Supplemental Environmental Impact Statement for the Federal Bureau of Investigation Central Records Complex

Prepared by
U.S. General Services Administration (GSA)

January 2016

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SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT
FOR
THE FEDERAL BUREAU OF INVESTIGATION CENTRAL RECORDS COMPLEX

January 2016

Lead Agency:	U.S. General Services Administration (GSA)
Title of Proposed Action:	Supplemental Environmental Impact Statement
Point of Contact:	Ms. Courtenay Hoernemann, GSA Project Manager 20 N. Eighth Street Philadelphia, PA 19107

Abstract

The General Services Administration has prepared this Final Supplemental Environmental Impact Statement (EIS) to evaluate the environmental impacts of site acquisition and development of the proposed Federal Bureau of Investigation (FBI) Central Records Complex (CRC) in Frederick County, Virginia. The proposed action is to acquire a property and construct and operate a new CRC with records storage, support area, visitor screening facility, guard booth, service center, and parking. The purpose of the project is to construct a facility that would allow the FBI improved records management, including decreased response time of records retrieval and improved security of the records stored by the FBI. The Final Supplemental EIS analyzes the direct, indirect, and cumulative impacts of the No Action Alternative and two build alternatives, Alternative 1-Arcadia and Alternative 2-Whitehall, with regard to noise, air quality, land use, infrastructure and utilities, socioeconomics, community facilities and services, traffic and transportation, biological resources, topography, geology, and soils, water resources, cultural resources, and hazardous materials and waste. The Final Supplemental EIS provides responses to comments received on the August 2015 Draft Supplemental EIS and also includes the statement of preference for Alternative 1- Arcadia as the Preferred Alternative for this proposed project.

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EXECUTIVE SUMMARY

INTRODUCTION

The United States (U.S.) General Services Administration (GSA) is proposing to acquire property and construct and operate a central records complex (CRC) for the Federal Bureau of Investigation (FBI) in Frederick County, Virginia. The FBI CRC would consist of records storage, support area, visitor screening facility, service center, guard booth, and parking spaces. The facility would have a secure perimeter consisting of a perimeter fence and natural features.

Pursuant to the National Environmental Policy Act (NEPA) of 1969, as implemented by the Council on Environmental Quality (CEQ) regulations, GSA is preparing a Supplemental Environmental Impact Statement (EIS) to the *Final EIS* from May 2007.

PROJECT PURPOSE AND NEED

The purpose of the project is to construct a facility that will allow the FBI improved records management, including decreased response time of records retrieval and improved security of the records stored by the FBI. The FBI determined the need for a central records complex to consolidate records from various locations within the U.S., including Washington, DC. Consolidation of the records decreases delays in the tracking and retrieval of records, and is a more cost effective and efficient means of storage.

PROPOSED ACTION AND ALTERNATIVES CONSIDERED

Proposed Action

The proposed action would include the acquisition of property for, and construction and operation of, a CRC for the FBI. GSA would acquire one site with a minimum of 40 acres (ac) and a maximum of 108 ac, and construct an approximately 256,425 gross square foot (ft^2) building. The CRC would contain records storage, support area, visitor screening facility, service center, and guard booth, as well as approximately 427 parking spaces. The facility would have a secure perimeter consisting of a perimeter fence and natural features. The CRC would be operated by approximately 446 employees who would primarily come from the existing facility on Marcel Drive in Winchester, Virginia. The Marcel Drive facility would continue to operate as the proposed facility is intended to complement, not replace, the existing facility.

Alternatives Development

A Feasibility Study was conducted in 2005 (Staubach 2005). The Study evaluated ten different locations for the potential siting of the FBI CRC based upon four major categories of evaluation: Location, Labor, Quality of Life, and Real Estate. The results of the Study determined that Frederick County, Virginia was the best suitable location for the site of the FBI CRC facility (Staubach 2005). Alternatives development for the Supplemental EIS began in 2014 when GSA received responses to a notice placed in FedBizOps for sites between 40 and 108 ac in size.

Based on the responses received, GSA conducted site reconnaissance on twelve sites offered and assessed their potential to meet the site selection criteria. Site selection criteria are as follows:

- Site must be within the boundary of Frederick County, Virginia and/or the City of Winchester.
- Site must be contiguous, developable land that would allow the construction of up to a 256,425 gross square feet office, warehouse, and related space and accommodate 427 parking spaces. Site must be a minimum of 40 ac with a maximum size of 108 ac.
- Site must not contain a 100-year or 500-year floodplain.

In addition to the site selection criteria, GSA may consider other attributes of a site in its evaluation (i.e., location and accessibility, size of site and setback requirements, energy and utilities, environmental impacts, zoning, land use, proximity to hazards, and acquisitions and development costs).

Alternatives Considered But Not Carried Forward

Three sites met the site selection criteria and were moved forward for detailed study in the Supplemental EIS: Arcadia, Blackburn, and Whitehall. After the Notice of Intent (NOI) for the Supplemental EIS was published and scoping for the project was initiated, it was determined that due to rezoning and sale of a portion of the Blackburn site, the site would not be further evaluated in the Supplemental EIS.

No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed. The No Action Alternative does not meet the project purpose and need; however, it represents the existing conditions and is analyzed in this Supplemental EIS as a baseline for comparing the proposed action. The purpose for this comparison is to allow the federal agency to assess the effects of taking no action verses implementing the proposed action. In some cases, the No Action Alternative would result in impacts to certain resources if the proposed action is not implemented. Therefore, the assessment of the No Action Alternative is an important component of all NEPA documents.

Alternative 1 – Arcadia

Under Alternative 1, GSA would acquire approximately 59 ac of land known as the Arcadia site. After acquisition of the site, GSA would then construct the proposed FBI CRC as described under the proposed action. The site is located approximately 4 miles southeast of Winchester in Frederick County, Virginia.

Alternative 2 – Whitehall

Under Alternative 2, GSA would acquire approximately 51 ac of undeveloped farmland known as the Whitehall site. After acquisition of the site, GSA would then construct the proposed FBI CRC as described under the proposed action. The site is located approximately 4 miles north of Winchester in the town of Clear Brook, Frederick County, Virginia.

Preferred Alternative – Alternative 1 (Arcadia)

After due consideration of a variety of environmental, physical and logistical factors, GSA and the FBI have selected Alternative 1 (Arcadia) as the Preferred Alternative. The Arcadia site would provide the most implementable, cost effective and environmentally sound location for the development and operation of the proposed FBI CRC.

PUBLIC INVOLVEMENT

A NOI was published in the *Federal Register* on Tuesday, February 17, 2015 announcing the intent to prepare a Supplemental EIS and a 30-day public scoping period beginning February 17, 2015 and ending on March 17, 2015. Newspaper advertisements announcing the preparation of the Supplemental EIS, scoping period, and where to send comments, were also placed in the *Northern Virginia Daily* and the *Winchester Star* on February 14, 2015. Five comments were received during the scoping period. Two were received from state agencies: Virginia Department of Transportation (VDOT) and Virginia Department of Environmental Quality (VDEQ). A letter was also received from the Shenandoah Valley Battlefields Foundation that provided information regarding the First Kernstown and Second Kernstown battlefields, which are in proximity to one of the proposed alternatives that was subsequently dismissed from further consideration. The remainder of the public comments included one in support of the proposed Whitehall alternative and one that identified the project as a poor expenditure of taxpayer money.

A Notice of Availability (NOA) was published in the *Federal Register* on Monday, August 24, 2015 announcing the availability of the Draft Supplemental EIS. The NOA announced the beginning of a 45 day public comment period and the intent to hold a public meeting on the Draft Supplemental EIS. This information was announced in the August 22, 2015 edition of the *Winchester Star.* The public meeting was held at the War Memorial Building in Winchester, Virginia on Thursday September 10, 2015 from 6 to 8 pm. The meeting was attended by 23 members of the public. Over the course of the comment period, 7 letters, comment sheets and/or emails were received from the general public. The U.S. Environmental Protection Agency (USEPA), U.S. Department of Interior (DOI) and the VDEQ (provided comments from 12 separate state agencies) submitted written letters on the Draft Supplemental EIS.

ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

Table ES-1 provides a summary of the potential environmental effects from the No Action Alternative and the two build alternatives: Alternative 1-Arcadia and Alternative 2-Whitehall.

Table ES-1. Summary of Environmental Consequences

Resource Area	Alternative 1 (Arcadia)	Alternative 2 (Whitehall)	No Action Alternative
Noise	Short-term, temporary construction related impacts	Short-term, temporary construction related impacts	No construction or operation of a new facility; therefore, no impacts from increases in noise
Air Quality	No significant impacts on the local or regional air quality	No significant impacts on the local or regional air quality	No increases in air emissions; therefore, no impacts to air quality
Land Use and Zoning	No adverse impacts	No adverse impact	No impacts

Table ES-1. Summary of Environmental Consequences

Resource Area	Alternative 1 (Arcadia)	Alternative 2 (Whitehall)	No Action Alternative
Infrastructure and Utilities	Infrastructure and utilities are available. There would be short term impacts during construction and minor increases in utility demands from operations of the proposed FBI CRC.	Infrastructure and utilities are available. There would be short term impacts during construction and minor increases in utility demands from operations of the proposed FBI CRC.	No construction or operation of a new facility; therefore, no increase in demand on infrastructure and utilities.
Socioeconomics	No significant adverse effects. Short-term beneficial economic effects.	No significant adverse effects. Short-term beneficial economic effects.	No impact
Community Facilities and Services	No adverse impacts	No adverse impacts	No impact
Transportation and Traffic	Adverse impacts to traffic	Adverse impacts to traffic	No impacts to traffic
Biological Resources	Phase I Indiana and northern long-eared bat habitat survey conducted. Quality habitat identified. Time of Year Restriction mitigation required: no tree clearing between April 15 and September 15. Approximately 14.17ac of forested area would be impacted.	Marginal Indiana and northern long-eared bat habitat identified. Time of Year Restriction mitigation required: no tree clearing between April 15 and September 15. Approximately 23 ac of scrub-shrub vegetation would be impacted.	No construction or operation of a new facility; therefore, no impacts to biological resources.
Topography, Geology, and Soils	Adverse impacts to topography, geology, and soils	Adverse impacts to topography, geology, and soils	No impact
Water Resources	Approximately 0.5 ac of wetland impacts and 0.30 acres of stream impacts.	No adverse impacts to water resources.	No construction or operation of a new facility; therefore, no impacts to water resources.
Cultural Resources	No adverse impacts	Adverse impact (visual) to the integrity of the James Nathanial Burwell House. GSA developed a Memorandum of Agreement to minimize and mitigate the adverse impact.	No construction or operation of a new facility; therefore, no impacts to cultural resources
Hazardous Materials and Waste	No adverse impacts	No adverse impacts	No impacts

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ACRONYMS AND ABBREVIATIONS

ALS	advanced life support
ADT	Average Daily Traffic
ALS	Advance Life Support
APE	area of potential effects
ASTM	American Society for Testing Materials
BMPs	Best Management Practices
C&D	construction and demolition
ca.	circa
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
CRC	central records complex
CWA	Clean Water Act
dB	decibels
dBA	A-weighted decibels
DOI	Department of Interior
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
ESA	Environmental Site Assessment
FBI	Federal Bureau of Investigation
FCSA	Frederick County Sanitation Authority
FE	Federally Endangered
FPPA	Farmland Protection Policy Act
FT	Federally Threatenened
ft	feet
ft^2	square feet
GHG	Greenhouse Gas
gpd	gallons per day
GSA	General Services Administration
GWP	global warming potential
HAPs	hazardous air pollutants
I-	Interstate-
ISC	Interagency Security Committee
LBP	lead based paint
LEED	Leadership in Energy and Environmental Design
LID	Low Impact Development
L_{max}	Maximum Sound Level
LOS	level-of-service
MOA	Memorandum of Agreement
MSAT	Mobile Source Air Toxic
MSW	Municipal Solid Waste
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLEB	Northern Long-Eared Bat
NO_2	nitrogen dioxide
NOA	Notice of Availability
NOI	Notice of Intent
NO_x	nitrous oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWI	National Wetland Inventory

O_3	ozone
P	Potentially
PCB	Polychlorinated biphenyl
pCi/L	picocuries per liter
$PM_{2.5}$	fine particulate matter less than or equal to 2.5 microns in diameter
PM_{10}	suspended particular matter less than or equal to 10 microns in diameter
ppb	parts per billion
ppm	parts per million
psi	pounds per square inch
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Conditions
ROD	Record of Decision
RP	Residential Performance
SCU	Stream Conservation Unit
SHPO	State Historic Preservation Officer
SO_2	sulfur dioxide
ST	State Threatened
SVBF	Shenandoah Valley Battlefields Foundation
SWPPP	Stormwater Pollution Prevention Plan
TCP	Traditional Cultural Property
TPY	tons per year
U	Unlikely
$\mu g/m^3$	micrograms per cubic meters
U.S.	United States
U.S.C.	U.S. Code
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VADCR	Virginia Department of Conservation and Recreation
V-CRIS	Virginia Cultural Resources Information System
VDEQ	Virginia Department of Environmental Quality
VDGIF	Virginia Department of Game and Inland Fisheries
VDH	Virginia Department of Health
VDOT	Virginia Department of Transportation
VOC	volatile organic compound
VSMP	Virginia Stormwater Management Plan

1.0 INTRODUCTION

The United States (U.S.) General Services Administration (GSA) is proposing to acquire property and construct a central records complex (CRC) for the Federal Bureau of Investigation (FBI) in Frederick County, Virginia (**Figure 1.1-1**). The mission of the GSA is to provide safe, productive, world-class workplaces for federal agencies and the public they serve. These include several thousand facilities nationwide, encompassing federal office buildings, courthouses, border stations, and other building types where more than 1 million people work every day.

