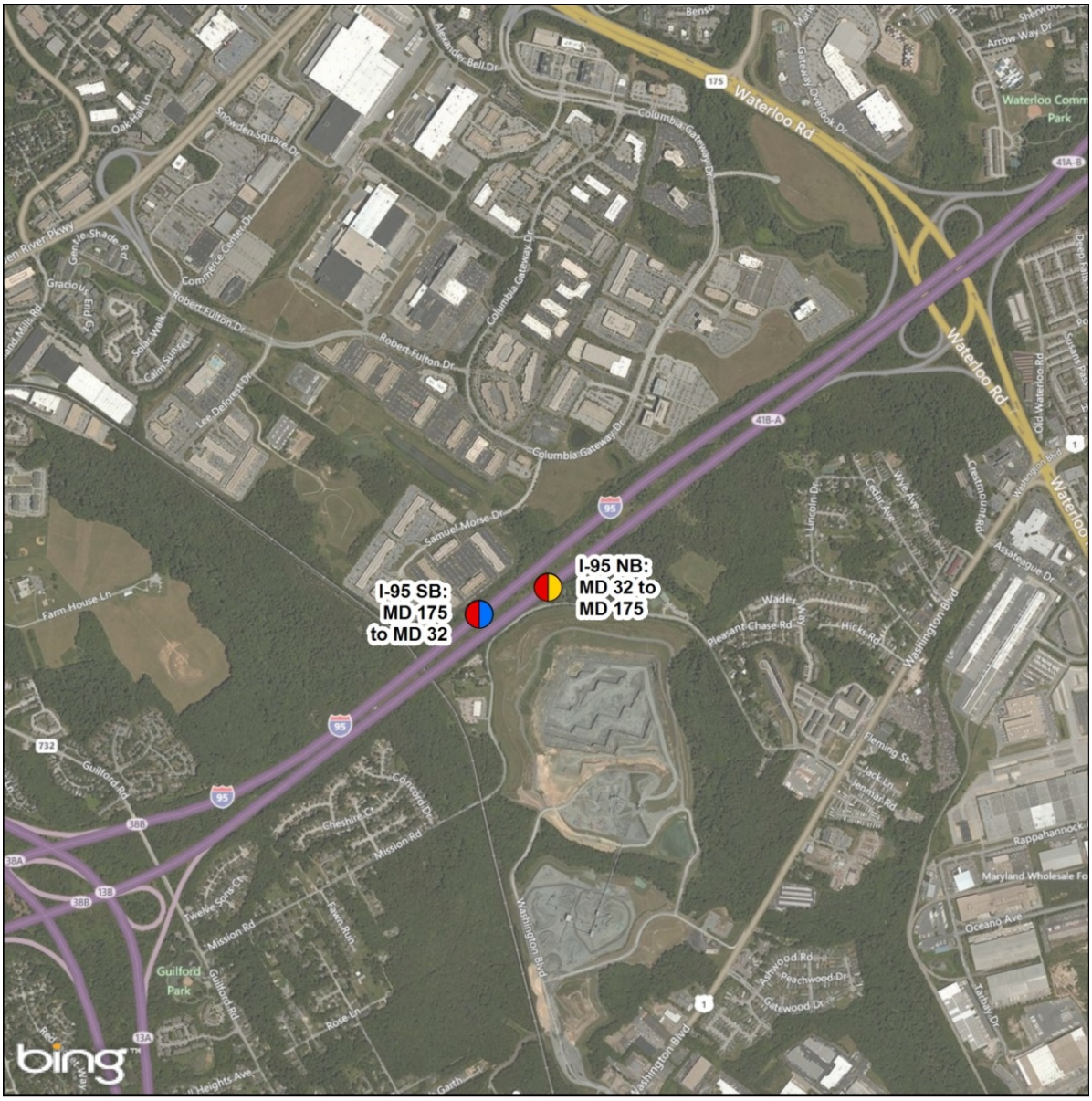
- Only the southbound on-ramp at the Baltimore-Washington Parkway/MD 295 and Arundel Mills interchange in the AM peak hour and the southbound on-ramp to go westbound at the Baltimore-Washington Parkway/MD 295 and MD 100 interchange would be impacted enough to change the LOS. All other ramp merge/diverge AM and PM peak hour LOS along the Baltimore-Washington Parkway/MD 295 stay the same, although some operate at LOS F without the Proposed Action.
- There are several interchanges within the traffic study area where the LOS drops at a ramp merge/diverge location for the Proposed Action when compared to the 2029 No Action Alternative in the AM peak hour. These interchanges are along MD 32 east of the Baltimore-Washington Parkway/MD 295. The MD 32 interchanges west of the Baltimore-Washington Parkway have minor impacts and drop one LOS level or remain the same. This is a result of the additional trips generated by the Proposed Action entering the post from the east and exiting east of the Baltimore-Washington Parkway during the AM peak hour.
- I-95 operates at LOS F during the AM and PM peak hours under both the 2029 No Action Alternative and Proposed Action. Although impacted by the Proposed Action, which would result in increased traffic, the LOS for I-95 does not change because the No Action Alternative is also reporting LOS F.
- The intersections of Rockenbach Road (MD 713) at MD 175 and MD 175 with Llewellyn Avenue both maintain their LOS in the AM and PM peak hours. The intersections of Mapes Road at O'Brien Road and MD 175 at Reece both degrade one LOS category in the AM and PM peak hours. The intersection of Dorsey Run Road and Junction Drive operates at LOS F in both the AM and PM peak hours. Under this alternative, the intersections adjacent to the proposed parking facilities were analyzed. As discussed further in **Section 8**, there are major increases in delay to the intersections adjacent to the proposed parking facilities along Emory and Canine roads when compared to the conditions under the 2029 No Action Alternative.
- During the AM peak hour, all of the open Fort Meade external gates operate at LOS F in both the 2029 No Action Alternative and the Proposed Action, except External Gate 4, which is currently closed and assumed to remain closed in the future and therefore reports LOS A. The LOS values at External Gate 4 are representative of nearby intersections, in this case MD 175 and Mapes Road, which performs well because no traffic attempts to turn onto Mapes Road to access the installation. In the PM peak hour under the Proposed Action, External Gate 1 and External Gate 7 both degrade in LOS, while External Gates 3, 4, and 5 operate at the same LOS as in the 2029 No Action Alternative. This means new trips are mostly using External Gates 1 and 7, although External Gate 3 is most likely also used; the LOS does not degrade because it already operates at LOS F under the 2029 No Action Alternative.
- During the AM peak hour under the Proposed Action, all VCPs would operate at LOS F. A degradation of LOS at VCPs 3, 4 and 5 would occur when compared to the 2029 No Action Alternative. VCPs 1, 2, and 6 already operate at LOS F in the 2029 No Action Alternative. During the PM peak hour, VCP 1 and VCP 2 degrade in LOS while the remaining VCPs would operate at the same LOS as in the 2029 No Action Alternative. VCP M, a VCP currently under construction and expected to be active on or before 2029, would operate at LOS E in the AM peak hour and LOS A in the PM peak hour.

6.4 Analysis of Intersections Near Parking Facilities

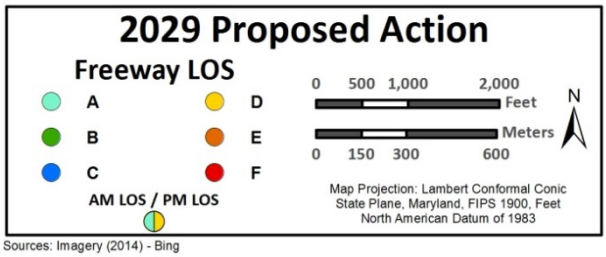
Under the Proposed Action, there are assumed road network improvements at the eastern portion of the ECIP project area near ECPS 2, including a new intersection of Venona Road with Rockenbach Road, new VCP M between Rockenbach Road and Venona Road, and removal of a connection between O'Brien Road and Rockenbach Road. As a result, it was assumed traffic would be rerouted onto Venona Road and through VCP M to access the eastern portion of the ECIP project area. **Figures 6-10** and **6-11** depict proposed roadway locations and LOS for the proposed parking facilities, VCP M, and surrounding intersections. VCP M was assumed to have five entering lanes. This assumption was developed based on projected hourly volumes, redistribution of the trip generation, and calculated queue.

As discussed in **Section 5**, the intersections adjacent to the proposed parking facilities were analyzed to assess impacts. As further discussed in **Section 8**, three of the parking facility alternatives are expected to be constructed under the Proposed Action. For the purposes of this report, it was assumed that the Bravo, Building 9817 and ECPS 2 facilities would be constructed. Because exact locations of ingress/egress are considered conceptual until final design is complete, all intersections adjacent to Building 9817 and Bravo parking facilities were analyzed. ECPS 2 is located in the ECIP project area, and it is assumed to accommodate 33 percent of the trip generation volumes, while the Building 9817 and Bravo are assumed to accommodate the remaining 45 percent and 22 percent, respectively. This trip generation volume distribution was calculated using the proposed facility lot acreage. New trips to and from the proposed parking locations were distributed on top of existing baseline conditions and that the Bravo lot is already used as a surface parking lot is considered. As explained in **Section 5**, per the HCM, the total intersection delay, or the length of delay experienced before proceeding through the intersection, was used for signalized intersections and the highest delay per approach (highest control delay) was used for unsignalized intersections. If the final design allows for open parking to visitors, non-NSA employees, and others outside of the trip generation calculations, the impacts to adjacent intersections could be worse than that described in the following sections.

At the intersections adjacent to the proposed parking facilities (see **Figure 6-10**), the greatest impacts are to the Emory Road intersections and the intersection of Samford Road and O'Brien Road. The delay at Emory Road and Wenger Road would rise from 20 seconds to 1,042 seconds (17 minutes) in the PM peak hour and from 22 seconds to over 1,500 seconds (25 minutes) in the AM peak hour when compared with the 2029 No Action Alternative. Emory Road and Canine Road intersection delays rise from 81 seconds to over 400 seconds (approximately 7 minutes) and from 31 seconds to 250 seconds (4 minutes) of delay in the AM and PM peak hours, respectively.



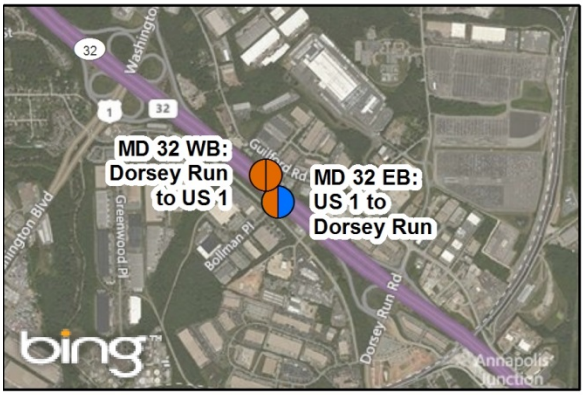
I-95 between MD 32 and MD 175



Sources: Imagery (2014) - Bing

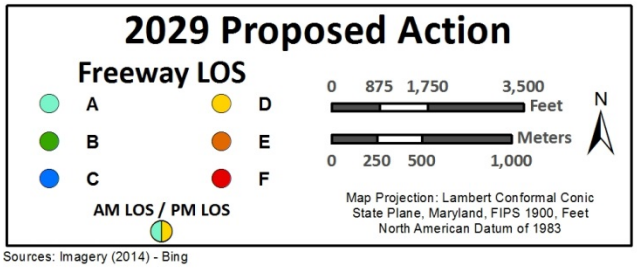
Figure 6-3. Freeway LOS for the 2029 Proposed Action (1 of 3)

MD 32 between I-95 and US 1

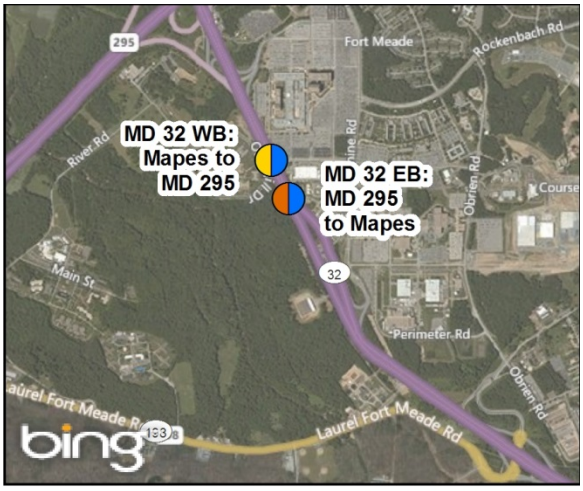


MD 32 between US 1 and Dorsey Run

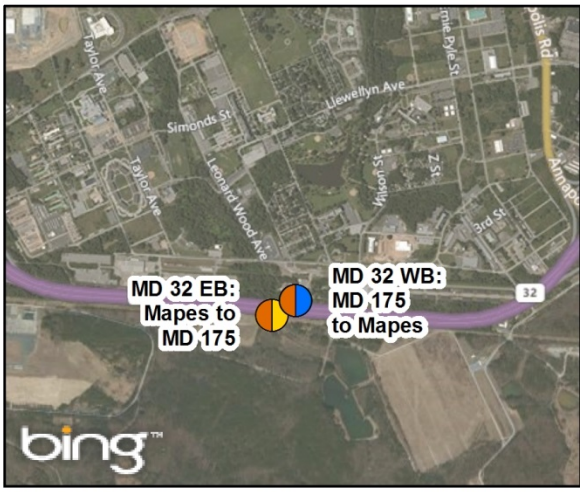
MD 32 between Dorsey Run and MD 295



Sources: Imagery (2014) - Bing



MD 32 between MD 295 and Mapes



MD 32 between Mapes and MD 175

MD 32 between MD 175 and MD 3

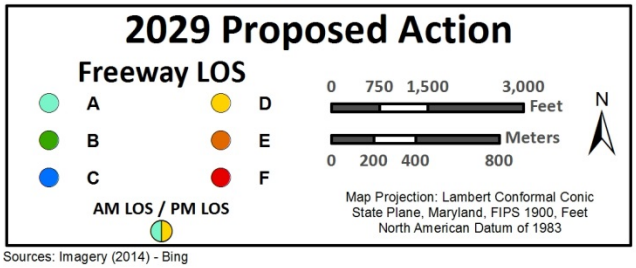
Figure 6-4. Freeway LOS for the 2029 Proposed Action (2 of 3)

MD 295 between Arundel Mills and MD 100

MD 295 between MD 175 and MD 32

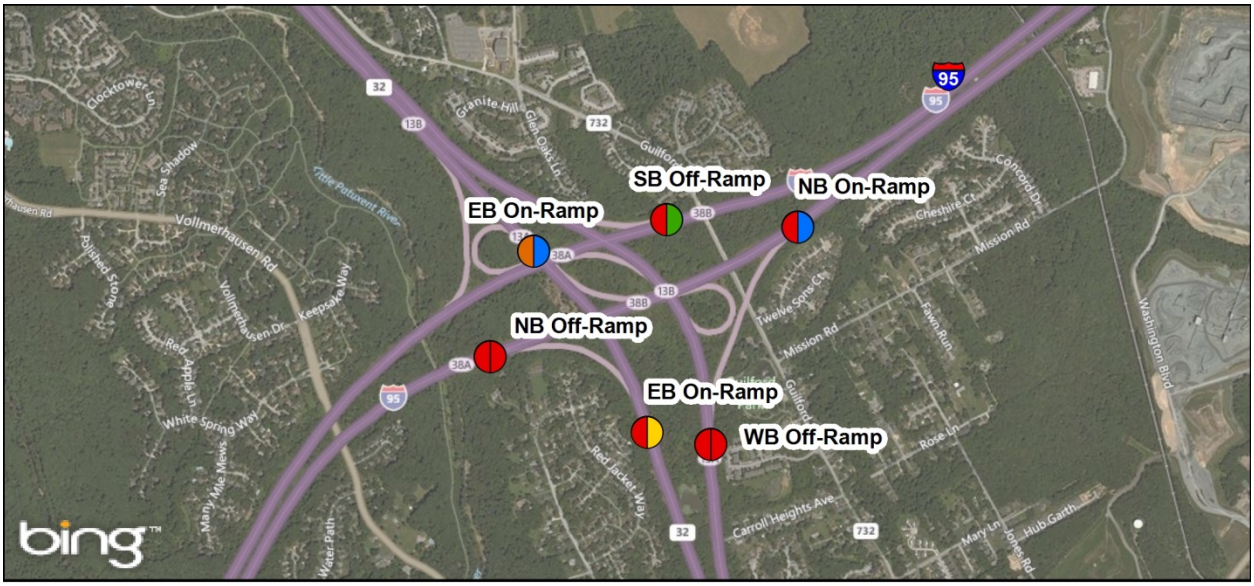
MD 295 between Arundel Mills and MD 175

MD 295 between MD 32 and MD 198



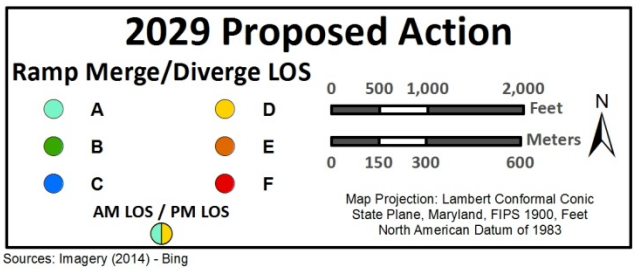
Sources: Imagery (2014) - Bing

Figure 6-5. Freeway LOS for the 2029 Proposed Action (3 of 3)



I-95 with MD 32 Interchange

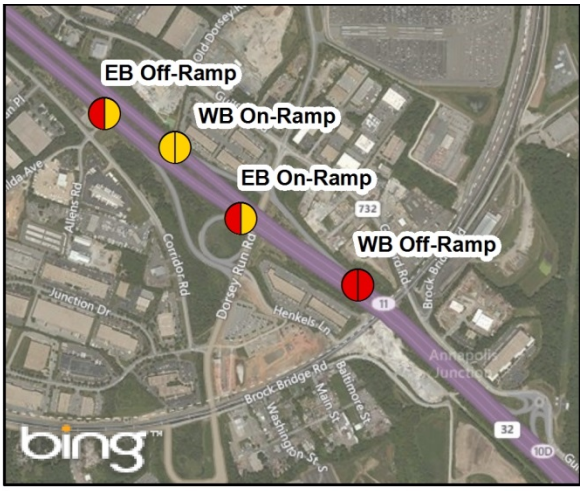
I-95 with MD 175 Interchange



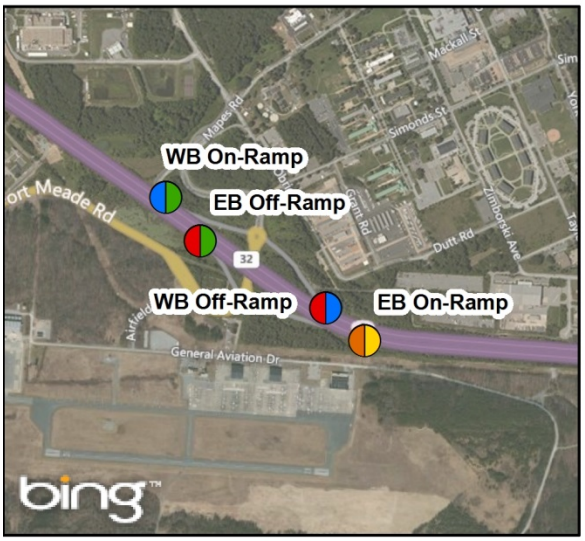
Sources: Imagery (2014) - Bing

Figure 6-6. Ramp Merge/Diverge LOS for the 2029 Proposed Action (1 of 3)

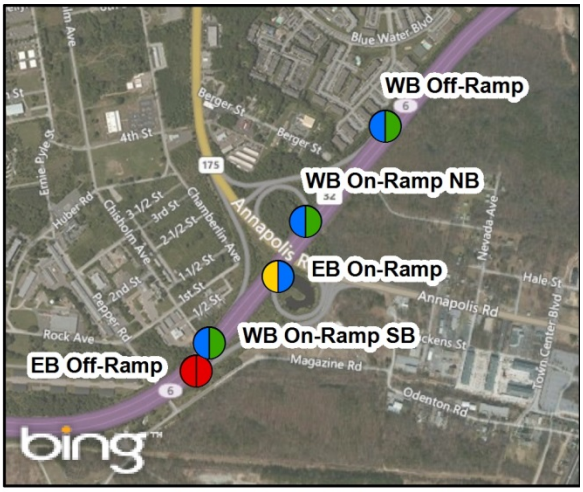
MD 32 with US 1 Interchange



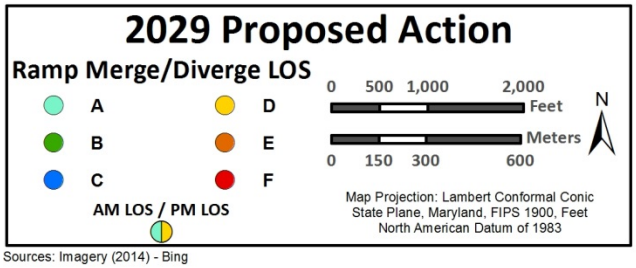
MD 32 with Dorsey Run Interchange



MD 32 with Mapes Rd. Interchange



MD 32 with MD 175 Interchange



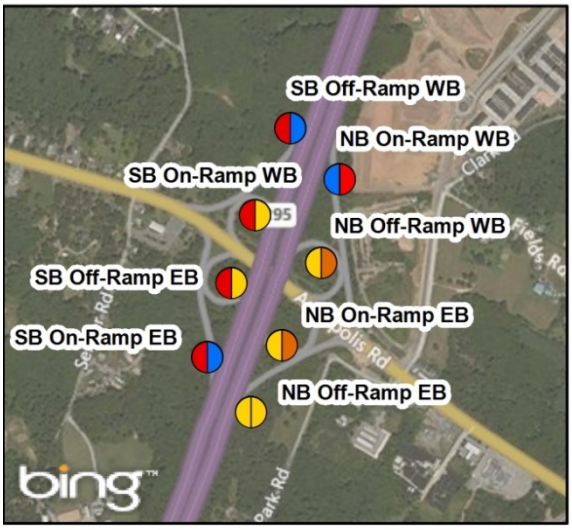
Sources: Imagery (2014) - Bing

MD 32 with MD 3 Interchange

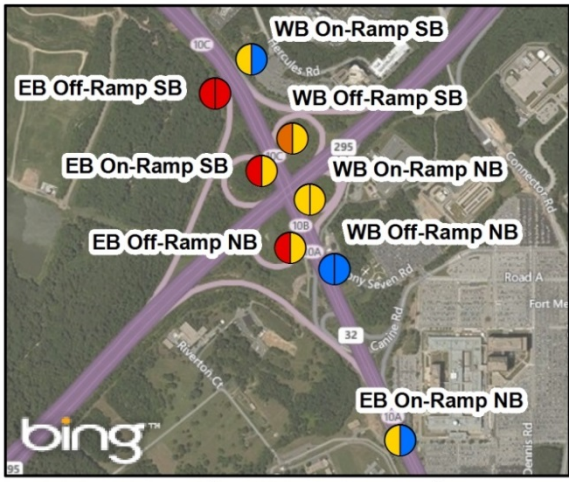
Figure 6-7. Ramp Merge/Diverge LOS for the 2029 Proposed Action (2 of 3)

MD 295 with MD 100 Interchange

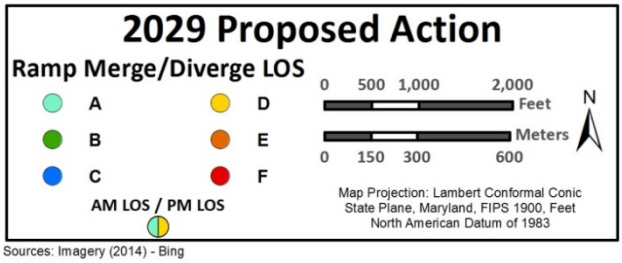
MD 295 with Arundel Mills Interchange



MD 295 with MD 175 Interchange

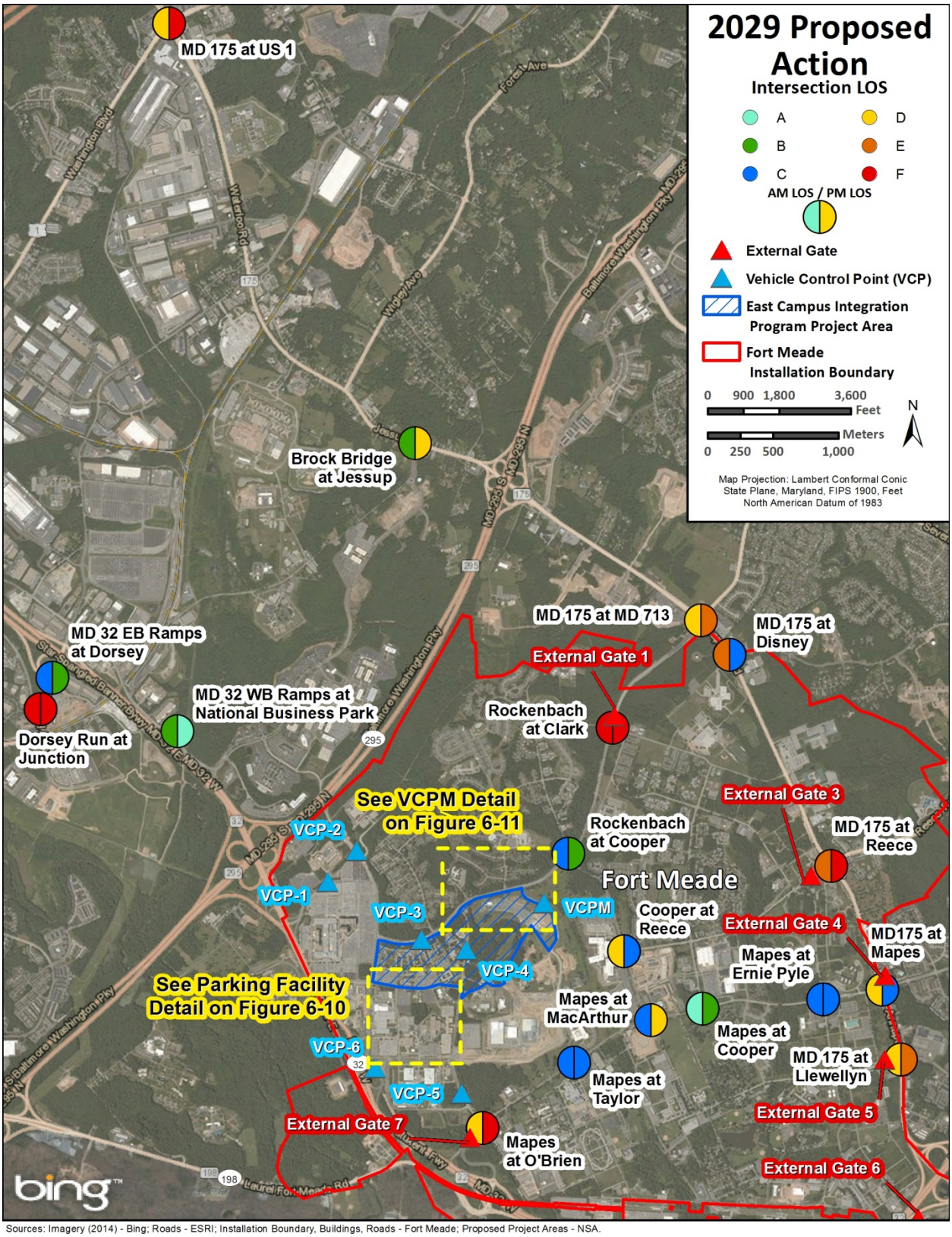


MD 295 with MD 32 Interchange



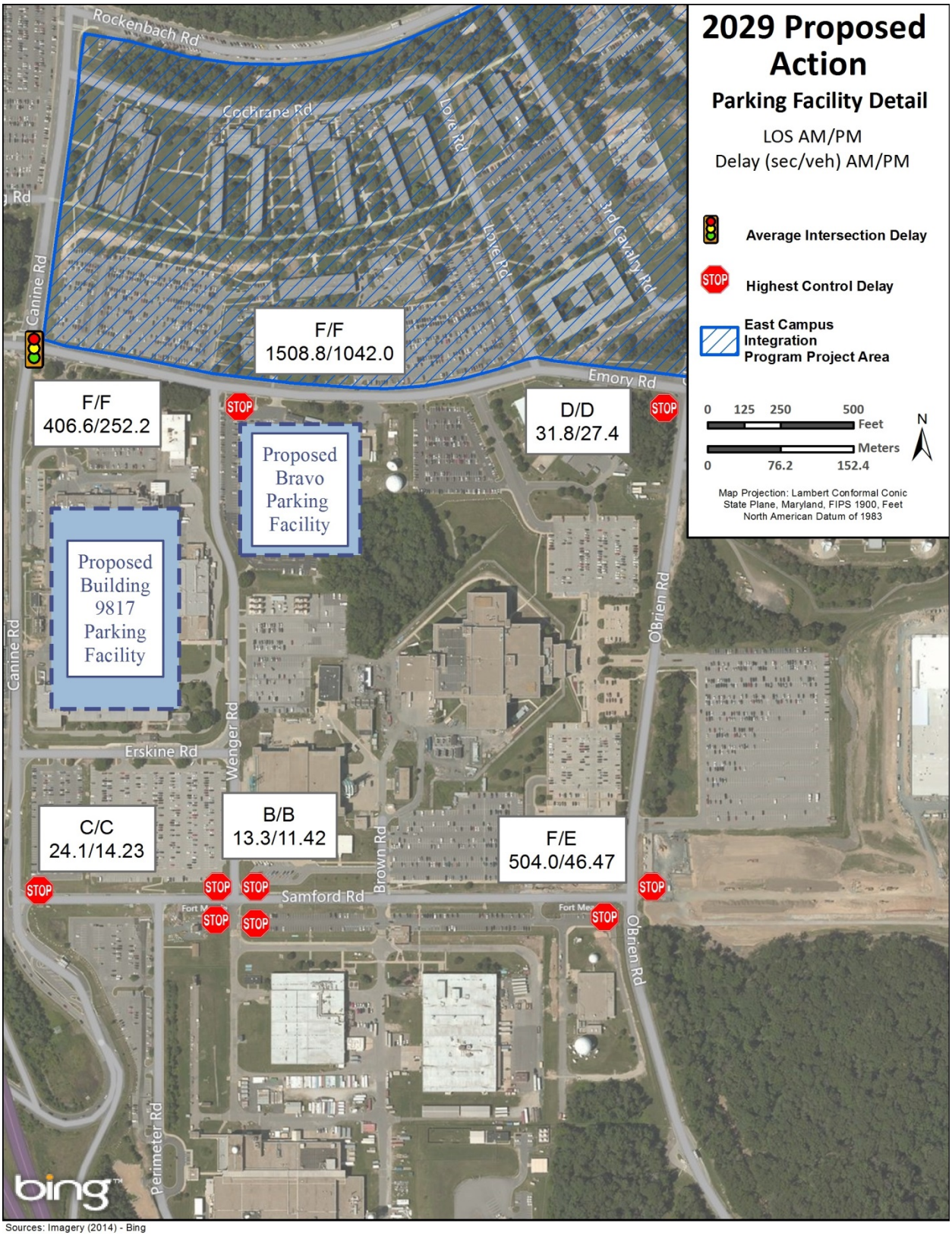
MD 295 with MD 198 Interchange

Figure 6-8. Ramp Merge/Diverge LOS for the 2029 Proposed Action (3 of 3)



Sources: Imagery (2014) - Bing; Roads - ESRI; Installation Boundary, Buildings, Roads - Fort Meade; Proposed Project Areas - NSA.

Figure 6-9. Intersection LOS for the 2029 Proposed Action



Note: sec/veh = seconds per vehicle

Figure 6-10. Intersection LOS for the Proposed Action Parking Facility Adjacent Intersections

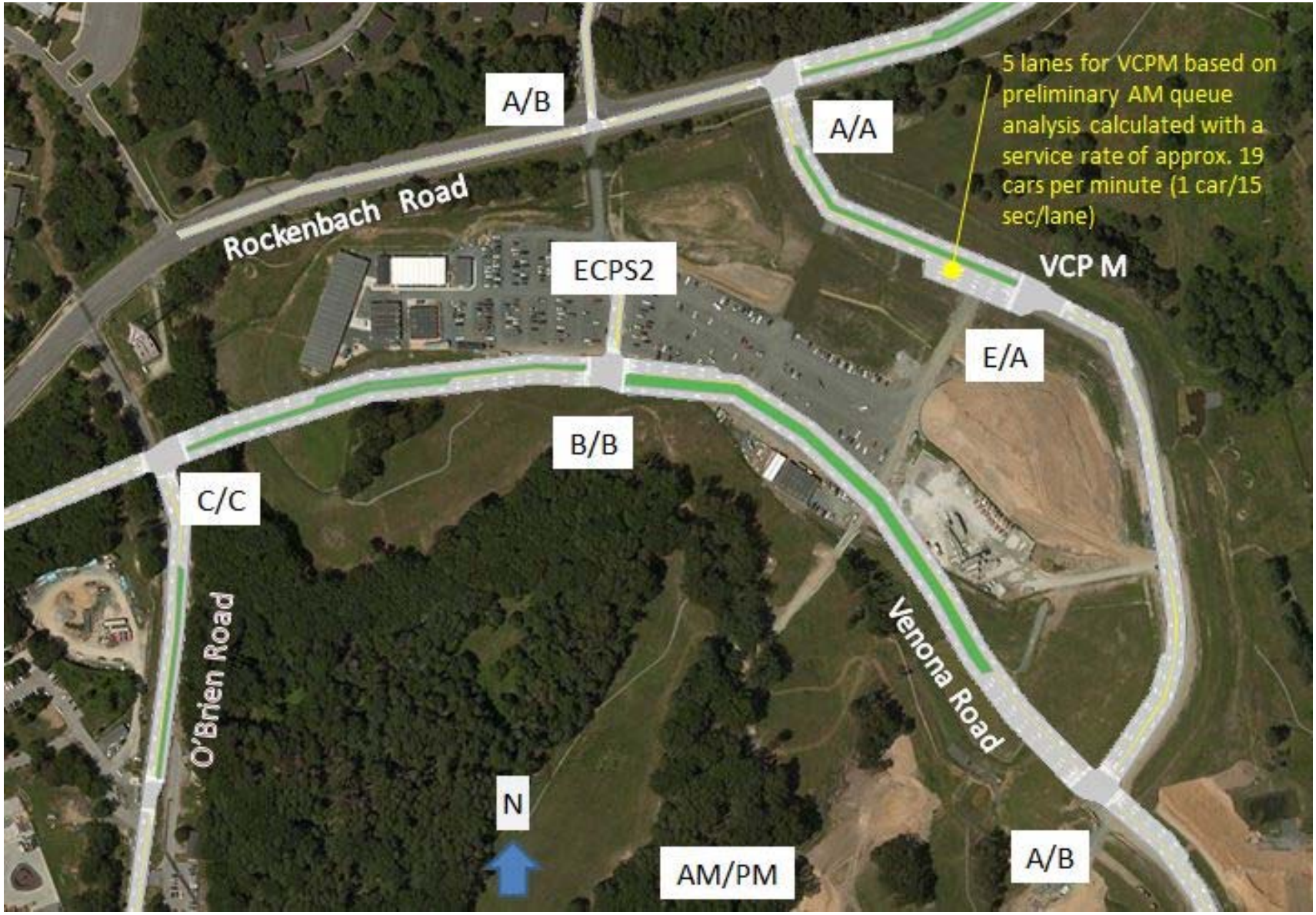


Figure 6-11. Intersection LOS for the Proposed Action VCP M and Surrounding Intersections

7. 2029 Alternatives Outside of Fort Meade

In the event that the 9800 Troop Support Area is not available in the future for the ECIP, alternative sites outside of Fort Meade are being considered to allow for planning flexibility. Under these alternatives, Building 9800A on the NSA Main Campus and all nine buildings in the 9800 Troop Support Area would not be demolished; and no proposed facilities would be constructed in the 9800 Troop Support Area. These alternatives are assumed to require space sufficient for 4,400 personnel who would relocate from space vacated by demolition of Buildings 9703, 9705, 9808, 9814, and 9817 (778,369 ft^2) on the NSA Main Campus and terminating leases at some leased Intelligence Community space in the Baltimore-Washington metropolitan area. **Figure 1-2** depicted the alternative site locations outside of Fort Meade.

Alternative 1: National Business Park/East Campus

Personnel and functions proposed to be located in the ECIP project area would instead occur in a leased administrative facility at National Business Park, which is on the west side of the Baltimore-Washington Parkway/MD 295 in the vicinity of the MD 175 interchange. This alternative would involve leasing existing or newly constructed Unified Facilities Criteria-qualified buildings at the northern end of National Business Park. It is assumed the buildings would consist of up to 1 million ft^2 of space and house 4,400 personnel.

Alternative 2: Annapolis Junction Business Park/East Campus

Under this alternative, personnel and functions would occur in a leased administrative facility at the southern end of Dorsey Run Road at Annapolis Junction Business Park, which is in the southwest quadrant of the MD 32 and the Baltimore-Washington Parkway/MD 295 interchange. It is assumed the buildings would consist of up to 1 million ft^2 of space and house 4,400 personnel.

7.1 Volume Development

The same method was applied to estimate trips for the two 2029 alternatives as for the Proposed Action. It was assumed that 4,400 personnel would relocate to the alternative site from other NSA sites both at Fort Meade and in the Baltimore-Washington metropolitan area.

Table 7-1 summarizes the development-generated trips for the 2029 alternatives. As noted in **Section 6.1**, the calculated trips were reduced by 5 percent as a result of mass transit, vanpools, carpools, and shuttle options.