Pursuant to the National Environmental Policy Act (NEPA) of 1969, as implemented by the Council on Environmental Quality (CEQ) regulations, GSA is preparing a Supplemental Environmental Impact Statement (EIS) to the *Final EIS* from May 2007.

1.1 BACKGROUND

GSA began the site selection process for an approximately 100 acres (ac) site to procure via lease construction a CRC storage facility for the FBI in Frederick County, Virginia in 2006. The CRC would be used to consolidate the FBI's records currently housed within the Washington, DC area, as well as various field offices and information technology centers nationwide. The requirements for the facility at that time were to acquire 947,000 rentable square feet (ft^2) consisting of three buildings: an office building, a records storage facility, and a data center. The center would accommodate 1,300 employees and would have 1,225 parking spaces.

Three sites were identified as meeting the site selection criteria and GSA prepared an EIS to evaluate the potential environmental impacts associated with the sites. A Final EIS and Record of Decision (ROD) were issued for the project in May 2007 and funding was dedicated to establish a facility in Frederick County, VA. The project was to be completed as a lease construction, and GSA continued with the procurement process. However, due to market conditions and the specialized nature of the facility, GSA was not able to successfully award a lease.

Through reevaluation of the project, the FBI determined that the records storage component of the project was the number one priority. The best way to meet this mission-critical function was through a federal construction funding request. The revised project requirements would include 256,425 gross square feet for the records storage building, support area, visitor screening facility, service center, and guard booth; parking would consist of 427 spaces. Because the requirements of the facility had not changed, it was determined that a reevaulation of the project location was not warranted.

In 2014, the project was federally funded and a notice placed on FedBizOps requesting expressions of interest for sites at a minimum of 40 ac and a maximum of 108 ac. Based on the responses to the request, GSA and FBI reviewed the responses, conducted field reconnaissance, and compared the sites to the site selection criteria. Three sites were determined to meet the selection criteria and were moved forward to be evaluated in a Supplemental EIS. One of the sites that made the short list was a site evaluated in the 2007 EIS: Sempeles (herein referred to as Whitehall).

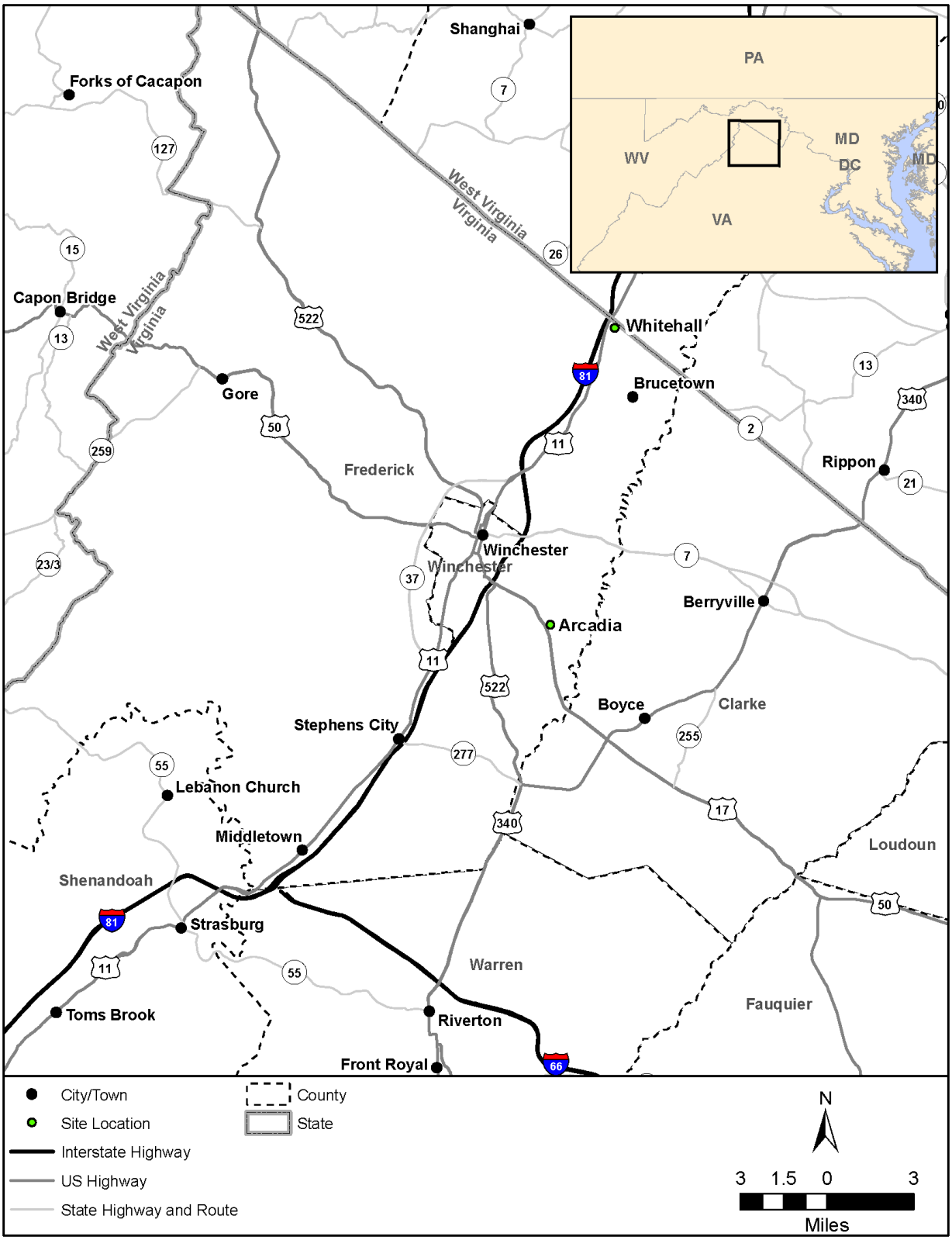

Figure 1.1-1. Project Location Map

A Supplemental EIS is being prepared due to the lapse in time between the 2007 Final EIS and ROD and because the proposed action has changed from a lease construction project to an acquisition construction project. The Supplemental EIS evaluates potential direct, indirect, and cumulative impacts that may result from the acquisition and construction associated with the proposed alternatives. The Supplemental EIS also includes relevant and reasonable measures that could avoid or mitigate environmental effects. Additionally, GSA is undertaking any consultations required by applicable laws or regulations (refer to **Section 1.3.4**).

1.2 PURPOSE AND NEED

The purpose of the project is to construct a facility that would allow the FBI improved records management, including decreased response time of records retrieval and improved security of the records stored by the FBI. The FBI determined the need for a CRC to consolidate records from various locations within the United States, including Washington, DC. Consolidation of the records decreases delays in the tracking and retrieval of records, and is a more cost effective and efficient means of storage.

1.3 THE ENVIRONMENTAL REVIEW PROCESS

1.3.1 The National Environmental Policy Act

In 1969, Congress enacted NEPA, which requires consideration of environmental issues in federal agency planning and decision making. Regulations for federal agency implementation of the act were established by CEQ. NEPA requires federal agencies to prepare an environmental assessment (EA) or EIS for any federal action, except those actions that are determined to be "categorically excluded" from further analysis. An EIS is prepared for those federal actions that may significantly affect the quality of the human and natural environments or where the impacts are largely unknown or controversial. The EIS must disclose significant environmental impacts and inform decision makers and the public of the reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment.

A Supplemental EIS is prepared to review the findings of an existing EIS and to assess the potential impacts of significant changes to the proposed action or if new information or circumstances regarding environmental concerns are identified. The intent of this Supplemental EIS is to review the findings of the 2007 EIS and document the potential environmental impacts associated with a new proposed action, including acquisition of property and construction and operation of a proposed FBI CRC. GSA is the decision-maker with regard to this proposed action. This document, together with its appendices and other documents incorporated by reference, constitutes the Final Supplemental EIS pursuant to NEPA, the CEQ regulations, and GSA procedures for implementing NEPA.

The Final Supplemental EIS evaluates environmental impacts to: noise, air quality; land use; infrastructure and utilities; socioeconomics; community facilities and services; traffic and transportation; biological resources; topography, geology, and soils; water resources; cultural resources; and hazardous materials and waste. The evaluation determines the potential impacts of the proposed action and, if necessary, where impacts may be avoided or minimized, as well as if the impacts would require mitigation. The

evaluation of the proposed sites also determines which site would result in the least amount of impact to the environment.

1.3.2 Public Involvement

GSA published a Notice of Intent (NOI) in the *Federal Register* on Tuesday, February 17, 2015 announcing the intent to prepare a Supplemental EIS and a 30-day public scoping period beginning February 17, 2015 and ending on March 17, 2015. GSA also published advertisements in the *Northern Virginia Daily* and the *Winchester Star* on February 14, 2015, stating that a Supplemental EIS is being prepared along with the scoping period and where to send questions or comments. Five comments were received during the scoping period. Two were received from state agencies: Virginia Department of Transportation (VDOT) and Virginia Department of Environmental Quality (VDEQ). VDOT indicated that traffic impact studies would be required at each of the proposed alternative locations and VDEQ provided information on regulatory resource agencies and websites that may be of use during the preparation of the Supplemental EIS. A letter was also received from the Shenandoah Valley Battlefields Foundation (SVBF). The letter provided detailed information regarding the First Kernstown and Second Kernstown battlefields, which are in proximity to one of the proposed alternatives that was subsequently dismissed from further consideration. SVBF also requested to be a party to any consultations that would be undertaken as part of the Section 106 requirements. The remainder of the public comments included one in support of the proposed Whitehall alternative and one that identified the project as a poor expenditure of taxpayer money.

A Notice of Availability (NOA) was published in the *Federal Register* on Friday, August 22, 2015 announcing the availability of the Draft Supplemental EIS. The NOA announced the beginning of a 45 day public comment period and the intent to hold a public meeting on the Draft Supplemental EIS. This information was announced in the August 22, 2015 edition of the *Winchester Star.* The public meeting was held at the War Memorial Building in Winchester, Virginia on Thursday September 10, 2015 from 6 to 8 pm. The meeting was attended by 23 members of the public. Over the course of the comment period, 7 letters, comment sheets and/or emails were received from the general public. The U.S. Environmental Protection Agency (USEPA), U.S. Department of Interior (DOI) and the VDEQ (provided comments from 12 separate state agencies) submitted written letters on the Draft Supplemental EIS. Additional information on the public involvement program is included in Appendix E. All received letters, comment sheets and emails were reviewed and broken into discreet comments. Sixty-eight discreet comments and responses to them are included in Appendix F.

1.3.3 Relevant Environmental Document

In 2007, GSA completed an EIS and signed a ROD identifying the Sempeles (Whitehall) site as the preferred alternative (GSA 2007). Relevant information from the 2007 EIS has been used in the preparation of this Supplemental EIS. In addition, information from a site reconnaissance report that was prepared in November 2014 has also be used in the preparation of this Supplemental EIS. The site reconnaissance report provided a preliminary assessment of several sites for the revised project, including the sites carried forward for evaluation in this Supplemental EIS (Greenhorne & O'Mara 2007).

1.3.4 Agency Coordination

In addition to NEPA, other laws, regulations, permits, and licenses may be applicable to the proposed action. Coordination for this Final Supplemental EIS included sending written correspondence to the following:

- SHPO (VA and WV) in compliance with Section 106 of the National Historic Preservation Act
- USFWS for consultation on threatened and endangered species pursuant to section 7 of the Endangered Species Act
- Other correspondence to:
    - VADEQ
    - VADGIF
    - USDA
    - ACHP
    - VADHR
    - 17 Native American tribes
    - Frederick County Administrator
    - Mayor of Winchester
    - Winchester City Council
    - National Trust for Historic Preservation
    - Civil War Trust
    - APVA/Preservation Virginia
    - Kernstown Battlefield Assoc.
    - Winchester-Frederick Historical Society
    - Historic Landmark Commission (WV)
    - VA DCR Division of Natural Heritage
    - VA Department of Agriculture

Appendix A contains example copies of the outgoing letters to these agencies and return correspondences from the USFWS and VA SHPO.

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2.0 PROPOSED ACTION AND ALTERNATIVES

CEQ's guidelines for Implementing the Procedural Provisions of NEPA establish a number of policies for federal agencies, including, "….using the NEPA process to identify and assess reasonable alternatives to the proposed action that will avoid or minimize adverse effects of these actions on the quality of the human environment" (40 Code of Federal Regulations [CFR] 1500.2[e]).

According to CEQ regulations, the alternatives analysis is also required to:

- Include the alternative of no action;"
- "….explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated;"
- "Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits;"
- "Include reasonable alternatives not within the jurisdiction of the lead agency;"
- "Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference;" and
- "Include appropriate mitigation measures not already included in the proposed action or alternatives."

2.1 PROPOSED ACTION

The proposed action would include the acquisition of property for, and construction and operation of, a CRC for the FBI. GSA would acquire one site with a minimum of 40 ac and a maximum of 108 ac in order to accommodate the facility and its required security features and setbacks. GSA would then construct an approximately 256,425 gross square foot building with records storage, support area, visitor screening facility, service center, and guard booth, and approximately 427 parking spaces. The facility would have a secure perimeter consisting of a perimeter fence and natural features. As per the requirements of GSA's Facilities Standards for the Public Building Service (PBS-P100 issued March 2015), the CRC facility would achieve, at a minimum, a Leadership in Energy and Environmental Design (LEED) Gold rating through the LEED Green Building Rating System of the U.S. Green Building Council. The CRC would be operated by approximately 446 employees who would primarily come from the existing facility on Marcel Drive in Winchester, Virginia. The Marcel Drive facility would continue to operate as the proposed facility is intended to complement, not replace, the existing facility. It is anticipated that acquisition of a site would occur in 2016 and the facility would begin occupancy and transition into operations in late 2019.

2.2 ALTERNATIVES DEVELOPMENT

Alternatives development for the Supplemental EIS began in 2014 when GSA received responses to a notice placed in FedBizOps for sites between 40 and 108 ac in size. Based on the responses received, GSA conducted site reconnaissance on twelve sites offered and assessed their potential to meet the site selection criteria. Site selection criteria are as follows:

Size:

- The site shall be contiguous and offer enough developable land to construct up to 256,425 gross square feet of office, warehouse, and related space, including ancillary facilities as well as accommodate 427 surface parking spaces. Developable land refers to land with a geometry and topography suitable for development.
- The site cannot exceed 108 ac due to prospectus limitations; however, GSA anticipates that a minimum of 40 developable ac are required to construct a building that meets the building site and security program.
- Site must be able to accommodate the requirements of Interagency Security Committee (ISC) Level IV Security. Federal facilities are divided into five classes based on building size, agency mission and function, tenant population, and the degree of public access to the facility. Buildings with 150,000 ft^2 or more, more than 450 federal employees, and a high level of public access are assigned to Level IV (Congressional Research Service 2010).

Environmental:

- Site must not contain a 100 year floodplain or a 500 year floodplain.
- Developable area shall not impact wetlands or negatively impact sensitive or fragile plant and animal habitat including threatened and/or endangered species.
- Site shall not be located within a state or locally designated agricultural preservation district.

In addition to the site selection criteria, GSA may consider other criteria related to:

- Size
- Location and accessibility
- Energy and utilities
- Environmental impacts
- Zoning, land use, and schedule
- Proximity to Hazards
- Acquisition and development costs

2.3 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

Three sites—Arcadia, Blackburn, and Whitehall—met the site selection criteria and were moved forward for detailed study in the Supplemental EIS. After the NOI for the Supplemental EIS was published and scoping for the project was initiated, it was determined that due to rezoning and sale of a portion of the Blackburn site, the site would not be further evaluated in the Supplemental EIS.

2.4 NO ACTION ALTERNATIVE

Under the No Action Alternative, the FBI CRC would not be constructed. Records would continue to be kept in various locations, and records availability and retrieval would continue to function inefficiently. Storage of the records in various locations would continue to be uneconomical. The No Action Alternative

does not meet the project purpose and need and is therefore, not considered a viable alternative. The No Action Alternative is discussed in this Supplemental EIS because it serves as a baseline against which to compare the action alternatives.

2.5 ALTERNATIVE 1 – ARCADIA

The Arcadia site is located at 2117 Millwood Pike, approximately 4 miles southeast of Winchester, Frederick County, Virginia (**Figure 2.5-1**). The site offered consists of approximately 59 ac. The site has not been previously developed; however, it has been quarried for shale in the 1990s and consequently, extensive disturbance has occurred. Primary access to the site would be provided along Independence Drive (a proffer road, Channing Drive, would be constructed to extend Independence Drive east of U.S. Route 17/50). Secondary access would be from Millwood Pike (U.S. Route17/50).

2.6 ALTERNATIVE 2 – WHITEHALL

The Whitehall site consists of approximately 51 ac of undeveloped farmland in Frederick County, Virginia. The site is located in the town of Clear Brook, approximately 4 miles north of Winchester. It is approximately 1,000 feet (ft) east of Interstate 81 (I-81) and 400 ft east of U.S. Route 11 (**Figure 2.6-1**). Access to the site would be at the intersection of U.S. Route 11 and Rest Church Road. A secondary access road would be located along Woodbine Road (a proffer road would be constructed to extend and connect Rest Church Road to Woodbine Road). The Whitehall site is also adjacent to the Conrail/CSX Railroad line.

2.7 PREFERRED ALTERNATIVE – ALTERNATIVE 1 (ARCADIA)

After consideration of a variety of siting factors, GSA and the FBI have identified Alternative 1 (Arcadia) as the Preferred Alternative. None of the anticipated impacts of developing and operating at the Arcadia site are considered significant and all adverse effects can be mitigated. While Alternative 2 (Whitehall) has been determined to be the environmentally preferred alternative for this Supplemental EIS, the Arcadia site is the overall preferred site to meet the needs of the project requirements and represents the best value for the government. The assessment of the selection factors is presented in **Section 6.0** of this Final Supplemental EIS.

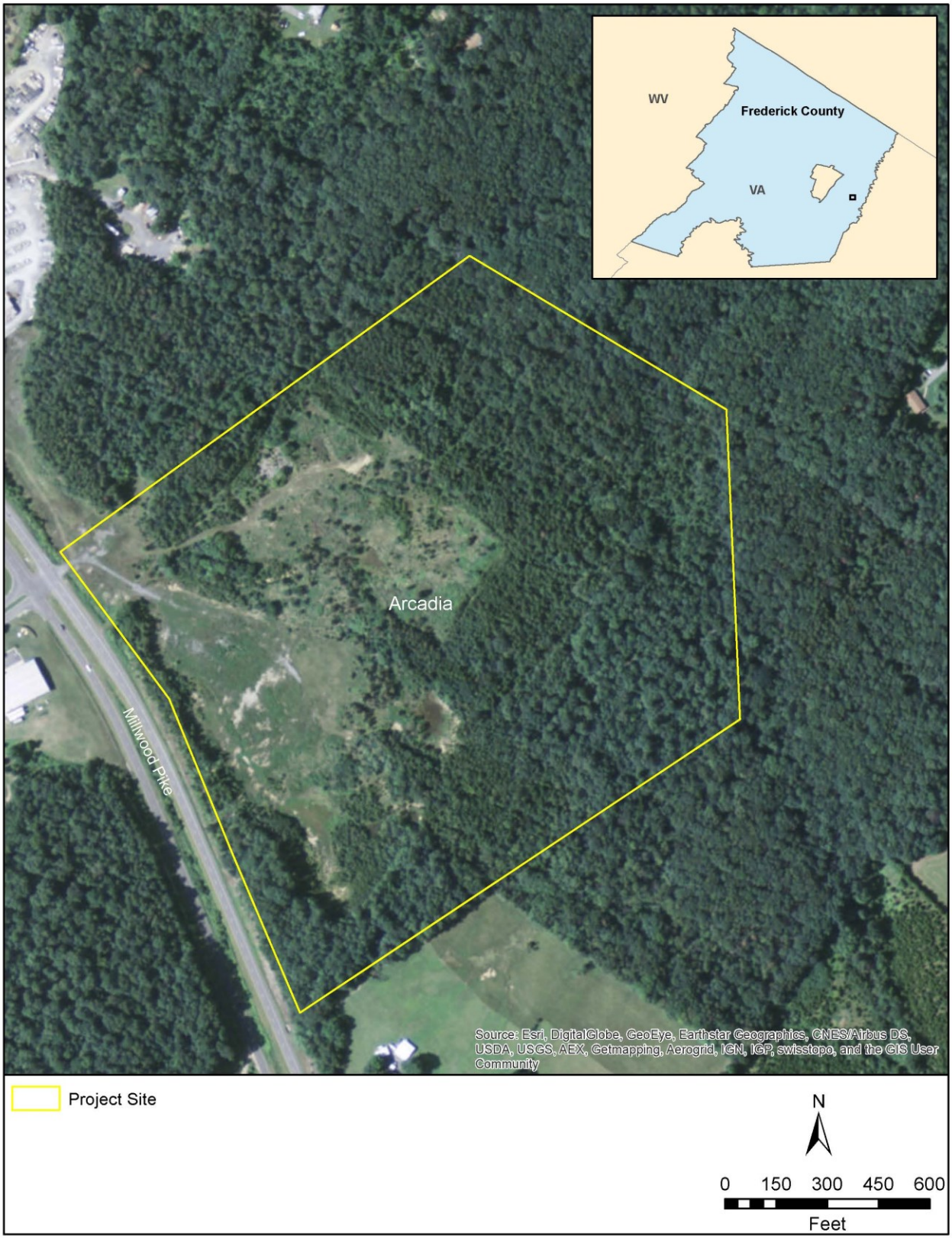

Figure 2.5-1. Arcadia Project Site

Figure 2.6-1. Whitehall Project Site

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3.0 RESOURCE DEFINITION

3.1 NOISE

Noise is defined as unwanted or annoying sound that interferes with or disrupts normal human activities. Although continuous and extended exposure to high noise levels (e.g., through occupational exposure) can cause hearing loss, the principal human response to noise is annoyance. The response of different individuals to similar noise events is diverse and is influenced by the type of noise, perceived importance of the noise, its appropriateness in the setting, time of day, type of activity during which the noise occurs, and sensitivity of the person receiving the noise (i.e., receptor).

Levels of noise are measured in units called decibels (dB). However, a number of factors affect how the human ear perceives sound: the actual level of noise, frequency, period of exposure, and fluctuations in noise levels during exposure. The human ear cannot equally perceive all pitches or frequencies and noise measurements are therefore adjusted or weighted to compensate for the human lack of sensitivity to low- and high-pitched sounds. This adjusted unit is known as the A-weighted decibel, or dBA. The A-weighted metric, de-emphasizes very low and very high pitched sound and is most often applied to noise generated by motor vehicle traffic, small boats, and aircraft. Background, or ambient, noise levels are all sounds present in an environment and are dependent upon land use. Very rural areas with little human activity would be expected to have the lowest levels of background noise, typically on the order of 15 to 20 dBA (USEPA 1971). Noise increases with increased population, as demonstrated in **Table 3.1-1**.

Table 3.1-1. Sound Levels Estimated by Population Density

Description	Population Density (people per square mile)	Sound Level (dBA)
Rural (undeveloped)	20	35
Quiet suburban	60	45
Normal suburban	600	50
Urban	2,000	55
Noisy urban	6,000	60
Very noisy urban	20,000	65

***Source*:** USEPA 1982.

3.2 AIR QUALITY

Air quality is defined by ambient air concentrations of specific pollutants determined by the USEPA to be of concern related to the health and welfare of the general public and the environment and are widespread across the U.S. The primary pollutants of concern, called "criteria pollutants," include carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), suspended particulate matter less than or equal to 10 microns in diameter (PM_{10}), fine particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$), and lead. Under the Clean Air Act (CAA), the USEPA has established National Ambient Air Quality Standards (NAAQS) for these pollutants (40 CFR 50). The NAAQS represent the maximum levels of background pollution that are considered acceptable, with an adequate margin of safety, to protect public health and welfare. Short-term standards (1-, 3-, 8-and 24-hour periods) are established for pollutants contributing to acute health effects, while long-term standards (quarterly and annual averages)

are established for pollutants contributing to chronic health effects. The VDEQ has adopted the NAAQS, which are presented in **Table 3.1-2.**

Table 3.1-2 Ambient Air Quality Standards

Pollutant	Averaging Time	Primary Standard	Secondary Standard
CO	8-hr 1-hr	9 ppm 35 ppm	None
Lead	Rolling 3-Month Average	0.15 µg/m^3	Same as Primary
NO_2	Annual (arithmetic average)	53 ppb	Same as Primary
	1-hr	100 ppb	None
PM_{10}	24-hr	150 µg/m^3	Same as Primary
$PM_{2.5}$	Annual (arithmetic average)	12.0 µg/m^3	15.0 µg/m^3
	24-hr	35 µg/m^3	Same as Primary
O_3	8-hr	0.075 ppm	Same as Primary
SO_2	1-hour	75 ppb	-
	3-hour	-	0.5 ppm

Notes: ppb – parts per billion; ppm – parts per million; µg/m^3 – micrograms per cubic meter.
Source: USEPA 2014.

In addition to the ambient air quality standards for criteria pollutants, national standards exist for hazardous air pollutants (HAPs) which are regulated under Section 112(b) of the 1990 CAA Amendments. The National Emission Standards for Hazardous Air Pollutants regulate HAP emissions from stationary sources (40 CFR Part 63). HAPs emitted from mobile sources are called Mobile Source Air Toxics (MSATs); these are compounds emitted from highway vehicles and non-road equipment that are known or suspected to cause cancer or other serious health and environmental effects. In 2001, USEPA issued its first MSAT Rule, which identified 21 compounds as being HAPs that required regulation. In February 2007, USEPA issued a second MSAT Rule, which generally supported the findings in the first rule and provided additional recommendations of compounds having the greatest impact on health. The rule also identified several engine emission certification standards that must be implemented.