Table 7-1. Summary of 2029 Alternatives-Generated Trips

Land Use 710 - General Office Building	Weekday (vpd)			Weekday, AM Peak (vph)			Weekday, PM Peak (vph)		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
2029 Alternative	7,304	7,304	14,608	1,859	253	2,112	344	1,680	2,024
Alternative Mode Reduction (5 Percent)	365	365	730	93	13	106	17	84	101
Total Trips	6,939	6,939	13,878	1,766	240	2,006	327	1,596	1,923

Key: vpd = vehicles per day, vph = vehicles per hour

7.2 Trip Distribution

These alternatives are assumed to require space sufficient for 4,400 personnel. In the traffic model, the trips to the 9800 Troop Support Area were removed from Fort Meade and redistributed to the alternative site (i.e., National Business Park or Annapolis Junction Business Park). Although one parking facility would still be constructed on the installation under these alternatives, it was assumed employees at these off-post alternative sites would not use that facility due to its location. Instead, it was assumed all employees would report and park at the alternative location.

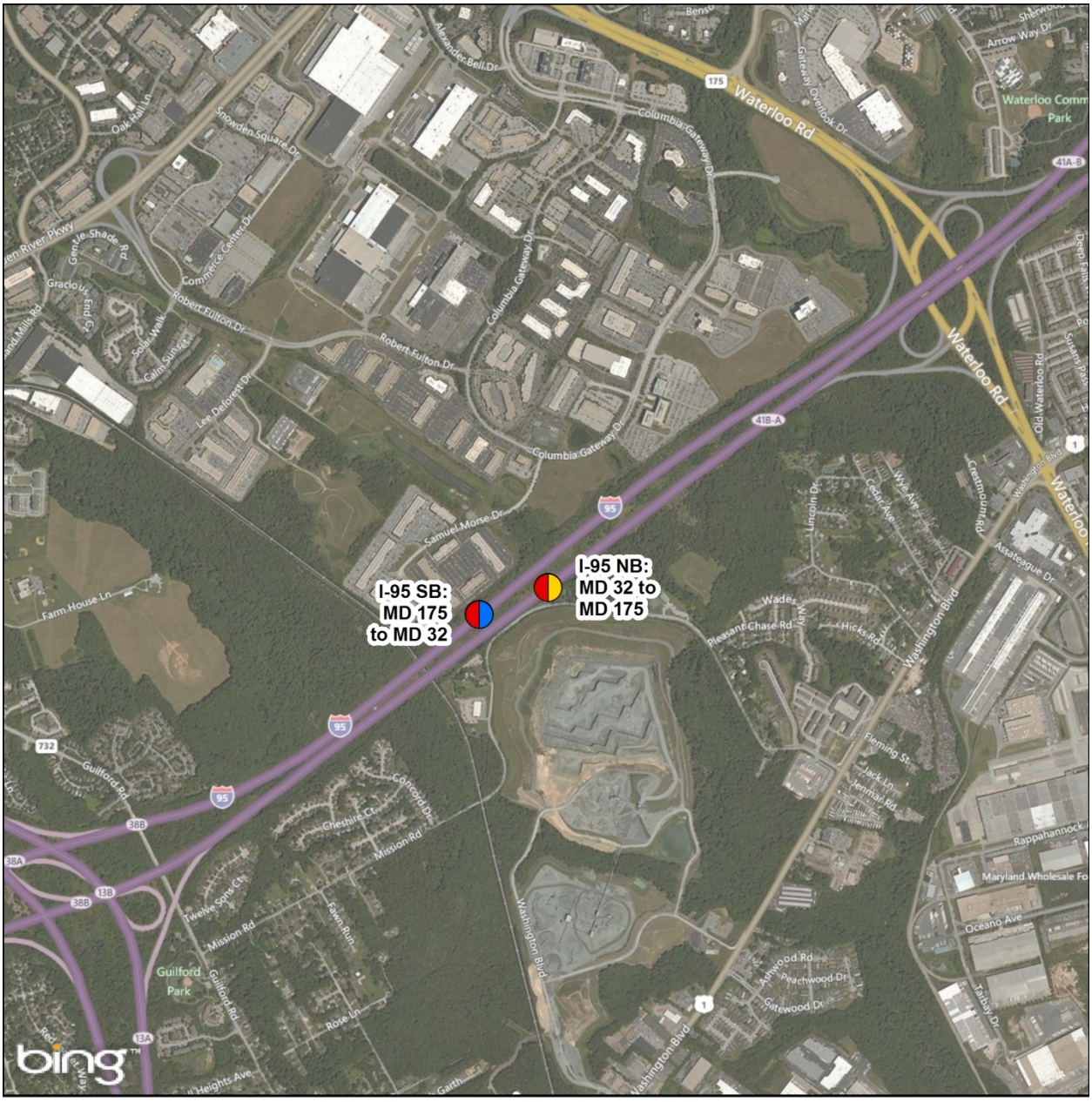
As described in **Section 6.2**, commuter origins are from the external terminus of links modeled in the Vistro traffic model, based on the routes entering and exiting the study area. Each O-D point assumed a percentage of generated trips. The O-D points and their percentages are described in **Table 6-2**.

Because Annapolis Junction Business Park is near the exit of Dorsey Run Road along MD 32, it was assumed all commuters would take this exit to access the site. As a result, personnel coming from I-95 or the Baltimore-Washington Parkway/MD 295 would take the exit for MD 32 and drive in the direction of the Dorsey Run Road interchange.

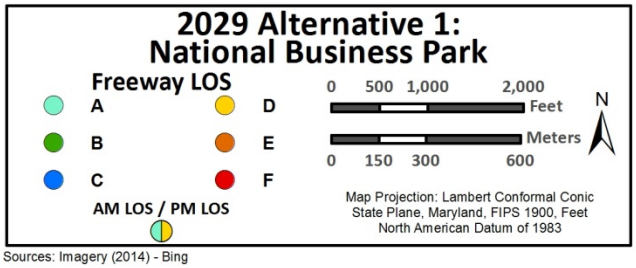
7.3 Capacity Analysis: 2029 Alternative 1: National Business Park/ East Campus

The capacity analyses for the 2029 Alternative 1: National Business Park/East Campus are presented in LOS for the freeway segments (see **Figures 7-1** through **7-3**), interchange ramp merge/diverge (see **Figures 7-4** through **7-6**), and key intersections (see **Figure 7-7**) throughout the study area. The key observations when compared to the 2029 No Action Alternative are summarized below:

- Minor impacts on the Baltimore-Washington Parkway/MD 295 or I-95 in either AM or PM peak hours above and beyond the existing significantly deteriorated conditions would be expected.
- In the AM peak hour, the MD 32 ramp merge/diverge locations perform at an improved LOS in almost all locations when compared to the 2029 No Action Alternative except at MD 32 and the Baltimore-Washington Parkway/MD 295 where the LOS for the westbound on- and off-ramps would degrade. In the PM peak hour, only the westbound on-ramp at MD 32 and Dorsey Run Road and the northbound off-ramp to travel westbound on MD 175 at the Baltimore-Washington Parkway and MD 175 interchange have a LOS that degrades. All other locations maintain LOS or perform better.
- In the AM peak hour, the intersections near the external gates perform at LOS F in both this alternative and the 2029 No Action Alternative. The VCPs perform the same or better under this alternative when compared to the 2029 No Action Alternative. This is because 4,400 personnel would no longer be entering Fort Meade through the VCPs but instead travel to National Business Park. One of the intersections at the National Business Park site, MD 175 and Brock Bridge Road, would operate the same in the AM and deteriorate in the PM peak hour when compared to the 2029 No Action Alternative. In the AM peak hour, the additional delay caused by the rerouted employees is mitigated by optimizing the signal at this location. The employees not rerouted to National Business Park would remain within existing traffic volumes entering Fort Meade.
- During the AM peak hour, all of the external gates on Fort Meade operate at LOS F at both the 2029 No Action Alternative and the Proposed Action, except for External Gate 4, which was closed during traffic data collection and, as a result, was modeled as closed in the analysis. In the PM peak hour, the LOS for External Gate 1 and 7 improves, while External Gates 3, 4, and 5 operate at the same LOS as in the 2029 No Action Alternative.



I-95 between MD 32 and MD 175



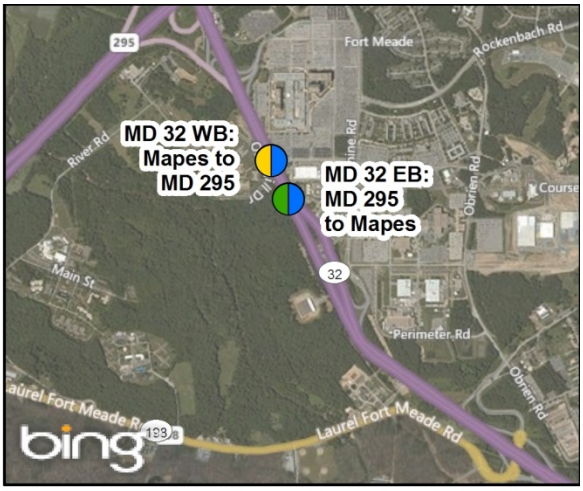
Sources: Imagery (2014) - Bing

Figure 7-1. Freeway LOS for the 2029 Alternative 1: National Business Park/East Campus (1 of 3)

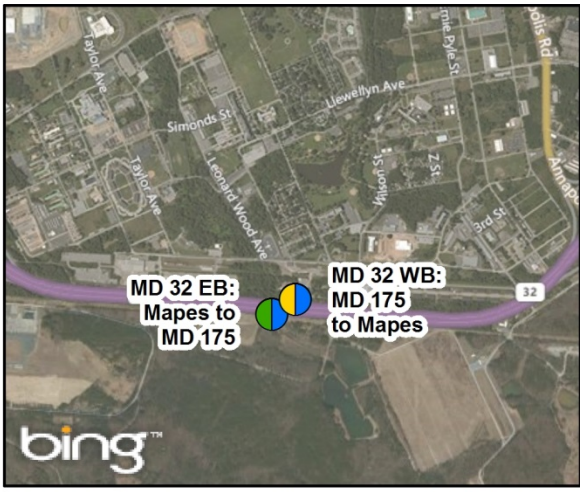
MD 32 between I-95 and US 1

MD 32 between US 1 and Dorsey Run

MD 32 between Dorsey Run and MD 295

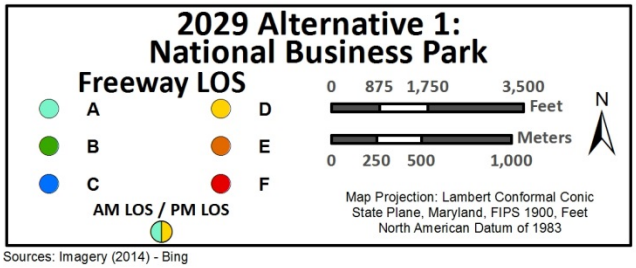


MD 32 between MD 295 and Mapes



MD 32 between Mapes and MD 175

MD 32 between MD 175 and MD 3



Sources: Imagery (2014) - Bing

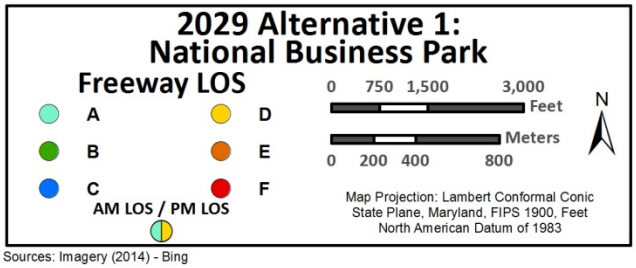
Figure 7-2. Freeway LOS for the 2029 Alternative 1: National Business Park/East Campus (2 of 3)

MD 295 between Arundel Mills and MD 100

MD 295 between MD 175 and MD 32

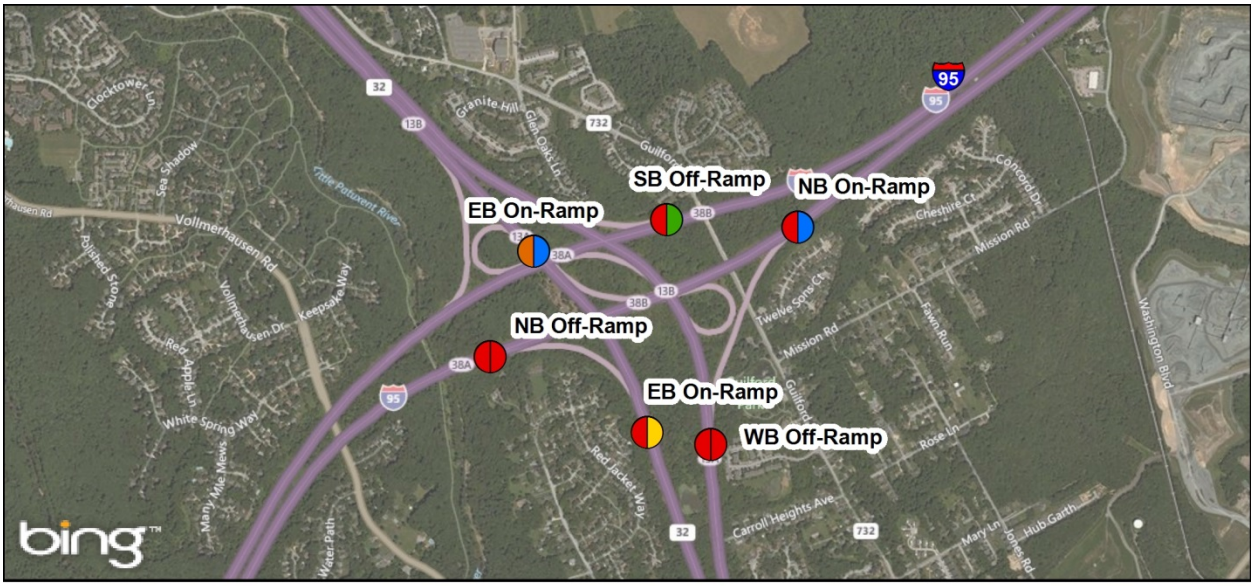
MD 295 between Arundel Mills and MD 175

MD 295 between MD 32 and MD 198



Sources: Imagery (2014) - Bing

Figure 7-3. Freeway LOS for the 2029 Alternative 1: National Business Park/East Campus (3 of 3)



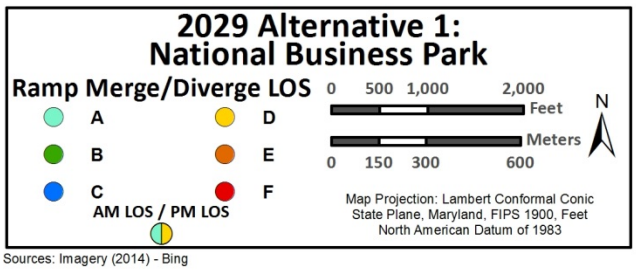
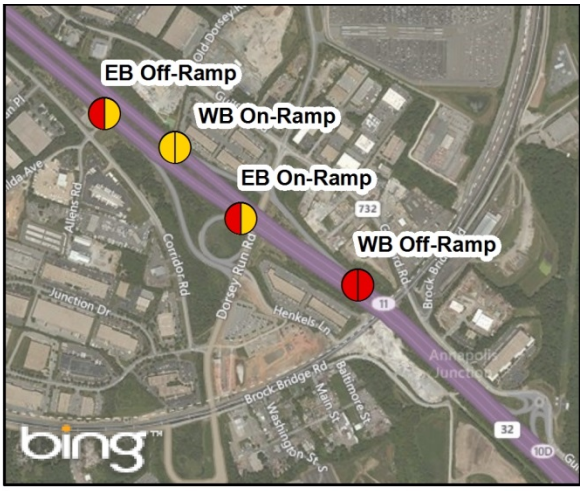
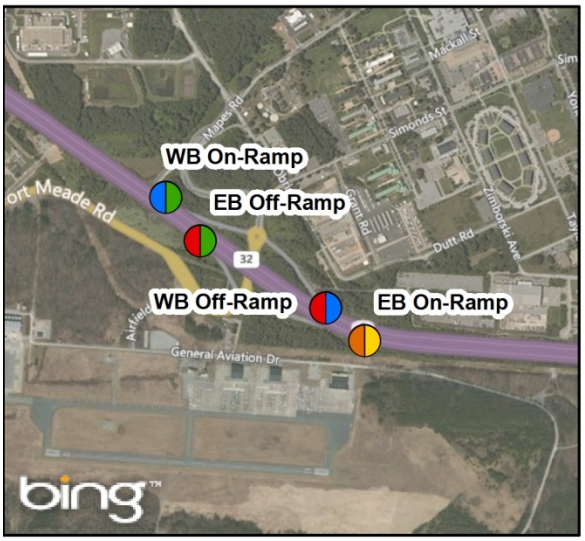


Figure 7-4. Ramp Merge/Diverge LOS for the 2029 Alternative 1: National Business Park/East Campus (1 of 3)

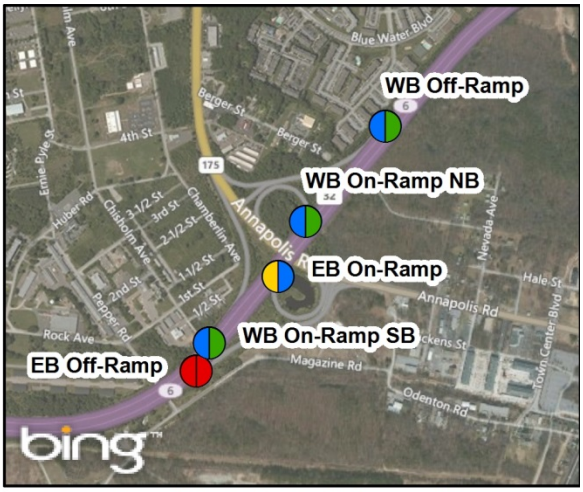
MD 32 with US 1 Interchange



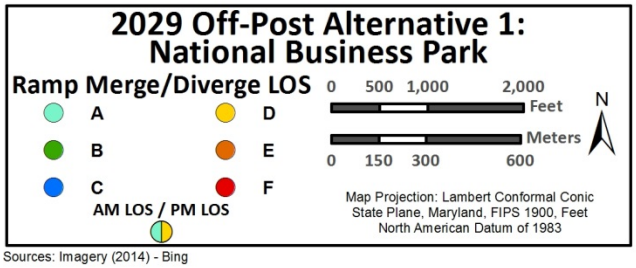
MD 32 with Dorsey Run Interchange



MD 32 with Mapes Rd. Interchange



MD 32 with MD 175 Interchange



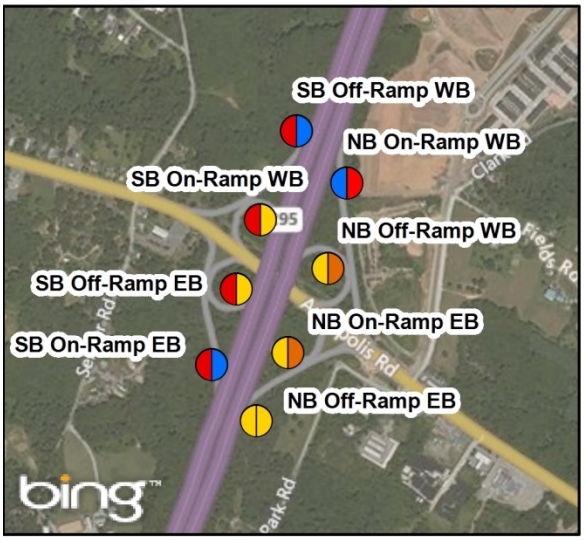
Sources: Imagery (2014) - Bing

MD 32 with MD 3 Interchange

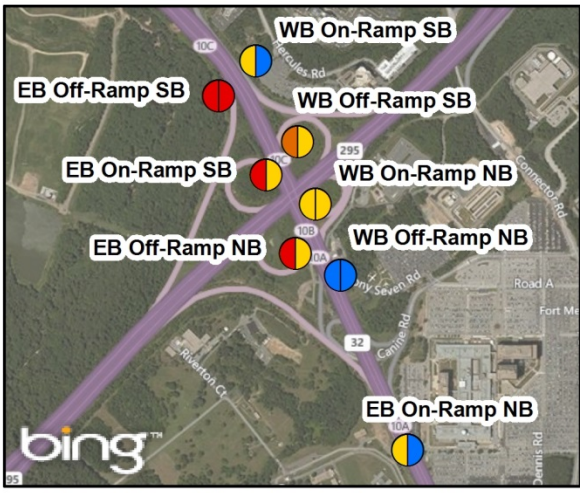
Figure 7-5. Ramp Merge/Diverge LOS for the 2029 Alternative 1: National Business Park/East Campus (2 of 3)

MD 295 with MD 100 Interchange

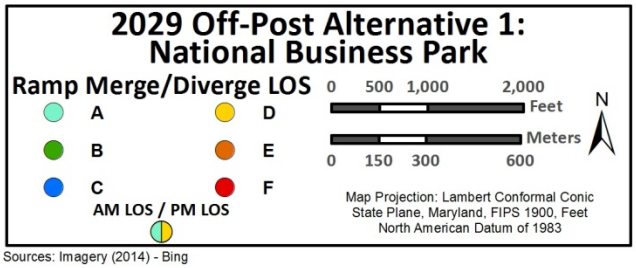
MD 295 with Arundel Mills Interchange



MD 295 with MD 175 Interchange



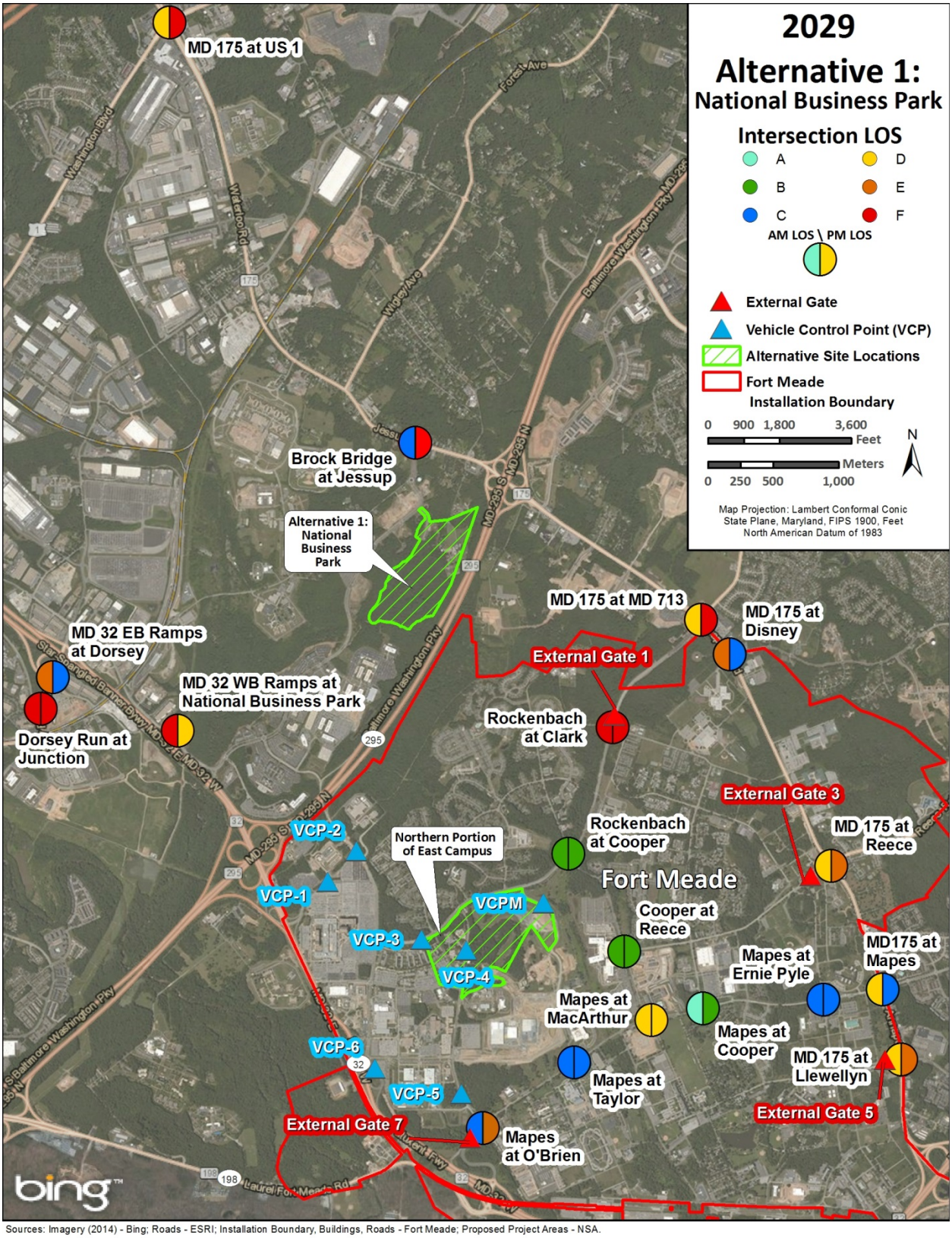
MD 295 with MD 32 Interchange



Sources: Imagery (2014) - Bing

MD 295 with MD 198 Interchange

Figure 7-6. Ramp Merge/Diverge LOS for the 2029 Alternative 1: National Business Park/East Campus (3 of 3)



Sources: Imagery (2014) - Bing; Roads - ESRI; Installation Boundary, Buildings, Roads - Fort Meade; Proposed Project Areas - NSA.

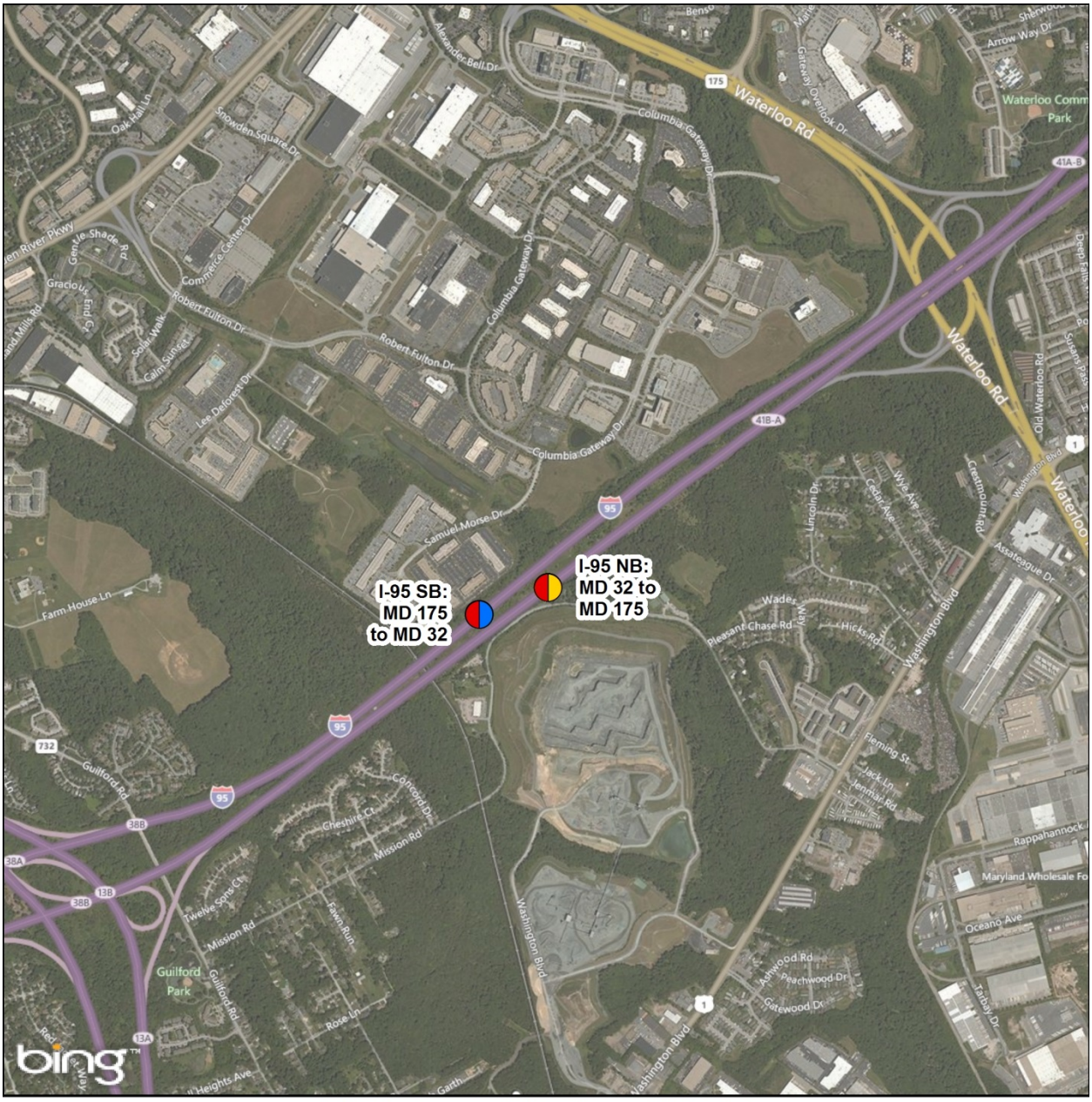
Figure 7-7. Intersection LOS for the 2029 Alternative 1: National Business Park/East Campus

- During the AM and PM peak hours, the NSA VCPs and intersections near proposed parking facilities on-post operate the same or substantially better under this alternative due to less traffic entering the installation than the Proposed Action.

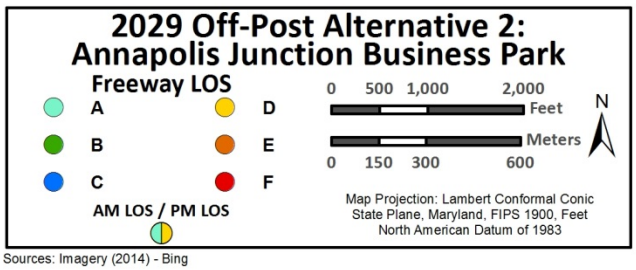
7.4 Capacity Analysis: 2029 Alternative 2: Annapolis Junction Business Park/East Campus

The capacity analyses for the 2029 Alternative 2: Annapolis Junction Business Park/East Campus are presented in LOS for the freeway segments (see **Figures 7-8** through **7-10**), interchange ramp merge/diverge (see **Figures 7-11** through **7-13**), and key intersections (see **Figure 7-14**) throughout the study area. The key observations when compared to the 2029 No Action Alternative are summarized below:

- Minor impacts on the Baltimore-Washington Parkway/MD 295 or I-95 in either AM or PM peak hours above and beyond the existing significantly deteriorated conditions would be expected.
- The LOS for MD 32 ramp merge/diverge locations performs better in almost all locations when compared to the 2029 No Action Alternative in the AM peak hour. The only locations where MD 32 LOS degrades in the AM peak hour are the westbound ramps at the MD 32 and Baltimore-Washington Parkway/MD 295. In the PM peak hour, only the on-ramps at MD 32 and the Dorsey Run Road interchange and the eastbound ramps to go northbound at the MD 32 and Baltimore-Washington Parkway interchange degrade LOS along MD 32.
- Inside Fort Meade, the LOS at the intersections adjacent to external gates are consistent with the trends shown at the off-post interchanges. The intersections perform better or the same as in the 2029 No Action Alternative. This is because 4,400 personnel would no longer be entering Fort Meade but instead travel to the Annapolis Junction Business Park site. The intersection at the Annapolis Junction Business Park site, Dorsey Run Road and Junction Drive, operates at LOS F in both the 2029 No Action Alternative and 2029 Alternative 2, with Alternative 2 reporting heavier volumes due to increased traffic accessing the business park. The employees not rerouted to Annapolis Junction Business Park would remain within existing traffic volumes entering Fort Meade.
- During the AM peak hour, all of the external gates on Fort Meade operate at LOS F at both the 2029 No Action Alternative and Alternative 2, except for External Gate 4, which was closed during traffic data collection and, as a result, was modeled as closed in the analysis. In the PM peak hour, the LOS for External Gates 1 and 7 improves, while External Gates 3, 4, and 5 operate at the same LOS as in the 2029 No Action Alternative.
- During the AM and PM peak hours, the VCPs and intersections near proposed parking facilities on-post operate the same or substantially better under this alternative due to less traffic entering the installation than the Proposed Action.