Unlike the criteria pollutants, there are no NAAQS for HAPs. The primary control methodologies instituted by federal regulation for MSATs involve technological improvements for reducing their content in fuel and altering engine operating characteristics to reduce the volume of pollutants generated during combustion. MSATs would be the primary HAPs emitted by mobile sources during construction and operation of the proposed action alternatives. The equipment used during construction would likely vary in age and have a range of pollution reduction effectiveness. Construction equipment, however, would be operated intermittently over a large area and would produce negligible ambient HAPs in a localized area. Therefore, MSAT emissions are not considered further in this analysis.

Greenhouse Gases

It is now understood that higher concentrations of heat-trapping greenhouse gases (GHGs) in the atmosphere result in increasing global surface temperatures, a phenomenon commonly referred to as climate change. Higher global surface temperatures result in fundamental changes to components of the Earth's climate system, including the jet stream, El Niño, ocean temperature and acidity; the extent of

alpine glaciers, sea ice and polar ice sheets; atmospheric water content; and the extent and health of boreal and tropical forests (IPCC 2007). The primary anthropogenic source of GHGs is the combustion of fossil fuels. Worldwide, the emissions of carbon dioxide (CO_2), the most prevalent GHG, increased by 42% between 1990 and 2010 (USEPA 2014). The majority of the world's CO_2 emissions result from electricity generation, transportation, and other forms of energy production and use.

Each GHG is assigned a global warming potential (GWP). The GWP is the ability of a gas or aerosol to trap heat in the atmosphere. The GWP rating system is standardized to CO_2, which has a value of one. For example, the GWP of methane is most typically valuated at 25, which means that it has a global warming effect 25 times greater than CO_2 on an equal-mass basis. The equivalent CO_2 (CO_2e) rate is calculated by multiplying the emission of each GHG by its GWP and adding the results together to produce a single, combined emission rate representing all GHGs.

USEPA issued the Final Mandatory Reporting of GHG Rule on September 22, 2009. GHGs covered under the Final Mandatory Reporting of GHG Rule are carbon dioxide (CO_2), methane, and nitrous oxide, and hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride and other fluorinated gases. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of mobile sources and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions as CO_2e are required to submit annual reports to USEPA.

On a national scale, federal agencies are working to reduce GHG emissions as mandated in federal laws and executive orders (EOs). These requirements are based on annual reductions to achieve specified target levels. Additionally, federal agencies are required to evaluate Climate Risks and identify methods to adapt and ensure resiliency in the face of these risks. GSA most recently published their findings in their Climate Change Risk Management Plan (GSA 2014), which included the identification of telecommunications and data center services as both mission-critical to its customers and vulnerable to climate change risks. GSA is evaluating these risks and will share the outputs of their work with Federal climate change adaptation, resilience and preparedness working groups, including the FBI.

In the Southeast US, which includes Virginia, the primary climate change risks involve sea level rise, increasing temperatures and decreased water availability, which is exacerbated by population growth and land-use change. Sea level rise is unlikely to play a significant role in the Winchester VA area, but adverse weather events, temperature increases and drought can all impose risks to the FBI CRC operations.

Regional Air Quality

Air quality in a given location is described by the concentration of various pollutants in the atmosphere. A region's air quality is influenced by many factors including the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Pollutant emissions typically refer to the amount of pollutants or pollutant precursors introduced into the atmosphere by a source or group of sources. Pollutant emissions contribute to the ambient air concentrations of criteria pollutants, either by directly affecting the pollutant concentrations measured in the ambient air or by interacting in the atmosphere to form criteria pollutants. Primary pollutants, such as CO, SO_2, lead, and some particulates, are emitted directly into the atmosphere from emission sources. Secondary pollutants, such as O_3, NO_2, and some particulates are formed through

atmospheric chemical reactions that are influenced by meteorology, ultraviolet light, and other atmospheric processes.

The study area for the air quality analysis includes the Valley of Virginia Intrastate Air Quality Control Region, which is defined in 40 CFR 81.146, and comprises several cities and counties in Virginia, including the City of Winchester and Frederick County. Air quality in the study area is considered good, with the study area designated as unclassifiable, attainment, or better than national standards for all criteria pollutants. Because the study area is in attainment for all criteria pollutants, the CAA General Conformity Rule does not apply and is not addressed in this analysis. Although a conformity analysis is not required, impacts to air quality from emissions associated with construction and operations are addressed in **Section 4.0 and 5.0**.

3.3 LAND USE

Land use often refers to human modification of land for residential or economic purposes. Land use categories typically include agriculture (includes livestock production), forestry, residential, commercial, industrial, transportation, utilities, mining, recreation, and communication. Land uses are frequently regulated by management plans, land use plans, comprehensive plans, and local zoning and ordinances. These plans and regulations assist in identifying where future development can occur so it is compatible with surrounding land uses and in protecting specially designated or environmentally sensitive uses.

Land use is interrelated with other resource areas including noise, socioeconomics, biological resources, and cultural resources. The impact analysis in this Supplemental EIS for land use focuses on those areas affected by proposed construction and operation of the CRC.

3.4 INFRASTRUCTURE AND UTILITIES

Infrastructure refers to the system of public works, such as utilities, that provides the underlying framework for a community. Infrastructure components and utilities discussed in this Supplemental EIS include the water supply system, wastewater system, stormwater drainage system, electrical supply facilities, natural gas system, and solid waste management facilities. Transportation infrastructure, including roadway and street systems, the movement of vehicles, and mass transit, are discussed in **Section 3.7**, *Traffic and Transportation*.

Because infrastructure and utilities systems are directly related to activities within the communities from which they draw their services, the potentially affected area includes the county where they occur. The assessment of impacts is based on comparing existing use and conditions to anticipated changes in capacity associated with the utilities. The analysis compares current use with anticipated future demands to determine potential impacts.

3.5 SOCIOECONOMICS

Socioeconomics describes the basic attributes and resources associated with the human environment, particularly population, employment, income, and housing. The study area for socioeconomics is defined as the area where principal effects arising from the construction and operation of the proposed CRC are

likely to occur. The proposed action has the potential to cause socioeconomic impacts to the communities around the proposed sites through construction and operations expenditures.

EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations (Environmental Justice)*, was issued in 1994. It stipulates that each federal agency is to make achieving environmental justice a part of its mission by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. A minority population is defined as either: 1) the minority population of the affected area exceeds 50%, or 2) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the appropriate community of comparison. Low-income populations are identified where a meaningfully greater portion of the population is living below the poverty level threshold as compared to the appropriate community of comparison (CEQ 1997). The environmental justice analysis in this Supplemental EIS addresses the characteristics of race, ethnicity, and poverty status for populations residing in the immediate area of the proposed CRC.

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks (Protection of Children)*, was issued in 1997 requiring federal agencies to identify and assess environmental health risks and safety risks that may disproportionately affect children. It also requires that each federal agency is to ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

This socioeconomic analysis focuses on impacts due to population changes and construction expenditures. Economic impacts are defined to include direct effects, such as changes to employment, payrolls, and expenditures that affect the flow of dollars into the local economy and secondary effects, which result from the “ripple effect” of spending and re-spending in response to the direct effects.

Socioeconomic impacts, particularly impacts such as those being evaluated in this Supplemental EIS, are often mixed: beneficial in terms of gains in jobs, expenditures, tax revenues, etc., and adverse in terms of growth management issues such as demands for housing and community services.

3.6 COMMUNITY FACILITIES AND SERVICES

Community services include police protection, fire protection, healthcare services, and schools. The potentially affected area includes the cities, towns, and county where the proposed sites are located.

The analysis in this Supplemental EIS focuses on the existing conditions of community services within the adjacent communities in terms of capacity and availability. The anticipated demand for community services is described in relation to proposed construction and operation of the CRC.

3.7 TRAFFIC AND TRANSPORTATION

Transportation and traffic refers to vehicle movement throughout a road and highway network. The study area for transportation and traffic includes the road and highway networks that surround and support the Arcadia and Whitehall sites. The American Association of Highway and Transportation Officials classify roadways as principal arterials, minor arterial streets, collector streets, and local streets. Principal arterials (i.e., arterial highways and interstates) serve to move traffic regionally and between population and

activity centers with a minimal level of access to adjacent properties. Collector roadways (i.e., minor arterial and collector streets) serve to move traffic from population and activity centers and funnel them onto principal arterials with a moderate level of access to adjacent properties. Local roadways provide access to adjacent properties and move traffic onto collector and arterial roadways.

Average daily traffic (ADT) and design capacity of the roadway represent two parameters to measure traffic (Transportation Research Board 2010). Using these two measures of traffic, each roadway segment receives a corresponding level-of-service (LOS). The LOS designation is a professional industry standard used to describe the operating conditions of a roadway segment or intersection. The LOS is defined on a scale of A to F that describes the range of operating conditions on a particular type of roadway facility. LOS A through LOS B indicates free flow travel. LOS C indicates stable traffic flow. LOS D indicates the beginning of traffic congestion. LOS E indicates the nearing of traffic breakdown conditions. LOS F indicates stop-and-go traffic conditions and represents unacceptable congestion and delay.

Impacts to transportation and traffic are analyzed in this Supplemental EIS by considering the possible changes to existing traffic conditions and the capacity of area roadways from proposed increases in commuter and construction traffic. A traffic impact study was conducted for this Supplemental EIS and the results, together with proposed mitigation measures appropriate for each site, are included in the Supplemental EIS.

3.8 BIOLOGICAL RESOURCES

Biological resources include plant and animal species and the habitats where they occur. Plant associations are referred to as vegetation and animal species are referred to as wildlife. Habitat can be defined as the resources and conditions present in an area that supports the existence of a plant or animal (Hall et al. 1997). Although the existence and preservation of biological resources are intrinsically valuable, these resources also provide aesthetic, recreational, and socioeconomic values to society. This analysis focuses on species or vegetation types that are important to the function of the ecosystem, of special societal importance, or are protected under federal or state law or statute.

For purposes of this Supplemental EIS, biological resources are divided into three major categories: vegetation, wildlife, and threatened and endangered species.

- ***Vegetation*** – includes terrestrial plant communities and the analysis will focus on vegetation types that are important to the function of the ecosystem or are protected under federal or state law.
- ***Wildlife*** – includes all vertebrate animals (i.e., mammals, reptiles, amphibians, birds, and fish) and sometimes invertebrate species or species groups such as mollusks or insects. Virtually all birds are protected under the Migratory Bird Treaty Act. The Migratory Bird Treaty Act was designed to protect migratory birds (including their eggs, nests, and feathers) and their habitats. An activity has a significant adverse effect if, over a reasonable period of time, it diminishes the capacity of a population of a migratory bird species to maintain genetic diversity, to reproduce, and to function effectively in its native ecosystem.
- ***Threatened and Endangered Species*** – include plant and animal species that are listed or proposed for listing by the U.S. Fish and Wildlife Service (USFWS) under the Endangered

Species Act (ESA). The federal ESA provides for the conservation of threatened and endangered species of plants and animals and the habitats where they are found. In addition, designated and proposed critical habitat for ESA listed species will also be included in this Supplemental EIS, as appropriate.

3.9 TOPOGRAPHY, GEOLOGY, AND SOILS

Geologic resources include the bedrock material underlying the land area. Geologic factors influence soil stability, bedrock depth, and seismic properties. Soil is the unconsolidated material above bedrock. Topography describes the physical surface of the land and includes elevation, slope, and other general surface features. Soil is formed from the weathering of bedrock and other parent materials.

The Farmland Protection Policy Act (FPPA) (7 United States Code [U.S.C.] 4201 *et seq*.) was introduced to conserve farmland soil and discourage the conversion of prime farmland soil to a non-agricultural use. The FPPA considers prime farmland soils as those that have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and are also available for these uses. It has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed. Soils of statewide importance are those soils that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. The FPPA is based on the protection of prime farmland soils and not on whether the area is in agricultural use.

Topography, geology, and soil resources are analyzed in this Supplemental EIS in terms of drainage, excavation and fill activities, erosion, and prime farmland. The analysis focuses on the area of soils that would be disturbed, the potential for erosion of soils from construction areas, and the potential for eroded soils to become pollutants in downstream surface water during storm events. Best Management Practices (BMPs) are identified to minimize soil impacts and prevent or control pollutant releases into stormwater.

3.10 WATER RESOURCES

Water resources include both surface and subsurface water. For the purposes of this Supplemental EIS, water resources include the following topics: surface water, groundwater, water quality, wetlands, and floodplains.

3.10.1 Surface Water

Lakes, ponds, impoundments, rivers, and streams compose surface water resources that are important for economic, ecological, recreational, and human health reasons.

According to the U.S. Army Corps of Engineers (USACE), streams are drainage features that may contain perennial streams (permanent flows), intermittent streams (flows during much of the year but drying seasonally), or ephemeral streams (flows only after storm events). Ponds are open water bodies (USACE 1987).

3.10.2 Groundwater

Subsurface water, referred to as groundwater, is typically found in areas known as aquifers. Aquifers are areas of mostly high porosity soil where water can be stored between soil particles and within soil pore spaces. Groundwater is used for consumption, agricultural irrigation, and industrial applications.

3.10.3 Wetlands and Floodplains

According to USACE regulations implementing the Clean Water Act (CWA), wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

EO 11990, *Protection of Wetlands*, directs federal agencies to take action to minimize the destruction, loss, or degradation of wetlands on their property and mandates review of proposed actions on wetlands through procedures established by NEPA. It requires that federal agencies establish and implement procedures to minimize development in wetlands. Wetlands provide many functions and values such as flood flow alteration, groundwater recharge/discharge, and fish and wildlife habitat.

EO 11988, *Floodplain Management*, defines floodplains as the lowland and relatively flat areas adjoining inland waters, including at a minimum, that area subject to a 1% or greater chance of flooding in any given year. The area subject to a 1% chance of flooding is referred to as the 100-year floodplain. EO 11988 directs federal agencies to avoid construction in floodplains and establishes a process for analysis and public notice if development is unavoidable. In this Supplemental EIS, the analysis of floodplains considers if any new construction is proposed within a floodplain or may impede the functions of floodplains in conveying floodwaters.

3.10.4 Water Quality

Water quality refers to the suitability of water for a particular use based on selected physical, chemical, and biological characteristics. Potential uses considered include potable water, irrigation, and water able to support life. For the purposes of this Supplemental EIS, water quality is considered with the statutory requirements regarding water quality conditions.

Water quality is regulated under the Federal Water Pollution Control Act, as amended by the CWA. The CWA prohibits spills, leaks, or other discharges of oil or hazardous substances into the waters of the U.S. in quantities that may be harmful. Direct discharges of effluents are regulated under the CWA through National Pollutant Discharge Elimination System (NPDES) permit program administered by the USEPA or under state NPDES programs approved by the USEPA. The CWA also requires each state to establish water quality standards for its surface waters derived from the amount of pollutants that can be assimilated by a body of water without deterioration of a designated use.

Designated uses are identified by considering the use and value of the water body for public water supply, for protection of fish, shellfish, and wildlife, and for recreational, agricultural, industrial, and navigational purposes. Each water body does not necessarily require a unique set of uses. Instead, the characteristics necessary to support a use can be identified so that water bodies having those characteristics can be grouped together as supporting particular uses (USEPA 2012). There are six designated uses in Virginia:

Aquatic life, Fish consumption, Public water supplies (where applicable), Recreation (swimming), Shellfishing, and Wildlife. The Virginia state water quality standards define the water quality needed to support each of these uses. If a water body contains more contamination than allowed by water quality standards, it will not support one or more of its designated uses. Such waters have "impaired" water quality (VDEQ 2011).

3.11 CULTURAL RESOURCES

Cultural resources are defined as prehistoric or historic sites, buildings, structures, objects, archaeological sites, districts, or other physical evidence of human activity that are considered important to a culture or community for scientific, traditional, or religious reasons. Cultural resources include prehistoric and historic archaeological resources, architectural resources, and traditional cultural properties (TCPs).

- ***Archaeological resources*** – places where people changed the ground surface or left artifacts or other physical remains (e.g., arrowheads or bottles).
- ***Architectural resources*** – standing buildings, dams, canals, bridges, and other structures.
- ***Traditional cultural properties*** – resources associated with the cultural practices and beliefs of a living community that link that community to its past and help maintain its cultural identity. TCPs may include archaeological resources, locations of historic events, sacred areas, sources of raw materials for making tools, sacred objects, or traditional hunting and gathering areas.

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and as implemented by 36 CFR Part 800, requires federal agencies to consider the effects of their actions on historic properties before undertaking a project that uses federal funds or is located on federal lands. A historic property is defined as any cultural resource that is included in, or eligible for inclusion in, the National Register of Historic Places (NRHP). The NRHP, administered by the National Park Service, is the official inventory of cultural resources that are significant in American history, prehistory, architecture, archaeology, engineering, and culture. The NRHP also includes National Historic Landmarks. In consideration of 36 CFR Part 800, federal agencies are required to consult with the State Historic Preservation Officer (SHPO), Indian Tribes, representatives of local governments, and the public in a manner appropriate to the agency planning process for the planned action (undertaking) and to the nature of the undertaking and its potential to cause effects on historic properties. The methodology for identifying, evaluating, and mitigating impacts to cultural resources has been established through federal laws and regulations including the NHPA, the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, and the American Indian Religious Freedom Act.

The affected environment for cultural and traditional resources is also referred to as the area of potential effects (APE). The APE must be defined in order to assess the effects of a proposed action on a historic property. An 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 (36 CFR 800.16[d]).

The analysis in this Supplemental EIS applies the criteria of adverse effect (36 CFR 800.5) to evaluate the effects of the proposed action on any historic properties located in the APE of each action alternative. A

project affects a historic property when it alters the property's characteristics (including relevant features of its environment or use) that qualify it as significant according to NRHP criteria. Adverse effects may include the following: physical destruction, damage, or alteration of all or part of the resource; alteration of the character of the surrounding environment that contributes to the resource's qualifications for the NRHP; introduction of visual, audible, or atmospheric elements that are out of character with the resource or alter its setting; and neglect of the resource resulting in its deterioration or destruction. Impacts to traditional Native American tribal properties can be determined only through consultation with the affected Tribes. However, ground disturbance to prehistoric archaeological sites and graves has often been cited as an adverse impact.

Analysis of potential impacts to historic properties considers both direct and indirect impacts. Direct impacts may be the result of physically altering, damaging, or destroying all or part of a historic property, or neglecting the property to the extent that it deteriorates or is destroyed. Indirect impacts are those that may occur as a result of the completed project by altering characteristics of the surrounding environment through the introduction of visual or audible elements that are out of character for the period the property represents. An example of an indirect effect is increased vehicular or pedestrian traffic in the vicinity of the property.

3.12 HAZARDOUS MATERIALS AND WASTE

Analysis of the presence, handling, storage, and disposal of hazardous materials, solid waste, and hazardous waste includes an evaluation of the following:

- Waste streams that would be generated by the project, the potential for the wastes to impact environmental resources, and the impacts on waste handling and disposal facilities that would likely receive the wastes
- Potential to encounter existing hazardous materials during the construction and operation phases of the project
- Potential to interfere with any ongoing remediation of existing contaminated sites at the proposed project site or in the immediate vicinity
- Potential hazardous materials that could be transported and used during construction and operation of the proposed facilities, and applicable pollution prevention strategies and procedures

The terms hazardous materials, hazardous waste, and hazard*ous substances* are often used interchangeably when used informally to refer to contaminants, industrial wastes, dangerous goods, and petroleum products. Each of these terms, however, has a specific technical meaning based on the relevant regulations.

3.12.1 Hazardous Materials

Hazardous materials are chemical substances that pose a substantial hazard to human health or the environment when improperly treated, handled, used, packaged, stored, transported, or disposed. Hazardous materials are identified and regulated under the Comprehensive Environmental Response,

Compensation, and Liability Act (42 U.S.C. 9601 *et seq*.); the Occupational Safety and Health Act (29 U.S.C. 651 *et seq*.); and the Emergency Planning and Community Right-to-Know Act (42 U.S.C. 11001 *et seq*.).

3.12.2 Hazardous Waste

The Resource Conservation and Recovery Act (RCRA, 40 CFR Parts 240–280) and the Hazardous and Solid Waste Amendments of 1984 (40 CFR Part 260) define hazardous waste as a solid waste, or combination of wastes that due to its quantity, concentration, or physical, chemical, or infectious characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, or may pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, disposed of, or otherwise managed. A solid waste is a hazardous waste if it is not excluded from regulation as a hazardous waste under 40 CFR 261.4(b) and if it exhibits identified characteristics of hazardous waste or meets other specified criteria [see 40 CFR 261.3(a)].

3.12.3 Toxic Substances

The Toxic Substance Control Act addresses those chemical substances and mixtures that may present unreasonable risk of personal injury or health to the environment from their manufacturing, processing, distribution, use, or disposal. The Toxic Substance Control Act Chemical Substances Inventory lists information on more than 62,000 chemicals and substances, such as asbestos, lead-based paint, and polychlorinated biphenyls (PCBs). Asbestos and lead were common constituents of building materials manufactured prior to 1978 and 1980, respectively, when federal bans on their use became effective. PCBs were common constituents of oils used as dielectric fluids or coolants in electrical equipment manufactured prior to 1979 when a federal ban of the manufacture of PCBs became effective. Asbestos, lead-based paint, and PCBs would not be utilized for new construction.

Radon is a carcinogenic, radioactive gas that is generated by the natural decay of uranium, a common soil constituent. Radon vaporizes through the ground to the air above and can accumulate in structures through cracks and other holes in the foundation. The average indoor radon level is estimated to be about 1.3 picocuries per liter (pCi/L), and about 0.4 pCi/L of radon is normally found in the outside air. The U.S. Congress has set a long-term goal that indoor radon levels be no more than outdoor levels. The USEPA action level for radon is 4 pCi/L.

3.13 CUMULATIVE IMPACT ANALYSIS

This section defines cumulative impacts and describes the approach taken in the analysis of cumulative impacts. **Section 7.0, *Cumulative Impacts***, contains descriptions of other actions relevant to cumulative impacts, an analysis of the incremental interaction the proposed action may have with other actions, and an evaluation of the cumulative impacts potentially resulting from these interactions.

The approach taken in the analysis of cumulative impacts follows the objectives of NEPA, CEQ regulations, and CEQ guidance. Cumulative impacts are defined in 40 CFR 1508.7 as:

> "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or Non-Federal) or person undertakes such other actions."

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. A cumulative impact results from the additive effect of all projects in the same geographical area. Generally, an impact can be considered cumulative if: a) effects of several actions occur in the same locale, b) effects on a particular resource are the same in nature, and c) effects are long-term in nature. The common factor key to cumulative assessment is identifying any potential temporally and/or spatially overlapping or successive effects that may significantly affect resources in the analysis areas.

3.14 ASSESSING SIGNIFICANCE

Section 4.0 and 5.0 present the affected environment and analysis of the potential direct and indirect effects of each alternative for each resource area described in this section. **Section 7.0** presents the analysis of the potential cumulative effects of each alternative for each resource area. The level of significance is assessed according to NEPA implementing regulations at 40 CFR 1508.27, which requires consideration of both context and intensity.

4.0 ALTERNATIVE 1 – ARCADIA

4.1 NOISE

4.1.1 Affected Environment

The Arcadia site is located at 2117 Millwood Pike, approximately 4 miles southeast of Winchester. Winchester has a population density of 2,838 people per square mile (U.S. Census Bureau 2015a) which places it in the urban category, with an expected average background noise level of 55 dBA (refer to **Table 3.1-1**). The site is currently zoned B2-Business, General District and the noise environment at this site is typical of a general business area.

The Frederick County noise ordinance (§§ 118- 1 through 3) states: "It shall be unlawful, after complaint from any person annoyed, disturbed or vexed by unnecessary and unreasonable noise and after notice by the Sheriff to the person creating such noise or to the owner, custodian or person in control or possession of the property from which such noise emanates or arises, for such person to suffer or allow such unnecessary and unreasonable noise to continue". The County noise ordinance is applicable from 9:00 AM to 6:00 PM to areas zoned Residential Performance District (RP), Residential Planned Community District (R4), Residential Recreational Community District (R5), and Mobile Home Community District (MH1) (§118-1B).

Chapter 17, Section 17-6 of the Winchester, Virginia Town Code establishes sound pressure level limits in residential zones and limits noise near sensitive receptors (i.e., schools, nursing homes, churches, hospitals, libraries, and court houses). These limits specify that noise should not exceed 65 dBA in residential areas when measured inside the receiving structure at least 4 ft from the wall nearest the source, with doors and windows to the receiving area closed. For publically identified (i.e., signed) sensitive receptors, it is unlawful to create any excessive noise on any adjacent street while the facility is in use or so that it reasonably interferes with the working of such institution or unduly annoys its occupants. Chapter 17, Section 17-7 of the Winchester, Virginia Town Code establishes maximum evening (between 10:00 p.m. and 6:00 a.m.) noise levels in residential areas at 60 dBA when measured at the property boundary of the receiving land. Noise thresholds in business zoned areas are established in Chapter 17, Section 17-7.1 of the Winchester, Virginia Town Code. Between the hours of 6:00 p.m. and 11:59 p.m. Monday through Thursday, and 6:00 p.m. through 1:30 a.m. Friday through Sunday morning, sound levels in excess of 65 dBA when measured inside the receiving structure at least 4 ft from the wall nearest the source, with doors and windows to the receiving area closed, are prohibited.

4.1.2 Environmental Consequences

For the purposes of this analysis, noise at a sensitive receptor above the level for a residential district, 65 dBA, are noted for impacts. According to Occupational Safety and Health Administration Standards (29 CFR 1910.95), employees should not be subjected to continuous noise exceeding 90 dBA for durations lasting more than 8 hours per day. Noise emissions exceeding 90 dBA for more than 8 hours per day at a sensitive receptor location would be considered to have significant adverse impacts. The locations of potential noise sensitive receptors are listed in **Table 4.1-1**.