I-95 between MD 32 and MD 175



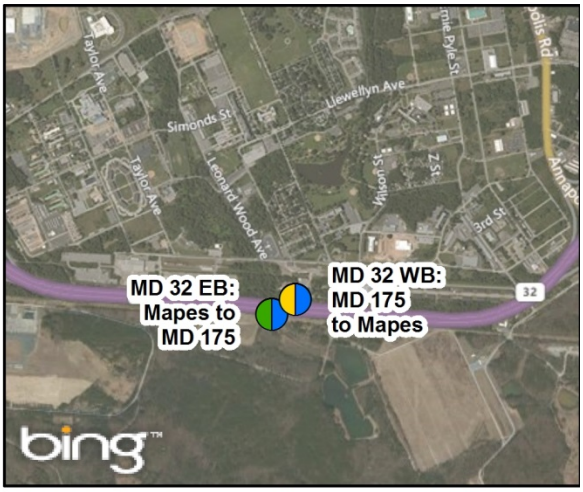
Sources: Imagery (2014) - Bing

Figure 7-8. Freeway LOS for the 2029 Alternative 2: Annapolis Junction Business Park/East Campus (1 of 3)

MD 32 between I-95 and US 1

MD 32 between MD 295 and Mapes

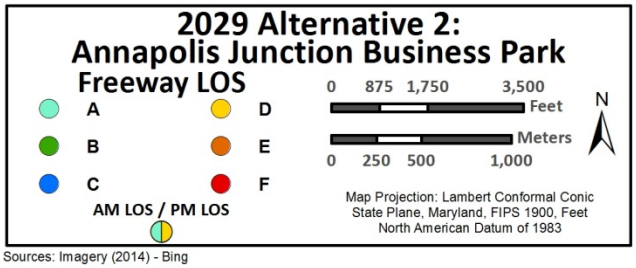
MD 32 between US 1 and Dorsey Run



MD 32 between Mapes and MD 175

MD 32 between Dorsey Run and MD 295

MD 32 between MD 175 and MD 3



Sources: Imagery (2014) - Bing

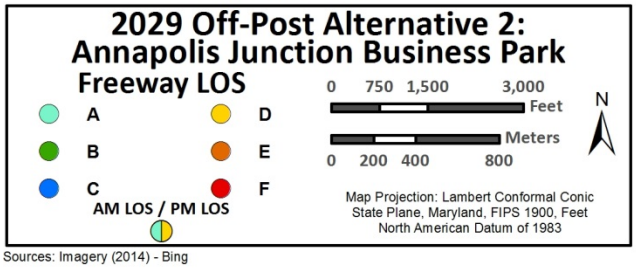
Figure 7-9. Freeway LOS for the 2029 Alternative 2: Annapolis Junction Business Park/East Campus (2 of 3)

MD 295 between Arundel Mills and MD 100

MD 295 between MD 175 and MD 32

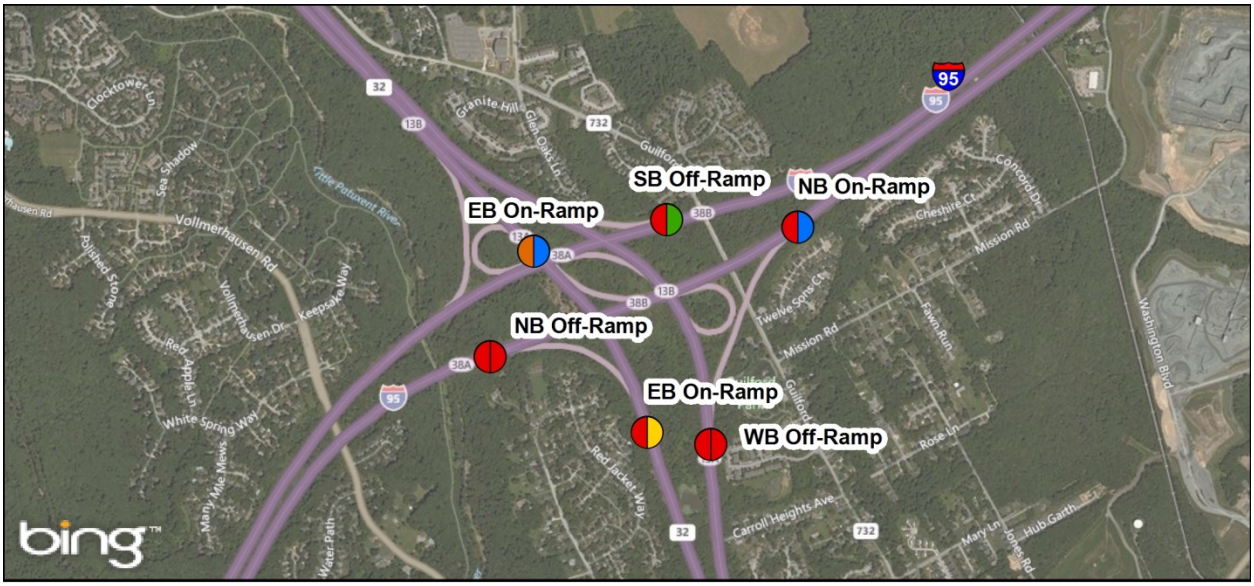
MD 295 between Arundel Mills and MD 175

MD 295 between MD 32 and MD 198



Sources: Imagery (2014) - Bing

Figure 7-10. Freeway LOS for the 2029 Alternative 2: Annapolis Junction Business Park/East Campus (3 of 3)



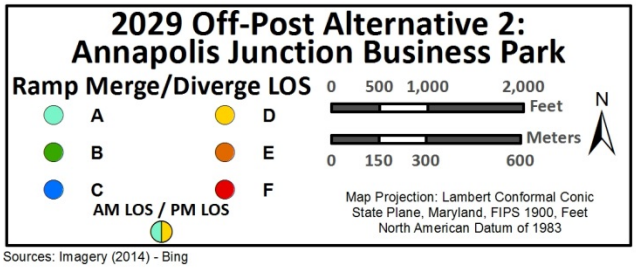
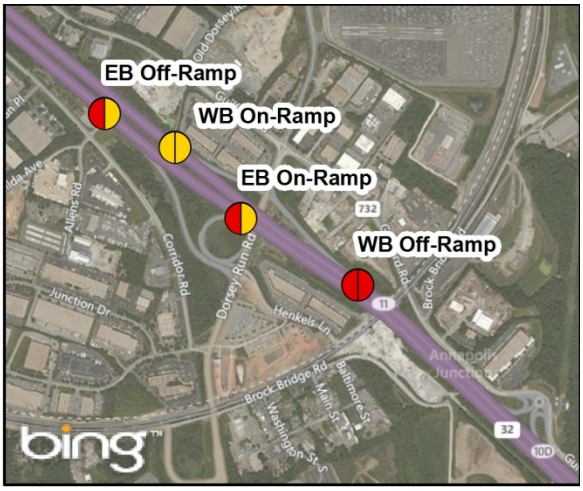
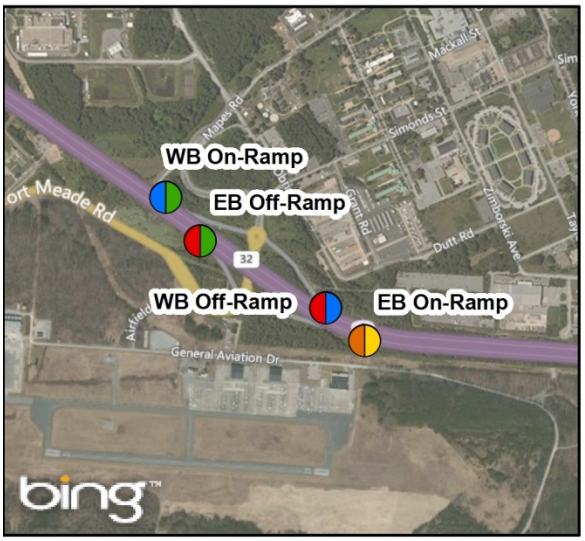


Figure 7-11. Ramp Merge/Diverge LOS for the 2029 Alternative 2: Annapolis Junction Business Park/East Campus (1 of 3)

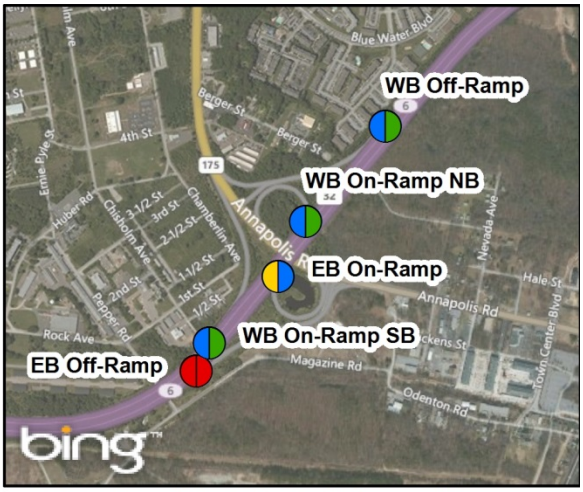
MD 32 with US 1 Interchange



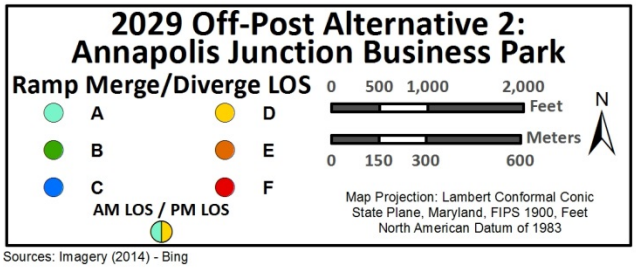
MD 32 with Dorsey Run Interchange



MD 32 with Mapes Rd. Interchange



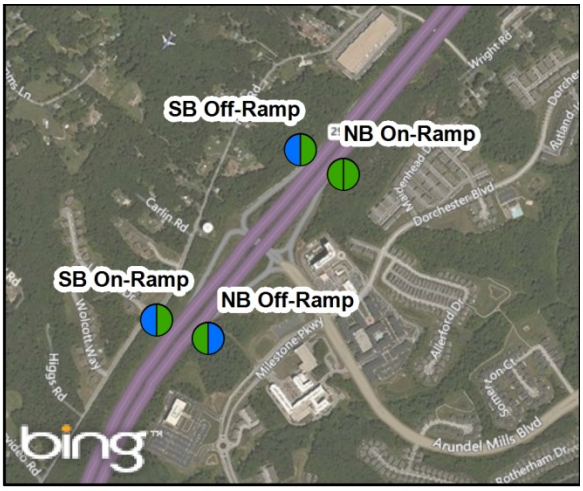
MD 32 with MD 175 Interchange



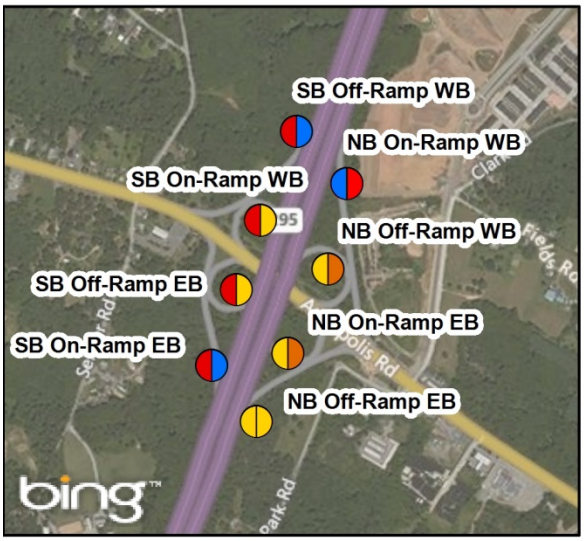
MD 32 with MD 3 Interchange

Figure 7-12. Ramp Merge/Diverge LOS for the 2029 Alternative 2: Annapolis Junction Business Park/East Campus (2 of 3)

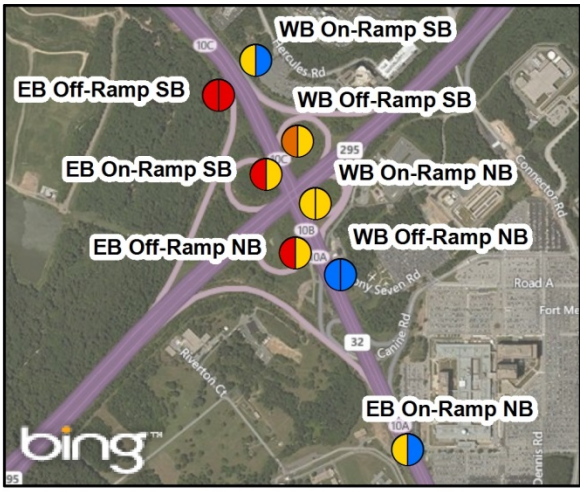
MD 295 with MD 100 Interchange



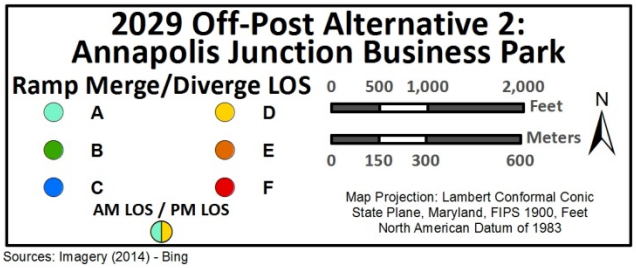
MD 295 with Arundel Mills Interchange



MD 295 with MD 175 Interchange



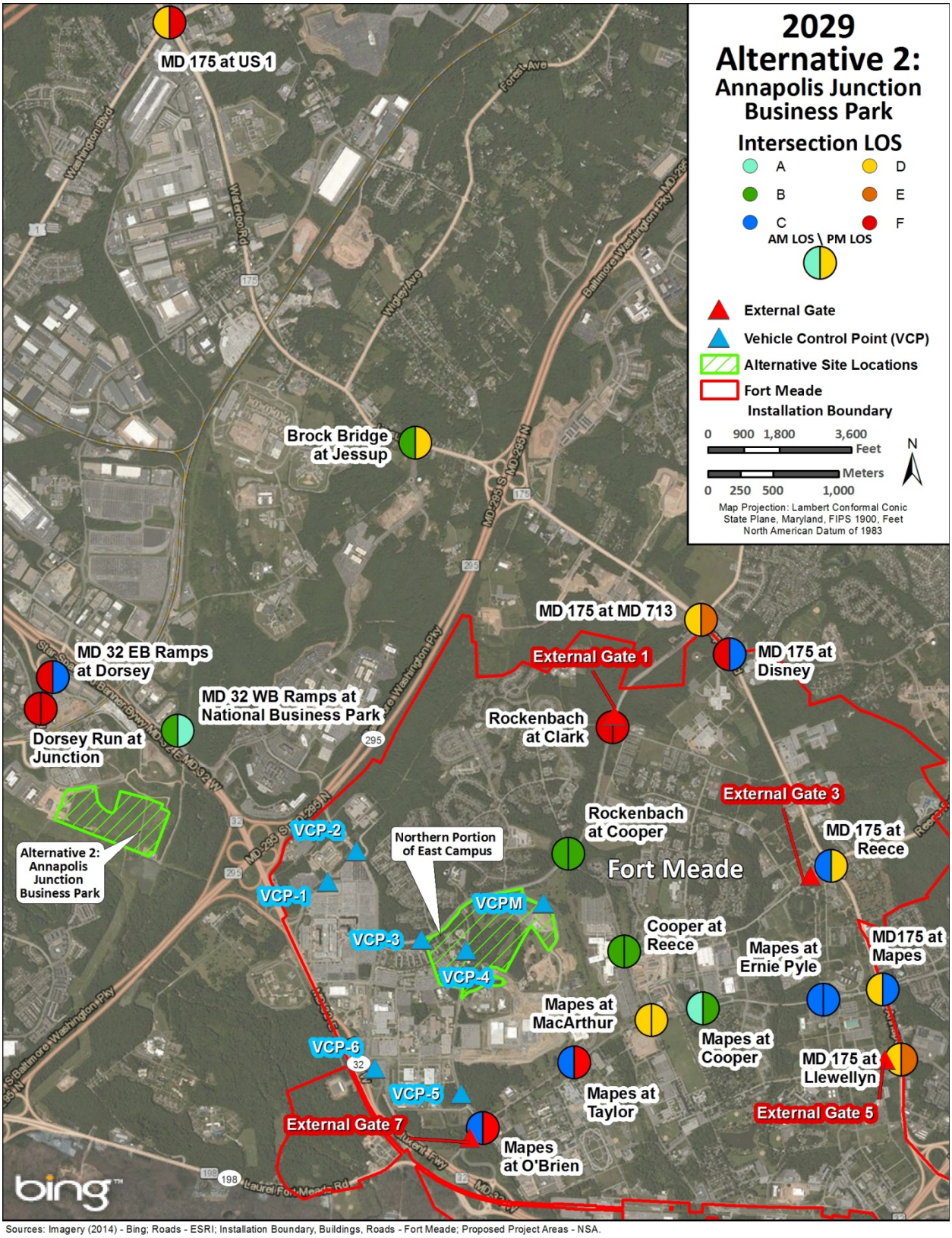
MD 295 with MD 32 Interchange



Sources: Imagery (2014) - Bing

MD 295 with MD 198 Interchange

Figure 7-13. Ramp Merge/Diverge LOS for the 2029 Alternative 2: Annapolis Junction Business Park/East Campus (3 of 3)



Sources: Imagery (2014) - Bing; Roads - ESRI; Installation Boundary, Buildings, Roads - Fort Meade; Proposed Project Areas - NSA.

Figure 7-14. Intersection LOS for the 2029 Alternative 2: Annapolis Junction Business Park/East Campus

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8. Parking Facilities

The Proposed Action would require additional parking to accommodate the increase of personnel on the East Campus. Due to limited developable land, multi-level parking structures are being considered in lieu of surface parking.

The DoD considered various location alternatives for proposed parking facilities. Reasonable parking facility location alternatives should have sufficient square footage to accommodate required project components, including security standoff-distances; avoid disturbing environmentally sensitive areas; minimize impacts on adjacent land uses; minimize the distance employees would have to walk; and be cost-effective. Four parking location alternatives were identified as meeting these criteria. Depending on the locations of the operational/headquarters buildings, at least three of the parking facility location alternatives would be constructed if the Proposed Action is fully implemented. At least one of the parking facility location alternatives would be constructed if an off-post alternative were implemented. Assumptions for this analysis, including distribution of traffic among parking facilities, were presented in **Section 3.3**.

Following are the location alternatives for and impacts from the proposed ECIP parking facilities:

- ***East Campus Parking Structure 2.*** ECPS 2 would be located in the northeastern portion of the East Campus between Rockenbach Road and Venona Road, a road under construction that would generally run west-east through the northern portion of the East Campus. ECPS 2 would be bordered to the west, north, and east by a potential reforestation area for ECB 2 and ECB 3, and bounded on the south by proposed Venona Road corridor. Because ECPS 2 would mostly directly serve the East Campus, minimal impacts on vehicular or pedestrian traffic are expected near the ECIP project area. **Figure 6-11** demonstrated that LOS values at intersections near ECPS 2 would all be C or better under the Proposed Action, with the exception of LOS E at VCP M during the AM peak hour as traffic queues up at this VCP to access the NSA Campus.
- ***Bravo Parking Lot.*** The Bravo parking lot alternative parking facility location is a 4.5-acre, surface parking lot on the NSA Main Campus. It is located south of the ECIP project area at the southeastern corner of Emory Road and Wenger Road. The Bravo parking lot would be demolished and a multi-level parking facility would be constructed on all or part of the site. During construction, existing surface parking spaces would be unavailable and would put additional stress onto other existing lots. Because the Bravo parking lot is located near the ECIP project area, minimal pedestrian impacts are expected because the distance between the parking facility and proposed ECIP buildings would be short. As described in **Section 6** and depicted in **Figure 6-10**, major impacts are expected at the intersections adjacent to the Bravo parking facility as vehicular traffic commutes to and from this location under the Proposed Action. The intersection of Emory Road and Canine Road would deteriorate from LOS C to LOS F during the PM peak hours when compared to the 2029 No Action Alternative (it would already be at LOS F during the AM peak hour). The intersections of Emory Road and Wenger Road and O'Brien Road and Samford Road would likewise deteriorate from C to E or F under both the AM and PM peak hours (see **Section 6** and **Figure 6-10**). Because the Bravo parking lot is located near the ECIP project area, minimal pedestrian impacts are expected because the distance between the parking facility and proposed buildings is short.
- ***N8/N9 Parking Lot.*** The N8/N9 parking lot is a 7.1-acre surface parking lot on the NSA Main Campus. All or part of this lot could be redeveloped as a parking facility. It is located northwest of the intersection of Canine Road (access point to MD 32) and Connector Road (access point to the Baltimore-Washington Parkway). Although this alternative wasn't included in the parking

facility analysis because it is anticipated that not all the parking facility alternatives would be required to implement the Proposed Action, the potential impacts of this parking facility, if constructed, including the following. During construction, this site's existing surface parking spaces would be unavailable and would put additional stress onto other existing lots. Once constructed, a portion of existing traffic would now commute to this location instead of other lots. This would most likely only impact the intersections of Canine Road with Rockenbach Road and Canine Road with Emory Road. Additional pedestrian traffic would be present along Canine Road as employees would walk from this parking lot to the ECIP project area (0.3- to 0.5-mile walk) and elsewhere on the NSA Campus.

- ***Building 9817.*** Building 9817 is proposed for demolition as part of the Proposed Action. It is located on the NSA Main Campus, on the northern side of Erskine Road and bordered by Canine Road to the west and Wenger Road to the east. Following demolition of Building 9817, a parking facility could be constructed on all or part of the 8.2-acre footprint. During construction of this alternative, there would be no impacts on existing parking due to the absence of existing parking at this location. Major impacts are expected at the intersections adjacent to the Building 9817 parking facility during facility operation as vehicular traffic commutes to and from this location under the Proposed Action. Degradation in LOS values of adjacent intersections for this location are presented in the Bravo parking facility analysis above, which has the same intersections due to the proximity of these alternatives and were therefore included in one analysis. Once constructed, a portion of existing traffic would now commute to this location instead of other lots. This would most likely only impact the intersections of Canine Road with Rockenbach Road and Canine Road with Emory Road. Because of its proximity to the ECIP project area, negligible impacts on pedestrian traffic are expected. Additional pedestrian traffic would populate Canine Road or Wenger Road as employees would walk from this parking facility to the ECIP project area (< 0.2-mile walk).

9. Summary of Capacity Analysis

2029 Proposed Action

As shown in **Tables 9-1** and **9-2**, there are several locations where the LOS drops at a ramp merge/diverge location for the Proposed Action when compared to the 2029 No Action Alternative in the AM peak hour. At the MD 32 and Mapes Road interchange, the eastbound ramps reduce from LOS C to LOS F and E for the diverge and merge, respectively. The same situation occurs at the interchanges of MD 32 and MD 175 and MD 32 and MD 3; only the eastbound ramps show reductions in LOS. All three of these intersections are east of the Baltimore-Washington Parkway/MD 295. The MD 32 interchanges west of the Baltimore-Washington Parkway have minor reductions in LOS when compared to the 2029 No Action Alternative. This is a result of the additional trips generated by the Proposed Action entering Fort Meade from the east and exiting east of the Baltimore-Washington Parkway during the AM peak hour.

Minor impacts on the Baltimore-Washington Parkway/MD 295 and I-95 in AM or PM peak hours under the Proposed Action above and beyond the existing significantly deteriorated conditions would be expected. Baltimore-Washington Parkway/MD 295 freeway segments and interchange demonstrate minor additive impacts or increased traffic levels as a result of the Proposed Action in both AM and PM peak hours. Some segments of the Baltimore-Washington Parkway/MD 295, I-95, and MD 32 would operate at the same LOS (either E or F) under both the No Action Alternative and the Proposed Action (see **Tables 9-3** and **9-4**). The densities of these segments would increase approximately 6 to 8 percent under the Proposed Action as compared to the No Action Alternative.

Only the southbound on-ramp at the Baltimore-Washington Parkway/MD 295 and Arundel Mills interchange in the AM peak hour and the southbound on-ramp to go westbound at the Baltimore-Washington Parkway/MD 295 and MD 100 interchange are impacted enough to change the LOS. All other ramp merge/diverge AM and PM peak hour LOS along the Baltimore-Washington Parkway/MD 295 stay the same, although some operate at LOS F without the Proposed Action.

I-95 operates at LOS F during the both the AM and PM peak hours under both the 2029 No Action Alternative and Proposed Action. Although impacted by the Proposed Action which would result in increased traffic, the LOS for I-95 does not change because the No Action Alternative is also reporting LOS F.

Inside Fort Meade, and as shown on **Tables 9-5** and **9-6**, the intersection LOS along MD 175 (gate locations) all degrade to LOS F when compared to the 2029 No Action Alternative in the AM peak hour. In the PM peak hour, many of the intersections on-post operate at LOS F for the Proposed Action, which is similar to the No Action Alternative.

During the AM peak hour, all of the open Fort Meade external gates would operate at LOS F in both the 2029 No Action Alternative and the Proposed Action. In the PM peak hour, External Gate 1 and External Gate 7 both degrade in LOS, while External Gates 2, 4, and 5 operate at the same LOS as in the 2029 No Action Alternative. This is consistent with the assumption that new trips are accessing new on-post development through these gates.

During the AM peak hour, all VCPs would operate at LOS F. A degradation of performance at VCP 3, 4 and 5 would occur when compared to the 2029 No Action Alternative. VCPs 1, 2, and 6 already operate at LOS F in the 2029 No Action Alternative. During the PM peak hour, VCP 1 and VCP 4 both degrade in LOS while the remaining VCPs would operate the same as in the 2029 No Action Alternative.

Intersections adjacent to the proposed parking facility alternatives (i.e., facilities) were analyzed. Major increases in traffic delay at the intersections adjacent to the proposed parking facility alternatives along Emory and Canine Roads under the Proposed Action would be expected. The greatest impacts would occur on the Emory Road intersections and the intersection of Samford Road and O'Brien Road. The delay at Emory Road and Wenger Road would rise from 20 seconds to 1,042 seconds (17 minutes) in the PM peak hour and from 22 seconds to over 1,500 seconds (25 minutes) in the AM peak hour when compared with the 2029 No Action Alternative. Emory Road and Canine Road intersection delays rise from 81 seconds to over 400 seconds (approximately 7 minutes) and from 31 seconds to 250 seconds (4 minutes) of delay in the AM and PM peak hours, respectively. See **Section 6.4** for detailed traffic analysis for intersections on the NSA Campus.

2029 Alternative 1: National Business Park/East Campus

As shown in **Tables 9-1** and **9-2**, the LOS for MD 32 ramp merge/diverge locations performs better in almost all locations when compared to the 2029 No Action Alternative in the AM peak hour. The only locations where MD 32 LOS degrades in the AM peak hour are the westbound ramps at the MD 32 and Baltimore-Washington Parkway/MD 295 interchange. This is because some traffic is no longer exiting MD 32 to access Fort Meade, but instead exiting MD 32 at the Baltimore-Washington Parkway and driving north to exit closer to the National Business Park site. In the PM peak hour, only the westbound on-ramp at MD 32 and Dorsey Run Road and the northbound off-ramp to travel westbound on MD 175 at the Baltimore-Washington Parkway and MD 175 interchange have a LOS that degrades. All other locations maintain LOS or perform better when compared to the 2029 No Action Alternative.

Minor impacts on the Baltimore-Washington Parkway/MD 295 and I-95 in the AM or PM peak hours under 2029 Alternative 1 above and beyond the existing significantly deteriorated conditions would be expected.

Inside Fort Meade, the LOS at the intersections are consistent with the trends shown at the interchanges. The network of roads near the gates and VCPs to access the installation perform better under this alternative when compared to the 2029 No Action Alternative. The intersection of MD 175 with Brock Bridge Road, which is located just outside the National Business Park development, deteriorates to LOS F in the 2029 Alternative 1 scenarios in both the AM and PM peak hours.

During the AM peak hour, all of the external gates on Fort Meade operate at a LOS F at both the 2029 No Action Alternative and Alternative 1, except for External Gate 4, which was closed during traffic data collection and, as a result, was modeled as closed in the analysis. In the PM peak hour, the LOS for External Gate 1 and 7 improves, while External Gates 2, 4, and 5 operate at the same LOS as in the 2029 No Action Alternative.

2029 Alternative 2: Annapolis Junction Business Park/East Campus

As shown in **Tables 9-1** and **9-2**, the LOS for MD 32 ramp merge/diverge locations performs better in almost all locations when compared to the 2029 No Action Alternative in the AM peak hour. The only locations where MD 32 LOS degrades in the AM peak hour are the westbound ramps at the MD 32 and Baltimore-Washington Parkway interchange. This is because traffic is no longer exiting MD 32 to access Fort Meade. All generated trips traveling towards Annapolis Junction Business Park would now exit at the MD 32 and Dorsey Run interchange. In the AM peak hour, the off-ramps at this interchange already operate at LOS F in the 2029 No Action Alternative; therefore, additional delay is not shown by LOS. In the PM hour, only the on-ramps at MD 32 and the Dorsey Run Road interchange and the eastbound ramps to go northbound at the MD 32 and Baltimore-Washington Parkway interchange degrade LOS. This is consistent with Annapolis Junction Business Park traffic entering MD 32 at the Dorsey Run Road

interchange and commuting via the Baltimore-Washington Parkway. All other interchanges operate at the same LOS as in the 2029 No Action Alternative.

Minor impacts on the Baltimore-Washington Parkway/MD 295 and I-95 in either AM or PM peak hours under 2029 Alternative 2 above and beyond the existing significantly deteriorated conditions would be expected.

The intersection at the Annapolis Junction Business Park site, Dorsey Run Road and Junction Drive, operates at LOS F in both the 2029 No Action and 2029 Alternative 2, with Alternative 2 reporting heavier volumes due to increased traffic accessing the business park.

Inside Fort Meade, the LOS at the intersections are consistent with the trends shown at the interchanges. The network of roads near the gates and VCPs to access the installation perform better under this alternative when compared to the 2029 No Action Alternative. The intersection at the Annapolis Junction Business Park site, Dorsey Run Road and Junction Drive, operates at LOS F in both the 2029 No Action Alternative and 2029 Alternative 2.

During the AM peak hour, all of the external gates on Fort Meade operate at LOS F in both the 2029 No Action Alternative and the Proposed Action, except for External Gate 4, which was closed during traffic data collection and, as a result, was modeled as closed in the analysis. In the PM peak hour, the LOS for External Gate 1 and 7 improves, while External Gates 2, 4, and 5 operate at the same LOS as in the 2029 No Action Alternative.

The following abbreviations are used in **Table 9-1** through **9-6**:

- NB – northbound
- SB – southbound
- WB – westbound
- EB – eastbound
- EX – 2015 Baseline Conditions
- PA – 2029 Proposed Action
- NA – 2029 No Action Alternative
- Alt 1 – 2029 Alternative 1: National Business Park/East Campus
- Alt 2 – 2029 Alternative 2: Annapolis Junction Business Park/East Campus

Table 9-1. Summary of AM Ramp Merge/Diverge Locations

Interchange Name	Ramp Name	Ramp Type	EX AM	NA AM	PA AM	Alt 1 AM	Alt 2 AM
I-95 and MD 175	SB Off-Ramp	DIVERGE	F	F	F	F	F
I-95 and MD 175	NB On-Ramp	MERGE	F	F	F	F	F
I-95 and MD 175	SB On-Ramp	MERGE	D	D	D	D	D
I-95 and MD 175	NB Off-Ramp	DIVERGE	F	F	F	F	F
I-95 and MD 32	NB On-Ramp	MERGE	F	F	F	F	F
I-95 and MD 32	SB Off-Ramp	DIVERGE	F	F	F	F	F
I-95 and MD 32	NB Off-Ramp	DIVERGE	F	F	F	F	F
MD 32 and I-95	EB On-Ramp	MERGE	C	D	E	C	D
MD 32 and I-95	EB On-Ramp	MERGE	E	F	F	D	F
MD 32 and I-95	WB Off-Ramp	DIVERGE	F	F	F	F	F
MD32 and US 1	EB Off-Ramp	DIVERGE	F	F	F	F	F
MD 32 and US 1	EB On-Ramp	MERGE	E	F	F	D	F
MD 32 and US 1	WB Off-Ramp	DIVERGE	D	F	F	F	F
MD 32 and Dorsey	EB Off-Ramp	DIVERGE	F	F	F	F	F
MD 32 and Dorsey	EB On-Ramp	MERGE	C	D	F	C	C
MD 32 and Dorsey	WB Off-Ramp	DIVERGE	F	F	F	F	F
MD 32 and Dorsey	WB On-Ramp	MERGE	D	D	D	E	D
MD32 and MD 295	EB Off-Ramp SB	DIVERGE	C	F	F	C	C
MD32 and MD 295	EB On-Ramp SB	MERGE	C	D	F	C	C
MD32 and MD 295	EB Off-Ramp NB	DIVERGE	C	D	F	C	C
MD32 and MD 295	EB On-Ramp NB	MERGE	C	C	D	B	B
MD32 and MD 295	WB Off-Ramp NB	DIVERGE	C	C	C	D	D
MD32 and MD 295	WB On-Ramp NB	MERGE	D	D	D	E	E
MD32 and MD 295	WB Off-Ramp SB	DIVERGE	D	E	E	F	F
MD32 and MD 295	WB On-Ramp SB	MERGE	D	D	D	F	F
MD 32 and Mapes	EB Off-Ramp	DIVERGE	B	C	F	B	B
MD 32 and Mapes	EB On-Ramp	MERGE	C	C	E	B	B
MD 32 and Mapes	WB Off-Ramp	DIVERGE	D	F	F	D	D
MD 32 and Mapes	WB On-Ramp	MERGE	C	C	C	C	C
MD 32 and MD 175	EB Off-Ramp	DIVERGE	C	C	F	B	B
MD 32 and MD 175	EB On-Ramp	MERGE	B	B	D	A	A
MD 32 and MD 175	WB Off-Ramp	DIVERGE	B	C	C	C	C
MD 32 and MD 175	WB On Ramp NB	MERGE	B	C	C	C	C
MD 32 and MD 175	WB On-Ramp SB	DIVERGE	C	C	C	C	C
MD 32 and MD 3	EB Off-Ramp	DIVERGE	C	C	F	B	B
MD 32 and MD 3	WB Off-Ramp	DIVERGE	B	B	C	B	B
MD 32 and MD 3	WB On-Ramp	MERGE	C	C	D	C	C
MD 295 and MD 198	NB On-Ramp	MERGE	E	F	F	F	F
MD 295 and MD 198	SB Off-Ramp	DIVERGE	F	F	F	F	F
MD 295 and MD 175	NB Off-Ramp EB	DIVERGE	C	D	D	D	D
MD 295 and MD 175	NB On-Ramp EB	MERGE	D	D	D	D	D
MD 295 and MD 175	NB Off-Ramp WB	DIVERGE	D	D	D	E	E
MD 295 and MD 175	NB On-Ramp WB	MERGE	C	C	C	D	D
MD 295 and MD 175	SB Off-Ramp WB	DIVERGE	F	F	F	F	F
MD 295 and MD 175	SB On-Ramp WB	MERGE	F	F	F	F	F
MD 295 and MD 175	SB Off-Ramp EB	DIVERGE	F	F	F	F	F
MD 295 and MD 175	SB On-Ramp EB	MERGE	E	F	F	F	F
MD 295 and Arundel	NB Off-Ramp	DIVERGE	B	B	B	B	B
MD 295 and Arundel	NB On-Ramp	MERGE	B	B	B	B	B
MD 295 and Arundel	SB Off-Ramp	DIVERGE	B	B	C	B	B
MD 295 and Arundel	SB On-Ramp	MERGE	C	C	C	C	C
MD 295 and MD 100	NB Off-Ramp WB	DIVERGE	D	F	F	F	F
MD 295 and MD 100	NB On-Ramp WB	MERGE	D	D	D	D	F
MD 295 and MD 100	SB Off-Ramp WB	DIVERGE	F	F	F	F	F
MD 295 and MD 100	SB On-Ramp WB	MERGE	F	F	F	F	F

Note: See Section 9 above for Table 9-1 abbreviations.

Table 9-2. Summary of PM Ramp Merge/Diverge Locations

Interchange Name	Ramp Name	Ramp Type	EX PM	NA PM	PA PM	Alt 1 PM	Alt 2 PM
I-95 and MD 175	SB Off-Ramp	DIVERGE	F	F	F	F	F
I-95 and MD 175	NB On-Ramp	MERGE	C	D	D	D	D
I-95 and MD 175	SB On-Ramp	MERGE	B	B	B	B	B
I-95 and MD 175	NB Off-Ramp	DIVERGE	F	F	F	F	F
I-95 and MD 32	NB On-Ramp	MERGE	C	C	C	C	C
I-95 and MD 32	SB Off-Ramp	DIVERGE	B	B	B	B	B
I-95 and MD 32	NB Off-Ramp	DIVERGE	D	F	F	F	F
MD 32 and I-95	EB On-Ramp	MERGE	C	C	C	C	C
MD 32 and I-95	EB On-Ramp	MERGE	D	D	D	D	D
MD 32 and I-95	WB Off-Ramp	DIVERGE	F	F	F	F	F
MD32 and US 1	EB Off-Ramp	DIVERGE	F	F	F	F	F
MD 32 and US 1	EB On-Ramp	MERGE	C	D	D	D	D
MD 32 and US 1	WB Off-Ramp	DIVERGE	F	F	F	F	F
MD 32 and Dorsey	EB Off-Ramp	DIVERGE	C	D	D	D	D
MD 32 and Dorsey	EB On-Ramp	MERGE	D	D	D	D	F
MD 32 and Dorsey	WB Off-Ramp	DIVERGE	F	F	F	F	F
MD 32 and Dorsey	WB On-Ramp	MERGE	D	E	D	F	F
MD32 and MD 295	EB Off-Ramp SB	DIVERGE	F	F	F	F	F
MD32 and MD 295	EB On-Ramp SB	MERGE	C	D	D	C	D
MD32 and MD 295	EB Off-Ramp NB	DIVERGE	C	D	D	C	F
MD32 and MD 295	EB On-Ramp NB	MERGE	B	B	C	B	C
MD32 and MD 295	WB Off-Ramp NB	DIVERGE	C	C	C	C	C
MD32 and MD 295	WB On-Ramp NB	MERGE	D	D	D	D	D
MD32 and MD 295	WB Off-Ramp SB	DIVERGE	D	D	D	D	D
MD32 and MD 295	WB On-Ramp SB	MERGE	C	D	C	D	D
MD 32 and Mapes	EB Off-Ramp	DIVERGE	B	B	B	B	B
MD 32 and Mapes	EB On-Ramp	MERGE	C	C	D	C	C
MD 32 and Mapes	WB Off-Ramp	DIVERGE	B	C	C	C	C
MD 32 and Mapes	WB On-Ramp	MERGE	B	B	B	B	B
MD 32 and MD 175	EB Off-Ramp	DIVERGE	F	F	F	C	F
MD 32 and MD 175	EB On-Ramp	MERGE	B	B	C	B	B
MD 32 and MD 175	WB Off-Ramp	DIVERGE	B	B	B	B	B
MD 32 and MD 175	WB On Ramp NB	MERGE	B	B	B	B	B
MD 32 and MD 175	WB On-Ramp SB	DIVERGE	B	B	B	B	B
MD 32 and MD 3	EB Off-Ramp	DIVERGE	C	C	F	C	C
MD 32 and MD 3	WB Off-Ramp	DIVERGE	B	B	B	B	B
MD 32 and MD 3	WB On-Ramp	MERGE	B	B	C	B	B
MD 295 and MD 198	NB On-Ramp	MERGE	D	D	D	D	D
MD 295 and MD 198	SB Off-Ramp	DIVERGE	D	F	F	D	D
MD 295 and MD 175	NB Off-Ramp EB	DIVERGE	C	D	D	D	D
MD 295 and MD 175	NB On-Ramp EB	MERGE	D	E	E	E	E
MD 295 and MD 175	NB Off-Ramp WB	DIVERGE	E	E	E	F	E
MD 295 and MD 175	NB On-Ramp WB	MERGE	D	F	F	F	F
MD 295 and MD 175	SB Off-Ramp WB	DIVERGE	C	C	C	C	C
MD 295 and MD 175	SB On-Ramp WB	MERGE	D	D	D	D	D
MD 295 and MD 175	SB Off-Ramp EB	DIVERGE	D	D	D	D	D
MD 295 and MD 175	SB On-Ramp EB	MERGE	C	C	C	C	C
MD 295 and Arundel	NB Off-Ramp	DIVERGE	B	C	C	C	C
MD 295 and Arundel	NB On-Ramp	MERGE	B	B	B	B	B
MD 295 and Arundel	SB Off-Ramp	DIVERGE	B	B	B	B	B
MD 295 and Arundel	SB On-Ramp	MERGE	B	B	B	B	B
MD 295 and MD 100	NB Off-Ramp WB	DIVERGE	D	F	F	F	F
MD 295 and MD 100	NB On-Ramp WB	MERGE	D	D	D	D	D
MD 295 and MD 100	SB Off-Ramp WB	DIVERGE	F	F	F	F	F
MD 295 and MD 100	SB On-Ramp WB	MERGE	D	D	E	D	D

Note: See Section 9 above for Table 9-2 abbreviations.

Table 9-3. Summary of AM Density and LOS for Freeway Segments in the Study Area

Route	Segment Name	EX[1] Density (pc/mi/ln)	EX LOS	NA Density (pc/mi/ln)	NA LOS	PA Density (pc/mi/ln)	PA LOS	Alt 1 Density (pc/mi/ln)	Alt 1 LOS	Alt 2 Density (pc/mi/ln)	Alt 2 LOS
I-95 NB	MD 32 to MD 175	Demand Exceeds Capacity[2]	F	Demand Exceeds Capacity	F	Demand Exceeds Capacity	F	Demand Exceeds Capacity	F	Demand Exceeds Capacity	F
I-95 SB	MD 175 to MD 32	57.9	F	72.8	F	72.8	F	72.8	F	72.8	F
MD 32 EB	I-95 to US 1	41.0	E	43.9	E	55.3	F	40.2	E	43.9	E
MD 32 WB	US 1 to I-95	40.8	E	43.7	E	43.2	E	48.3	F	45.0	E
MD 32 EB	US 1 to Dorsey Run	27.4	D	29.4	D	37.8	E	26.9	D	29.3	D
MD 32 WB	Dorsey Run to US 1	34.8	D	37.3	E	36.9	E	41.8	E	38.5	E
MD 32 EB	Dorsey Run to MD 295	32.4	D	34.7	D	47.5	F	26.9	D	28.2	D
MD 32 WB	MD 295 to Dorsey Run	24.0	C	25.6	C	25.4	C	28.3	D	32.0	D
MD 32 EB	MD 295 to Mapes	24.7	C	26.4	D	40.8	E	17.6	B	18.2	C
MD 32 WB	Mapes to MD 295	25.5	C	27.3	D	27.3	D	31.1	D	31.6	D
MD 32 EB	Mapes to MD 175	24.0	C	25.6	C	40.4	E	16.5	B	17.1	B
MD 32 WB	MD 175 to Mapes	31.0	D	33.1	D	37.2	E	33.1	D	33.7	D
MD 32 EB	MD 175 to MD 3	21.1	C	22.6	C	37.6	E	13.9	B	13.9	B
MD 32 WB	MD 3 to MD 175	21.8	C	23.4	C	29.5	D	23.4	C	23.4	C
MD 295 NB	MD 198 to MD 32	36.5	E	39.1	E	40.7	E	39.5	E	39.5	E
MD 295 SB	MD 32 to MD 198	38.6	E	41.3	E	43.4	E	37.9	E	38.1	E
MD 295 NB	MD 32 to MD 175	29.4	D	31.5	D	31.5	D	35.2	E	35.7	E
MD 295 SB	MD 175 to MD 32	34.9	D	37.3	E	39.1	E	34.3	D	37.6	E
MD 295 NB	MD 175 to Arundel Mills	21.5	C	23.0	C	23.1	C	24.8	C	25.9	C
MD 295 SB	Arundel Mills to MD 175	45.6	F	48.8	F	52.3	F	48.8	F	48.8	F
MD 295 NB	Arundel Mills to MD 100	22.2	C	23.8	C	23.8	C	25.6	C	26.7	D
MD 295 SB	MD 100 to Arundel Mills	42.4	E	45.4	F	48.4	F	45.4	F	45.4	F

Notes:
1. See Section 9 text above for abbreviations.
2. Demand exceeds available freeway capacity and can not be calculated per the HCM (at breakpoint on speed-flow curve for basic freeway segments).
Key:
pc/mi/ln = passenger cars/mile/lane

Table 9-4. Summary of PM Density and LOS for Freeway Segments in the Study Area

Route	Segment Name	EX[1] Density (pc/mi/ln)	EX LOS	NA Density (pc/mi/ln)	NA LOS	PA Density (pc/mi/ln)	PA LOS	Alt 1 Density (pc/mi/ln)	Alt 1 LOS	Alt 2 Density (pc/mi/ln)	Alt 2 LOS
I-95 NB	MD 32 to MD 175	30.3	D	33.5	D	33.5	D	33.5	D	33.5	D
I-95 SB	MD 175 to MD 32	20.0	C	21.4	C	21.4	C	21.4	C	21.4	C
MD 32 EB	I-95 to US 1	33.6	D	36.0	E	38.1	E	35.3	E	36.0	E
MD 32 WB	US 1 to I-95	41.9	E	44.8	E	41.2	E	50.6	F	53.3	F
MD 32 EB	US 1 to Dorsey	20.6	C	22.1	C	23.6	C	21.6	C	22.1	C
MD 32 WB	Dorsey to US 1	37.9	E	40.6	E	38.3	E	46.3	F	49.0	F
MD 32 EB	Dorsey to MD 295	35.4	E	37.8	E	40.2	E	36.4	E	44.9	E
MD 32 WB	MD 295 to Dorsey	23.3	C	24.9	C	23.4	C	26.3	D	27.0	D
MD 32 EB	MD 295 to Mapes	20.9	C	22.3	C	25.0	C	20.7	C	24.5	C
MD 32 WB	Mapes to MD 295	20.2	C	21.7	C	21.7	C	22.3	C	22.4	C
MD 32 EB	Mapes to MD 175	27.7	D	29.6	D	32.2	D	23.2	C	27.0	D
MD 32 WB	MD 175 to Mapes	21.5	C	23.0	C	23.8	C	23.0	C	23.1	C
MD 32 EB	MD 175 to MD 3	22.2	C	23.8	C	28.2	D	20.7	C	20.7	C
MD 32 WB	MD 3 to MD 175	18.6	C	19.9	C	21.1	C	19.9	C	19.9	C
MD 295 NB	MD 198 to MD 32	25.1	C	26.8	D	25.4	C	25.2	C	25.2	C
MD 295 SB	MD 32 to MD 198	30.7	D	32.8	D	35.3	E	30.9	D	32.2	D
MD 295 NB	MD 32 to MD 175	28.4	D	30.3	D	30.3	D	31.0	D	31.1	D
MD 295 SB	MD 175 to MD 32	22.9	C	24.5	C	24.8	C	25.2	C	24.5	C
MD 295 NB	MD 175 to Arundel Mills	25.8	C	27.7	D	28.1	D	30.2	D	28.3	D
MD 295 SB	Arundel Mills to MD 175	30.6	D	32.8	D	33.4	D	32.7	D	32.7	D
MD 295 NB	Arundel Mills to MD 100	22.6	C	24.2	C	24.3	C	26.7	D	24.8	C
MD 295 SB	MD 100 to Arundel Mills	29.4	D	31.4	D	32.0	D	31.4	D	31.4	D

Notes:
1. See Section 9 text above for abbreviations.
Key:
pc/mi/ln = passenger cars/mile/lane

Table 9-5. Summary AM LOS at Key Locations

Intersection/External Gate/VCP	EX AM[1]	NA AM	PA AM	Alt 1 AM[2]	Alt 2 AM[2]
Intersections					
Rockenbach Road (MD 713) and MD 175	D	D	D	D	D
MD 175 and Reece Road	C	D	E	D	C
MD 175 and Llewellyn Avenue	D	D	D	D	D
Mapes Road and O'Brien Road	C	C	D	C	C
MD 175 (Jessup Rd) and Brock Bridge Road	B	C	B	C	B
Dorsey Run Road and Junction Drive	F	F	F	F	F
Emory Road and Canine Road	n/a	F	F	n/a	n/a
Emory Road and Wenger Road	n/a	C	F	n/a	n/a
Emory Road and O'Brien Road	n/a	C	D	n/a	n/a
Samford Road and Canine Road	n/a	C	C	n/a	n/a
Samford Road and Wenger Road	n/a	C	B	n/a	n/a
Samford Road and O'Brien Road	n/a	C	F	n/a	n/a
External Gates					
External Gate 1: Rockenbach Road (MD 713)	F	F	F	F	F
External Gate 3: Reece Road and MD 175	F	F	F	F	F
External Gate 4: Mapes Road and MD 175	A	A	A	A	A
External Gate 5: Llewellyn Avenue and MD 175	F	F	F	F	F
External Gate 7: Mapes Road and MD 32	F	F	F	F	F
VCPs					
VCP 1: Canine Road	F	F	F	B	B
VCP 2: Connector Road	F	F	F	F	F
VCP 3: Rockenbach Road (MD 713)	A	B	F	B	B
VCP 4: O'Brien Road near Rockenbach Road[3]	D	E	n/a	A	A
VCP 5: O'Brien Road near Perimeter Road	C	C	F	A	A
VCP 6: Samford Road	F	F	F	F	F
VCP M: Rockenbach Road (MD 713)	n/a	n/a	E	n/a	n/a

Notes:

1. See Section 9 text above for abbreviations.
2. Analysis of intersections adjacent to proposed parking facilities is only intended for comparison between the Proposed Action and the 2029 No Action Alternative. It is assumed all personnel at the off-post site under Alternatives 1 and 2 would not use the proposed parking facilities on-post and would therefore have no additional on-post intersection impacts. For this reason, adverse impacts on-post under Alternatives 1 and 2 would be less than those under the Proposed Action.
3. VCP 4 is removed under the Proposed Action due to the addition of VCP M.

Table 9-6. Summary of PM LOS at Key Locations

Intersection/External Gate/VCP	EX PM[1]	NA PM	PA PM	Alt 1 PM[2]	Alt 2 PM[2]
Intersections					
Rockenbach Road (MD 713) and MD 175	D	E	E	F	E
MD 175 and Reece Road	D	E	F	E	D
MD 175 and Llewellyn Avenue	E	E	E	E	E
Mapes Road and O'Brien Road	F	F	F	E	F
MD 175 (Jessup Rd) and Brock Bridge Road	D	D	D	F	D
Dorsey Run Road and Junction Drive	F	F	F	F	F
Emory Road and Canine Road	n/a	C	F	n/a	n/a
Emory Road and Wenger Road	n/a	C	F	n/a	n/a
Emory Road and O'Brien Road	n/a	C	D	n/a	n/a
Samford Road and Canine Road	n/a	B	C	n/a	n/a
Samford Road and Wenger Road	n/a	A	B	n/a	n/a
Samford Road and O'Brien Road	n/a	C	E	n/a	n/a
External Gates					
External Gate 1: Rockenbach Road (MD 713)	C	D	E	B	B
External Gate 3: Reece Road and MD 175	E	F	F	F	F
External Gate 4: Mapes Road and MD 175	A	A	A	A	A
External Gate 5: Llewellyn Avenue and MD 175	A	A	A	A	A
External Gate 7: Mapes Road and MD 32	B	B	E	A	A
VCPs					
VCP 1: Canine Road	A	A	D	A	A
VCP 2: Connector Road	C	C	E	C	C
VCP 3: Rockenbach Road (MD 713)	A	A	A	A	A
VCP 4: O'Brien Road near Rockenbach Road[3]	A	A	n/a	A	A
VCP 5: O'Brien Road near Perimeter Road	A	A	A	A	A
VCP 6: Samford Road	A	A	A	A	A
VCP M: Rockenbach Road	n/a	n/a	A	n/a	n/a

Notes:

1. See Section 9 text above for abbreviations.
2. Analysis of intersections adjacent to proposed parking facilities is only intended for comparison between the Proposed Action and the 2029 No Action Alternative. It is assumed all personnel at the off-post site under Alternatives 1 and 2 would not use the proposed parking facilities on-post and would therefore have no additional on-post intersection impacts. For this reason, adverse impacts on-post under Alternatives 1 and 2 would be less than those under the Proposed Action.
3. VCP 4 is removed under the Proposed Action due to the addition of VCP M.

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10. Conclusions

The purpose of this TIS is to analyze the potential impacts of the ECIP for the NSA complex at Fort Meade. The study area for the TIS included MD 32 from I-95 to MD 1, the Baltimore-Washington Parkway/MD 295 from MD 198 to MD 100, and MD 175 from I-95 to MD 32.

Traffic analyses conducted for the 2015 Baseline Conditions were compared with the following alternatives:

- 2029 No Action Alternative
- 2029 Proposed Action
- 2029 Alternative 1: National Business Park/East Campus
- 2029 Alternative 2: Annapolis Junction Business Park/East Campus.

2029 No Action Alternative

The 2029 No Action Alternative was used as a future threshold to compare the three proposed alternatives to assess traffic impacts. Under the 2029 No Action Alternative, DoD would not construct and operate approximately 2.9 million ft^2 of operations and headquarters facilities on the northern portion of the East Campus and the 9800 Troop Support Area.

The 2029 No Action AM and PM peak hour volumes were estimated by applying a 7 percent global growth rate (0.45 percent compounded annually over 14 years [2015–2029]) to the 2015 Baseline Conditions peak hour volumes to traffic both on and off Fort Meade and comparing the results with the action alternatives as described below.

2029 Proposed Action

The 2029 Proposed Action would have long-term, minor to major, adverse impacts on traffic. Additional employees are being added to the existing traffic and all are reporting to Fort Meade. With the addition of parking facilities, these employees would be commuting to one of three parking facilities and increasing traffic levels at intersections along the way and adjacent to those facilities. As shown in **Tables 9-5** and **9-6**, the intersections along Emory Road all operate at LOS D or F in both AM and PM peak hours. Intersections along Samford Road degrade, but only the Samford Road and O'Brien Road intersection degrades to LOS F in the AM peak hour.

Externally, the greatest impacts are reported along the MD 32 interchanges east of the Baltimore-Washington Parkway/MD 295. This is a result of the additional trips generated by the Proposed Action entering the installation from the east and exiting east of the Baltimore-Washington Parkway/MD 295 during the AM peak hour.

Alternative 1: National Business Park/East Campus

This alternative would have long-term, minor to major, adverse impacts, though impacts would be slightly less than the Proposed Action. Approximately 4,400 personnel would travel to National Business Park rather than the NSA Campus when compared with the Proposed Action. The MD 175 and Brock Bridge Road intersection would be the most impacted due to the influx of additional vehicles.

Alternative 2: Annapolis Junction Business Park/East Campus

Alternative 2 would have long-term, minor to major, adverse impacts, though impacts would be slightly less than the Proposed Action. Approximately 4,400 personnel would travel to Annapolis Junction Business Park rather than the NSA Campus when compared with the Proposed Action. The Dorsey Run Road and Junction Drive intersection, adjacent to the business park, would be the most impacted due to the influx of additional vehicles, although the LOS of this intersection would not change from LOS F under the 2029 No Action Alternative.

11. Recommendations

The following recommendations could enhance the efficiency of the traffic network in and around the NSA Campus. These recommendations are specific to the areas where implementation of recommendations could potentially minimize impacts caused by the Proposed Action and alternatives.

- Signal Warrant Analysis
    - Conduct an additional signal warrant analysis on the intersections in and around the proposed development after parking facility locations have been selected to improve efficiency.
    - Optimize/interconnect existing and proposed signals along MD 175, Rockenbach Road, Canine Road, and other corridors as a result of the signal warrant analysis.
- Signal Timing Study – Conduct a signal timing study to help increase efficiency of all signalized intersections.
- Installation Access Study – Under the Proposed Action, the external gates and VCPs degrade to unacceptable LOS.
    - Conduct a study to determine which external gates and VCPs are predominately used and why following implementation of the Proposed Action to identify commuter trends and inefficient routes.
    - Assess gate upgrades or widening at heavily used external gates/VCPs.
    - Investigate adding proper/additional signage along external roadways to direct traffic to appropriate lanes and external gates/VCPs to best suit their destination on the installation.
- Bike/Pedestrian Accessibility Study – Under the Proposed Action, the volume and clustering of pedestrians in certain areas is expected to rise with the addition of several multi-level parking facilities and an increase in campus population.
    - Conduct a bike/pedestrian accessibility study, which would include an analysis identifying locations for installation and use of additional, continuous, and Americans with Disabilities Act-compliant bike/pedestrian facilities.
    - Safe and continuous travel paths could reduce vehicular traffic. Well-defined walkways and crosswalks could reduce the risk of pedestrian/vehicular accidents.
- Roadway Improvements
    - Improve the intersections of Canine Road at Rockenbach Road, Emory Road, and Samford Road to address increased traffic between the current campus and the East Campus and safer access to parking areas. Improvements include new turning lanes and widening of existing turning lanes (NSA 2013).
    - Improve external roadways as identified in **Section 2.5** of the EIS and discussed further in **Section 5** of the EIS.
- Bus/Shuttles
    - Modify existing on-installation routes, including more stops near the ECIP project area.
    - Add new on-installation routes, particularly those servicing the ECIP project area. Potential new routes would be driven by the selection of parking facilities under the Proposed Action. Transit would occur via hybrid fuel buses and potentially streetcar, depending on further study of usage levels (NSA 2013).

In addition to the above, traffic improvement recommendations for Alternatives 1 and 2 include signalizing or improving existing traffic signals at intersections in and immediately around the off-post location for improved efficiency and use of shuttles to and from this alternative location the NSA Campus.

12. References

BRTB 2014 — Baltimore Region Transportation Board (BRTB). 2014. *Maximize 2040 Max Notes – June 2014*. Available online: <*http://www.baltometro.org/phocadownload/Publications/Transportation/Plans/Maximize2040/Maxnotes-Round8a.pdf*>. Accessed 15 June 2015.

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ATTACHMENT A

GROWTH RATE AND TRIP CALCULATIONS

Project:	Fort Meade Traffic Study	**Comput**	BJB	**Date:**	06/02/15
Subject:	Growth Rate Calculations	**Checked**	AML	**Date:**	06/02/15
Task:		**Page:**	1	**of:**	1
Job #:		**No:**			

Population Growth Rate (Maximize 2040 (published by BRTB))

Location	2014	2040	Percent Change 2010 to 2040
Baltimore Region			14.00%

Compounded growth equations =

The Compound Interest Equation

$$P = C\,(1 + r/n)^{nt}$$

where
P = future value
C = initial deposit
r = interest rate (expressed as a fraction: eg. 0.06)
n = # of times per year interest in compounded
t = number of years invested

Using census data and solving for "r"

"r" = 0.45%

Check:

1000*1.14=1140 (over 30 years)
1000*(1+.0045)^10 =1144 (annually)

* Note: The 1,000 figure was used as a simple number to check calculations. Exact populations are unknown.

Recommended Growth Rate = 0.45%

Project:	Ft Meade East Campus	Computed	BJB	Date:	5/28/15
Subject:	Trip Generation	Checked:	ABS	Date:	6/10/15
Task:		Page:	1	of:	2
Job #:		No.:			

Source: ITE Trip Generation, 9th Edition

Land Use 710 - General Office Building
Number of Employees: 7200

Weekday

DD In: 50%
DD Out: 50%

Average Rate: 3.32

Total Trips = 3.32 x 7200 = 23904 trip ends

In = 50% x 23904 = 11952 trips entering
Out = 50% x 23904 = 11952 trips exiting

Equation: Ln(T) = 0.84 Ln(X)+2.23

Ln(T) = 0.84 x Ln 7200 + 2.23 = 9.69 vpd
Trips= Inv. Log 9.69 = 16155 vpd

In = 50% x 16155 = 8078 trips entering
Out = 50% x 16155 = 8078 trips exiting

Weekday, AM Peak Hour

DD In: 88%
DD Out: 12%

Average Rate: 0.48

Total Trips = 0.48 x 7200 = 3456 trip ends

In = 88% x 3456 = 3041 trips entering
Out = 12% x 3456 = 415 trips exiting

Equation: Ln(T) = 0.86 Ln(X)+0.24

Ln(T) = 0.86 x Ln 7200 + 0.24 = 7.88 vpd
Trips= Inv. Log 7.88 = 2644 vpd

In = 88% x 2644 = 2327 trips entering
Out = 12% x 2644 = 318 trips exiting

Weekday, PM Peak Hour

DD In: 17%
DD Out: 83%

Average Rate: 0.46

Total Trips = 0.46 x 7200 = 3312 trips ends

In = 17% x 3312 = 563 trips entering
Out = 83% x 3312 = 2749 trips exiting

Equation: T=0.37(X)+60.08

T = 0.37 x 3000 + 60.08
T= 1170 vpd

In = 17% x 1170 = 199 trips entering
Out = 83% x 1170 = 971 trips exiting

Project:	Ft Meade East Campus	Computed	BJB	Date:	5/28/15
Subject:	Trip Generation	Checked:	ABS	Date:	6/10/15
Task:		Page:	2	of:	2
Job #:		No.:			

Source: ITE Trip Generation, 9th Edition

Land Use 710 - General Office Building
Number of Employees: 4400

Weekday

DD In: 50%
DD Out: 50%

Average Rate: 3.32

Total Trips = 3.32 x 4400 = 14608 trip ends

In = 50% x 14608 = 7304 trips entering
Out = 50% x 14608 = 7304 trips exiting

Equation: Ln(T) = 0.84 Ln(X)+2.23

Ln(T) = 0.84 x Ln 4400 + 2.23 = 9.28 vpd
Trips= Inv. Log 9.28 = 10721 vpd

In = 50% x 10721 = 5361 trips entering
Out = 50% x 10721 = 5361 trips exiting

Weekday, AM Peak Hour

DD In: 88%
DD Out: 12%

Average Rate: 0.48

Total Trips = 0.48 x 4400 = 2112 trip ends

In = 88% x 2112 = 1859 trips entering
Out = 12% x 2112 = 253 trips exiting

Equation: Ln(T) = 0.86 Ln(X)+0.24

Ln(T) = 0.86 x Ln 4400 + 0.24 = 7.45 vpd
Trips= Inv. Log 7.45 = 1720 vpd

In = 88% x 1720 = 1514 trips entering
Out = 12% x 1720 = 207 trips exiting

Weekday, PM Peak Hour

DD In: 17%
DD Out: 83%

Average Rate: 0.46

Total Trips = 0.46 x 4400 = 2024 trips ends

In = 17% x 2024 = 344 trips entering
Out = 83% x 2024 = 1680 trips exiting

Equation: T=0.37(X)+60.08

T = 0.37 x 3000 + 60.08
T= 1170 vpd

In = 17% x 1170 = 199 trips entering
Out = 83% x 1170 = 971 trips exiting

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APPENDIX C

AIR QUALITY CALCULATIONS

C.1 Emissions Estimations and Methodology

The DoD has considered net emissions generated from all direct and indirect sources of air emission that are reasonably foreseeable. *Direct emissions* are emissions that are caused or initiated by a Federal action and occur at the same time and place as the action. *Indirect emissions* are defined as reasonably foreseeable emissions that are caused by the action but might occur later in time and/or be farther removed in distance from the action itself, and the Federal agency can practicably control. More specifically, project-related direct emissions would result from the following:

- ***Demolition and construction activities*** **-** Use of heavy equipment, worker vehicles, use of paints and architectural coatings, paving off gasses, and fugitive particles from surface disturbances.
- ***Operational activities*** **-** Use of emergency generators and boilers.

C.1.1 Demolition and Construction Emissions

Regardless of the sites ultimately chosen, estimated actual construction emissions would be similar. All direct and indirect emissions associated with construction were estimated. The construction emissions were generated by estimating equipment use for utilities, site preparation, construction, and landscaping for the proposed facilities and storage tanks, including:

- Demolition of 1.9 million ft^2 of buildings;
- Construction of ECB 3, ECB 4, ECB 5 and supporting infrastructure;
- Construction of a 330,000 ft^2 building and supporting infrastructure;
- Construction of a 150,000 ft^2 building and supporting infrastructure;
- Construction of three 1,050,000 ft^2 parking facilities;
- Addition of 121 MW of additional back-up power;
- Life-safety generators for all proposed buildings;
- Boilers for all proposed buildings; and
- Additional commuter emissions.

Demolition and construction emissions associated with the use of construction equipment (e.g., bulldozers, backhoes), worker vehicles, the use of VOC paints, paving off-gasses, and fugitive particles from surface disturbances are presented in **Tables C-1**, **C-2**, and **C-3** for all years of construction. This section also outlines all calculations and assumptions made to derive these construction emission estimations.

C.1.1.1 Heavy Construction Equipment

Pollutant emissions resulting from activities associated with constructing the proposed buildings, parking facilities, and roadways were estimated. The typical demolition and construction would involve such activities as demolition of existing buildings or structures, utility installation, road construction, site clearing and grading, building construction, and asphalt paving.

Table C-1. Estimated Construction and Demolition Emissions

	Construction Emissions (tpy)					
	CO	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**VOC**
Year						
1	29.2	40.0	6.2	3.2	5.7	4.9
2	29.7	39.3	6.1	3.2	5.9	4.9
3	31.9	38.9	5.8	3.7	6.0	5.4
4	28.9	32.8	4.0	3.5	5.1	5.1
5	30.6	33.7	5.5	4.4	5.5	5.5
6	47.7	49.8	8.7	7.7	8.5	8.7
7	26.1	26.5	5.9	4.9	4.9	4.8
8	37.3	37.3	8.0	6.8	6.8	6.9
9	45.9	45.9	9.4	8.3	8.3	8.5
10	25.3	24.9	4.6	4.4	4.5	4.7
Construction Emissions – Year 1						
Heavy Equipment Emissions	15.0	38.9	2.7	2.7	5.7	3.1
Worker Trip Emissions	14.3	1.1	0.0	0.0	0.0	1.0
Architectural Coating Emissions	0.0	0.0	0.0	0.0	0.0	0.8
Fugitive Dust Emissions	0.0	0.0	3.5	0.5	0.0	0.0
Total	**29.2**	**40.0**	**6.2**	**3.2**	**5.7**	**4.9**
Construction Emissions – Year 2						
Heavy Equipment Emissions	15.1	38.2	2.8	2.7	5.9	3.0
Worker Trip Emissions	14.5	1.1	0.0	0.0	0.0	1.0
Architectural Coating Emissions	0.0	0.0	0.0	0.0	0.0	0.8
Fugitive Dust Emissions	0.0	0.0	3.3	0.5	0.0	0.0
Total	**29.7**	**39.3**	**6.1**	**3.2**	**5.9**	**4.9**
Construction Emissions – Year 3						
Heavy Equipment Emissions	14.6	37.6	3.4	3.3	5.9	3.1
Worker Trip Emissions	17.3	1.4	0.1	0.1	0.0	1.2
Architectural Coating Emissions	0.0	0.0	0.0	0.0	0.0	1.0
Fugitive Dust Emissions	0.0	0.0	2.4	0.4	0.0	0.0
Total	**31.9**	**38.9**	**5.8**	**3.7**	**6.0**	**5.4**
Construction Emissions – Year 4						
Heavy Equipment Emissions	11.9	31.5	3.5	3.4	5.1	2.8
Worker Trip Emissions	17.0	1.3	0.1	0.1	0.0	1.2
Architectural Coating Emissions	0.0	0.0	0.0	0.0	0.0	1.0
Fugitive Dust Emissions	0.0	0.0	0.5	0.1	0.0	0.0
Total	**28.9**	**32.8**	**4.0**	**3.5**	**5.1**	**5.1**
Construction Emissions – Year 5						
Heavy Equipment Emissions	12.0	32.2	4.4	4.2	5.5	3.0
Worker Trip Emissions	18.6	1.5	0.1	0.1	0.0	1.3
Architectural Coating Emissions	0.0	0.0	0.0	0.0	0.0	1.2
Fugitive Dust Emissions	0.0	0.0	1.1	0.2	0.0	0.0
Total	**30.6**	**33.7**	**5.5**	**4.4**	**5.5**	**5.5**

	Construction Emissions (tpy)					
	CO	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**VOC**
Construction Emissions – Year 6						
Heavy Equipment Emissions	17.3	47.4	7.7	7.5	8.5	4.7
Worker Trip Emissions	30.5	2.4	0.1	0.1	0.1	2.2
Architectural Coating Emissions	0.0	0.0	0.0	0.0	0.0	1.9
Fugitive Dust Emissions	0.0	0.0	1.0	0.1	0.0	0.0
Total	**47.7**	**49.8**	**8.7**	**7.7**	**8.6**	**8.8**
Construction Emissions – Year 7						
Heavy Equipment Emissions	9.0	25.2	4.9	4.7	4.8	2.6
Worker Trip Emissions	17.1	1.3	0.1	0.1	0.0	1.2
Architectural Coating Emissions	0.0	0.0	0.0	0.0	0.0	1.0
Fugitive Dust Emissions	0.0	0.0	1.0	0.1	0.0	0.0
Total	**26.1**	**26.5**	**5.9**	**4.9**	**4.9**	**4.9**
Construction Emissions – Year 8						
Heavy Equipment Emissions	12.6	35.4	6.8	6.6	6.7	3.6
Worker Trip Emissions	24.7	1.9	0.1	0.1	0.1	1.8
Architectural Coating Emissions	0.0	0.0	0.0	0.0	0.0	1.5
Fugitive Dust Emissions	0.0	0.0	1.1	0.2	0.0	0.0
Total	**37.3**	**37.3**	**8.0**	**6.9**	**6.8**	**6.9**
Construction Emissions – Year 9						
Heavy Equipment Emissions	15.5	43.5	8.4	8.1	8.2	4.5
Worker Trip Emissions	30.5	2.4	0.1	0.1	0.1	2.2
Architectural Coating Emissions	0.0	0.0	0.0	0.0	0.0	1.9
Fugitive Dust Emissions	0.0	0.0	1.0	0.1	0.0	0.0
Total	**45.9**	**45.9**	**9.4**	**8.3**	**8.3**	**8.5**
Construction Emissions – Year 10						
Heavy Equipment Emissions	8.4	23.6	4.5	4.4	4.4	2.4
Worker Trip Emissions	16.9	1.3	0.1	0.1	0.0	1.2
Architectural Coating Emissions	0.0	0.0	0.0	0.0	0.0	1.0
Total	**25.3**	**24.9**	**4.6**	**4.4**	**4.5**	**4.7**

Note: Inconsistencies due to rounding may occur.

Demolition and construction would involve the use of various non-road equipment, power generators, and trucks. Pieces of equipment to be used for building construction include, but are not limited to, backhoes, loaders, excavators, air compressors, chain saws, chipping machines, dozers, cranes, pavers, graders, rollers, and heavy trucks. Information regarding the number of pieces and types of construction equipment to be used on the project, the schedule for deployment of equipment (monthly and annually), and the approximate daily operating time (including power level or usage factor) were estimated for each individual construction project based on a schedule of construction activity.

Emissions from construction activities were estimated based on the projected construction activity schedule, the number of vehicles/pieces of equipment, and vehicle/equipment utilization rates. Emission factors for heavy-duty diesel equipment were obtained from USEPA's *NONROAD2005 Emissions Model* (USEPA 2005). The equipment and vehicle operation hours were estimated based on R.S.Means'

Building Cost Construction Data, 64th annual edition (Waier 2006), and field experience from similar projects.

Emission factors in grams of pollutant per hour were multiplied by the estimated running time to calculate total grams of pollutant from each piece of equipment. Finally, total grams of pollutant were converted to tons of pollutant. The following formula was used to calculate hourly emissions from non-road engine sources, including cranes, backhoes, and the like:

$M_i = (N \times EF_i)$

where: M_i = mass of emissions of i^{th} pollutant during inventory period

N = source population (units)

EF_i = average emissions of i^{th} pollutant per unit of use (e.g., grams per hour)

The total annual emissions levels are summarized in **Table C-2**.

Table C-2. Annual Emissions from Construction and Demolition Equipment

Year	Annual emissions (tpy)					
	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC
1	15.0	38.9	2.7	2.7	5.7	3.1
2	15.1	38.2	2.8	2.7	5.9	3.0
3	14.6	37.6	3.4	3.3	5.9	3.1
4	11.9	31.5	3.5	3.4	5.1	2.8
5	12.0	32.2	4.4	4.2	5.5	3.0
6	17.3	47.4	7.7	7.5	8.5	4.7
7	9.0	25.2	4.9	4.7	4.8	2.6
8	12.6	35.4	6.8	6.6	6.7	3.6
9	15.5	43.5	8.4	8.1	8.2	4.5
10	8.4	23.6	4.5	4.4	4.4	2.4

Sources: SCAQMD 1993, USEPA 1995

C.1.1.2 Construction Worker Vehicle Operations

Emissions due to construction worker vehicle use were included in the analysis. Emission factors for motor vehicles were conservatively calculated using the USEPA *MOVES* mobile emission model. These emission factors were then multiplied by the vehicle operational hours to determine motor vehicle emissions. The analysis assumed conservatively that the worker's vehicle would drive 30 miles per day at an average speed of 35 miles per hour. The total annual emissions levels are summarized in **Table C-3**.

Table C-3. Estimated Annual Emissions from Construction Worker Vehicles

Year	Annual Emissions (tpy)					
	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC
1	14.3	1.1	0.0	0.0	0.0	1.0
2	14.5	1.1	0.0	0.0	0.0	1.0
3	17.3	1.4	0.1	0.1	0.0	1.2
4	17.0	1.3	0.1	0.1	0.0	1.2
5	18.6	1.5	0.1	0.1	0.0	1.3
6	30.5	2.4	0.1	0.1	0.1	2.2
7	17.1	1.3	0.1	0.1	0.0	1.2
8	24.7	1.9	0.1	0.1	0.1	1.8
9	30.5	2.4	0.1	0.1	0.1	2.2
10	16.9	1.3	0.1	0.1	0.0	1.2

Sources: SCAQMD 1993, USEPA 2005

C.1.1.3 Emissions from Architectural Coatings

Emission factors relating emissions to total square footage to be built were used to estimate VOC emissions from architectural coating activities— primarily painting activities. For office space, the area to be painted was assumed to be approximately twice the heated area of the facility, and the dry film thickness was assumed to be 3 millimeters (mm). The following formula was used to calculate emissions from the painting of the facilities:

$$E = [(F \times G) / 1000] \times H$$

where: E = emissions of VOCs from architectural coatings

F = pounds of VOC emissions per gallon

G = total area to be coated (floor area x 2)

H = paint coverage.

A sample calculation for architectural coating VOC emissions during construction of an example facility is provided below:

Floor area = 100,000 ft^2

E = [(0.83 [pounds (lb)/gallon] / 400 [ft^2/gallon] x [(100,000 [ft^2] x 2)]]/2,000 [lb/ton]

= 0.208 tons

The total annual emissions levels are summarized in **Table C-4**. In addition, estimated emissions from the potential demolition and construction including architectural coatings are presented in **Section C.2**.

Table C-4. Annual VOC Emissions from Architectural Coatings

Year	Annual VOC Emissions (tpy)
1	0.8
2	0.8
3	1.0
4	1.0
5	1.2
6	1.9
7	1.0
8	1.5
9	1.9
10	1.0

Sources: SCAQMD 1993, COMAR 26.11.35

C.1.1.4 Asphalt Curing Emissions

Asphalt paving would generate emissions from (1) asphalt curing, (2) operation of onsite paving equipment, and (3) operation of motor vehicles, including paving material delivery trucks and worker commuting vehicles. Because the emissions resulting from the operation of onsite paving equipment, trucks, and vehicles were included in the previous section, only asphalt curing-related emissions are discussed in this section. Asphalt curing-related VOC emissions were calculated based on the amount of paving for the onsite parking lot and proposed roadways. The following assumption was used in VOC emission calculations for asphalt curing (SCAQMD 1993):

E = area paved x 2.62 lb VOC/acre

A sample calculation is provided below:

Paved area = 100 acres

E = 100 acres x 2.62 lb VOC/acre/2,000 lb/ton

= 0.131 ton

Due to the minimal paving anticipated for all alternatives, negligible off gas emissions are anticipated.

C.1.1.5 Surface Disturbance

The quantity of dust emissions from construction operations is proportional to the area of land being worked and level of construction activity. The following assumptions were used in $PM_{2.5}$ emission calculations for fugitive dust emissions (USEPA 1995, USEPA 2013a).

E = open area x EF x PM_{10}/TSP x $PM_{2.5}/PM_{10}$ x capture fraction

where: open area = number of acres open

EF = 80 lb TSP/acre

PM_{10}/TSP = 0.45 lb PM_{10}/lb TSP

TSP = total suspended particulates

$PM_{2.5}/PM_{10}$ = 0.15 lb $PM_{2.5}$/lb PM_{10}

Capture fraction = 0.5

A sample calculation is provided below:

Disturbed area = 100 acres

E = 100 ac x 80 lb TSP /acre x 0.45 lb PM_{10}/lb TSP x 0.15 lb $PM_{2.5}$/ lb PM_{10} x 2,000 lb/ton

= 1.35 tons

The total annual emissions levels are summarized in **Table C-5**.

Table C-5. Annual $PM_{2.5}$ Emissions from Surface Disturbance

Year	Annual emissions (tpy)	
	PM_{10}	**$PM_{2.5}$**
1	3.5	0.5
2	3.3	0.5
3	2.4	0.4
4	0.5	0.1
5	1.1	0.2
6	1.0	0.1
7	1.0	0.1
8	1.1	0.2
9	1.0	0.1
10	<0.1	<0.1

Sources: USEPA 1995, USEPA 2013a

C.1.2 Operational Emissions

Operational emissions occur as a result of the operation (heating boilers and emergency generators) of the proposed facilities. The total annual operational emissions levels are summarized in **Table C-11** through **C-16**.