Table 4.1-1 Noise Sensitive Receptors at Arcadia		
Sensitive Receptor	**Location**	**Distance**
Residential Homes	164 Ranger Court and 2291 Millwood Pike	800+ ft S and SE from proposed site

Winchester, Virginia has an exception for construction noise for work authorized by permit issued by the city building official, or performed by City forces or forces under contract to the City, so long as such work is not performed during the nighttime (Ordinance No. 005-86, 5-13-86; Ordinance No. 046-95, 9-12-95). Typical construction includes the use of heavy equipment over a temporary period. Construction-related noise emissions are listed in **Table 4.1-2** and can range from 74 to 101 dBA when measured 50 ft from the respective piece of equipment.

Table 4.1-2. Airborne Construction Related Noise Emissions	
Equipment Description	**Actual Measured L_{max} at 50 ft (dBA)**
Flat Bed Truck	74
Welder / Torch	74
Man Lift	75
Dump Truck	76
Backhoe	78
Compressor (air)	78
Concrete Mixer Truck	79
Drill Rig Truck	79
Front End Loader	79
Rivet Buster / Chipping Gun	79
Ventilation Fan	79
Drum Mixer	80
Vibratory Concrete Mixer	80
Concrete Pump Truck	81
Crane	81
Generator	81
Pumps	81
Dozer	82
Boring Jack Power Unit	83
Warning Horn	83
Auger Drill Rig	84
Scraper	84
Pneumatic Tools	85
Vacuum Excavator	85
Vibrating Hopper	87
Jackhammer	89
Concrete Saw	90
Mounted Impact Hammer (hoe ram)	90
Sheers (on backhoe)	96
Impact Pile Driver	101
Vibratory Pile Driver	101

Note: L_{Max} - The highest value measured by a sound level meter over a given period of time.
Source: FHWA 2005.

Noise attenuation computation results for the equipment expected to be used for the FBI CRC construction are shown in **Table 4.1-3**. Construction noise levels for the loudest piece of equipment that may be used, a jack hammer, would attenuate from 89 dBA at 50 ft to 83 dBA within 100 ft, to the municipal threshold for noise in residential areas, 65 dBA, at approximately 800 ft, which represents the approximate distance to the nearest sensitive receptors.

Table 4.1-3. Noise Attenuation and Estimated Maximum Noise Emissions For Alternative 1 – Arcadia

Distance (ft)	Point Source Equipment Noise Level On Hard Site (dBA)
50	89
100	83
800	65
1,000	63
1,250	61
1,500	59
1,750	58
2,000	57

Under the worst case scenario, noise from the loudest piece of equipment that may be used during the construction of the FBI CRC could result in periodic noise levels estimated at 63 dBA at the nearest sensitive receptor. This noise level is within local ordinance thresholds and, therefore impacts would not be considered significant. In addition, the noise generated by the construction activities would occur during daytime hours only and would cease at the completion of construction activity. It is possible that there would be intermittent periods during construction when noise would be at or slightly above 65 dBA if louder equipment is used. Construction workers performing the construction activities or in proximity to the equipment would be required to have appropriate hearing protection equipment and trained to wear the equipment effectively.

Note that noise from multiple sources at the same location results in louder levels than a single source alone; however, the loudness is measured on a logarithmic scale. This means that when noise levels are combined, they are not simply added together. To determine the impact of multiple noise sources, the amount of dBA to be added to the largest noise value is based on the difference between the loudest source and the additional noise with which it would be combined. Because the majority of the other construction equipment would generate noise at levels 10 dBA or more lower than the sound produced by the loudest equipment used, and would be used only intermittently for a portion of the construction period, the combined noise level would never be louder than 65 dBA at the sensitive receptors and would typically be substantially lower. Therefore, the noise attenuation presented in **Table 4.1-3** is expected to present the worst case scenario.

Because the short-term noise level during the time period when the loudest piece of equipment is used would result in a noise level of 65 dBA at the nearest sensitive receptor (i.e., residences), noise associated with Alternative 1 would result in temporary, but less than significant adverse impacts during the construction period.

Long-term impacts from the operation of the facility would be minimal as noise levels predominantly would be associated with traffic increases to and from the facility. Traffic increases would be greatest during shift changes and would be temporary in nature. Because the surrounding area is zoned for business and light industrial uses, long-term noise increases would be consistent with the existing noise levels expected to occur in the surrounding area and would not be significant.

4.1.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed and no increases in noise as a result of construction or operation would occur. It is anticipated that the site would remain undeveloped; therefore, no increases in noise that may present impacts to nearby noise receptors would occur.

4.1.4 Mitigation

To minimize the impact to noise receptors during construction activities a variety of measures could be taken, including but not limited to:

- Using noise bellows systems to provide further noise attenuation
- Performing work during daytime hours
- Scheduling louder construction activities for less intrusive times (mid-morning to mid-afternoon)

4.2 AIR QUALITY

4.2.1 Affected Environment

The air quality analysis evaluates projected future emissions, including construction and operations. Air quality impacts would be significant if emissions associated with the proposed action would: 1) increase ambient air pollution concentrations above the NAAQS, 2) impair visibility within federally mandated Prevention of Significant Deterioration Class I areas, 3) result in the potential for any stationary source to be considered a major source of emissions if total emissions of any pollutant subject to regulation under the CAA is greater than 250 tons per year (TPY) for attainment areas, or 4) for mobile source emissions, result in an increase in emissions to exceed 250 TPY for any pollutant. The air quality assumptions and calculations are provided in Appendix B.

Pollutants considered in this analysis include the criteria pollutants. Airborne emissions of lead are not considered because there are no sources of lead associated with the proposed action.

For criteria pollutant emissions, 250 TPY per pollutant was used as a comparative analysis threshold. This value is used by USEPA in their New Source Review standards as an indicator for impact analysis for listed new major stationary sources in attainment areas. No similar regulatory threshold is available for mobile source emissions, which are the primary sources for the construction phases. Lacking any mobile source emissions thresholds, the 250 TPY major stationary source threshold was used to equitably assess and compare mobile source emissions.

Pollutants would be generated by diesel exhaust from construction equipment and fugitive dust from ground disturbance. In general, volatile organic compound (VOC), nitrous oxides (NO_x), CO, and SO_2 emissions would be primarily generated by diesel-fueled heavy equipment operating in construction

areas. Particulate matter emissions, in the form of PM_{10} and $PM_{2.5}$, would be primarily due to fugitive dust created by land disturbance activities, which would include land clearing; soil excavation, cutting, and filling; trenching; and grading. The fugitive dust emission factor for PM_{10}, which is used as part of the $PM_{2.5}$ calculation (Midwest Research Institute 2005), is assumed to include the effects of typical control measures such as routine site watering and other measures for dust control. A dust control effectiveness of 50% is assumed, based on the estimated control effectiveness of watering (Western Regional Air Partnership 2006). Refer to Appendix B for assumptions used and further analytical details.

Under the CAA, motor vehicles and construction equipment are exempt from air permitting requirements. Because the emissions from these sources associated with the proposed action would occur in areas that are in attainment of the NAAQS for all criteria pollutants, the General Conformity Rule is not applicable. Nonetheless, NEPA and its implementing regulations require analysis of the significance of air quality impacts from these sources as well as non-major stationary sources. However, neither NEPA nor its implementing regulations have established criteria for determining the significance of air quality impacts from such sources in CAA attainment areas.

As noted above, the General Conformity Rule is not applicable to these mobile sources and minor (i.e., non-major) stationary sources in attainment areas. Therefore, the analysis of construction and operational incremental emissions from these sources in attainment areas and the significance criteria selected (250 TPY) are solely for the purpose of informing the public and decision makers about the relative air quality impacts from the proposed action under NEPA requirements.

4.2.2 Environmental Consequences

The results of the air emissions analysis show that construction and operational emissions would remain well below the significance thresholds and would not have a significant impact on the local or regional air quality. A summary of the analysis is presented below and the complete analysis is provided in Appendix B.

4.2.2.1 Construction Emissions

Direct impacts from emissions from construction would include combustion emissions from fossil fuel-powered equipment and fugitive dust emissions (PM_{10} and $PM_{2.5}$) during clearing, demolition activities, earth moving activities, and operation of equipment on bare soil. **Table 4.2-1** presents estimates for the primary construction activities that would utilize heavy duty diesel equipment for the Arcadia site.

Table 4.2-1. Construction Emission Estimates for Alternative 1 – Arcadia

Year	VOC Tons	CO Tons	NO_x Tons	SO_2 Tons	PM_{10} Tons	$PM_{2.5}$ Tons	CO_2 Metric Tons
1	1.06	5.31	19.95	0.10	50.50	5.87	1,770
2	1.06	5.31	19.95	0.10	17.46	2.56	1,770

Fugitive dust from land disturbance activities would be the primary source of emissions during construction, with most of the emissions occurring during Year 1. PM_{10} emissions are estimated using wetting and other typical reduction practices to reduce dust release by 50%. PM_{10} emissions are predicted to be greatest in Year 1 at the Arcadia site, at 50.50 TPY. These emissions, however, would remain well

below the significance threshold of 250 TPY. Construction emissions would not have direct or indirect significant impacts on the region's air quality.

Direct impacts to air quality may also include emissions from the burning of construction debris, if such an activity were undertaken during construction. Vegetative debris and/or demolition and construction materials would be disposed in accordance with all laws and regulations. Should open burning be necessary, it would be conducted in accordance with Title 9 of the Virginia Administrative Code, Section 5, Chapter 130 (9 VAR 5-130), Open Burning.

Construction activities would result in an estimated 3,540 metric tons of GHG emissions over the entire construction period (two years). These emissions are the result of equipment operations and so are short-lived and temporary. While all GHG emissions contribute to the global impact of climate change, the emissions associated with construction are well below the discussion threshold of 25,000 metric tons per year that is recommended by the CEQ.

4.2.2.2 Operational Emissions

The facility is likely to include emergency generators and may have one or more boilers for heat and/or hot water. This equipment is regulated under the CAA and would require that a permit to construct be obtained, and that the equipment, at a minimum, is registered with the VDEQ. At this time, there is no information available regarding planned emergency generators or the source of heat and hot water for the facility. Should information become available, emissions estimates will be provided. Because the equipment requires registration with the VDEQ, a review of the equipment and operational requirements would be performed before the facility becomes operational to ensure compliance with regulations. Therefore, no significant air quality impacts would be anticipated.

The new facility will employ up to 446 staff. While this may change traffic at certain times of the day in this localized area, it does not change the influence of mobile source emissions regionally because the same number of staff is currently working in the area but at other local facilities. There are no significant numbers of new staff being brought in to the area as a result of the construction of the complex.

4.2.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed in Frederick County. The No Action Alternative would not result in emissions of any air pollutants. Therefore, there would be no impact to regional air quality.

4.2.4 Mitigation

Best management practices would be implemented to reduce air emissions. They may include, but are not limited to:

- Periodic wetting during construction activities such as clearing excavation, filling, and grading
- Utilizing alternatively fueled equipment
- Utilizing other emission controls that are applicable to the equipment being used on-site
- Reducing idling time of equipment and construction vehicles

4.3 LAND USE

4.3.1 Affected Environment

The Arcadia site is approximately 4 miles southeast of the city of Winchester. This site is located adjacent to U.S. Route 17/50 (Millwood Pike). Access to this property is provided via an existing intersection at U.S. Route 17/50 (Millwood Pike) and Independence Drive.

The Arcadia site is currently zoned B2-Business, General District. Surrounding zoning consists of rural areas (RA), general business (B2), and light industrial (M1) (Frederick County Department of Planning and Development 2015a). General business (B2) zoning provides large areas for business, office, and service uses. General business areas are located on arterial highways at major intersections and at interchange areas where frequent and direct access by the general public is required but not heavy truck traffic beyond that required for delivery of retail goods. Light industrial (M1) provides for a variety of light manufacturing, commercial office, and heavy commercial uses in well-planned industrial settings (Frederick County Board of Supervisors 2009). The uses allowed do not create noise, smoke, dust, or other hazards and do not adversely affect nearby residential or business areas. Rural residential (RA) zoning strives to reduce environmental impacts, such as soil erosion, by requiring development that is sensitive to the existing features of the natural terrain. Diversity and originality in lot layout are encouraged to achieve the best possible relationship between the development and the land.

The Arcadia site is currently partially forested with some evidence of disturbance. No occupied dwellings are located on the property.

4.3.2 Environmental Consequences

Land use impacts attributable to a project are determined by changes to the site and the surrounding area, including changes in density and use, induced development, spurred revitalization, or increased vacancy. Such changes are typically a function of the scale of the proposed development, proximity of other uses to the project site, existing zoning, the availability of vacant or underutilized land, the condition of surrounding buildings, and outside development forces. The determination of direct land use impacts associated with the proposed action is based on physical changes to the actual development site. The determination of indirect land use impacts associated with the proposed action are based on changes that occur within adjacent parcels or a larger study area and include commercial, retail, and residential changes.