C.2 Emission Calculations

Table C-6. Project Areas and Durations

Project Name	Year	Clearing Area [acres]	Building Area [ft^2]	Paving [acres]	Days of Clearing	Days of Building	Days of Paving
East Campus Building 3 (clearing)	1	5.29	0	0	230	0	0
East Campus Building 3 (building)	1	0	400000	0	0	230	0
Demolition of Buildings 1	1	11.5	0	0	230	0	0
East Campus Building 3 (building)	2	0	400000	0	0	230	0
East Campus Building 3 (paving)	2	0	0	5.29	0	0	230
Parking Garage 1 (clearing)	2	4.6	0	0	230	0	0
Demolition of Buildings 2	2	11.5	0	0	230	0	0
Parking Garage 1 (building)	3	0	500000	0	0	230	0
Demolition of Buildings 3	3	11.5	0	0	230	0	0
Parking Garage 1 (building)	4	0	500000	0	0	230	0
Parking Garage 1 (paving)	4	0	0	4.6	0	0	230
Smaller Building 1 (clearing)	4	2.3	0	0	230	0	0
Smaller Building 1 (building)	5	0	150000	0	0	230	0
Smaller Building 1 (paving)	5	0	0	1.15	0	0	230
East Campus Building 4 (clearing)	5	5.29	0	0	230	0	0
East Campus Building 4 (building)	5	0	400000	0	0	230	0
East Campus Building 4 (building)	6	0	400000	0	0	230	0
East Campus Building 4 (paving)	6	0	0	5.29	0	0	230
Parking Garage 2 (clearing)	6	4.6	0	0	230	0	0
Parking Garage 2 (building)	6	0	500000	0	0	230	0
Parking Garage 2 (building)	7	0	500000	0	0	230	0
Parking Garage 2 (paving)	7	0	0	4.6	0	0	230
Smaller Building 2 (clearing)	7	4.6	0	0	230	0	0
Smaller Building 2 (building)	8	0	330000	0	0	230	0
Smaller Building 2 (paving)	8	0	0	2.3	0	0	230
East Campus Building 5 (clearing)	8	5.29	0	0	230	0	0
East Campus Building 5 (building)	8	0	400000	0	0	230	0
East Campus Building 5 (building)	9	0	400000	0	0	230	0
East Campus Building 5 (paving)	9	0	0	5.29	0	0	230
Parking Garage 3 (clearing)	9	4.6	0	0	230	0	0
Parking Garage 3 (building)	9	0	500000	0	0	230	0
Parking Garage 3 (building)	10	0	500000	0	0	230	0
Parking Garage 3 (paving)	10	0	0	4.6	0	0	230

Table C-7. Heavy Equipment Emissions

Project	Year	Emissions (tpy)					
		CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC
East Campus Building 3 (clearing)	1	1.32	3.24	0.23	0.23	0.54	0.22
East Campus Building 3 (building)	1	10.78	28.59	1.98	1.93	3.94	2.38
Demolition of Buildings 1	1	2.87	7.05	0.51	0.49	1.18	0.48
East Campus Building 3 (building)	2	10.51	27.20	1.93	1.88	3.94	2.26
East Campus Building 3 (paving)	2	0.71	1.72	0.13	0.13	0.30	0.12
Parking Garage 1 (clearing)	2	1.12	2.65	0.20	0.19	0.47	0.18
Demolition of Buildings 2	2	2.79	6.63	0.49	0.48	1.18	0.45
Parking Garage 1 (building)	3	12.07	31.50	2.80	2.73	4.78	2.72
Demolition of Buildings 3	3	2.53	6.06	0.58	0.56	1.15	0.42
Parking Garage 1 (building)	4	10.96	29.09	3.21	3.12	4.63	2.62
Parking Garage 1 (paving)	4	0.51	1.26	0.15	0.15	0.24	0.09
Smaller Building 1 (clearing)	4	0.45	1.10	0.13	0.13	0.22	0.08
Smaller Building 1 (building)	5	2.98	8.08	1.08	1.05	1.34	0.76
Smaller Building 1 (paving)	5	0.11	0.29	0.04	0.04	0.06	0.02
East Campus Building 4 (clearing)	5	0.92	2.31	0.35	0.34	0.50	0.17
East Campus Building 4 (building)	5	7.94	21.54	2.88	2.80	3.58	2.02
East Campus Building 4 (building)	6	7.16	19.76	3.17	3.08	3.47	1.97
East Campus Building 4 (paving)	6	0.45	1.19	0.22	0.21	0.26	0.10
Parking Garage 2 (clearing)	6	0.71	1.78	0.34	0.33	0.42	0.14
Parking Garage 2 (building)	6	8.95	24.70	3.96	3.85	4.33	2.46
Parking Garage 2 (building)	7	8.04	22.69	4.30	4.18	4.20	2.35
Parking Garage 2 (paving)	7	0.33	0.93	0.21	0.20	0.22	0.08
Smaller Building 2 (clearing)	7	0.62	1.58	0.37	0.36	0.40	0.14
Smaller Building 2 (building)	8	5.31	14.97	2.84	2.76	2.77	1.55
Smaller Building 2 (paving)	8	0.17	0.46	0.11	0.10	0.11	0.04
East Campus Building 5 (clearing)	8	0.71	1.82	0.43	0.41	0.47	0.16
East Campus Building 5 (building)	8	6.43	18.15	3.44	3.34	3.36	1.88
East Campus Building 5 (building)	9	6.43	18.15	3.44	3.34	3.36	1.88
East Campus Building 5 (paving)	9	0.38	1.07	0.24	0.24	0.25	0.09
Parking Garage 3 (clearing)	9	0.62	1.58	0.37	0.36	0.40	0.14
Parking Garage 3 (building)	9	8.04	22.69	4.30	4.18	4.20	2.35
Parking Garage 3 (building)	10	8.04	22.69	4.30	4.18	4.20	2.35
Parking Garage 3 (paving)	10	0.33	0.93	0.21	0.20	0.22	0.08

Sources: SCAQMD 1993, USEPA 1995

Table C-8. Worker Trip Emissions

		NO_x	$PM_{2.5}$	SO_2	VOC
Emission Factors (gram/mile)		0.32	0.01	0.01	0.29
Project Emissions (tpy)	**VMT**	**NO_x**	**$PM_{2.5}$**	**SO_2**	**VOC**
ECB 3 (clearing)	68,439	0.02	0.00	0.00	0.02
ECB 3 (building)	2,980,800	1.04	0.04	0.03	0.95
Demolition 1	148,781	0.05	0.00	0.00	0.05
ECB 3 (building)	2,980,800	1.04	0.04	0.03	0.95
ECB 3 (paving)	68,439	0.02	0.00	0.00	0.02
Parking Garage 1 (clearing)	59,513	0.02	0.00	0.00	0.02
Demolition 2	148,781	0.05	0.00	0.00	0.05
Parking Garage 1 (building)	3,726,000	1.30	0.05	0.04	1.19
Demolition 3	148,781	0.05	0.00	0.00	0.05
Parking Garage 1 (building)	3,726,000	1.30	0.05	0.04	1.19
Parking Garage 1 (paving)	59,513	0.02	0.00	0.00	0.02
Smaller Building 1 (clearing)	29,756	0.01	0.00	0.00	0.01
Smaller Building 1 (building)	1,117,800	0.39	0.01	0.01	0.36
Smaller Building 1 (paving)	14,878	0.01	0.00	0.00	0.00
ECB 4 (clearing)	68,439	0.02	0.00	0.00	0.02
ECB 4 (building)	2,980,800	1.04	0.04	0.03	0.95
ECB 4 (building)	2,980,800	1.04	0.04	0.03	0.95
ECB 4 (paving)	68,439	0.02	0.00	0.00	0.02
Parking Garage 2 (clearing)	59,513	0.02	0.00	0.00	0.02
Parking Garage 2 (building)	3,726,000	1.30	0.05	0.04	1.19
Parking Garage 2 (building)	3,726,000	1.30	0.05	0.04	1.19
Parking Garage 2 (paving)	59,513	0.02	0.00	0.00	0.02
Smaller Building 2 (clearing)	59,513	0.02	0.00	0.00	0.02
Smaller Building 2 (building)	2,459,160	0.86	0.03	0.03	0.79
Smaller Building 2 (paving)	29,756	0.01	0.00	0.00	0.01
ECB 5 (clearing)	68,439	0.02	0.00	0.00	0.02
ECB 5 (building)	2,980,800	1.04	0.04	0.03	0.95
ECB 5 (building)	2,980,800	1.04	0.04	0.03	0.95
ECB 5 (paving)	68,439	0.02	0.00	0.00	0.02
Parking Garage 3 (clearing)	59,513	0.02	0.00	0.00	0.02
Parking Garage 3 (building)	3,726,000	1.30	0.05	0.04	1.19
Parking Garage 3 (building)	3,726,000	1.30	0.05	0.04	1.19
Parking Garage 3 (paving)	59,513	0.02	0.00	0.00	0.02

Table C-9. Architectural Coating Emissions (Paint)

Project	Floor Area (ft2)	Wall Surface (ft2)	EFVOC [lb/1000 ft2]	VOC [tons]
East Campus Building 3	400,000	800,000	55.5	0.83
East Campus Building 3	400,000	800,000	55.5	0.83
Parking Garage 1	500,000	1,050,000	55.5	1.04
Parking Garage 1	500,000	1,050,000	55.5	1.04
Smaller Building 1	150,000	300,000	55.5	0.31
East Campus Building 4	400,000	800,000	55.5	0.83
East Campus Building 4	400,000	800,000	55.5	0.83
Parking Garage 2	500,000	1,050,000	55.5	1.04
Parking Garage 2	500,000	1,050,000	55.5	1.04
Smaller Building 2	330,000	660,000	55.5	0.69
East Campus Building 5	400,000	800,000	55.5	0.83
East Campus Building 5	400,000	800,000	55.5	0.83
Parking Garage 3	500,000	1,050,000	55.5	1.04
Parking Garage 3	500,000	1,050,000	55.5	1.04

Sources: SCAQMD 1993, COMAR 26.11.35

Key: EFVOC = emission factor volatile organic compound

Table C-10. Fugitive Dust Emissions

Project	PM_{10}/ TSP	$PM_{2.5}$/ PM_{10}	EFTSP [lb/acre/day]	Capture Fraction	Duration [days]	Cleared Area [acres]	PM_{10} [tons]	$PM_{2.5}$ [tons]
ECB 3						5.3	1.1	0.16
Demolition 1	0.45	0.15	80	0.5	230	11.5	2.4	0.36
Parking Garage 1	0.45	0.15	80	0.5	230	4.6	1.0	0.14
Demolition of Buildings 2	0.45	0.15	80	0.5	230	11.5	2.4	0.36
Demolition of 3	0.45	0.15	80	0.5	230	11.5	2.4	0.36
Smaller Building 1						2.3	0.5	0.07
ECB 4 (clearing)	0.45	0.15	80	0.5	230	5.3	1.1	0.16
Parking Garage 1	0.45	0.15	80	0.5	230	4.6	1.0	0.14
Smaller Building 2	0.45	0.15	80	0.5	230	4.6	1.0	0.14
ECB 5	0.45	0.15	80	0.5	230	5.3	1.1	0.16
Parking Garage 1	0.45	0.15	80	0.5	230	4.6	1.0	0.14

Sources: USEPA 1995, USEPA 2013a

Key: EFTSP = emission factor total suspended particles

Table C-11. Operational Emissions – Emergency Power Generation Alternatives

	Emissions (tpy)								
	NO_x	**CO**	**VOC**	**PM**	**SO_x**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Potential to Emit (PTE)	100 hours								
Generator Alternative									
Generators to complete existing plant	1.4	1.9	0.1	0.1	<0.1	1,384	0.8	9.8E-03	1,406
Generators for the proposed 105.6-MW plant	8.4	11.7	0.8	0.3	0.2	8,307	4.5	5.9E-02	8,438
Life safety generators	0.8	0.3	<0.1	<0.1	<0.1	565	0.3	4.6E-03	574
Total PTE	10.7	13.9	1.0	0.4	0.2	10,256	5.6	7.3E-02	10,418
Generator and Combustion Turbine Alternative									
Generators to complete existing plant	1.4	1.9	0.1	0.1	<0.1	1,384	0.8	9.8E-03	1,406
Turbines for the proposed 105-MW plant	2.8	2.8	0.1	<0.1	<0.1	5,162	1.5	2.4E-02	5,207
Life safety generators	0.8	0.3	<0.1	<0.1	<0.1	565	0.3	4.6E-03	574
Total PTE	5.0	5.1	0.3	0.1	<0.1	7,112	2.5	3.8E-02	7,187
Generator Alternative (Alternatives 1 and 2)									
Generators to complete existing plant	1.4	1.9	0.1	0.1	0.0	1,384	0.8	9.8E-03	1,406
Generators for the proposed 105.6-MW plant	4.9	6.8	0.5	0.2	0.1	4,846	2.6	3.4E-02	4,922
Life safety generators	0.8	0.3	0.0	0.0	0.0	565	0.3	4.6E-03	574
Total PTE	7.1	9.1	0.6	0.2	0.1	6,795	3.7	4.9E-02	6,903
Actual Emissions	17 hours								
Generator Alternative									
Generators to complete existing plant	0.2	0.3	<0.1	<0.1	<0.1	235	0.1	1.7E-03	239
Generators for the proposed 105.6-MW plant	1.4	2.0	0.1	0.1	<0.1	1,412	0.8	1.0E-02	1,434
Life-safety generators	0.1	0.1	<0.1	<0.1	<0.1	96	0.1	7.8E-04	98
Total Actual Emissions (PTE)	1.8	2.4	0.2	0.1	<0.1	1,744	1.0	1.2E-02	1,771
Generator and Combustion Turbine Alternative									
Generators to complete existing plant	0.2	0.3	<0.1	<0.1	<0.1	235	0.1	1.7E-03	239
Turbines for the proposed 105.6-MW plant	0.5	0.5	<0.1	<0.1	<0.1	878	0.3	4.1E-03	885
Life-safety generators	0.1	0.1	<0.1	<0.1	<0.1	96	0.1	7.8E-04	98
Total Actual Emissions (PTE)	0.8	0.9	<0.1	<0.1	<0.1	1,209	0.4	6.5E-03	1,222
Generator Alternative (Alternatives 1 and 2)									
Generators to complete existing plant	0.2	0.3	0.0	0.0	0.0	235	0.1	1.7E-03	239
Generators for the proposed 105.6-MW plant	0.8	1.2	0.1	0.0	0.0	824	0.4	5.9E-03	837
Life-safety generators	0.1	0.1	0.0	0.0	0.0	96	0.1	7.8E-04	98
Total Actual Emissions (PTE)	1.2	1.5	0.1	0.0	0.0	1,155	0.6	8.3E-03	1,173

Table C-12. Operational Emissions - Generator Alternative - 105.6-MW Plant

Emergency Generator Emissions		
Generator Size	3,000	kW
Generator Size	4,023	hp
Maximum Hours of Operation	100	Hours
Actual Hours of Operation	17	Hours
Nominal Emission Rates		
NO_x [1]	0.53	
CO[1]	0.73	
VOC[3]	0.05	
PM[1]	0.02	
SO_x[1]	<0.01	
CO_2[2]	520.20	
CH_4[2]	0.28	

	Number of Generators (units)	Emissions (tpy)							
		NO_x	CO	VOC	PM	SO_x	CO_2	CH_4	N_2O
Proposed Action									
PTE	39	9.1	12.6	0.9	0.3	0.2	8999.0	4.9	6.4E-02
Actual Emissions	39	1.6	2.1	0.1	0.1	<0.1	1529.8	0.8	1.1E-02
Alternatives 1 and 2									
PTE	21	4.9	6.8	0.5	0.2	0.1	4845.6	2.6	3.4E-02
Actual Emissions	21	0.8	1.2	0.1	0.0	0.0	823.8	0.4	5.9E-03

1. Source: Caterpillar 2012
2. Source: USEPA 1995
3. Source: USEPA 2014

Key: kW = kilowatt; hp = horsepower

Table C-13. Operational Emissions - Generator Alternative - Complete Existing Plant

Emergency Generator Emissions		
Generator Size	3,000	kW
Generator Size	4,023	hp
Maximum Hours of Operation	100	Hours
Actual Hours of Operation	17	Hours
Nominal Emission Rates		
NO_x [1]	0.53	
CO [1]	0.73	
VOC [3]	0.05	
PM [1]	0.02	
SO_x [1]	<0.01	
CO_2 [2]	520.20	
CH_4 [2]	0.28	

	Number of Generators (units)	Emissions (tpy)							
		NO_x	CO	VOC	PM	SO_x	CO_2	CH_4	N_2O
PTE	6	1.4	1.9	0.1	0.1	<0.1	1384.5	0.8	9.8E-03
Actual Emissions	6	0.2	0.3	<0.1	<0.1	<0.1	235.4	0.1	1.7E-03

1. Source: Caterpillar 2012
2. Source: USEPA 1995
3. Source: USEPA 2014

Key: kW = kilowatt; hp = horsepower

Table C-14. Operational Emissions – Life-Safety Generator Emissions

Life Safety Generators Information		
Maximum Hours of Operation (PTE)[1]	100	Hours
Actual Hours of Operation	17	Hours

Manufacturer Nominal Emission Rates (g/hphr)			
Generator Capacity [kW]	**2000**	**900**	**450**
NO_x [1]	0.48	0.39	5.15
CO[1]	0.23	0.6	0.42
VOC[3]	0.03	0.03	0.03
PM[1]	<0.01	<0.01	0.03
SO_x [1]	<0.01	<0.01	<0.01
CO_2[3]	520.2	520.2	520.2
CH_4[3]	0.28375	0.28375	0.28375

	Number of Units	**Emissions (tpy)**							
		NO_x	**CO**	**VOC**	**PM**	**SO_x**	**CO_2**	**CH_4**	**N_2O**
2000	3	0.4	0.2	<0.1	<0.1	<0.1	461	0.3	3.7E-03
900	1	0.1	0.1	<0.1	<0.1	<0.1	69	<0.1	5.6E-04
450	1	0.3	<0.1	<0.1	<0.1	<0.1	34	<0.1	2.6E-04
PTE	-	0.8	0.3	<0.1	<0.1	<0.1	565	0.3	4.6E-03
Actual Emissions	-	0.1	0.1	<0.1	<0.1	<0.1	96	0.1	7.8E-04

1. Source: Cummins 2015a, Cummins 2015b, Cummins 2015c
2. Source: USEPA 1995
3. Source: USEPA 2014

Key: g/hphr = grams per brake horsepower hour; kW = kilowatt

Table C-15. Operational Emissions - Natural Gas Turbines - 105.6-MW Plant

Natural Gas Turbine Information			
Turbine Capacity	21,400	kW	
Quantity of turbines	5	EA	
Total Turbine Capacity	107,000	kW	
Turbine Capacity	365,126,800	BTU/hr	
Turbine Efficiency	0.39		
Total Heat Input	938,629,306	BTU/hr	
Heat Content for Natural Gas	1,020	Btu/cf	
Total Hours	100	Hours	
Total Heat	9.39E+10	Btu	
Total Volume	92,022,481	cf	
Emission Factors			
	AP-42		
	lb/MMBtu	**lb/10^6scf**	
NO_x	9.90E-02	100.98	
CO	1.50E-02	15.30	
VOC	2.10E-03	2.14	
	Manufacture's Data		
	lb/MMBtu	**lb/10^6scf**	
NO_x	5.90E-02	60.18	
CO	6.00E-02	61.20	
VOC	2.10E-03	2.14	
	AP-42		
	lb/MMBtu	**lb/10^6scf**	
CO_2	1.10E+02	112200.00	
CH_4	8.60E-03	8.77	
N_2O	3.00E-03	3.06	
	Manufacturer's Data		
	lb/MMBtu	**percentage**	**lb/10^6scf**
CH_4 (92.79% of fuel)	3.40E-02	0.93	32.18
N_2O (N_2 is 1.51% of fuel)	3.40E-02	0.02	0.52

Potential to Emit (tpy)							
NO_x	**CO**	**VOC**	**PM**	**SO_x**	**CO_2**	**CH_4**	**N_2O**
2.8	2.8	0.1	<0.1	<0.1	5162	1.5	<0.1

1. Source: USEPA 1995
2. Source: Caterpillar 2015

Key: scf = standard cubic feet

Table C-16. Operational Emissions - Heating Alternatives

Building	Buildings	Type of Boiler	Hours	Units Per Building	Number of Units	Total Number of Hours	Natural Gas Consumption (10^6scf/year
800,000 ft^2 Buildings	3	VTG6000	335	3	9	3,015	18.1
330,000 ft^2 Building	1	VTG-4000	375	2	2	750	3.0
150,000 ft^2 Building	1	VTG-2000	449	2	2	898	1.8

	Emission Factors (lb/hour)						Emission Factors (lb/10^6scf)			
	NO_x	CO	VOC	PM_{10}	$PM_{2.5}$	SO_x	CO_2	CH_4	N_2O	
VTG-6000	0.2118	0.2190	0.0330	0.0456	0.0456	0.0036	120,000	2.30	0.64	
VTG-4000	0.4706	0.1460	0.0220	0.0304	0.0304	0.0024	120,000	2.30	0.64	
VTG-2000	0.2353	0.0730	0.0110	0.0152	0.0152	0.0012	120,000	2.30	0.64	
Potential to Emit (tpy)										
800,000 ft^2 Buildings	8.3	8.6	1.3	1.8	<0.1	0.1	28,382	0.5440	0.1514	28,441
330,000 ft^2 Building	4.1	1.3	0.2	0.3	0.3	<0.1	4,205	0.0806	0.0224	4,213
150,000 ft^2 Building	2.1	0.6	0.1	0.1	0.1	<0.1	2,102	0.0403	0.0112	2,107
Estimated Actual Emissions (tpy)										
800,000 ft^2 Buildings	0.3	0.3	<0.1	0.1	0.1	<0.1	1,085	0.0208	0.0058	1,088
330,000 ft^2 Building	0.2	0.1	<0.1	<0.1	<0.1	<0.1	180	0.0035	0.0010	180
150,000 ft^2 Building	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	108	0.0021	0.0006	108
Proposed Action										
Potential to Emit (tpy)										
Packaged Boilers	14.5	10.6	1.6	2.2	2.2	0.2	34,690	0.6649	0.1850	34,761
Packaged Boilers–GSHP	8.3	8.6	1.3	1.8	1.8	0.1	28,382.4	0.5	0.2	28,441
Estimated Actual Emissions (tpy)										
Packaged Boilers	0.6	0.4	0.1	0.1	0.1	<0.1	1,373	0.0263	0.0073	1,376
Packaged Boilers–GSHP	0.3	0.3	<0.1	0.1	0.1	<0.1	1,085.4	<0.1	<0.1	1,088
Alternatives 1 and 2										
Potential to Emit (tpy)										
Packaged Boilers	4.8	3.5	0.5	0.7	0.7	0.1	11,563	0.2216	0.0617	11,587
Packaged Boilers–GSHP	2.8	2.9	0.4	0.6	0.6	<0.1	9,460.8	0.2	0.1	9,480
Estimated Actual Emissions (tpy)										
Packaged Boilers	0.2	0.1	<0.1	<0.1	<0.1	<0.1	458	0.0088	0.0024	459
Packaged Boilers–GSHP	0.1	0.1	<0.1	<0.1	<0.1	<0.1	362	0.0069	0.0019	363

1. Source: Fulton 2015

C.3 Draft Record of Non-Applicability

Draft Record of Non-Applicability (RONA) to the General Conformity Rule for the East Campus Integration Program Fort Meade, Maryland

April 19, 2016

Air emissions were estimated for the construction and operation of the proposed 2.88 million square feet of facilities and associated support infrastructure associated with all phases of the East Campus Integration Program for the National Security Agency (NSA) Campus on Fort Meade, Maryland. The development would be implemented over 10 years; therefore, emissions in any given year would be limited. Emissions from land clearing and grading, construction of buildings, associated parking areas and structures, and support utility upgrades were assessed. Operational emissions from emergency generators, boilers, and personnel commutes were assessed. General Conformity under the Clean Air Act, Section 176 has been evaluated according to the requirements of 40 CFR 93.153, Subpart B. Regardless of the alternative ultimately implemented, the requirements of this rule are not applicable because:

> The highest total annual direct and indirect emissions from this action have been estimated at 49.8 tons NO_x, 8.7 tons VOCs, 8.3 tons $PM_{2.5}$, and 8.5 tons SO_2 per year, which would be below the conformity threshold values of 50 tons VOCs and 100 tons for SO_2, $PM_{2.5}$, and NO_x.

Supporting documentation and emission estimates:

( ) Are Attached

(X) Appear in the NEPA Documentation

( ) Other (Not Necessary)

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TITLE
National Security Agency

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APPENDIX D

ESA SECTION 7 DOCUMENTATION

NATIONAL SECURITY AGENCY
CENTRAL SECURITY SERVICE
Fort George G. Meade, Maryland 20755

August 28, 2015

Ms. Julie Slacum
Chesapeake Bay Field Office
U.S. Fish & Wildlife Service
177 Admiral Cochrane Drive
Annapolis, MD 21401

RE: Environmental Impact Statement for the East Campus Integration Program, Fort Meade, Maryland, Endangered Species Act Section 7 Informal Consultation Initiation

Dear Ms. Slacum,

The Department of Defense (DoD) proposes to continue integrating the National Security Agency (NSA) East Campus with the NSA Main Campus through development of operational complex and headquarters space in the northern portion of the East Campus and in the 9800 Troop Support Area of Fort George G. Meade (i.e., East Campus Integration Program [ECIP]). A Draft Environmental Impact Statement (EIS) is currently being prepared to address the proposal by the DoD for implementation of the ECIP, including the construction and operation of associated facilities for the NSA complex at Fort Meade and demolition of some existing facilities.

In accordance with Section 7(a)(2) of the Endangered Species Act, as amended (50 CFR 402.14(a)), NSA seeks to consult with the USFWS regarding the Proposed Action. On May 4, 2015, the USFWS concurred with the U.S. Army Installation Management Command's (IMCOM) determination that select military mission operations on Army installations are not likely to adversely affect the threatened northern long-eared bat (*Myotis septentrionalis*). The programmatic informal consultation includes conservation measures outlined in the April 24, 2015, *Programmatic Informal Consultation and Management Guidelines on the Northern Long-eared Bat (Myotis septentrionalis) for Ongoing Operations on Installation Management Command (IMCOM) Installations* (Programmatic Guidelines). The conservation measures are intended to be incorporated into activities to avoid adverse effects on northern long-eared bats, achieving the "not likely to adversely affect" determination. However, the Programmatic Guidelines indicate that site-specific consultation with the local USFWS field office (i.e., Chesapeake Bay Field Office for the Proposed Action) may be required to adequately assess the potential direct and indirect effects associated with construction projects.

An advance description of the Proposed Action, environmental baseline of the project area, and analysis of potential effects on northern long-eared bats are enclosed to initiate informal Section 7 consultation and review for this project under the Endangered Species Act, as amended. Should you have any questions or comments, please contact me by telephone at 301-688-2970, or email at jdwill2@nsa.gov.

Sincerely,

Jeffrey D. Williams

Jeffrey D. Williams REM, LEED-AP
Director, Environmental Sustainability
Occupational Health, Environment, and Safety Systems

Enclosure:
Project Description/Environmental Baseline/Effects Analysis

1. Project Description

The Department of Defense (DoD) proposes to continue integrating the National Security Agency's (NSA's) East Campus with the NSA Main Campus on Fort Meade through development of operational complex and headquarters space in the northern portion of the East Campus and in the 9800 Troop Support Area (i.e., the Proposed Action). Implementation of this East Campus Integration Program (ECIP) entails construction and operation of new facilities for operations and headquarters space within the 150-acre ECIP project area and demolition of buildings and infrastructure. The ECIP project area, as shown in **Figure 1**, includes the locations being considered for development of operations and headquarters space; some parking facility location alternatives and locations of buildings proposed for demolition are outside of this project area. Further details on land use planning, principal facilities, and supporting infrastructure are provided in the following sections.

1.1 Land Use Planning

The NSA Main Campus consists of existing developed areas used by NSA on Fort Meade generally located northwest of Emory Road and Canine Road and southwest of Emory Road and O'Brien Road. The NSA East Campus is east of the NSA Main Campus and consists of approximately 240 acres (NSA 2013) generally bordered by O'Brien Road to the west, Rockenbach Road to the north, Midway Branch to the east, and an undeveloped road extending east from Samford Road to the south (see **Figure 1**). A U.S. Army satellite communications facility that is not part of NSA is located in the central portion of this area, between the NSA Main and East Campuses and south of the ECIP project area. The ECIP project area includes the northern portion of the East Campus and the 9800 Troop Support Area.

The northern portion of the East Campus consists of approximately 84 acres. This area is currently generally undeveloped, or occupied by a staging area for development of the southern portion of the East Campus. Completion of ongoing construction activities in the southern portion of the East Campus is planned to occur in fiscal year (FY) 2018, and additional elements not yet under construction in this area would be completed by FY 2020.

The other major portion of the ECIP project area is the 9800 Troop Support Area, an approximately 49-acre tract west of the northwest portion of the East Campus. The 9800 Troop Support Area is bordered by Canine Road to the west, Rockenbach Road to the north, 3rd Cavalry Road to the east, and Emory Road to the south. This area is not currently part of the NSA Main Campus; however, both the *Long Range Component of the Fort Meade Real Property Master Plan* and the *NSA-Washington (NSAW) Facilities Master Plan* identify the 9800 Troop Support Area as reserved for redevelopment by the NSA as part of the ECIP (Fort Meade 2013, NSA 2013). The 9800 Troop Support Area currently includes barracks (some of which are currently being used for administrative functions), a dining facility, fitness center, post office, and support facilities, including those used to support NSA operations. Under the Proposed Action, these structures would be demolished and new structures constructed.

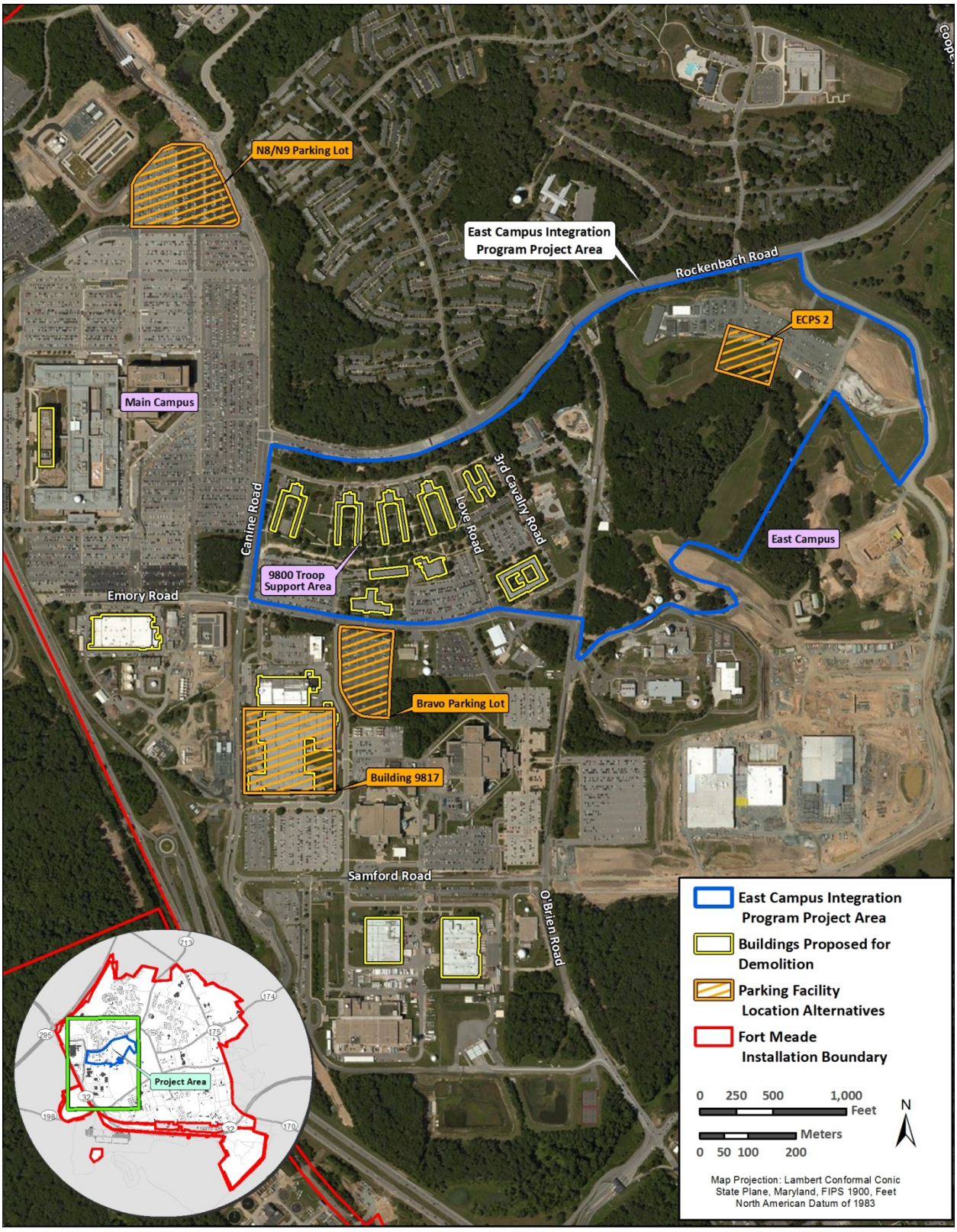

Figure 1. Proposed Action and Surrounding Areas

An approximately 18-acre triangular site east of the 9800 Troop Support Area and west of the northern portion of the East Campus is also part of the ECIP project area. This area is bordered by 3rd Cavalry Road to the west, Rockenbach Road to the north, and O'Brien Road to the east, and contains the Children's World Learning Center for employee childcare and the NSA recycling yard.

The ECIP takes into account several factors, including mission requirements, the condition of current facilities (both on and off the NSA's Campus at Fort Meade), space planning, land availability, utility requirements, traffic and parking, and environmental impacts. A key factor is the mission co-location to provide a more efficient and effective work environment for mission-critical functions of the entire Intelligence Community.

The NSA would consolidate mission elements, which would enable grouping services and support services across the NSA Campus based on function; facilitate a more collaborative environment and optimal adjacencies; and provide administrative capacity for up to 13,300 personnel, including 6,100 personnel who currently work on the existing NSA Campus and 7,200 personnel currently located off site. The personnel located outside of Fort Meade are currently in government-owned or leased space at Fort Meade or locations throughout the Baltimore-Washington metropolitan area.

The *NSAW Facilities Master Plan* identifies NSA development in the northern portion of the East Campus and the 9800 Troop Support Area (i.e., ECIP project area) to create a contiguous NSA Campus that unites existing facilities with new structures (NSA 2013). Additionally, the *Long Range Component of the Fort Meade Real Property Master Plan* designates both the East Campus and the 9800 Troop Support Area as part of the NSA expansion, and depicts both areas as part of the NSA Exclusive Use Area in the Future Land Use Plan (Fort Meade 2013).

The DoD proposes to construct the ECIP over a period of approximately 10 years (FY 2019 to 2029).

1.1.1 Principal Facilities

The DoD proposes to construct and operate approximately 2,880,000 square feet (ft^2) of operational complex and headquarters space consisting of five buildings. These facilities would consist of East Campus Building (ECB) 3, ECB 4, and ECB 5, each with approximately 800,000 ft^2, and two smaller buildings of 330,000 ft^2 and 150,000 ft^2. ECBs 1 and 2 are currently under construction in the southern portion of the East Campus. The proposed buildings would include an open environment conducive to both physical and virtual collaboration; special purpose space, including support and enabler areas (e.g., lobbies and main reception); and supporting electrical, mechanical, and fire protection/suppression components.

Construction of the proposed buildings and the increase of personnel would require additional campus parking. The NSA Campus has limited developable land; therefore, the use of multi-level (i.e., at least four levels) parking structures are considered in lieu of surface parking. Parking lots are fully used most days, including overflow parking, so the net loss of any parking (i.e., construction at the 9800 Troop Support Area that displaces existing parking) would require replacement parking. The exact quantity, size, and capacity of parking structures would not be known until the detailed design process begins. Four alternatives for locations of parking structures are available to DoD and are presented in **Figure 1**.

As these four sites are outside the core ECIP project area and are all currently fully developed with parking lots or other facilities, they are not discussed further for the purposes of this consultation.

Because the development of the ECIP is in the planning stages, no detailed engineering or design work for proposed facilities has yet been accomplished. Therefore, the Environmental Impact Statement (EIS) currently being prepared does not consider various design factors in detail and makes general assumptions about the proposed development. The exact space requirements, locations, and layouts of proposed buildings and infrastructure would not be known until the detailed design process begins. Therefore, the proposed facilities and infrastructure analyzed in the EIS are interchangeable with respect to the location in which each would eventually occur.

As part of the Proposed Action, the DoD would demolish approximately 1.9 million ft^2 of buildings and infrastructure on the NSA Main Campus (1,291,206 ft^2) and the 9800 Troop Support Area (592,269 ft^2) (see **Figure 1**). All nine buildings in the 9800 Troop Support Area would be demolished to provide room for the proposed facilities and supporting infrastructure. These buildings include Buildings 9801, 9802, 9803, 9804, 9805, 9810, 9827, 9828, and 9829. After construction of each of the proposed facilities on the East Campus and 9800 Troop Support Area are completed and personnel transferred to the facilities, Buildings 9703, 9705, 9800A, 9808, 9814, and 9817 on the NSA Main Campus would be vacated and demolished. Three surface parking lots in the 9800 Troop Support Area would be demolished to make room for the proposed buildings under the ECIP.

1.1.2 Supporting Infrastructure

Infrastructure supporting the proposed operational complex and headquarters space would include electrical substation, emergency generator capacity providing 121 megawatts (MW) of electricity; life-safety generators; building heating systems; utilities, including water, natural gas, and communications services; transportation infrastructure, including roads, parking structures, and sidewalks; and stormwater management facilities.

The Proposed Action would require the addition of 121 MW of emergency power generating facilities for the NSA Campus at Fort Meade. Currently, 171 MW of primary substation capacity has been constructed for the NSA East Campus. The 171 MW of power for the campus would be supported by the substation, 65.4-MW emergency power plants (of which 50 MW has been constructed), and a 105.6-MW emergency power plant. Therefore, the Proposed Action includes the addition of 15.4 MW to complete the existing emergency generator plants, and the construction and operation of a 105.6-MW emergency power plant, which totals 121 MW. Both the upgrades to the existing plants and the proposed plants would have associated switch gear, substation and associated equipment and ductbanks, air pollution control equipment, oil storage tanks, and urea storage tanks. Three days (72 hours) of fuel to operate any generators, if ultimately selected, would be stored onsite. Four alternatives for emergency power generation equipment are being considered. Life-safety power generation would be independent of emergency power generation, and would include approximately 7.4 MW of generators.

The facilities are in the preliminary design stages and a detailed list of equipment is unavailable at this time. All life-safety generators would be internal combustion engines; however, not all units would necessarily be made by the same manufacturer. Generators may be selected to use different fuel types or multiple fuel types; however, the use of diesel fuel is used as a reasonable worst-case scenario to assess

environmental impacts under the National Environmental Policy Act of 1969 (NEPA). The types and sizes of new generators, timing of and available funding for the projects, and the types of controls ultimately selected for the facilities may differ in specific features from the ones described in this EIS; however, the impacts would not change appreciably because the ultimate facility design would include life-safety generators installed similar in size and with similar pollution control equipment.

Building heating systems would be installed at each proposed building based on specific building capacity and heating needs. The NSA Main Campus uses steam for building heating; however, this system would not be utilized at the East Campus. The East Campus would have a greater cooling load than heating load. Three alternatives for building heating systems are being considered. Solar hot water systems are also being considered as part of the Proposed Action for producing domestic hot water at smaller buildings, such as the proposed 150,000 ft^2 and 330,000 ft^2 buildings.

Roads and sidewalks would be constructed to connect the proposed buildings and parking structures, and interconnect with existing buildings and the road/sidewalk network on the NSA Main Campus. These interconnections would be designed to promote a pedestrian-oriented campus by providing a logical interconnection between vehicles, pedestrians, and cyclists; and minimizing areas of conflict.

Stormwater management facilities would be designed to comply with the appropriate State of Maryland regulations, Section 438 of the Energy Independence and Security Act (EISA), NSA design standards, and the *NSAW Facilities Master Plan*, as appropriate.

2. Action Area

The action area is defined as the ECIP project area and is presented in **Figure 1** and below in **Figure 2**. The following description of the action area is excerpted from the description of the existing vegetation communities in the Biological Resources section of the Draft EIS currently being prepared.

Vegetation communities cover approximately 46 percent (69 acres) of the ECIP project area and are composed of open fields (25 acres) and forests (44 acres) (see **Figure 2**). Approximately 81 acres (54 percent) of the ECIP project area are developed. Open field areas consist primarily of grasses such as bluegrasses (*Poa* spp.), fescues (*Festuca* spp.), crabgrasses (*Digitaria* spp.), and other planted vegetation that are regularly mowed. The 44-acre forest area is characterized by a mid-climax mixed hardwood forest co-dominated by chestnut oak (*Quercus prinus*) with Virginia pine (*Pinus virginiana*). Common understory species include American beech (*Fagus grandifolia*), sassafras (*Sassafras albidum*), chestnut oak saplings, red oak (*Quercus rubra*), pignut hickory (*Carya glabra*), red maple (*Acer rubrum*), greenbrier (*Smilax* spp.), and grape (*Vitis* spp.) (HDR|e²M 2009).

Results of a 2009 Forest Stand Delineation (FSD) indicated that all survey plots within the northern portion of the East Campus site have a Low Priority Retention rating. The rating is based on isolation of the stand and lack of contiguous forest, lack of a Champion (i.e., the largest known tree of a given species in a particular geographic area) or trees with 75 percent of the diameter at breast height (dbh) of Champion species, lack of steep slopes, and lack of known Federal- or state-listed sensitive species or critical habitat on site. There is no specific FSD guidance for the Low Priority Retention rating. NSA has a reforestation plan for the East Campus, which includes replanting of acreage equal to 20 percent of the total area developed on the East Campus.

Sources: Imagery (2014) - Bing; Land Cover (HDR updated using 2014 imagery) - Anne Arundel County; Installation Boundary- Fort Meade.

Figure 2. Vegetation Communities within the ECIP Project Area

3. Species/Critical Habitat Considered

The following description of the Species/Critical Habitat Considered is excerpted from the description of the Federally Listed Species under the description of the existing Biological Resources in the Draft EIS currently being prepared.

A search of the USFWS Information, Planning, and Conservation (IPaC) system indicates that Fort Meade is within the geographic range of the federally threatened northern long-eared bat (*Myotis septentrionalis*) (USFWS 2015b, USFWS 2015c). The northern long-eared bat's range includes 37 States, including Maryland (USFWS 2015d). Based upon its habitat preferences during winter and summer as described below, the northern long-eared bat could potentially occur on or near the ECIP project area. Because there is no critical habitat designated or proposed to be designated for the northern long-eared bat, the proposed project would have no effect on designated or proposed designated critical habitat. Therefore, critical habitat will be excluded from further evaluation.

The northern long-eared bat is one of 15 bat species listed under the Endangered Species Act (ESA) (USFWS 2015e). The northern long-eared bat was proposed for listing as endangered in October 2013. On May 4, 2015, the USFWS listed the species as "threatened." The USFWS indicates that the primary threat to northern long-eared bats is white-nose syndrome (WNS). WNS is a disease of hibernating bats that has quickly spread from the northeastern to the central United States. The disease is named for the white fungus, *Pseudogymnoascus destructans*, which infects the skin of hibernating bats. Some affected bats display abnormal behavior including flying during the day and in cold weather (i.e., before insects are available for foraging) and hibernating towards a cave's entrance where temperatures are much colder and less stable. Fat reserves in these bats are also severely diminished or non-existent, making survival to spring emergence difficult (80 *Federal Register* (FR) 17974-18033).

Although WNS has not been found in Anne Arundel County, the county is considered to be affected by WNS because it is within 150 miles of a U.S. county boundary where the fungus or WNS has been detected (USFWS 2015f). For areas inside the WNS buffer zone, the following activities provided via an interim species-specific rule per Section 4(d) of the ESA are exempt from take, provided these activities protect known maternity roots and hibernacula (USFWS 2015g):

- Forest management practices
- Maintenance and limited expansion of transportation and utility rights-of-way
- Prairie habitat management
- Limited tree removal projects
- Removal of hazardous trees for the protection of human life or property
- Removal of northern long-eared bats from human dwellings
- Survey and research-related activities.

Based on an initial assessment, the Proposed Action does not qualify for an exemption of the interim 4(d) rule. The Proposed Action would not deviate from the requirements of the Programmatic Guidelines and would be covered under the U.S. Army Installation Management Command's (IMCOM) Programmatic Informal Consultation (U.S. Army 2015, USFWS 2015a).

Northern long-eared bats are medium-sized insectivorous bats with a body length between 3 and 3.7 inches with a wingspan of 9 and 10 inches (USFWS 2015d). This bat is distinguishable from other *Myotis* bat species by its relatively long ears (average of 0.7 inch) that extend beyond the nose by up to 0.2 inch when laid forward. Within its range, the northern long-eared bat can be confused with the little brown bat (*Myotis lucifugus*) or the western long-eared myotis (*Myotis evotis*). The northern long-eared bat has medium to dark brown fur on its back, tawny to pale-brown on the underside, and dark brown ears and wing membranes.

The northern long-eared bat is a temperate, insectivorous, migratory bat that hibernates in caves and mines in the winter (typically October through April) and summers in wooded areas. In the summer, northern long-eared bats occur in forested areas and forage for insects. The northern long-eared bat emerges at dusk to feed, by flying through the understory of forested areas, primarily on moths, flies, leafhoppers, caddisflies, and beetles. The bat's foraging pattern includes a peak activity period within 5 hours of sunset, and a second peak within 8 hours of sunset. In general, this species prefers intact mixed-type forests with small gaps (i.e., forest trails, small roads, or forest-covered creeks) and sparse or medium vegetation for forage and travel, rather than fragmented habitat or areas that have been clearcut (80 FR 17974-18033).

Northern long-eared bats roost singly or in colonies underneath bark, in cavities or in crevices, of both live and dead trees and/or snag (typically ≥ 3 inches dbh) (USFWS 2014a). There is also documentation of this species roosting in human-made structures, such as in buildings, in barns, on utility poles, behind window shutters, and in bat houses (80 FR 17974-18033). Northern long-eared bats most likely are not dependent on certain species of trees for roosts throughout their range; rather, many tree species that form suitable cavities or retain bark will be used opportunistically by the bats. Individual trees might be considered suitable habitat when they exhibit characteristics of suitable roost trees and are within 1,000 feet of other forested/wooded habitat. However, trees found in highly developed urban areas (e.g., street trees and downtown areas) are extremely unlikely to be suitable northern long-eat bat habitat (USFWS 2014a).

The ECIP project area contains a mid-climax hardwood forest dominated by chestnut oak with Virginia pine occurring as a codominant. Common understory species include American beech, sassafras, red oak, pignut hickory, and red maple (HDR|e²M 2009). A U.S. Forest Service study investigating tree species preferences by the northern long-eared bat documented maternity colonies being supported by American beech, maple, and oak species (USDA 2002).

In late summer and early fall, northern long-eared bats migrate from summer areas to winter hibernacula (e.g., caves and abandoned mines). Breeding for this species occurs during this time when males begin swarming near hibernacula (USFWS 2014a). There are no known hibernacula in the ECIP project area and no habitat features (e.g., caves and mines) that could potentially serve as wintering bat habitat (80 FR 17974-18033, Spencer 2015). Following hibernation, pregnant females migrate to wooded summer areas where they give birth and raise their young in maternity colonies of 20 to 60 or more females located under the loose bark of trees or snags. Summer maternity colonies are considered especially important for the long-term recovery of the species. Most bats within a maternity colony give birth around the same time, which may occur from late May or early June to late July, depending where the colony is located

within the species' range. Young bats start flying by 18 to 21 days after birth (USFWS 2015d). As stated above, potential summer habitat (forage and roost habitat) occurs within the ECIP project area.

4. Effects Analysis

The following Effects Analysis is excerpted from the description of the Federally Listed Species under the description of the Environmental Consequences on Biological Resources in the Draft EIS currently being prepared.

Construction of the proposed Project Action could result in negligible, adverse impacts on the federally-listed northern long-eared bat. Suitable roosting and foraging habitats for the northern long-eared bat occur within and adjacent to the ECIP project area. Project activities would not deviate from the requirements of the Programmatic Guidelines and would be covered under the IMCOM Programmatic Informal Consultation (U.S. Army 2015, USFWS 2015a). However, the Programmatic Guidelines indicate that site-specific consultation with the local USFWS field office (i.e., Chesapeake Bay Field Office for the Proposed Action) is often needed to adequately assess the potential direct and indirect effects associated with construction projects.

Because all demolition and construction activities would occur more than 0.5 miles from known hibernacula, no direct effects on hibernating northern long-eared bats would occur during the winter (U.S. Army 2015). However, if it is determined through coordination with the USFWS that a hibernacula is located less than 0.5 mile from the ECIP project area, additional consultation would be required.

The potential exists for roosting and foraging bats, or individuals flying through their home range, to be disturbed or displaced by dust, noise, and light associated with demolition, construction, and operation activities. Given the temporary and variable nature of construction activities, these impacts and other behavioral responses to the disturbances would be insignificant. Additionally, measures would be implemented to minimize potential construction impacts, such as generation of dust. Therefore, disturbances related to dust are expected to be insignificant.

Northern long-eared bats hunt prey in the air while flying using echolocation (i.e., an auditory behavior that uses ultrasonic signals to detect prey and maneuver through the environment). While little information is available in the literature regarding the specific effect of noise on bat species utilizing echolocation in their search for prey, most noise from construction of the Proposed Action is expected to occur during the day and not expected to disturb foraging (USFWS 2014b). Impacts from noise disturbances associated with construction and operation activities are expected to be minimal and temporary, and are not expected to permanently impact local bat populations (Natural Resource Solutions 2012).

Additional safety lighting may be required during construction activities. Many bat species respond in different ways to light disturbance. Some bats are light averse and would avoid lit areas, while others actively forage in lit areas. Additional light might cause avoidance behavior and reduce the availability of foraging areas for the northern long-eared bat. However, higher densities of *Myotis* spp. have been recorded in lit areas as compared to unlit areas due to the large number of insects (particularly moths) attracted to street lights, particularly low wavelength light (University of Bristol 2014). The appropriate safety lighting would be used during construction and operation of the proposed facilities to illuminate the

specific work area, or area of safety concern, and would be directed away from adjacent potential foresting and roosting habitat. Effects would be minimal and temporary, and are not expected to significantly impact local bat populations.

While it is possible that physical impacts resulting in injury or death could occur from operation of construction vehicles or felling trees, these impacts would be avoided. All tree cutting and clearing would be conducted in accordance with the Programmatic Guidelines and avoided during the northern long-eared bat active season (April 1 through September 1) (USFWS 2015h). If there is a need to remove a single or small cluster of trees during the active season (April 1 through September 1), the procedures in the Programmatic Guidelines would be followed (U.S. Army 2015). In addition, construction vehicles in the ECIP project area would be moving slowly to enable bats to avoid the vehicles, and traveling mostly during the daytime when northern long-eared bats are not flying. Therefore, given the slow moving, daytime construction vehicle traffic, the species' nocturnal behavior, and the timing of clearing, no collisions between northern long-eared bats and construction vehicles are anticipated.

All contractors and others present during construction activity will be fully informed of the potential to encounter bats and their responsibilities to avoid impacts on bats. If dead or injured bats are encountered, the number of bats and location would be reported to the USFWS Chesapeake Bay Field Office (USFWS 2013a).

Tree removal could also result in the loss of foraging and roost habitat for the northern long-eared bat. Based on 2014 aerial photography, the ECIP project area contains approximately 44 acres of forested land. However, the total acreage of forested land and vegetation disturbed would depend on the final design, layout, and location of the proposed facilities. The likely behavioral response of bats returning in the spring to the cleared area would be to disperse to adjacent suitable habitat, but these changes would be insignificant, based on the remaining forested habitat within Fort Meade and at the Patuxent Research Refuge (less than 2 miles south of the ECIP project area) and the propensity of the species to use alternative roost sites. NSA would preserve or reforest lands equal to 20 percent of the development on the East Campus. Any new tree planting would provide returning bats familiar sheltering areas and new foraging habitat while they search for new roost sites, thereby helping to reduce energy demands immediately after migration (USFWS 2013b). Furthermore, the Programmatic Guidelines state that inactive season tree removal effects would be discountable by following similar conservation measures to the Federal Highway Administration and Federal Railroad Administration's Range-wide Biological Assessment for Transportation Projects for Indiana Bat and northern long-eared bat (U.S. Army 2015).

5. Conclusions and Determinations Effect

On May 4, 2015, the USFWS concurred with the U.S. Army IMCOM determination that select military mission operations on Army installations are not likely to adversely affect the threatened northern long-eared bat (*Myotis septentrionalis*). The programmatic informal consultation includes conservation measures outlined in the April 24, 2015, *Programmatic Informal Consultation and Management Guidelines on the Northern Long-eared Bat (Myotis septentionalis) for Ongoing Operations on Installation Management Command (IMCOM) Installations* (Programmatic Guidelines). As described in **Section 4**, the conservation measures would be incorporated into activities to avoid adverse effects on northern long-eared bats, achieving the "not likely to adversely affect" determination. The Programmatic

Informal Consultation only addresses the consultation requirements for those projects that can implement the conservation measures. The Programmatic Guidelines apply to all installations identified in the document, including Fort Meade. The Proposed Action would not deviate from the requirements of the Programmatic Guidelines and would be covered under the IMCOM Programmatic Informal Consultation (U.S. Army 2015, USFWS 2015a). Therefore, the project is not likely to adversely to adversely affect northern long-eared bats.

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United States Department of the Interior

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September 22, 2015

Jeffrey D. Williams
Director, Environmental Sustainability
National Security Agency
Fort George G. Meade, Maryland 20755

Re: "Not Likely to Adversely Affect" determination for northern long-eared bat for East Campus Integration Program, Fort Meade, Maryland

Dear Mr. Williams:

This responds to your August 28, 2015 letter requesting review of the East Campus Integration Program in Fort Meade, Maryland. The project involves integrating the National Security Agency (NSA) East Campus with the NSA Main Campus through development of operational complex and headquarters space in the northern portion of the East Campus and in the 9800 Troop Support Area of Fort George G. Meade. Implementation of this East Campus Integration Program (ECIP) entails construction and operation of new facilities for operations and headquarters space within the 150-acre ECIP project area and demolition of buildings and infrastructure. The ECIP project area contains approximately 44 acres of forested land. However, the total acreage of forest disturbed would depend on the final design, layout, and location of the proposed facilities. The following comments are provided pursuant to Section 7 of the Endangered Species Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*).

The proposed project is located in Anne Arundel County, Maryland, which is considered to be part of the range for northern long-eared bat (*Myotis septentrionalis)*, a federally listed threatened species. The northern long-eared bat is a temperate, insectivorous migratory bat that hibernates in mines and caves in the winter and summers in wooded areas. Since NSA has committed to clearing trees outside the active season (April 15-August 30), the project is not likely to adversely affect the northern long-eared bat. If there is a need to remove more than 1 acre of trees during the active season, this field office should be consulted to evaluate potential effects. Except for occasional transient individuals, no other federally proposed or listed endangered or threatened species under our jurisdiction are known to exist within the project impact area. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

We appreciate the opportunity to provide information relevant to threatened and endangered fish and wildlife resources. This Endangered Species Act determination does not exempt this project

from obtaining all permits and approvals that may be required by other state or Federal agencies. Should you have any questions or concerns regarding this letter, please contact Julie Slacum of my Endangered Species staff at (410) 573-4595 or by email at Julie_thompson@fws.gov.

Sincerely,

Genevieve LaRouche
Field Supervisor

APPENDIX E

NHPA SECTION 106 DOCUMENTATION

NATIONAL SECURITY AGENCY
CENTRAL SECURITY SERVICE
Fort George G. Meade, Maryland 20755

July 22, 2015

Elizabeth Hughes
Acting Director/State Historic Preservation Officer
Maryland Historical Trust
100 Community Place
Crownsville, MD 21032

RE: Environmental Impact Statement for the East Campus Integration Program, Fort Meade, Maryland, Section 106 Consultation Initiation

Dear Ms. Hughes,

The Department of Defense (DoD) proposes to continue integrating the National Security Agency (NSA) East Campus with the NSA Main Campus through development of operational complex and headquarters space in the northern portion of the East Campus and in the 9800 Troop Support Area of Fort George G. Meade (i.e., East Campus Integration Program [ECIP]). A Draft Environmental Impact Statement (EIS) is being prepared to address the proposal by the DoD for implementation of the ECIP, including the construction and operation of associated facilities for the NSA complex at Fort Meade and demolition of some existing facilities.

The National Security Agency/Central Security Service (NSA/CSS) is an intelligence agency within the DoD. It is responsible for the collection and analysis of foreign communications and foreign signals intelligence. For NSA/CSS to continue leading the Intelligence Community into the next 50 years with state-of-the-art technologies and productivity, its mission elements require new, centralized facilities and infrastructure.

Enclosed please find a MHT Project Review Form and the required attachments to initiate Section 106 consultation and review for this project under the National Historic Preservation Act of 1966, as amended. Should you have any questions or comments, please contact me by telephone at 301-688-2970, or email at jdwill2@nsa.gov.

Sincerely,

Jeffrey D. Williams

Jeffrey D. Williams
Director, Environmental Sustainability

Enclosures: MHT Project Review Form and Attachments

cc: Amanda Apple, Preservation Officer, Review and Compliance, MHT

PROJECT REVIEW FORM

Request for Comments from the Maryland Historical Trust/ MDSHPO on State and Federal Undertakings

MHT USE ONLY
Date Received: Log Number:

Project Name: EIS for the East Campus Integration Program (ECIP), National Security Agency
County: Anne Arundel

Primary Contact:

Contact Name: Jeff Williams, Director, Environmental Sustainability
Company/Agency: NSA
Mailing Address: 9800 Savage Road, Suite 6218
City: Fort Meade
State: Maryland
Zip: 20755
Email: jdwill2@nsa.gov
Phone Number: +1 (301) 688-2970
Ext.:

Project Location:

Address: Fort George G. Meade
City/Vicinity: Fort Meade
Coordinates (if known): Latitude: 39.108724
Longitude: -76.771693
Waterway:

Project Description:

List federal and state sources of funding, permits, or other assistance (e.g. Bond Bill Loan of 2013, Chapter #; HUD/ CDBG; MDE/COE permit; etc.).	**Agency Type**	**Agency/Program/Permit Name**	**Project/Permit/Tracking Number (if applicable)**
	Federal	Department of Defense/National Security Agenc	

This project includes (check all applicable):
☒ New Construction ☒ Demolition ☐ Remodeling/Rehabilitation
☐ State or Federal Rehabilitation Tax Credits ☒ Excavation/Ground Disturbance ☐ Shoreline/Waterways/Wetlands
Other\Additional Description:

Known Historic Properties:

This project involves properties (check all applicable): ☐ Listed in the National Register ☐ Subject to an easement held by MHT
☐ Included in the Maryland Inventory of Historic Properties ☐ Designated historic by a local government
☒ Previously subject to archeological investigations
Property\District\Report Name: (McAloon et al. 1994; Hornum, et al. 1995; Hunter 1998

Attachments:

All attachments are required. Incomplete submittals may result in delays or be returned without comment.

☒ Aerial photograph or USGS Quad Map section with location and boundaries of project clearly marked.
☒ Project Description, Scope of Work, Site Plan, and\or Construction Drawings.
☒ Photographs (print or digital) showing the project site including images of all buildings and structures.
☒ Description of past and present land uses in project area (wooded, mined, developed, agricultural uses, etc).

MHT Determination:

☐ There are **NO HISTORIC PROPERTIES** in the area of potential effect
☐ The project will have **NO EFFECT** on historic properties
☐ The project will have **NO ADVERSE EFFECT** on historic properties
☐ The project will have **NO ADVERSE EFFECT WITH CONDITIONS**
☐ The project will have **ADVERSE EFFECTS** on historic properties
☐ **MHT REQUESTS ADDITIONAL INFORMATION**

MHT Reviewer: Date:

Submit printed copy of form and all attachments by mail to: Beth Cole, MHT, 100 Community Place, Crownsville, MD 21032

Revised 6/21/2013

Project Description

The Department of Defense (DoD) proposes to continue integrating the National Security Agency (NSA) East Campus with the NSA Main Campus through development of operational complex and headquarters space in the northern portion of the East Campus and in the 9800 Troop Support Area of Fort George G. Meade (Fort Meade) (see Figure 1). The Preferred Alternative for the Proposed Action includes implementation of the East Campus Integration Program (ECIP) entails construction and operation of new facilities for operations and headquarters space within the 150-acre ECIP project area and demolition of aged buildings and infrastructure. The ECIP project area, as shown in Figure 2, includes the locations being considered for development of operations and headquarters space; some parking facility location alternatives, and locations of buildings proposed for demolition are outside of the ECIP project area on NSA's Main Campus.

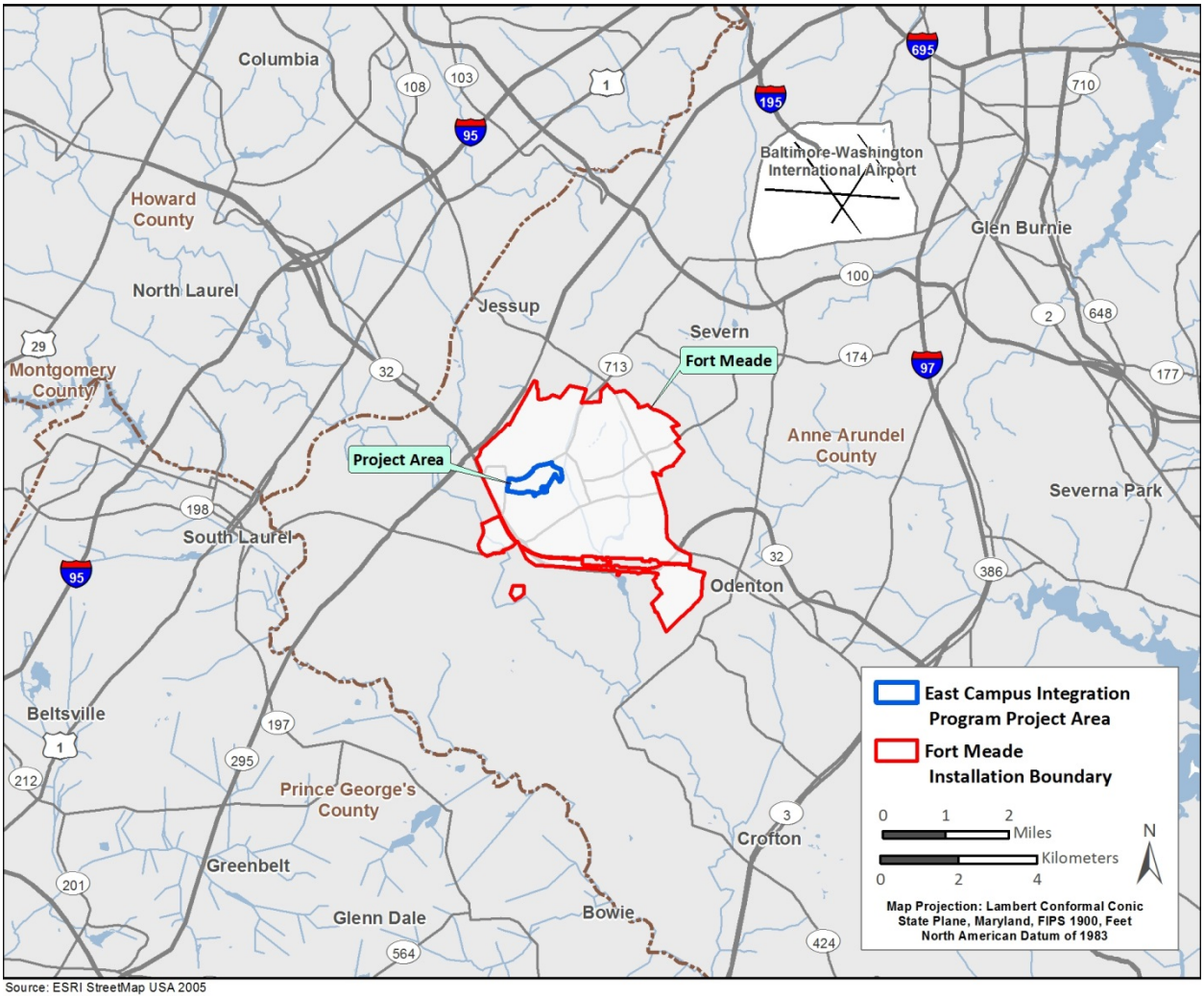
The ECIP consists of construction and operation of approximately 2.9 million ft^2 of new facilities for operations and headquarters space, and demolition of 1.9 million ft^2 of aged buildings and infrastructure. The NSA would consolidate mission elements, which would enable grouping services and support services across the NSA Campus based on function; facilitate a more collaborative environment and optimal adjacencies; and provide administrative capacity for an increase of 7,200 personnel currently located offsite. The Proposed Action would also consist of infrastructure supporting the proposed operational complex and headquarters space, including electrical substation, emergency generator capacity providing 121 megawatts of electricity; life-safety generators; building heating systems; utilities, including water, natural gas, and communications services; transportation infrastructure, including roads, parking structures, and sidewalks; and stormwater management facilities. Use of multi-level parking facilities were considered in lieu of surface parking.

The ECIP takes into account several factors, including mission requirements, the condition of current facilities (both on and off the NSA's Campus at Fort Meade), space planning, land availability, utility requirements, traffic and parking, and environmental impacts. A key factor is the mission co-location to provide a more efficient and effective work environment for mission-critical functions of the entire Intelligence Community.

The 2013 *NSA-Washington (NSAW) Facilities Master Plan* identifies NSA development in the northern portion of the East Campus and the 9800 Troop Support Area (i.e., ECIP project area) to create a contiguous NSA Campus that unites existing facilities with new structures. Additionally, the 2013 *Long Range Component of the Fort Meade Real Property Master Plan* designates both the East Campus and the 9800 Troop Support Area as part of the NSA expansion, and depicts both areas as part of the NSA Exclusive Use Area in the Future Land Use Plan. NSA use of these areas supports the 'inside-out' strategy of locating high-security functions at the center of the installation to meet DoD physical security requirements.

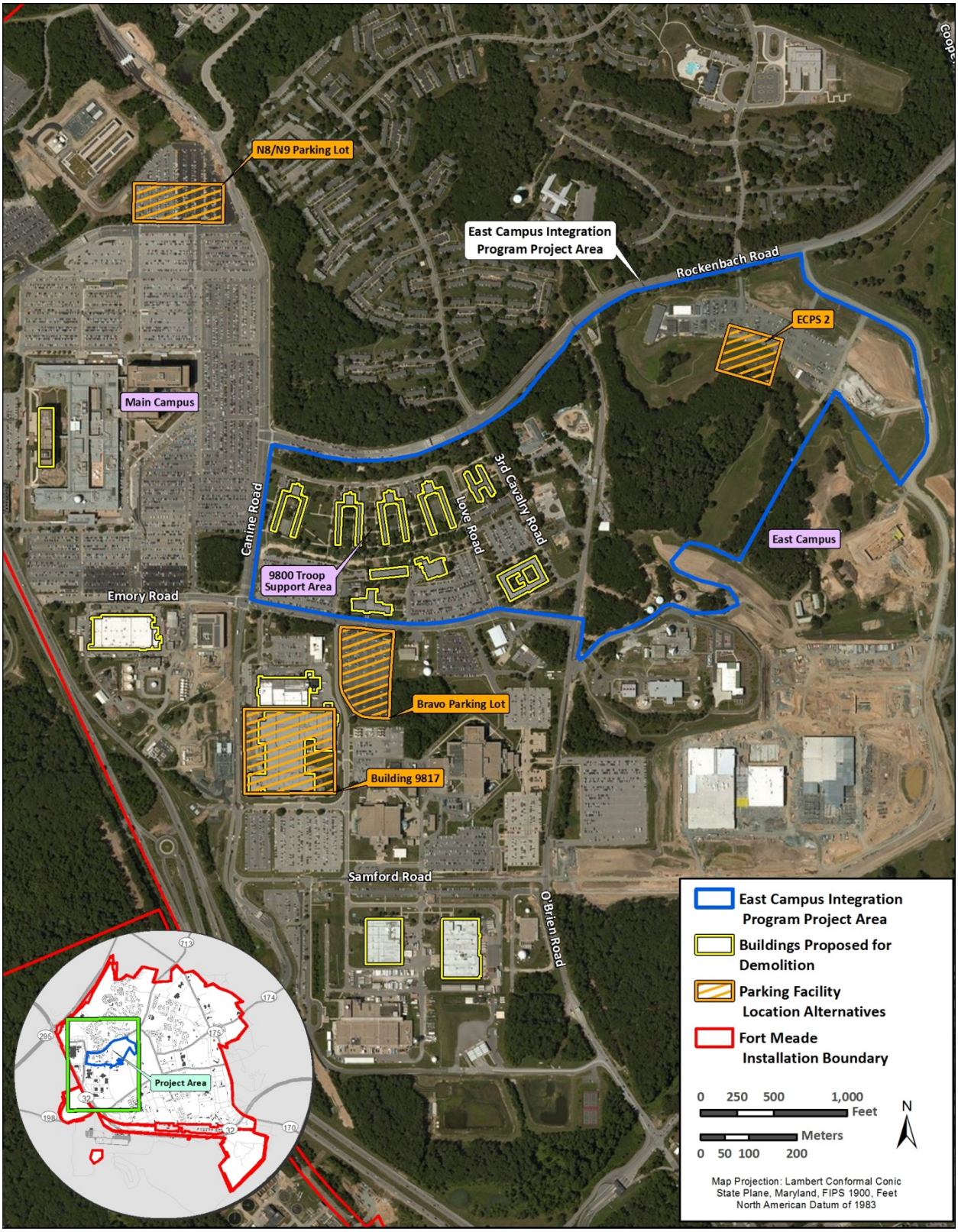
The DoD proposes to construct the ECIP over a period of approximately 10 years (fiscal year [FY] 2019 to 2029).

Figure 1. Location of Fort Meade



Source: ESRI StreetMap USA 2005

Figure 2. Proposed Action and Surrounding Areas



Principal Facilities

The DoD proposes to construct and operate approximately 2,880,000 ft^2 of operational complex and headquarters space consisting of five buildings. These facilities would consist of East Campus Building (ECB) 3, ECB 4, and ECB 5, each with approximately 800,000 ft^2, and two smaller buildings of 330,000 ft^2 and 150,000 ft^2. The buildings would include an open environment conducive to both physical and virtual collaboration; special purpose space, including support and enabler areas (e.g., lobbies, main reception, security); and supporting electrical, mechanical, fire protection/suppression, and security components.

Construction of the proposed buildings and the increase of personnel would require additional campus parking. The NSA Campus has limited developable land; therefore, the use of multi-level (i.e., at least four levels) parking structures are considered in lieu of surface parking. Parking lots are fully used most days, including overflow parking, so the net loss of any parking (i.e., at the 9800 Troop Support Area) would require replacement parking. The exact quantity, size, and capacity of parking structures would not be known until the detailed design process begins.

Because the development of the ECIP is in the planning stages, no detailed engineering or design work for proposed facilities has yet been accomplished. Therefore, the EIS does not consider various design factors in detail and makes general assumptions about the proposed development. The exact space requirements would not be known until the detailed design process begins.

As part of the Proposed Action, DoD would demolish approximately 1.9 million ft^2 of aged buildings and infrastructure on the NSA Main Campus (1,291,206 ft^2) and the 9800 Troop Support Area (592,269 ft^2) (Table 1). All nine buildings in the 9800 Troop Support Area would be demolished to provide room for the proposed facilities and supporting infrastructure. These buildings include Buildings 9801, 9802, 9803, 9804, 9805, 9810, 9827, 9828, and 9829. After construction of each of the proposed facilities on the East Campus and 9800 Troop Support Area are completed and personnel transferred to the facilities, Buildings 9703, 9705, 9800A, 9808, 9814, and 9817 on the NSA Main Campus would be vacated and demolished. Three surface parking lots in the 9800 Troop Support Area would be demolished to make room for the proposed buildings under the ECIP.

Table 1. Buildings Proposed for Demolition Under the Proposed Action

Building #	Year Constructed
Buildings in the ECIP Project Area	
9801	1954
9802	1954
9803	1954
9804	1954
9805	1954
9810	1954

Building #	Year Constructed
9827	1954
9828	1973
9829	1972
Buildings outside of the ECIP Project Area (on the NSA Main Campus)	
9800A	1968
9817	1968
9814	1965
9703	1973
9705	1976
9808	1957

Operational/Headquarters Complex Location Alternatives

The Preferred Alternative for the Proposed Action considers continued development, expansion, and integration of the NSA Campus into the East Campus and 9800 Troop Support Area, and the redevelopment of portions of the NSA Main Campus.

In the event that the 9800 Troop Support Area was not available in the future for the ECIP, alternative sites outside of Fort Meade are being considered to allow for planning flexibility. Under these alternatives, Building 9800A on the NSA Main Campus and all nine buildings in the 9800 Troop Support Area would not be demolished; and no proposed facilities would be constructed in the 9800 Troop Support Area. These alternatives are assumed to require space sufficient for 4,400 personnel that would relocate from space vacated by demolition of Buildings 9703, 9705, 9808, 9814, and 9817 (778,369 ft^2) on the NSA Main Campus and terminating leases at some leased Intelligence Community space in the Baltimore-Washington metropolitan area. These alternatives are located at National Business Park and Annapolis Junction Business Park, both located west of Fort Meade and the Baltimore-Washington Parkway (Figure 3). Construction of ECB 3, smaller buildings, and associated parking facilities would still occur on the northern portion of the East Campus under these alternatives.

Personnel and functions proposed to be located in the ECIP project area would instead occur in leased administrative facilities at either National Business Park or Annapolis Junction Business Park. Both alternatives would involve leasing existing or newly constructed UFC-qualified buildings of up to 1 million ft^2 of space. Security fencing at a 300-foot setback from buildings would be required. The leased facilities would already have been constructed. Under these alternatives, a total of 21 MW of onsite emergency power generation would be required, and life-safety generators would also be installed onsite. Any environmental requirements and permits would have been the responsibility of the facility owners, and are assumed to have been complied with and obtained prior to formal leasing arrangements.

Parking Facility Location Alternatives

The Proposed Action would require additional parking to accommodate the increase of personnel on the East Campus. The existing NSA Campus has limited developable land; therefore, multi-level (i.e., at least four levels) parking structures are being considered in lieu of surface parking.

The amount of parking that would be constructed is based on the assumed capacity required for full occupancy of the proposed buildings. The exact space requirements will become more refined as the detailed design process progresses. Reasonable parking facility location alternatives should have sufficient square footage to accommodate required project components, including security standoff-distances, avoid disturbing environmentally sensitive areas, minimize impacts on adjacent land uses, minimize the distance employees would have to walk, and be cost effective.

Four parking location alternatives were identified as meeting these criteria (see Figure 2). Depending on which operational/headquarters location alternatives would be implemented, at least three of the parking facility location alternatives would be constructed if the ECIP is fully implemented. At least one of the parking facility location alternatives would be constructed if off-post alternative(s) were implemented.

Following are the location alternatives for the proposed parking facilities for the ECIP.

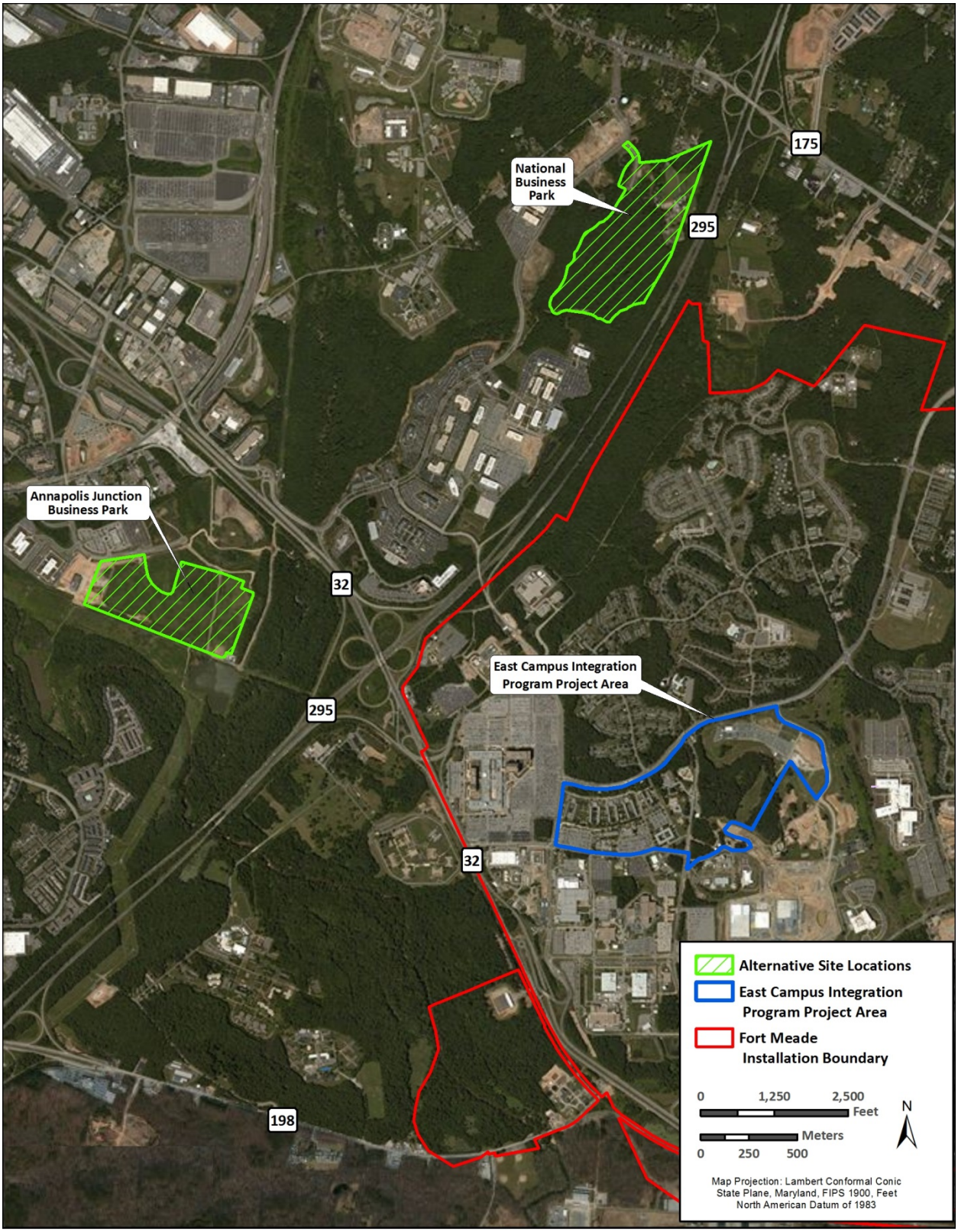
East Campus Parking Structure 2. The East Campus Parking Structure (ECPS) 2 would be located in the northeastern portion of the East Campus between Rockenbach Road and Cyber Road, which is a proposed new road that would generally run west-east through the ECIP project area and be south of and parallel to Rockenbach Road. The area proposed for ECPS 2 is currently being used as a staging area for ongoing construction in the southern portion of the East Campus.