Construction of the FBI CRC on the Arcadia site would result in a change in land use from disturbed and undeveloped land to Federal office space and parking. Federal land use is generally consistent with the 2030 Frederick County Comprehensive Plan; however according to the 2030 Frederick County Comprehensive Plan, this site is within the path of the proposed Route 37 east, a priority transportation project (Frederick County Planning Commission 2011). Preliminary site designs have determined that the Arcadia site is large enough to accommodate both the proposed Route 37 and the requirements of the proposed CRC facility. Therefore, the change in land use that would occur as a result of the proposed action would have no adverse impacts on land use.

4.3.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed and no potential land use compatibility issues with adjacent land owners would occur.

4.3.4 Mitigation

Federal agencies are not subject to local/regional zoning or land use development regulations. However, GSA would take the following measures to help minimize potential adverse impacts to surrounding land uses:

- Provide an open space and vegetative buffer between the FBI CRC and adjacent properties to maintain visual compatibility, to the extent possible, with surrounding properties;
- Design and locate the facility to reduce the visual presence of the facility from neighboring properties.
- Proposed Route 37 project would be taken into consideration during site design to minimize future land use compatibility issues.

4.4 INFRASTRUCTURE AND UTILITIES

4.4.1 Affected Environment

The Arcadia site is an undeveloped area that lies along Route 17, with development lying to the northwest and west. The site does not currently contain utilities, however, utility systems are located in close proximity to the site. The utility sections herein describe the availability of utilities connections near the proposed site. The information was partially obtained from the listed utility authorities (August 2015). Additional project specific information on utilities comes from a Heery and AB Consultants, Inc. report: Central Records Complex-Frederick County, Virginia…Site Selection Phase Two – Short List to Preferred (GSA 2015a).

4.4.1.1 Water

The Frederick County Sanitation Authority (FCSA) serves all of Frederick County, including the site where the proposed action would be located. The FCSA provides and maintains potable water supply and distribution systems. An existing 12-inch potable water line is located on the east side of U.S. Route 17/50 (Millwood Pike). Its closest potential connection for the site would be at the intersection of Millwood Pike and Independence Drive located to the northwest of the site. There is sufficient capacity to provide water service to the site at this time. (GSA 2015a)

The FCSA participates in the Commonwealth's Local Standards and Review Program. The Virginia Department of Health (VDH) administers the water portion of the program and VDEQ the sewer portion. Additionally, VDEQ must approve plans that serve greater than 400 persons or have a design flow greater than 40,000 gallons per day (gpd). Maintenance easements are required for all water and sewer lines and appurtenances except where installed within a public right-of-way of VDOT (E. Wiley, personal communication, 2015).

4.4.1.2 Wastewater

The Arcadia site is located within the FCSA boundaries. A 6-inch force main sewer is located just northwest of the site (E. Wiley, personal communication, 2015). There is also an existing wastewater lift station located near the site. The existing 6-inch force main and lift station have enough capacity to accommodate development of the site, as these wastewater system components were originally sized to include development on the Arcadia site. (GSA 2015a).

4.4.1.3 Stormwater

Stormwater in Frederick County is regulated by the Frederick County Department of Public Works. A new Stormwater/Erosion and Sediment Control Ordinance became effective July 1, 2014. Stormwater controls are not known to be present on the Arcadia site.

4.4.1.4 Electricity

Rappahannock Electric Cooperative provides electrical service to Frederick County, Virginia. The closest substation to the Arcadia site is the Greenwood Substation. Other substations are within reasonable proximity. The existing transmission lines follow Millwood Pike (Rts 17/50). These are 34.5 kilovolts (kV) 3-wire lines (S. Wilson and R. Eubanks, personal communication 2015).

4.4.1.5 Natural Gas

Natural gas service to the site would be provided by Shenandoah Gas. A natural gas line is located near the southwest corner of the site. The line operates at a gas pressure of 52 pounds per square inch (psi) (Tim Hockmann, personal communication, 2015).

4.4.1.6 Solid Waste

Frederick County owns and operates a regional landfill located on Sulphur Spring Road approximately three quarters of a miles east of the site. This landfill is scheduled to remain open for up to 30 years for municipal solid waste (MSW) operations. It also receives construction and demolition (C&D) wastes. Private MSW haulers are contracted by and provide services to County businesses and residents.

4.4.2 Environmental Consequences

4.4.2.1 Water

A new 12-inch water line would need to be extended from the proposed CRC building to the existing 12-inch water line located alongside Millwood Pike near its intersection with Independence Drive. The proposed new 12-inch water line would be installed for approximately 2,750 linear ft across open space through proposed parking areas and roadways and wrap around the building. This installation would involve trenching to lay the lines. The line would be laid with a minimum of 4 ft of cover. Approximately 7 fire hydrants spaced about 300 ft apart would also be installed on the site. (GSA 2015a) The operation of the facility would result in an increase in use of potable water in the area, though there is sufficient water supply available from the FCSA (E. Wiley, personal communication, 2015). Thus, the construction and operation of the facility would only have a negligible adverse impact on the potable water supply.

4.4.2.2 Wastewater

Wastewater would be carried from the proposed facility to the existing FSCA system via a new connection to a force main sewer already located along Millwood Pike close to the property. An existing lift station supports this force main. Approximately 1,150 linear ft of proposed 8-inch gravity sewer would be required to service the building. This proposed sewer line would be constructed to a depth between 6 and 10 ft. (GSA 2015a) Wastewater generated at the facility would be treated at the Opequon Water Reclamation Facility. This Reclamation Facility has enough capacity to readily accommodate the volume of wastewater that would be generated at the proposed FBI facility (E. Wiley, personal communication, 2015). The impacts from construction and operation of the proposed facility would have a negligible adverse impact on the community wastewater infrastructure.

4.4.2.3 Stormwater

The site generally drains to the east. The development of the parcel would result in a portion of the site transitioning to impervious surfaces, which would be consistent with the B2 (general business) zoning. The increase in impervious surfaces would increase stormwater runoff and require stormwater management. Management activities would be done in accordance with the Frederick County Stormwater Regulations and the Virginia Stormwater Management Program General Permit for construction activity stormwater discharges. Preliminary water quality and quantity calculations were prepared for the pre and post development of the Arcadia site. The findings indicate that it is feasible to meet the stormwater management and storm drain requirements of the proposed CRC development on the Arcadia site (GSA 2015a). A stormwater retention pond, or other engineered controls, may be employed to mitigate impacts to stormwater run-off, and would be included in the final site design if required.

4.4.2.4 Electricity

Electrical distribution lines would need to be constructed to provide access to the grid for the site. Adequate distribution lines are available close to the property so that the construction required to add the distribution lines would not be extensive. The utility would extend overhead wiring with utility poles from an existing substation (Greenwood Substation) approximately 1.1 miles along Millwood Pike to the site. The utility would extend this overhead line into the site at which point the owner would be responsible for the installation of manholes and concrete encased duct bank for the placement of approximately 1,000 ft of underground wiring to the proposed building location (GSA 2015a).The construction and operation of the facility would result in an overall increase in electricity consumption. This increase in power consumption translates to a negligible adverse impact.

4.4.2.5 Natural Gas

The addition of distribution lines would be required in order for the site to have access to natural gas. A current distribution line that operates at 52 psi could be extended from an area approximately 300 ft from the southwest corner of the site (T. Hockmann, personal communication, 2015). A 1,100 ft gas line is proposed to be furnished/installed by the gas utility provider and would extend from Millwood Pike to the proposed CRC building location (GSA 2015a).The addition of the gas line would be consistent with the

zoning of the property as general business. The operation of the facility would increase natural gas consumption in the area, and therefore result in a negligible adverse impact.

4.4.2.6 Solid Waste

Solid waste generation for the area would increase during construction of the facility. Once it becomes operational, it is unlikely that MSW generation would increase because the operations are already occurring in disparate locations within the area, and the proposed facility is providing consolidation but not an increase in staff or activities. Recyclables would remain separated at the source so that MSW and recyclables are not commingled. A private hauler would be contracted to pick up the MSW and recycling.

4.4.3 No Action Alternative

Under the No Action Alternative the FBI CRC would not be constructed and no additional infrastructure and utilities would be utilized at the site; therefore, no impact to infrastructure and utilities would occur.

4.4.4 Mitigation

No specific mitigation activities are identified based on the negligible impacts anticipated from the construction and operation of the proposed facility.

4.5 SOCIOECONOMICS

4.5.1 Affected Environment

The proposed action would include the acquisition of property for the construction and operation of a CRC for the FBI. GSA would acquire one site in Frederick County to construct a five-story, approximately 256,425 ft^2 building with 427 parking spaces. The CRC would employ approximately 446 full-time employees who would transfer from the existing facility on Marcel Drive in Winchester, Virginia. The existing facility would continue to operate as the new facility is intended to complement the existing facility, not replace it. Since both alternative sites are located within 5 miles of the existing facility, it is assumed that these employees would not move their residences. It is anticipated that acquisition of a site would occur in 2016 and the facility would begin operations in late 2019.

The proposed project site is located in Frederick County, Virginia, approximately 65 miles northwest of Washington, D.C. Frederick County and its County Seat, the independent city of Winchester, are part of the Winchester, VA-WV Metropolitan Statistical Area, which in turn is part of the Washington-Baltimore-Northern Virginia, DC-MD-VA-WV Combined Statistical Area. Metropolitan Statistical Areas have at least one urbanized core area of 50,000 or more population, plus adjacent areas that have a high degree of social and economic integration with the core as measured by commuting ties. Combined Statistical Areas represent larger geographic regions that reflect broader social and economic interactions, such as wholesaling, commodity distribution, and weekend recreational activities (Office of Management and Budget 2013). The study area for socioeconomic resources is Frederick County and the City of Winchester and includes Census Tract 509, Block Group 1.

The Frederick County 2014 population was 82,377, up about 5% from 2010 (**Table 4.5-1**). The 2014 population estimate for Winchester was 27,543, up approximately 5% from 2010. The comparable rate

for the commonwealth was 3.3% growth from 2010 to 2014 (USCB 2015a). Overall, the study area has been growing at a similar rate.

Table 4.5-1. Population Characteristics

	Tract 509, Block 1	Winchester	Frederick County	Virginia
Population				
2014	2,054	27,543	82,377	8,326,289
2013	2,276	27,216	81,257	8,270,345
2010	2,659	26,203	78,305	8,001,024
Race and Ethnicity, 2014[1]				
White	77.7%	81.8%	91.4%	70.5%
Black/African American	12.4%	11.6%	4.6%	19.7%
American Indian/ Alaska Native	0	0.9%	0.4%	0.5%
Asian	2.6%	2.7%	1.6%	6.3%
Native Hawaiian/ Other Pacific Islander	0	0.1%	0.1%	0.1%
Hispanic or Latino origin2	11.2%	16.4%	7.4%	8.9%

Source: USCB 2015a.
Notes: [1]One race. Data presented reflects most reported race and ethnicity categories; percentages may not add to 100% due to rounding.
[2]Hispanic origin may be of any race.

The Frederick County population is predominantly white (91.4%), with Hispanics and Latinos (who may be of any race) making up the largest minority group (7.4%) (**Table 4.5-1**). Blacks and African Americans make up the next largest minority group (4.6%) (USCB 2015a). The racial make-up of the City of Winchester is more diverse than Frederick County, both of which are less diverse than the Commonwealth of Virginia.

The Frederick County and City of Winchester total labor force is approximately 42,800 and 13,350, respectively (USCB 2015b). The study area industries employing the most civilian workers include educational services and health care (approximately 25%); retail trade (approximately 12%); manufacturing (approximately 10%); professional, scientific, and management services (approximately 10%); arts, entertainment, recreation, accommodation and food services (approximately 8%); and construction (approximately 7%) (USCB 2015b).

As shown in **Table 4.5-2**, the 2014 unemployment rate for Frederick County was 4.7%, down from 7.5% in 2010 (Virginia Employment Commission 2015). The 2014 Winchester unemployment rate was 5.0%, down from 8.3% in 2014. The comparable rates for the Commonwealth of Virginia were 5.2% in 2014 and 7.1% in 2014 (Virginia Employment Commission 2015). In 2014, both Frederick County and Winchester had slightly lower rates than Virginia.

Table 4.5-2. Economic Characteristics

	Tract 509, Block 1	Winchester	Frederick County	Virginia
Unemployment Rates				
2014	5.0%	5.0%	4.7%	5.2%
2010	-	8.3%	7.5%	7.1%
Income[1]				
Per Capita	$21,309	$25,073	$30,404	$33,103
Mean Family	$43,313	$75,832	$91,771	$99,930
Families Below Poverty Level	24%	11.2%	3.6%	8.4%
Individuals Below Poverty Level	19%	16.3%	6.6%	11.7%

Sources: Virginia Employment Commission 2015, U.S. Census Bureau 2015b.
Note: [1]2011–2013 American Community Survey 3-year estimates.