Bravo Parking Lot. The Bravo parking lot is a 4.5-acre, surface parking lot on the NSA Main Campus. It is located south of the 9800 Troop Support Area at the southeastern corner of Emory Road and Wenger Road. The Bravo parking lot would be demolished, and a multi-level parking facility would be constructed in its place.

N8/N9 Parking Lot. The N8/N9 parking lot is a 7.1-acre surface parking lot on the NSA Main Campus. Approximately 3.7 acres of the lot could be redeveloped as a parking facility. It is located northwest of the intersection of Canine Road (access point to Maryland State Route [MD] 32) and Connector Road (access point to the Baltimore-Washington Parkway).

Building 9817. Building 9817 is proposed for demolition as part of the Proposed Action. It is located on the NSA Main Campus, on the northern side of Erskine Road and bordered by Canine Road to the west and Wenger Road to the east. Following demolition of Building 9817, a parking facility could be constructed on the 8.2-acre footprint.

Figure 3. Proposed Action Location Alternatives Outside of Fort Meade



Existing Conditions – Land Use

FORT MEADE

The NSA Campus, including the East Campus, is on Fort Meade. Fort Meade encompasses 5,131 acres in the northwestern corner of Anne Arundel County, Maryland. The post is primarily composed of administration, intelligence operations, instructional institutions, family housing, and support facilities. Fort Meade is bound by the Baltimore-Washington Parkway to the northwest, Annapolis Road (MD 175) to the northeast, and Patuxent Freeway (MD 32) to the south and west. Other significant nearby transportation arteries include U.S. Route 1 and Interstate (I)-95, which run parallel to and just to the west of the Baltimore-Washington Parkway. I-97, which connects Baltimore and Annapolis, is several miles east of Fort Meade.

ECIP PROJECT AREA

The ECIP project area includes the northern portion of the East Campus and the 9800 Troop Support Area (Figure 2). Additionally, three parking facility alternative sites and several buildings proposed for demolition under the Proposed Action are on the NSA Main Campus.

The 240-acre NSA East Campus is east of the NSA Main Campus and generally bordered by O'Brien Road to the west, Rockenbach Road to the north, Midway Branch to the east, and an undeveloped road extending east from Samford Road to the south. The northern portion of the East Campus is approximately 84 acres. This area is currently occupied by a staging area used for development of the southern portion of the East Campus.

The 49-acre 9800 Troop Support Area belongs to Fort Meade and is not currently part of the NSA Main or East campuses. The 9800 Troop Support Area includes barracks (some of which are currently being used for administrative functions), a dining facility, fitness center, post office, and support facilities, including those used to support NSA operations. An approximately 18-acre triangular site east of the 9800 Troop Support Area and west of the northern portion of the East Campus is also part of the ECIP project area. This area contains the Children's World Learning Center.

The NSA Main Campus includes administrative, laboratory, warehouse, and utility support facilities. Administrative uses are located throughout the campus with the main support/utility area located south of the 9800 Troop Support Area.

Land use within the ECIP project area and the NSA Main Campus, including the locations of parking facility alternatives and buildings proposed for demolition, is characterized as Professional/Institutional. The ECIP project area is bordered by Fort Meade Residential (Midway Common military family housing neighborhood) and Community (Argonne Hills Chapel Center) land uses to the north, and Professional/Institutional use (Defense Information Systems Agency) to the east on Fort Meade.

The East Campus is currently the NSA's primary development area on Fort Meade. Development of the East Campus provides an opportunity for the NSA to reorganize its campus structure by grouping major mission-supporting activities onsite.

The 2013 *NSAW Facilities Master Plan* identifies development by the NSA in the northern portion of the East Campus and the 9800 Troop Support Area (i.e., ECIP project area) in order to create a contiguous NSA Campus that unites existing facilities with new structures. Additionally, the 2013 *Long Range Component of the Fort Meade Real Property Master Plan* designates both the East Campus and the 9800 Troop Support Area as part of the NSA expansion, and depicts both areas as part of the NSA Exclusive Use Area in the Future Land Use Plan.

Existing Conditions – Cultural Resources

FORT MEADE

Originally known as Camp Meade, Fort Meade was established in 1917 as one of 32 military cantonments created by the Army after the United States' entry into World War I. The U.S. government commandeered 4,000 acres of land and purchased additional land bringing the total acreage to 9,349 acres. This land was typically agricultural in use or wooded. The main post at Camp Meade was completed by October 1918 at a cost of more than $18 million. The Camp included the 79th Infantry Division, an Officer's Training School, a Remount Depot, Ordnance Supply School, and the 154th Depot Brigade, which received classified training and assigned incoming trainees. More than 103,000 men were trained at Camp Meade during World War I. After the war, the Camp served as a demobilization center for troops returning from overseas service. More than 96,000 men were mustered out of service through Camp Meade.

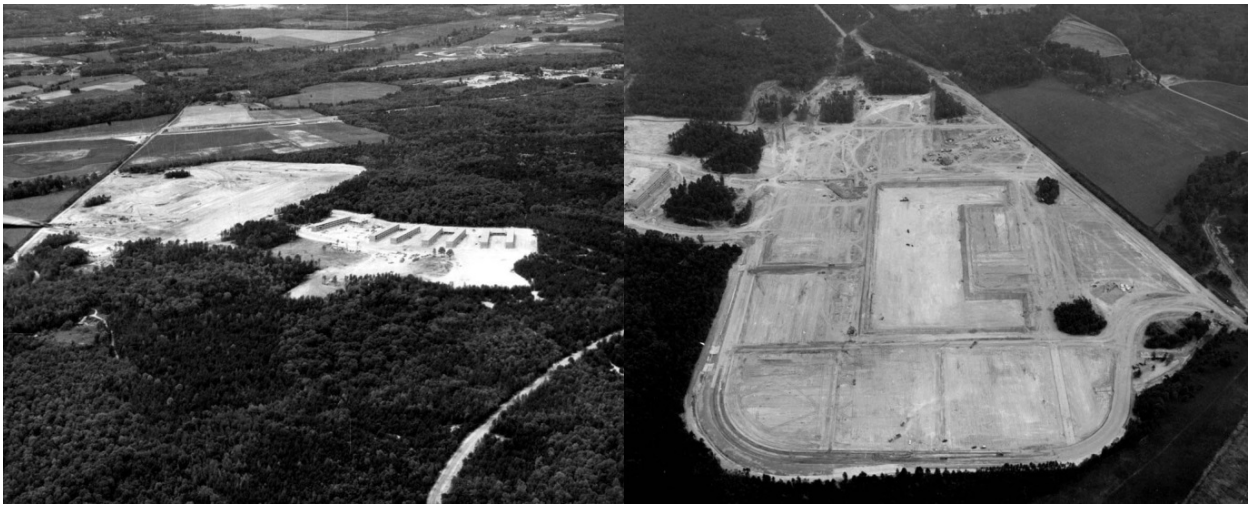
Camp Meade was designated a permanent installation in 1928 and was initially named Fort Leonard Wood. It was renamed Fort George G. Meade in 1929. During the inter-war years, Fort Meade was used as a training facility and the home of the Army's tank training school until 1932 when the training was transferred to Fort Benning. By 1940, the post contained nearly 500 temporary and permanent buildings. An $8 million building campaign began in 1940 to add additional training areas and expanded the post to 13,500 acres.

During World War II, Fort Meade saw increased construction related to the Army's mobilization efforts. The post served as a troop replacement depot and a prisoner of war camp for German and Italian prisoners. More than 1.5 million men were shipped overseas from Fort Meade. At the end of the war, Fort Meade served as a separation center for troops being discharged from military service and processed over 400,000 men back to civilian life. In total, more than 3.5 million men passed through Fort Meade during World War II.

During the Cold War Era, Fort Meade became the first military installation to employ the Nike-Ajax air defense unit. The air defense unit became operational under the 36th Antiaircraft Artillery Missile Battalion, which, as part of the 35th Antiaircraft Brigade, was responsible for the defense of Washington, DC. The NSA was established in 1952 by the National Security Act of 1947 and EO 10421, *Providing for the Physical Security of Facilities Important to the National Defense*. By 1953, Fort Meade was selected to house the headquarters of the NSA. As early as January 1955, interim operations were established by NSA at Fort Meade in existing buildings (see Figure 4). By 1957, construction of Building 9800 was complete and the NSA permanently moved to Fort Meade. The NSA has continued to grow and over the years has constructed new

buildings on the NSA Campus at Fort Meade, and is currently constructing facilities in the southern portion of the East Campus.

Figure 4. Aerial Photographs Showing the Future Site of the NSA Campus at Fort Meade, ca. 1955 (NSA 1012)



The Area of Potential Effect (APE) for the Preferred Alternative is indicated in Figure 5 and 6. As Section 106 consultation proceeds, the NSA will identify other interested parties, identify potential historic properties, and continue to follow the Section 106 consultation process as outlined in 36 Code of Federal Regulations (CFR) 800.

Two resources listed in the National Register of Historic Places (NRHP) are located just northwest of the ECIP project area. The Baltimore-Washington Parkway (AA-5) is a historic district that was listed in 1991. It is located approximately 0.5 mile northwest of Building 9800A. Grassland (AA-94) is an antebellum plantation listed in the NRHP in 1984, and located approximately 0.75 mile northwest of Building 9800A on the south side of Hercules Road.

ECIP PROJECT AREA

Historic and cultural resources at Fort Meade are detailed within the post's 2011 Integrated Cultural Resources Management Plan. Information on previous cultural resources investigations and their results are specified in detail in the Integrated Cultural Resources Management Plan and can be referred to for additional information.

Architectural and Archaeological Resources. Previous architectural investigations identified and evaluated a number of buildings located on Fort Meade, including the NSA Campus, which were built prior to 1960 for listing in the NRHP. Fort Meade has five historic properties, including the Fort Meade Historic District (AA-34), the water treatment plant (Building 8688), and three bridges (Llewellyn Avenue Bridge, Redwood Avenue Bridge, and Leonard Wood Avenue Bridge) constructed during World War II by prisoners of war. All are eligible for listing in the NRHP. None of the previously identified historic properties at Fort Meade are located within the APE.

The entirety of Fort Meade has been investigated for the presence of archaeological resources. There are a total of 41 known archaeological sites on Fort Meade; only one of these sites has

been determined eligible for listing in the NRHP (18AN1240). Site 18AN1240 is a Late Archaic Period base camp and is not located within the APE.

Further, the 1994 Cultural Resources Management Plan for Fort Meade included an archaeological predictive model completed for the entire installation, inclusive of the NSA Campus. The model was based on the results of a pedestrian survey, review of cartographic and archival materials, and limited field testing. Areas of previous disturbance were defined through a review of construction plans, map data, and master planning documents; the delineation of disturbance areas was then checked through pedestrian reconnaissance and vegetation studies. In this model, the NSA Campus was depicted almost entirely as previously disturbed. The exception to this was a narrow strip of land on the northwestern edge of the campus that was designated as “Disturbed High Potential” due to its location along a channelized stream. As identified in the 2006 Fort Meade Integrated Cultural Resources Management Plan, subsequent testing and investigations in 1995 and 1998 provided negative results and identified extensive disturbance. As a result, no further archaeological investigation should be required for the NSA Campus.

Resources of Traditional, Religious, or Cultural Significance to Native American Tribes. At present, no known traditional cultural properties or American Indian sacred sites are known to occur within or near the ECIP project area or at Fort Meade. While there are no federally recognized Indian tribes present in Maryland, seven federally recognized tribes elsewhere in the United States are believed to have a historical affiliation with the land occupied by Fort Meade.

NATIONAL BUSINESS PARK

A review of the files at the MHT indicates there is one historic property located at the National Business Park site, the Clark/Vogel House (AA-160), which was determined eligible for listing in the NRHP in 2008. The National Business Park is adjacent to the NRHP-listed Baltimore-Washington Parkway (AA-5), which was listed in the NRHP as a historic district in 1991. The site is also located directly south of the Jessup Survey District (AA-991), which is listed in the Maryland Inventory of Historic Properties.

ANNAPOLIS JUNCTION BUSINESS PARK

A review of the files at the MHT indicates there are no historic properties located at the Annapolis Junction Business Park site. However, the site is located directly south of the Annapolis Junction Survey District (AA-925), which is listed in the Maryland Inventory of Historic Properties. The Annapolis Junction Business Park is approximately 0.3 mile west of the Baltimore-Washington Parkway (AA-5), which is listed in the NRHP.

Project Location

Figure 5. Project Location and APE

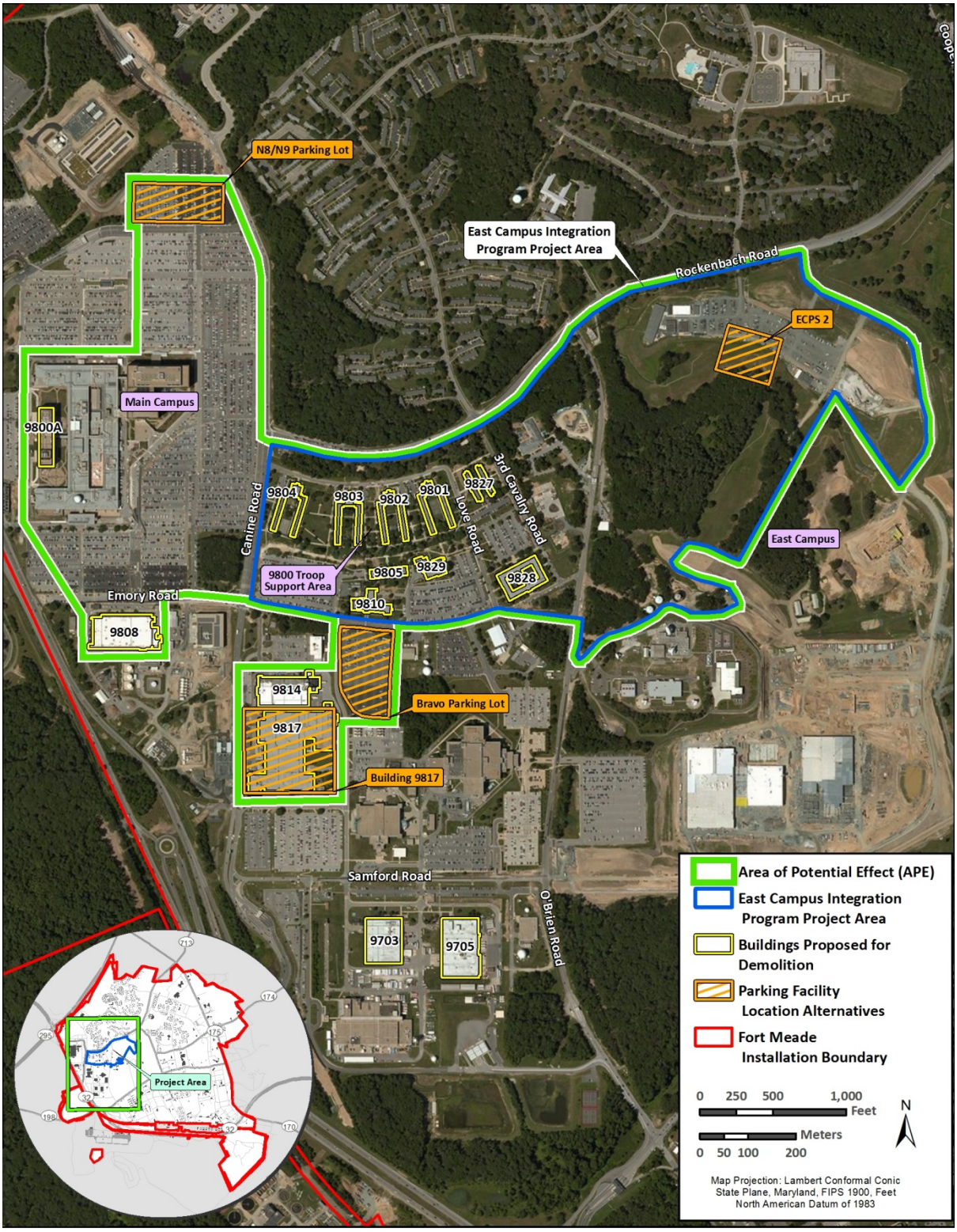
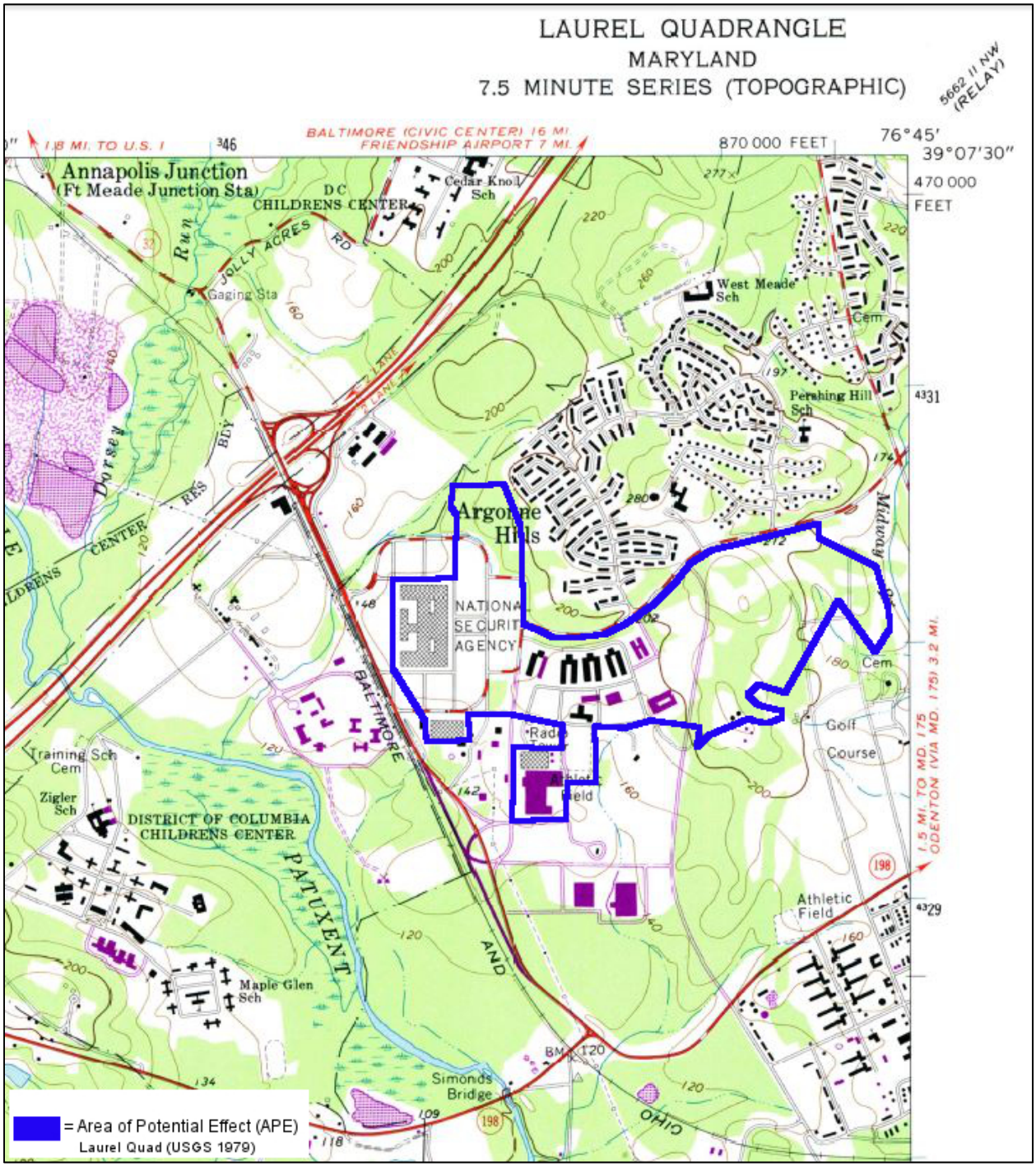


Figure 6. APE on Topographic Map (USGS 1979)



Maryland Department of Planning
Maryland Historical Trust

Larry Hogan, Governor
Boyd Rutherford, Lt. Governor

David R. Craig, Secretary
Wendi W. Peters, Deputy Secretary

September 22, 2015

Jeff Williams, Director
NSA, Environmental Sustainability
9800 Savage Road, Suite 6218
Fort Meade, MD 20755

Re: EIS – NSA East Campus Integration Program
Historic Preservation Review
Anne Arundel County, Maryland

Dear Mr. Williams,

The Maryland Historical Trust (Trust), a division of the Maryland Department of Planning, received notice of the above-referenced undertaking on July 23, 2015. We have reviewed the provided information and are writing to offer our initial comments and request additional documentation necessary to evaluate the project's effect on historic properties in accordance with Section 106 of the National Historic Preservation Act and Sections 5A-325 and 5A-326 of the Annotated Code of Maryland, as appropriate.

Project Description: According to information included with the submittal, the East Campus Integration Program entails the construction of new facilities integrating the National Security Agency East Campus with the NSA Main Campus and the demolition of existing buildings and infrastructure.

Identification of Historic Properties: The Maryland Inventory of Historic Properties does not contain any information about the history or condition of the **Preferred Alternative** site. Depending on the significance and integrity, such a property may be eligible for listing in the National Register of Historic Places. Because the potentially historic facility will be directly affected by the proposed undertaking, the property must be evaluated for National Register eligibility. The Department of Defense should take the following steps to identify, evaluate, and consider historic properties.

- Determine the National Register eligibility of properties within the APE. This will require the preparation of Determination of Eligibility (DOE) forms.
- Determine the effect of the project on historic properties and submit all relevant documentation to the Trust for review and comment.

DOE forms must contain sufficient description of buildings, structures, areas of land use, and the overall landscape of the property to evaluate significance and integrity under National Register Criterion C. This should include information regarding feature age, form, stylistic elements, methods of construction, materials, and condition. Forms must also contain sufficient historical context to evaluate the property under National Register Criteria A and B. This should include information derived from historic maps and land records; examination of the existing buildings, structures, and landscape as historical sources; and relevant information from existing reports and other secondary sources. All DOE forms must be completed by a qualified architectural historian,

preservationist, or historian and be accompanied by supporting materials as described in *General Guidelines for Compliance-Generated Determinations of Eligibility* and *Standards and Guidelines for Architectural and Historical Investigations in Maryland.* These documents and other information about completing a DOE form may be found on the Trust's website, http://mht.maryland.gov/projectreview_DOEGuide.shtml .

It is also important to note that the mid-19th century Clark/Vogel House (AA-760) is located within the eastern portion of the **National Business Park Alternative** Location for the project. This historic property was determined to be eligible for listing in the National Register of Historic Places in 2009. In the event that the Department of Defense must consider this particular alternative site for the expansion and integration of the NSA Campus, we would need to be provided with the materials listed below so that we could assess the project's potential effects on historic properties and determine what cultural resources investigations, if any, will be necessary to identify and evaluate historic properties within the project's Area of Potential Effect. We would need to be provided with:

- Drawings and/or a written scope of work illustrating any plans to construct, demolish, or remodel buildings or other structures.
- Site plans illustrating the location and boundaries of all proposed ground-disturbing activities and impact areas that will be involved in the undertaking.
- Photographs (print or digital) of the project site including images of *all* buildings and structures that may be affected by the project.

Upon our review of these plans and photographs, we would be able to provide informed recommendations regarding what, if any, cultural resources investigations (including archeological survey work) will be necessary prior to construction within the National Business Park location. Phase I archeological investigations may, in fact, be necessary, depending upon the location and extent of the proposed impact areas in relation to the mid-19th century Clark/Vogel House. All recommended survey work would need to be carried out by a qualified professional archeologist and performed in accordance with the *Standards and Guidelines for Archeological Investigations in Maryland* (Shaffer and Cole 1994).

Thank you for providing us with this initial opportunity to comment. We look forward to receiving the requested information and working with you to successfully complete the historic preservation requirements for the proposed undertaking. If you have questions or require assistance, please do not hesitate to contact me (regarding archeology) at dixie.henry@maryland.gov / 410-514-7638 or Amanda Apple (regarding buildings, structures, and cultural landscapes) at amanda.apple@maryland.gov.

Sincerely,

Dixie Henry

Dixie L. Henry, Ph.D.
Preservation Officer
Maryland Historical Trust

DLH \ ARA \ 201502992
CC: Jerald Glodek (Fort Meade)

NATIONAL SECURITY AGENCY
CENTRAL SECURITY SERVICE
Fort George G. Meade, Maryland 20755

November 10, 2015

Elizabeth Hughes
Director/State Historic Preservation Officer
Maryland Historical Trust
100 Community Place
Crownsville, MD 21032

RE: Environmental Impact Statement for the East Campus Integration Program (ECIP), Fort Meade, Maryland, Section 106 Consultation, Identification of Historic Properties, Assessment of Effect, Consulting Parties

Dear Ms. Hughes,

In response to MHT's letter dated September 22, 2015, and in accordance with Section 106 of the National Historic Preservation Act and Sections 5A-325 and 5A-326 of the Annotated Code of Maryland, as appropriate, enclosed please find a brief summary on the Section 106 efforts to date for the ECIP, which includes a revised map of the Area of Potential Effect (APE), the identification of historic properties, survey methods, an assessment of project effects, and a list of potential consulting parties for the Section 106 process. Also included are Regular Determination of Eligibility Forms for the 17 resources within the APE.

The architectural survey and evaluation of resources in the APE determined that one resource, Building 9800, is eligible for listing in the National Register of Historic Places (NRHP) under Criterion A. NSA seeks your concurrence on our finding that the ECIP will have no adverse effect on historic properties.

Should you have any questions or comments, please contact me by telephone at 301-688-2970, or email at jdwill2@nsa.gov.

Sincerely,

Jeffrey D. Williams

Jeffrey D. Williams
Director, Environmental Sustainability

Enclosures: Summary of Section 106 process, Determinations of Eligibility (Regular DOE Forms) and associated documentation for 16 resources

cc: Dixie Henry, Preservation Officer, Review and Compliance, MHT
Amanda Apple, Preservation Officer, Review and Compliance, MHT
Jerald Glodek, Fort Meade

Project Information

The Department of Defense (DoD) proposes to continue to integrate the National Security Agency (NSA) East Campus with the NSA Main Campus through development of operational complex and headquarters space in the northern portion of the East Campus and in the 9800 Troop Support Area of Fort George G. Meade (Fort Meade). Implementation of the East Campus Integration Program (ECIP) entails construction and operation of new facilities for operations and headquarters space within the 150-acre ECIP project area. The ECIP project area, as shown in Figure 1, includes the locations being considered for development of operations and headquarters space, some parking facility location alternatives, and locations of buildings proposed for demolition that are outside of the ECIP project area on NSA's main campus. The ECIP consists of construction and operation of approximately 2.9 million square feet of new facilities for operations and headquarters space, and demolition of 1.9 million square feet of buildings and infrastructure (Table 1). The DoD proposes to construct the ECIP over a period of approximately 10 years (FY 2019 to 2029).

All nine buildings in the 9800 Troop Support Area would be demolished to provide room for the proposed facilities and supporting infrastructure. These buildings include Buildings 9801, 9802, 9803, 9804, 9805, 9810, 9827, 9828, and 9829. After construction of each of the proposed facilities on the East Campus and 9800 Troop Support Area are completed and personnel transferred to the facilities, Buildings 9703, 9705, 9800A, 9808, 9814, and 9817 on the NSA Main Campus would be vacated and demolished. Three surface parking lots in the 9800 Troop Support Area would be demolished to make room for the proposed buildings under the ECIP.

Table 1. Buildings Proposed for Demolition under the Preferred Alternative

Building #	Year Constructed
Buildings in the ECIP Project Area	
9801	1954
9802	1954
9803	1954
9804	1954
9805	1954
9810	1954
9827	1954
9828	1973
9829	1972
Buildings outside of the ECIP Project Area (on the NSA Main Campus)	
9800A	1968
9817	1968
9814	1965

Building #	Year Constructed
9703	1973
9705	1976
9808	1957

Area of Potential of Effect

The Area of Potential Effect (APE) is defined as the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The APE for the ECIP is shown in Figure 2 and includes all portions of the project area that might be affected by the undertaking.

Cultural Resources Survey and Evaluation

NSA contracted with HDR, Inc. to conduct an architectural survey and National Register of Historic Places (NRHP) evaluation of resources within the APE. The survey and evaluation were conducted by Ms. Jeanne Barnes and Mr. Paul Weishar, of HDR. Both meet the Secretary of the Interior's *Professional Qualification Standards* for architectural history; Ms. Barnes also meets the requirements for history.

HDR reviewed existing information on cultural resources historic properties, including a review of files at MHT to identify previously documented historic properties. Historic and cultural resources at Fort Meade are detailed within the installation's 2011 Integrated Cultural Resources Management Plan, which provided additional information on the project area. This search revealed that there were no previously identified historic properties within the NSA Campus or APE. Previous archaeological surveys and predictive models indicated the NSA Campus is almost entirely disturbed with little to no potential for archaeological resources and no further archaeological investigation should be required for the NSA Campus or APE.

Archival materials were gathered through the Fort Meade Department of Public Works, who provided building plans and Form 2877s that provided information on building construction and improvements over time. Additional information and historic photos were gathered from NSA and Fort Meade.

In accordance with Section 106 (36 CFR 800.4), Ms. Barnes conducted field work at NSA in June 2015. She was accompanied by Mr. Jeffrey Williams, Director of Environmental Sustainability and an official NSA photographer. NSA provided digital photographs of the buildings that were taken in June 2015 and October 2015. Because the project will be constructed through 2029, all resources constructed in 1979 or earlier were surveyed and evaluated. Building 9800C/D, built in 1986, was also evaluated for NRHP listing under Criteria Consideration G. A total of 17 buildings were surveyed and evaluated for NRHP listing.

Figure 1. Project Area

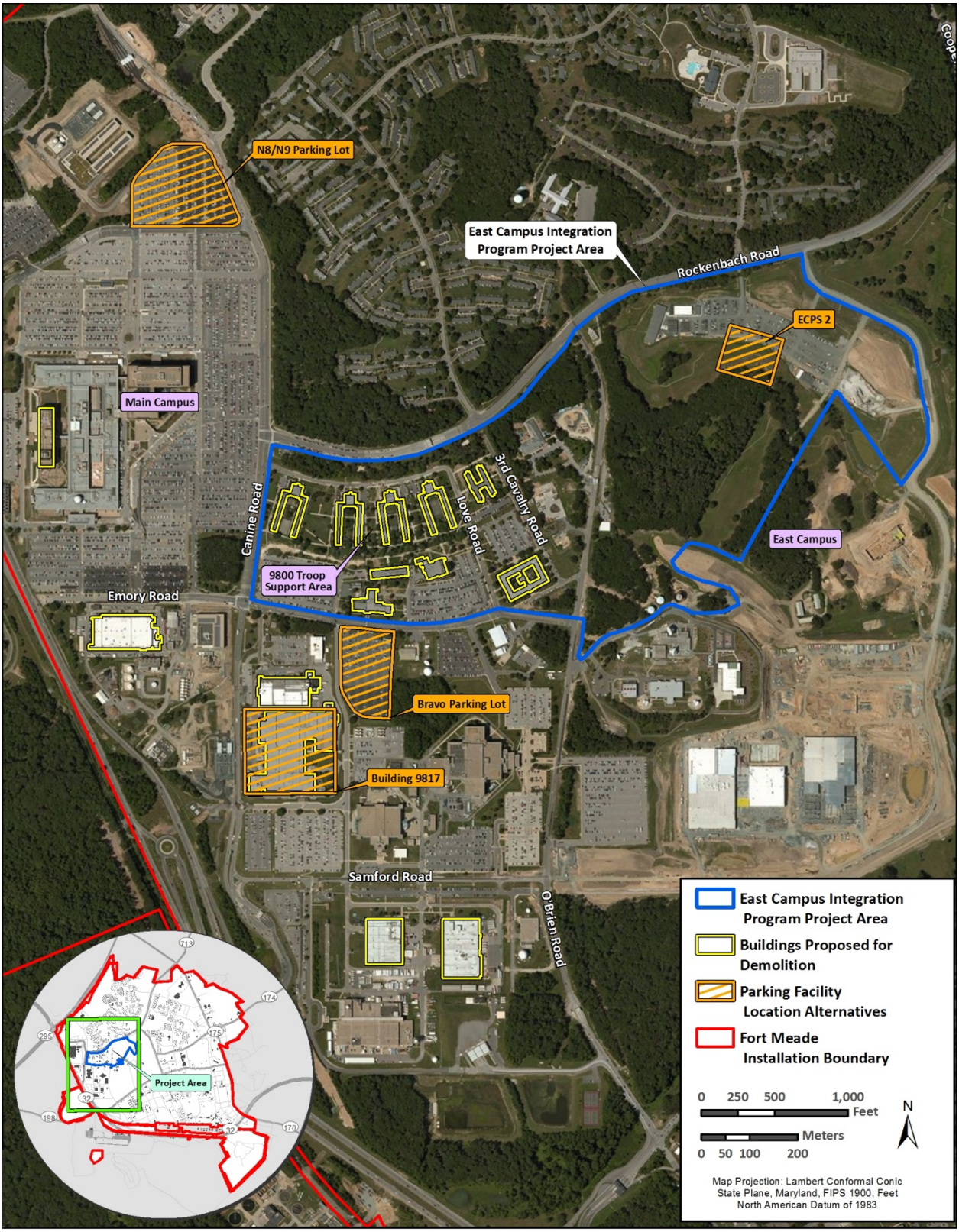
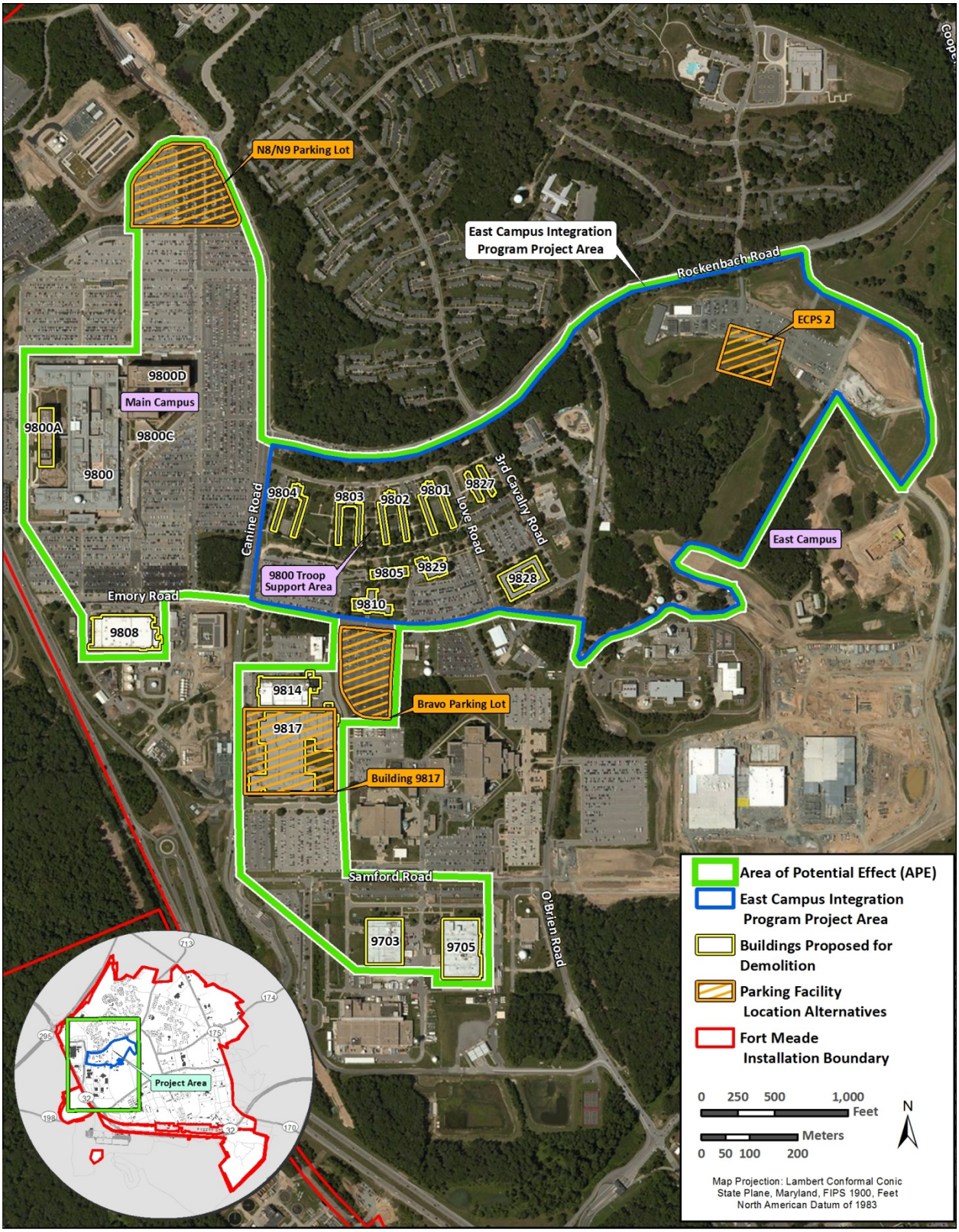


Figure 2. ECIP Area of Potential Effect (APE)



Ms. Barnes prepared a historic context of NSA and its campus in which to evaluate the buildings. Documents publicly released by NSA and an institutional history of NSA provided a wealth of information. Other historic contexts were also consulted, including *Army Unaccompanied Personnel Housing (UPH) Historic Context, 1946-1989* (Goodwin & Associates 2003), *Air Force and Navy Unaccompanied Personnel Housing During the Cold War Era (1946-1989)* (Goodwin & Associates 2011), *Historic Context for Evaluating Mid-Century Modern Military Buildings* (Hampton 2012), and *A Guide to Architecture and Engineering Firms of the Cold War Era* (Moore 2010).

Of the 17 resources surveyed, only one, Building 9800, was recommended eligible for listing in the NRHP (Table 2). Building 9800 is recommended eligible for listing in the NRHP under Criterion A. It was completed in 1957 and was the first purpose-built operations building constructed for NSA's campus and served as the first permanent home of the NSA. Plans for the building began in 1951, even before the NSA was officially established in 1952 and reflects the nation's Cold War-era consolidation and expansion of U.S. intelligence agencies. Building 9800 reflects the growth of post-war and Cold War-era intelligence gathering and the importance placed on COMINT and SIGINT activities.

Table 2. NRHP Eligibility Evaluations of Surveyed Resources

Building #	Year Constructed	NRHP Eligibility Evaluation
9800	1957	**Eligible**
9800A	1968	Not eligible
9801	1954	Not eligible
9800C/D	1986	Not eligible
9802	1954	Not eligible
9803	1954	Not eligible
9804	1954	Not eligible
9805	1954	Not eligible
9810	1954	Not eligible
9827	1954	Not eligible
9828	1973	Not eligible
9829	1972	Not eligible
9817	1968	Not eligible
9814	1965	Not eligible
9703	1973	Not eligible
9705	1976	Not eligible
9808	1957	Not eligible

Assessment of Effect

Section 106 of the NHPA requires the assessment of project effects on historic properties, i.e., those that are listed or eligible for listing in the NRHP. The criteria for adverse effects are

defined in the regulations and have been applied to the single historic property (Building 9800) in the project APE. An adverse effect is one that may alter, directly or indirectly, those characteristics of a historic property that make the property eligible for listing in the NRHP, including its location, design, setting, materials, workmanship, feeling, or association. Both temporary and long-term project impacts were considered and evaluated for their potential effects.

Only one historic property, Building 9800, is located within the ECIP APE. No changes or demolition are proposed for the building; it is not a part of the Propose Action under the ECIP Environmental Impact Statement (EIS). Demolition and construction activities surrounding Building 9800 may have temporary effects due to noise and vibration, however, these possible effects would not rise to the level of an adverse effect. Similarly, the demolition of Building 9800A, which is located adjacent to Building 9800, may have temporary effects, but those will not rise to the level of an adverse effect.

Because the development of the ECIP is in the planning stages, no detailed engineering or design work for proposed facilities has yet been accomplished. NSA will continue to consult with MHT in the future on the design of these associated proposed projects, as appropriate.

Consulting Parties

NSA has identified the following potential consulting parties in the Section 106 process for this project (Table 3). The consulting parties will be issued an invitation to participate in the Section 106 consultation process for the ECIP and provide their comments on the Proposed Action.

Table 3. ECIP Identified Potential Consulting Parties

Name, Title	Organization/Agency
Elizabeth Hughes State Historic Preservation Officer	Maryland Historical Trust
Steve Schuh County Executive	Anne Arundel County
Jerry Glodek Cultural Resources Manager	Fort George G. Meade
Richard Schaeffer President	National Cryptologic Museum Foundation
Kate Birmingham Cultural Resources Manager	National Capital Parks - East

Maryland Department of Planning
Maryland Historical Trust

February 12, 2016

Jeffery Williams, Director
NSA, Environmental Sustainability
9800 Savage Road, Suite 6218
Fort Meade, MD 20755

Re: EIS – NSA East Campus Integration Program DOEs
Historic Preservation Review
Anne Arundel County, Maryland

Dear Mr. Williams:

Thank you for providing the Maryland Historical Trust (Trust) with information related to the above-referenced project. On January 6, 2016 the Trust received 17 standard Determination of Eligibility (DOE) forms. It is our understanding that these materials were prepared as part of an environmental assessment. The Trust is reviewing the proposed undertaking for its effects on historic properties, pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and offers the comments presented below.

We appreciate NSA's efforts to collect this valuable information about Maryland's cultural resources and provide the resulting documentation for our records. The completed DOE forms and required attachments were prepared by HDR, Inc. The forms are generally consistent with the General Guidelines for Compliance Generated DOEs and have been added to our archives for the benefit of future researchers. MHT concurs with the preparer's recommendation that Building 9800 identified as Maryland Inventory of Historic Properties number AA-2510-1 is eligible for listing in the National Register of Historic Places under Criteria A. The Trust also determined that Building 9800-A identified as AA-2510-15 is eligible for listing in the National Register of Historic Places under Criteria A as it represents the expansion of the agency in the 1960s.

In order to continue our review of the proposed undertaking and provide an informed assessment of the project's effects on historic and archeological properties, we request a detailed map/plans of the proposed integration program as it effect the built environment.

We thank you for your cooperation and assistance and we look forward to assisting you to complete historic preservation responsibilities for this undertaking. If you should have any questions regarding this matter, please contact Amanda Apple at amanda.apple@maryland.gov.

Sincerely,

Elizabeth Hughes
Director / State Historic Preservation Officer

EH\ARA \ 201600049

CC: Charles Wolfe, Mosaic Technologies Group (via email)

NATIONAL SECURITY AGENCY
CENTRAL SECURITY SERVICE
Fort George G. Meade, Maryland 20755

March 30, 2016

Elizabeth Hughes
Director/State Historic Preservation Officer
Maryland Historical Trust
100 Community Place
Crownsville, MD 21032

RE: Environmental Impact Statement (EIS) for the East Campus Integration Program (ECIP), Fort Meade, Maryland, Section 106 Consultation

Dear Ms. Hughes,

In a letter to the National Security Agency (NSA) dated February 12, 2016, MHT concurred with NSA's determination that Building 9800 is eligible for listing in the National Register of Historic Places (NRHP) and further indicated that Building 9800A is also eligible for listing. Building 9800A is proposed for demolition under the ECIP; thus, the demolition of Building 9800A would have an adverse effect on historic properties. MHT also requested additional project information to assist in the assessment of effects. The Draft EIS (subject of initial coordination letter on July 22, 2015) is currently undergoing internal review prior to public release and will be forwarded to MHT when it is available.

Attached is a revised assessment of effects given the eligibility of Building 9800A with a summary provided below. Please note that the ECIP is in the very early planning phase as befitting the NEPA action, and there are currently no detailed plans for design and construction. NSA will continue to consult with MHT through the planning and design phase of the ECIP.

- Under the Proposed Action, Building 9800A would be demolished. The demolition of this historic property would be an adverse effect. Demolition is required under the ECIP both due to the condition of the facility and to meet DOD requirements for "freeze the footprint" while constructing new facilities on the NSA Campus.
- No changes, alterations, or demolition are proposed for Building 9800 itself; it is not a part of the Proposed Action. Demolition activities adjacent to Building 9800 may have temporary, short-term effects due to noise and vibration; however, these possible effects would not rise to the level of an adverse effect.
- Building 9800 is located approximately 1,000 feet from the ECIP project area as well as the nearest parking facility proposed to support the ECIP project area (the N8/N9 parking lot site shown on Figure 1). This parking facility and the western portion of the ECIP project area closest to Building 9800 could contain facilities at least 4 stories in height. Given the wide expanses of parking lots north and northeast of Building 9800, the proposed new parking facility and buildings in the western portion of the ECIP project area may be visible from Building 9800. However, Building 9800's setting, including being surrounded by parking lots, is not essential to understanding the significance of the building as the first purpose-built home and operations building of the NSA, or its association with the growth of post-war and Cold War-era intelligence gathering. Therefore, , it is NSA's current understanding that the proposed new construction will not affect the integrity of Building 9800 and will have no adverse effects on historic properties.

NSA anticipates that a Memorandum of Agreement (MOA) will be developed with MHT to mitigate the adverse effect of the demolition of Building 9800A and to provide for continued consultation during the planning and design phase of the ECIP. We look forward to your comments and concurrence on the assessment of effects.

Should you have any questions or comments, please contact me by telephone at 301-688-2970, or email at jdwill2@nsa.gov.

Sincerely,

Jeffrey D. Williams

Jeffrey D. Williams
Director, Environmental Sustainability

cc: Amanda Apple, Preservation Officer, Review and Compliance, MHT
Beth Cole, Administrator, Review and Compliance, MHT

Project Information

The Department of Defense (DoD) proposes to continue to integrate the National Security Agency (NSA) East Campus with the NSA Main Campus through development of operational complex and headquarters space in the northern portion of the East Campus and in the 9800 Troop Support Area of Fort George G. Meade (Fort Meade). The Proposed Action includes implementation of the East Campus Integration Program (ECIP), which entails construction and operation of new facilities for operations and headquarters space within the 150-acre ECIP project area. The ECIP project area, as shown in Figure 1, includes the locations being considered for development of operations and headquarters space; some parking facility location alternatives, and locations of buildings proposed for demolition that are outside of the ECIP project area on NSA's main campus. The ECIP consists of construction and operation of approximately 2.9 million square feet of new facilities for operations and headquarters space and demolition of 1.9 million square feet of buildings and infrastructure (Table 1). The DoD proposes to construct the ECIP over a period of approximately 10 years (FY 2019 to 2029).

All nine buildings in the 9800 Troop Support Area would be demolished to provide room for the proposed facilities and supporting infrastructure. These buildings include Buildings 9801, 9802, 9803, 9804, 9805, 9810, 9827, 9828, and 9829. After construction of each of the proposed facilities on the East Campus and 9800 Troop Support Area are completed and personnel transferred to the facilities, Buildings 9703, 9705, 9800A, 9808, 9814, and 9817 on the NSA Main Campus would be vacated and demolished. Three surface parking lots in the 9800 Troop Support Area would be demolished to make room for the proposed buildings under the ECIP.

The Proposed Action would also consist of infrastructure supporting the proposed operational complex and headquarters space, including electrical substation, emergency generator capacity providing 121 megawatts of electricity; life-safety generators; building heating systems; utilities, including water, natural gas, and communications services; transportation infrastructure, including roads, parking structures, and sidewalks; and stormwater management facilities. Use of multi-level parking facilities were considered in lieu of surface parking.

The ECIP takes into account several factors, including mission requirements, the condition of current facilities (both on and off the NSA's Campus at Fort Meade), space planning, land availability, utility requirements, traffic and parking, and environmental impacts. A key factor is the mission co-location to provide a more efficient and effective work environment for mission-critical functions of the entire Intelligence Community. Under the ECIP, NSA would consolidate mission elements, which would enable grouping services and support services across the NSA Campus based on function; facilitate a more collaborative environment and optimal adjacencies; and provide administrative capacity for an increase of 7,200 personnel currently located offsite.

Figure 1. ECIP Project Area and Area of Potential Effect (APE)

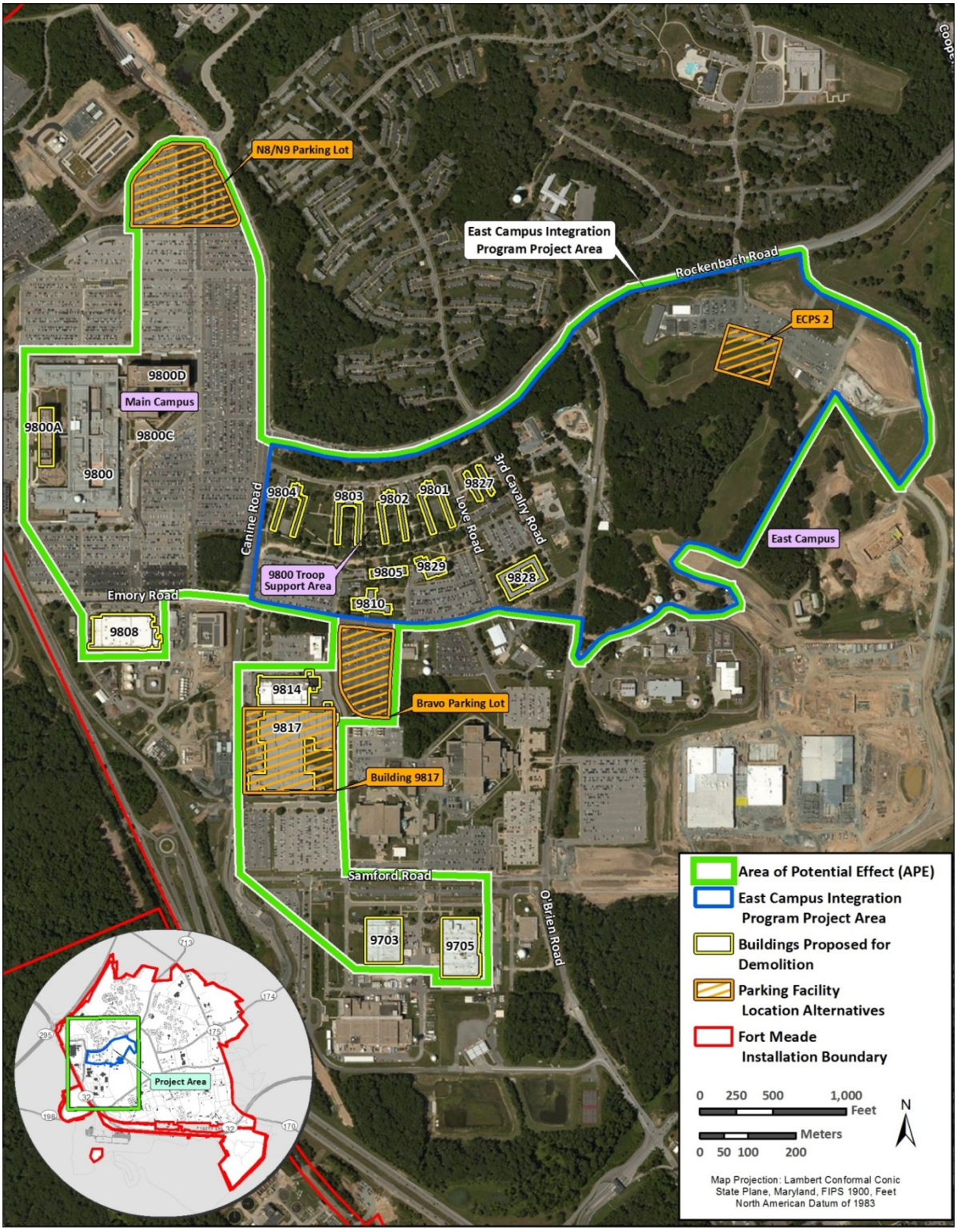


Table 1. Buildings Proposed for Demolition under the Preferred Alternative

Building #	Year Constructed	MIHP Number	NRHP Eligibility
Buildings in the ECIP Project Area			
9801	1954	AA-2510-14	Not eligible
9802	1954	AA-2510-13	Not eligible
9803	1954	AA-2510-12	Not eligible
9804	1954	AA-2510-11	Not eligible
9805	1954	AA-2510-10	Not eligible
9810	1954	AA-34_005_CRS	Not eligible
9827	1954	AA-2510-9	Not eligible
9828	1973	AA-2510-8	Not eligible
9829	1972	AA-2510-7	Not eligible
Buildings outside of the ECIP Project Area (on the NSA Main Campus)			
9800A	1968	AA-2510-15	**Eligible**
9817	1968	AA-2510-4	Not eligible
9814	1965	AA-2510-5	Not eligible
9703	1973	AA-2510-3	Not eligible
9705	1976	AA-2510-2	Not eligible
9808	1957	AA-2510-6	Not eligible

Principal Facilities

The DoD proposes to construct and operate approximately 2,880,000 ft^2 of operational complex and headquarters space consisting of five buildings. These facilities would consist of East Campus Building (ECB) 3, ECB 4, and ECB 5, each with approximately 800,000 ft^2, and two smaller buildings of 330,000 ft^2 and 150,000 ft^2. The buildings would include an open environment conducive to both physical and virtual collaboration; special purpose space, including support and enabler areas (e.g., lobbies, main reception, security); and supporting electrical, mechanical, fire protection/suppression, and security components.

Construction of the proposed buildings and the increase of personnel would require additional campus parking. The NSA Campus has limited developable land; therefore, the use of multi-level (i.e., at least four levels) parking structures are considered in lieu of surface parking. Parking lots are fully used most days, including overflow parking, so the net loss of any parking (i.e., at the 9800 Troop Support Area) would require replacement parking. The exact quantity, size, and capacity of parking structures would not be known until the detailed design process begins. Four alternatives for locations of parking structures are available and are discussed further in the Environmental Impact Statement (EIS). Depending on the locations of operational/headquarters buildings, at least three of the parking facility location alternatives would be constructed if the ECIP is fully implemented.

Because the development of the ECIP is in the planning stages, no detailed engineering or design work for proposed facilities has yet been accomplished. Therefore, the EIS does not consider various design factors in detail and makes general assumptions about the proposed development. The exact space requirements would not be known until the detailed design process begins. Therefore, the EIS does not consider various design factors in detail but makes general assumptions about the requirement associated with parking. Additional site-specific parking and transportation studies would also be accomplished during the design and engineering process to ensure efficient and safe use of space, ingress and egress, and movement patterns.

All proposed facilities would comply with Unified Facilities Criteria (UFC) 04-010-01, *DoD Minimum Antiterrorism Standards for Buildings*. Handicap accessibility design would comply with Federal and state requirements. In compliance with the Federal Guiding Principles identified in the 2006 Memorandum of Understanding (MOU) for *Federal Leadership in High Performance and Sustainable Buildings*; EO 13693, *Planning for Federal Sustainability in the Next Decade* (March 2015); *DoD Sustainable Buildings Policy* (December 2010); DoD Instruction 4170.11, *Installation Energy Management* (December 2009); and UFC 1-200-02, *High Performance and Sustainable Building Requirements* (changed November 2014), the operational complex and headquarters space would be designed, constructed, and managed in a sustainable and cost-effective manner to the maximum extent practicable. Facility and site design would place emphasis on maximizing operating efficiencies of building systems and minimizing the environmental footprint. The facilities would be energy-efficient and use sustainable technology, such as solar hot water systems and vertical rainwater collection cisterns, where feasible.

Supporting Infrastructure

Infrastructure supporting the proposed operational complex and headquarters space would include electrical substation, emergency generators; life-safety generators; building heating systems; utilities, including water, natural gas, and communications services; transportation infrastructure, including roads, parking structures, and sidewalks; and stormwater management facilities. The facilities are in the preliminary design stages and a detailed list of equipment is unavailable at this time.

Roads and sidewalks would be constructed to connect the proposed buildings and parking structures, and interconnect with existing buildings and the road/sidewalk network on the NSA Main Campus. These interconnections would be designed to promote a pedestrian-oriented campus by providing a logical interconnection between vehicles, pedestrians, and cyclists; and minimizing areas of conflict.

Stormwater management facilities would be designed to comply with the appropriate State of Maryland regulations, Section 438 of the Energy Independence and Security Act (EISA), NSA design standards, and the NSA-Washington Facilities Master Plan, as appropriate.

Area of Potential of Effect

The Area of Potential Effect (APE) for the ECIP is shown in Figure 1 and includes all geographic areas that might be affected by the undertaking. The APE remains unchanged from the Section 106 project initiation for this project submitted in November 2015.

Historic Properties in the APE

A site file search at MHT indicated there were no previously identified historic properties in the APE. Building 9810 (AA-34_005_CRS) was previously determined not eligible for listing in the NRHP. The entirety of Fort Meade has been investigated for the presence of archaeological resources. There are a total of 41 known archaeological sites on Fort Meade; only one of these sites has been determined eligible for listing in the NRHP (18AN1240). Site 18AN1240 is a Late Archaic Period base camp and is not located within the ECIP APE.

Because the ECIP project would be constructed through fiscal year 2029, all resources in the APE constructed in 1979 or earlier were surveyed and evaluated. A total of 16 buildings were surveyed and evaluated for NRHP listing. Of these, NSA determined that Building 9800 is eligible for listing in the NRHP. MHT concurred with that determination and found that Building 9800A was also eligible for listing in the NRHP (Table 1).

Assessment of Effect

Section 106 of the NHPA requires the assessment of project effects on historic properties (i.e., those that are listed or eligible for listing in the NRHP). The criteria for adverse effects are defined in the regulations and have been applied to the two historic properties (Buildings 9800 and 9800A) in the project APE. An adverse effect is one that may alter, directly or indirectly, those characteristics of a historic property that make the property eligible for listing in the NRHP, including its location, design, setting, materials, workmanship, feeling, or association. Both temporary and long-term project impacts were considered and evaluated for their potential effects. Demolition of a historic property is an adverse effect, by definition.

The demolition of Building 9800A is included as part of the Preferred Alternative; the demolition of this historic property would be an adverse effect. Building 9800A is adjacent to Building 9800; demolition activities surrounding Building 9800 may have temporary effects due to noise and vibration; however, these potential effects would not rise to the level of an adverse effect. No changes, alterations, or demolition are proposed for Building 9800 itself; it is not a part of the Proposed Action.

Building 9800 is located approximately 1,000 feet from the ECIP project area as well as the nearest parking facility proposed to support the ECIP project area (the N8/N9 parking lot site shown on Figure 1). This parking facility and the western portion of the ECIP project area closest to Building 9800 could contain facilities at least 4 stories in height. Given the wide expanses of parking lots north and northeast of Building 9800, the proposed new parking facility and buildings in the western portion of the ECIP project area may be visible from Building 9800. However, Building 9800's setting, including being surrounded by parking lots, is not essential to understanding the significance of the building as the first purpose-built home and operations building of the NSA, or its association with the growth of post-war and Cold War-era intelligence

gathering. Therefore, proposed new construction will not affect the integrity of Building 9800 and will have no adverse effects on historic properties.

Because the development of the ECIP is early in the planning stages, no detailed engineering or design work for proposed facilities has yet been accomplished. NSA will continue to consult with MHT on the design of the ECIP to avoid any other adverse effects to historic properties. NSA will work with MHT to develop a Memorandum of Agreement (MOA) mitigating the adverse effect of the demolition of Building 9800A, and will include provisions for continued consultation with MHT through the design phase of the project.

Consulting Parties

NSA has identified the following potential consulting parties in the Section 106 process for this project (Table 2). The consulting parties will be notified of the adverse effect and asked to provide their comments on the Proposed Action.

Table 2. ECIP Consulting Parties

Name, Title	Organization/Agency
Elizabeth Hughes State Historic Preservation Officer	Maryland Historical Trust
Steve Schuh County Executive	Anne Arundel County
Jerry Glodek Cultural Resources Manager	Fort George G. Meade
Richard Schaeffer President	National Cryptologic Museum Foundation
Kate Birmingham Cultural Resources Manager	National Capital Parks - East

APPENDIX F

REVIEW OF THE DRAFT EIS

Appendix F
ECIP EIS
Interested Party List

The following agencies and individuals will be sent copies or notifications of the Draft EIS. Other copies of the Draft EIS will be distributed upon request.

Federally Elected Officials

The Honorable Benjamin Cardin
U.S. Senate
509 Hart Senate Office Building
Washington, DC 20510

The Honorable Barbara Mikulski
U.S. Senate
503 Hart Senate Office Building
Washington, DC 20510

The Honorable Elijah Cummings
U.S. House of Representatives
Maryland's 7th District
2235 Rayburn House Office Building
Washington, DC 20515

The Honorable John Delaney
U.S. House of Representatives
Maryland's 6th District
1632 Longworth House Office Building
Washington, DC 20515

The Honorable Donna F. Edwards
U.S. House of Representatives
Maryland's 4th District
2445 Rayburn House Office Building
Washington, DC 20515

The Honorable Andrew Harris, M.D.
U.S. House of Representatives
Maryland's 1st District
1533 Longworth House Office Building
Washington, DC 20515

The Honorable Steny Hoyer
U.S. House of Representatives
Maryland's 5th District
1705 Longworth House Office Building
Washington, DC 20515

The Honorable C.A. Dutch Ruppersberger
U.S. House of Representatives
Maryland's 2nd District
2416 Rayburn House Office Building
Washington, DC 20515

The Honorable John Sarbanes
U.S. House of Representatives
Maryland's 3rd District
2444 Rayburn House Office Building
Washington, DC 20515

The Honorable Chris Van Hollen
U.S. House of Representatives
Maryland's 8th District
1707 Longworth House Office Building
Washington, DC 20515

Federal Agency Contacts

Ms. Kate Birmingham
Cultural Resources Manager
National Capital Parks East
1900 Anacostia Drive, SE
Washington, DC 20020

Ms. Dionne Briggs
U.S. Fish and Wildlife Service
Patuxent Research Refuge
12100 Beech Forest Road, Room 138
Laurel, MD 20708-4036

Mr. Michael Butler
Fort Meade DPW-ED
Building 2460
85th Med Battalion Avenue & Wilson Street
Fort Meade, MD 20755-7068

COL Brian Foley
Fort Meade
4551 Llewellyn Avenue
Fort Meade, MD 20755

Mr. Jerry Glodek
Cultural Resources Manager
Fort Meade Directorate of Public Works,
Environmental Division
Building 2460
85th Med Battalion Avenue & Wilson Street
Fort Meade, MD 20755

Mr. Joel Gorder
Regional Environmental Coordinator
National Park Service, National Capital Region
1100 Ohio Drive, SW
Washington, DC 20424

Mr. Brian Higgins, PhD, PE
Washington Headquarters Services
Department of Defense
1314 Mayflower Drive
McLean, VA 22101-3402

Ms. Jennifer Hill
U.S. Fish and Wildlife Service
Patuxent Research Refuge
North Tract Visitor Contact Station
230 Bald Eagle Drive
Laurel, MD 20724

Vaso Karanikolis
USACE CENAB-PL
PO Box 1715
Baltimore, MD 21203-1715

Mr. Brad Knudsen
U.S. Fish and Wildlife Service
Patuxent Research Refuge
National Wildlife Visitor Center
10901 Scarlet Tanager Loop
Laurel, MD 20708-4027

Ms. Genevieve LaRouche
U.S. Fish and Wildlife Service
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307

Ms. Laura Lokey-Flippo
U.S. Army Public Health Command
Drinking Water and Sanitation Program
5158 Blackhawk Road
APG, MD 21010-5403

Mr. Peter May
National Park Service
National Capital Region
Lands, Resources, and Planning Division
1100 Ohio Drive, SW
Washington, DC 20242

Ms. Melanie Moore
Fort Meade
Building 4550, Room 120
Fort Meade, MD 20755-5025

Mr. Lindy Nelson
U.S. Department of the Interior
Office of Environmental Policy & Compliance
Philadelphia Region
Custom House, Room 244
200 Chestnut Street
Philadelphia, PA 19106

Bruce Peacock
National Parks Service
Environmental Quality Division
1201 Oakridge Drive
Fort Collins, CO 80525

Bert Rice
Fort Meade PAIO
1217 Hillcrest Road
Odenton, MD 21113-2005

Ms. Barbara Rudnick
NEPA Team Leader
Office of Environmental Programs (3EA30)
USEPA, Region 3
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Philadelphia, PA 19106

Ms. Loretta Sutton
Office of Environmental Policy & Compliance
U.S. Department of the Interior
Main Interior Building (MS 2462)
1849 C Street, NW
Washington, DC 20240

Mr. Stephen Syphax
National Park Service
National Capital Parks East
1900 Anacostia Drive, SE
Washington, DC 20020

Ms. Suzanne Teague
Fort Meade DPW-ED
Building 2460
85th Med Battalion Avenue & Wilson Street
Fort Meade, MD 20755-7068

State Elected Officials

The Honorable Vanessa E. Atterbeary
Maryland House of Delegates
Howard County, District 13
House Office Building, Room 424
6 Bladen Street
Annapolis, MD 21401

The Honorable Benjamin S. Barnes
Maryland House of Delegates
Anne Arundel & Prince George's County,
District 21
House Office Building, Room 151
6 Bladen Street
Annapolis, MD 21401

The Honorable Pamela Beidle
Maryland House of Delegates
Anne Arundel County, District 32
House Office Building, Room 165
6 Bladen Street
Annapolis, MD 21401

The Honorable Mark S. Chang
Maryland House of Delegates
Anne Arundel County, District 32
House Office Building, Room 160
6 Bladen Street
Annapolis, MD 21401

The Honorable James E. DeGrange
Maryland State Senate
Anne Arundel County, District 32
James Senate Office Building, Room 101
11 Bladen Street
Annapolis, MD 21401

The Honorable Barbara A. Frush
Maryland House of Delegates
Prince George's & Anne Arundel County,
District 21
House Office Building, Room 364
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Annapolis, MD 21401

The Honorable Guy J. Guzzone
Maryland State Senate
Howard County, District 13
James Senate Office Building, Room 121
11 Bladen St.
Annapolis, MD 21401

The Honorable Larry Hogan
Governor, State of Maryland
100 State Circle
Annapolis, MD 21401-1925

The Honorable Tony McConkey
Maryland House of Delegates
Anne Arundel County, District 33
House Office Building, Room 163
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The Honorable Joseline A. Peña-Melnyk
Maryland House of Delegates
Anne Arundel & Prince George's County
District 21
House Office Building, Room 425
6 Bladen Street
Annapolis, MD 21401

The Honorable Shane E. Pendergrass
Maryland House of Delegates
Howard County, District 13
House Office Building, Room 241
6 Bladent Street
Annapolis, MD 21401

The Honorable Douglas J.J. Peters
Maryland State Senate
Prince George's County, District 23
James Senate Office Building, Room 120
11 Bladen Street
Annapolis, MD 21401

The Honorable Edward R. Reilly
Maryland State Senate
Anne Arundel County, District 33
James Senate Office Building, Room 316
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Annapolis, MD 21401

The Honorable James Rosapepe
Maryland State Senate
Prince George's & Anne Arundel County, District 21
James Senate Office Building, Room 314
11 Bladen Street
Annapolis, MD 21401

The Honorable Boyd Rutherford
Lieutenant Governor, State of Maryland
100 State Circle
Annapolis, MD 21401-1925

The Honorable Sid Saab
Maryland House of Delegates
Anne Arundel County, District 33
House Office Building, Room 157
6 Bladen Street
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The Honorable Theodore Sophocleus
Maryland House of Delegates
Anne Arundel County, District 32
House Office Building, Room 162
6 Bladen Street
Annapolis, MD 21401

The Honorable Frank S. Turner
Maryland House of Delegates
Howard County, District 13
House Office Building, Room 131
6 Bladen Street
Annapolis, MD 21401

The Honorable Geraldine Valentino-Smith
Maryland House of Delegates
Prince George's County, District 23A
House Office Building, Room 427
6 Bladen Street
Annapolis, MD 21401

The Honorable Michael E. Malone
Maryland House of Delegates
Anne Arundel County, District 33
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State Agency Contacts

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Tawes State Office Building E-1
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2644 Riva Road
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Mr. R. Michael Gill, Secretary
Maryland Department of Commerce
World Trade Center
401 East Pratt St.
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Mr. Benjamin H. Grumbles, Secretary
Maryland Department of the Environment
Montgomery Park Business Center
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Ms. Elizabeth Hughes, Director
State Historic Preservation Office
Maryland Historical Trust
Division of Historical and Cultural Programs
100 Community Place
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Maryland Department of the Environment
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Ms. Linda Janey
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Maryland Department of Planning
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Mr. Pete K. Rahn, Secretary
Maryland Department of Transportation
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Mr. Bob Rosenbush
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301 West Preston Street
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Mr. Donald VanHassent
Maryland Department of Natural Resources
Maryland Forest Service
Tawes State Office Building E-1
580 Taylor Avenue
Annapolis, MD 21401

Locally Elected Officials

The Honorable Rushern L. Baker III
Prince George's County Executive
County Administration Building
14741 Governor Oden Bowie Drive
Suite 5032
Upper Marlboro, MD 20772-3050

The Honorable Allan Kittleman
Howard County Executive
George Howard Building
3430 Courthouse Drive
Ellicott City, MD 21043

The Honorable Andrew Pruski
Anne Arundel County Council
District 4
44 Calvert Street, 1st Floor
Annapolis, MD 21401

The Honorable Steven R. Schuh
Anne Arundel County Executive
44 Calvert Street
Annapolis, MD 21401

The Honorable Pete Smith
Anne Arundel County Council
District 1
1602 Severn Road
Severn, MD 21144

Local Agency Contacts

Annapolis and Anne Arundel County
Chamber of Commerce
49 Old Solomons Island Road
Suite 204
Annapolis, MD 21401

Anne Arundel County Public Information Office
Arundel Center
44 Calvert Street
Annapolis, MD 21401

Baltimore Metropolitan Council
Offices at McHenry Row
1500 Whetstone Way, Suite 300
Baltimore, MD 21230

Chamber of Commerce
Baltimore/Washington Corridor
312 Marshall Avenue, Suite 104
Laurel, MD 20707-4824

Chamber of Commerce
West Anne Arundel County
8385 Piney Orchard Parkway
Odenton, MD 21113

Economic Alliance of Greater Baltimore
1 East Pratt Street, Suite 200
Baltimore, MD 21202

Howard County Office of Public Information
George Howard Building
3430 Courthouse Drive
Ellicott City, MD 21043

Prince George's County Public Affairs and
Community Relations
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14741 Governor Oden Bowie Drive
Upper Marlboro, MD 20772

Mr. George G. Cardwell
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Office of Planning and Zoning
Heritage Office Complex
2664 Riva Road, MS 6403
Annapolis, MD 21401

Ms. Ginger Ellis
Anne Arundel County
Department of Public Works
Heritage Office Complex
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Mr. James M. Irvin
Howard County
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Mr. Raj Kudchadkar
Howard County
Department of Planning and Zoning
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Mr. Valdis Lazdins
Howard County
Department of Planning and Zoning
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Ellicott City, MD 21043

Mr. Peirce Macgill
Fort Meade Regional Growth Management Committee
2288 Blue Water Blvd.
Odenton, MD 21046

Stakeholder Groups

Corvias Military Living
Program Office
3080 Ernie Pyle Street
Fort Meade, MD 20755

Seven Oaks Community Association
2210 Charter Oaks Boulevard
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Mr. William S. Barroll
Senior Vice President Asset Management/ Leasing
Corporate Office Properties Trust
6711 Columbia Gateway Drive, Suite 300
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Baltimore Sun
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Baltimore, MD 21202

Ms. Debbie Faux
Department of Public Works
Residential Communities Initiative
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Fort Meade, MD 20755

Ms. Linda Greene
BWI Business Partnership
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Mr. Jeff Niesz
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Arlington, VA 22209

Mr. Tim O'Ferrall
Fort Meade Alliance
1350 Dorsey Road, Suite G
Hanover, MD 21076

Mr. Richard Schaeffer
President, National Cryptologic Museum Foundation
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Fort George G. Meade, MD 20755

Mr. Frederick Tutman
Patuxent Riverkeeper
17412 Nottingham Road
Upper Marlboro, MD 20772

Tribal Contacts

Maryland Commission on Indian Affairs
301 West Preston Street, Suite 1500
Baltimore, MD 21201

Cedarville Band of Piscataway Indians
American Indian Cultural Center
16816 Country Lane
Waldorf, MD 20601

Piscataway Conoy Confederacy and Subtribes
PO Box 1484
LaPlata, MD 20646

Chief W. Frank Adams
Upper Mattaponi Tribe
5932 East River Road
King William, VA 23086

Chief Gene Adkins
Eastern Chickahominy Tribe
2895 Mt. Pleasant Road
Providence Forge, VA 23140

Chief Stephen Adkins
Chickahominy Tribe
8200 Lott Cary Road
Providence Forge, VA 23140

Chief Earl L. Bass
Nansemond Tribe
PO Box 6558
Portsmouth, VA 23703

Chief Dean Branham
Monacan Indian Nation
104 Walnut Place
Lynchburg, VA 24502

Chief Mark Custalow
Mattaponi Tribe
122 Wee-A-Ya Lane
West Point, VA 23181

Chief Robert Gray
Pamunkey Tribe
191 Lay Landing Road
King William, VA 23086

Chief Paula Pechonick
Delaware Tribe of Indians
Delaware Tribal Headquarters
170 NE Barbara
Bartlesville, OK 74006

Chief G. Anne Richardson
Rappahannock Tribe
5036 Indian Neck Road
Indian Neck, VA 23148

Private Citizens

Rusty Bristow
Hanover, MD

Roland Jeffers
Severna Park, MD

Public Libraries

Medal of Honor Memorial Library
4418 Llewellyn Avenue
Fort Meade, MD 20755

Glen Burnie Regional Library
1010 Eastway
Glen Burnie, MD 21060

Odenton Regional Library
1325 Annapolis Road
Odenton, MD 21113

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