Per capita income in Frederick County is approximately $30,404 and the mean family income is $91,771 (**Table 4.5-2**). The City of Winchester per capita income is $25,073, and the mean family income is $75,832. In the Census Block surrounding the Arcadia site, per capita income is $21,309 and the mean family income is $43,313. Per capita income in Virginia is approximately $33,103, and the mean family income is $99,930 (U.S. Census Bureau 2015b). The percentage of families and people whose income in the previous 12 months was below the poverty level is 3.6% and 6.6%, respectively, in Frederick County. In Winchester, it is 11.2% and 16.3%, respectively and in the census block surrounding the Arcadia site it is 24% and 19% respectively. The comparable rates for the Commonwealth of Virginia are 8.4% and 11.7% (U.S. Census Bureau 2015b). While Frederick County has lower per capita and mean family incomes than Virginia, it also has a lower percentage of families and individuals living below the poverty level. The City of Winchester has lower per capita and mean family incomes, and a greater percentage of families and individuals living below the poverty level compared to Frederick County and Virginia. The population residing within the Arcadia census block has lower per capita and mean family incomes and higher family and individual poverty rates than the city, county and state.

4.5.2 Environmental Consequences

Under Alternative 1, the increase in construction spending would generate direct construction jobs in the study area. Given the total dollar amount and the construction timeframe, additional construction workers may move into the area in response to the direct job impacts in construction. Construction spending would also generate additional indirect jobs and income, benefitting the economy. It would be expected that most of the indirect jobs, such as in retail, accommodation, food, and transportation services, would be filled by unemployed workers in the study area. While there may be some population in-migration to the study area as a result of construction spending, it would not be expected to significantly affect short- or long-term population trends. Overall, construction spending would result in short-term beneficial socioeconomic impacts in the study area.

While the transfer of 446 positions would reduce employment in the City of Winchester, it would increase by the same amount in Frederick County. The transfer of 446 positions would represent less than 1% of

total study area employment and would not change employment trends in the study area. There would be no impacts to short- or long-term study area population trends as a result of the proposed action.

Study area earnings would not change due to the transfer of 446 employees. These earnings would continue to support indirect jobs and income benefitting the study area economy. No changes to study area population trends would result. Overall, the transfer of positions would continue the long-term beneficial impacts associated with the FBI facility in the study area.

Acquisition of either the Arcadia or Whitehall sites, previously quarried and undeveloped farmland, respectively, would remove it from private ownership and from the tax base. This would result in reduced real estate tax revenues collected by Frederick County. This revenue loss would be a long-time, minor impact to study area tax revenues.

Although there are a relatively high percentage of families and individuals living below poverty level in the census block surrounding the site, residential areas are not located in close proximity to the proposed project area. The closest residential area contains approximately 12 residences and is located approximately one quarter mile south of the site. Of these residences, only one, 164 Ranger Court, uses U.S. Route 50/17 as its primary access/egress. The remaining residences use secondary roads for access that would not be affected by the proposed action. Therefore, the proposed action would not have a disproportionately high and adverse effect on low-income populations.

The demographics of the census block surrounding the Arcadia site indicate the population is primarily white. Therefore, the proposed action would not have a disproportionately high and adverse effect on minority populations.

4.5.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed and no adverse or beneficial socioeconomic impacts would occur.

4.5.4 Mitigation

No adverse impacts to socioeconomics, environmental justice populations, or children would be expected; therefore, no mitigation would be warranted.

4.6 COMMUNITY SERVICES

4.6.1 Affected Environment

4.6.1.1 Schools

The Arcadia site falls within the following public school districts in Frederick County: Armel Elementary School, Admiral Richard E. Byrd Middle School, and Millbrook High School. According to the Frederick County Public Schools website, the new Admiral Byrd Middle School has a program capacity of 850 students and a current membership of 893, the Armel Elementary School has a program capacity of 590 and a membership of 554, and Millbrook High School has a program capacity of 1,250 and a membership of 1,304 students (Frederick County Public Schools 2014). Admiral Byrd Middle School and Millbrook High

School are operating above their program capacities. Armel Elementary School is close to its operational program capacity.

Shenandoah University in Winchester is a comprehensive Level VI private university with 80 programs in six schools. The 75 ac main campus is located at 1460 University Drive near the Winchester Medical Center. There are approximately 3,000 students enrolled in the university. Shenandoah University is located approximately 2 miles west of the Arcadia Site (GSA 2007).

4.6.1.2 Police Protection

Police protection and law enforcement services for the Arcadia site is provided by the Frederick County Sheriff's Office. The local police departments of Winchester and Stephens City do not have jurisdiction over the areas where the sites are located. The Frederick County Sheriff's Office is currently located in the Public Safety Building at 1080 Cover Stone Drive. The Sheriff's Office maintains four divisions including patrol, criminal investigations, civil services, and administrative services (school resource officers, animal control offers, neighborhood watch programs, etc.) who are responsible for the chief law enforcement throughout the county (Frederick County Sheriff's Office 2015).

The Virginia State Police also has a Bureau of Field Operations Area Office (Area 13) located at 3680 Valley Pike in Winchester. The Bureau of Field Operations is primarily responsible for patrolling more than 64,000 miles of state roadways and interstate highways in Virginia. State Police personnel provide both traffic enforcement and criminal law enforcement as the need arises and based upon the ability of local law enforcement to respond. The Bureau of Field Operations is responsible for managing the Motor Vehicle Safety Inspection Program, which enforces motor carrier and commercial vehicle safety regulations, and the Aviation Unit that provides aerial support for law enforcement activities and emergency medical evacuations (GSA 2007).

4.6.1.3 Fire Protection

The Frederick County Fire and Rescue Department includes a total of eleven volunteer fire and rescue companies comprised of approximately 550 operational, administrative and auxiliary volunteers. All of the volunteer companies provide fire suppression service. Ten of the companies also provide emergency medical transport services. Eight companies provide advanced life support (ALS) emergency medical service, two provide first responder level medical care, and one company provides basic life support emergency medical service. In addition to county services, the City of Winchester has four fire and rescue companies that provide mutual aid to the County. Fire and rescue stations in the city handle a high number of emergency calls due to the concentrated population, and routinely assist the County with emergency response (GSA 2007). In 2010, Frederick County Fire and Rescue Department responded to approximately 9,339 alarms (Town of Winchester 2011).

The Arcadia site is served by the Millwood Station Volunteer Fire and Rescue Company (Company #21), which is located at 250 Costello Drive in Winchester, approximately 3.5 miles from the site. The Millwood Station Volunteer Fire and Rescue Company provides firefighting and ALS emergency medical services. In 2014, the Millwood station responded to approximately 1,800 calls (S. Miller, personal communication, 2015). The next closest fire and rescue company is the Greenwood Volunteer Fire Company (Company #15) in Winchester, approximately 4.25 miles from the site. This station is located at 809 Greenwood

Road, and provides mutual aid to Frederick County. In 2010, the Greenwood station responded to approximately 2,010 calls (T. Williams, personal communication, 2015).

4.6.1.4 Health Services

Hospital services in Frederick County are provided by the Winchester Medical Center. The medical center is located on the west edge of Winchester and is a 445-bed, non-profit hospital and a regional referral center offering a broad spectrum of services that includes diagnostic, medical, surgical and rehabilitative care. Winchester Medical Center also contains a Level II Trauma Center that is accessible to the 400,000 residents in the "Top of Virginia" region as well as neighboring West Virginia and Maryland.

In 2012, Winchester Medical Center completed a $161 million campus expansion project that expanded emergency services, added intensive care unit beds, and provided an intimate healing environment for families and newborns using the Newborn Intensive Care Unit. The facility is rated among the top five hospitals in Virginia by *U.S. News & World Report* (Valley Health 2015). The address of the hospital is 1840 Amherst Street, which is approximately 4 miles from the Arcadia site.

4.6.1.5 Parks and Recreation

Frederick County owns and operates two large regional parks, Clearbrook Park and Sherando Park. The City of Winchester has several local parks including Overlook Park, Duncan Park, Friendship Park, and Jim Barnett Park. In addition, there is a walking and biking trail encircling the city called "The Green Circle;" the trail follows Abrams Creek and Town Run through neighborhoods, parks, historic sites, and a wetland preserve. Nearby in the Shenandoah Mountains, there are hiking and biking opportunities in state and national parks and forests, as well as canoeing and fishing in the Shenandoah River (GSA 2007).

Izaak Walton Park is located approximately 1 mile south of the Arcadia site. The park is operated by the Winchester Chapter of the Izaak Walker League of America for use my members and their guests. The park offers a wide array of facilities intended to increase awareness, education and access to nature and outdoor activities, such as fishing, boating, shooting, archery, and wildlife observation.

The Winchester Speedway is located approximately one-half mile west of the Arcadia site. The speedway is a 3/8-mile, oval race track that hosts stock car races on Friday and Saturday evenings from March through November.

4.6.2 Environmental Consequences

Community facilities and services impacts are determined by changes to the local demographics due to the proposed action. Schools and recreational facilities would not be affected by the construction of the new facility since the existing facility is located within 5 miles of the Arcadia site and no personnel relocations are anticipated. There would be no notable increase in the number of calls to fire, police, medical, and rescue services. The determination of direct impacts to community facilities and services because of the proposed action is based on changes to these services within the actual development site, and the determination of indirect impacts is based on changes to community facilities and services in the area surrounding the development site.

For the purpose of this Supplemental EIS, it is assumed that the CRC facility would begin operations in 2019 and that its development would be consistent with all applicable development plans and zoning.

Under Alternative 1, indirect impacts to the community facilities and services near the Arcadia site are expected as a result of the FBI CRC.

4.6.2.1 Schools

The majority of the employees at the facility are anticipated to primarily come from the existing facility on Marcel Drive in Winchester. Therefore, a large influx of personnel and families is not anticipated to occur as a result of the proposed action. Consequently, area schools are expected to accommodate additional students with negligible to minor, long-term, indirect, adverse impacts.

4.6.2.2 Police Protection, Fire Protection, and Health Services

The new facility could indirectly affect medical, police, fire, or rescue services. The FBI CRC would have its own security measures, including a secure perimeter. Local fire and rescue staff would provide emergency services to the facility; however, the addition of this new facility would create a negligible additional need for emergency medical services and have a long-term, indirect, adverse effect on these services. However, the FBI CRC facility is not expected to affect their ability to provide service in the rest of their jurisdiction.

4.6.2.3 Parks and Recreation

Under Alternative 1, there could be a minor, long-term, indirect, beneficial impact from the increased use of local parks and recreational facilities. The proposed facility would not affect the quantity or quality of existing recreational facilities.

4.6.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed. Community facilities and services would continue to operate under existing conditions; therefore, no impacts to community facilities and services would occur.

4.6.4 Mitigation

Impacts to community services would not occur; therefore, no mitigation would be warranted.

4.7 TRAFFIC AND TRANSPORTATION

4.7.1 Affected Environment

Area roadways associated with the Arcadia site include U.S. Route 17/50 (Millwood Pike), State Route 728 (Victory Road), and Independence Drive. U.S. Route 17/50 is a four-lane divided minor arterial with left-turn and right-turn lanes. State Route 728 is a two-lane undivided roadway with single lane approaches east-west. Independence Drive is a local two-lane undivided highway and is considered a two-lane local collector roadway. The U.S. Route 17/50 and Independence Drive intersection is a three-legged, unsignalized intersection with stop sign control on the side street (Independence Drive). The U.S. Route 17/50 and Victory Road intersection is also unsignalized with stop sign control on the side street (Victory Road).

A traffic impact study was performed to determine existing conditions associated with the roadways that would carry traffic to the Arcadia site. Using the existing turning movement volumes and lane geometries, intersection capacity analysis was performed for both the AM and PM peak hours. As part of the study, traffic counts were conducted at the intersections of U.S. Route 17/50 and Independence Drive, and at U.S. Route 17/50 and Victory Road. The results of the traffic impact study indicate that the eastbound approach on Victory Road is operating at a LOS F during the PM peak hour and the eastbound left-turn lane at Independence Drive is operating at LOS E during the PM peak hour. During the AM peak hour, all lane groups are operating at LOS D or better (Cardno 2015d). A copy of the Traffic Impact Study is contained in Appendix C of this Final Supplemental EIS.

4.7.2 Environmental Consequences

The proposed project is estimated to generate approximately 398 AM peak hour trips (350 in, 48 out) and 366 PM peak hour trips (62 in, 304 out) per work day. A Traffic Impact Analysis (TIA) was conducted to assess impact of the proposed action on traffic and was submitted to the VDOT on September 9, 2015. As a follow up, a meeting was held between VDOT, GSA and FBI on November 12, 2015 to discuss the project and develop an acceptable option for the required secondary access and egress to the proposed FBI CRC facility that would accommodate the proposed future development of Route 37 including VDOT roadway design requirements. As a result of the meeting, GSA agreed to comply with VDOTs comment 1 as presented in correspondence dated October 15, 2015 and will submit an updated site specific TIA and site plan once a site is selected for the proposed use. It was also agreed that design option 3 (Figure 4.7-1) would be an acceptable means to provide the required site access and egress while accommodating the needs of the proposed Route 37. Option 3 proposes a primary site entrance, Channing Drive, to be constructed opposite Independence Drive at the rear of the Arcadia property. A secondary site entrance is proposed on U.S. Route 17/50 approximately 1020 ft south of Independence Drive. This location anticipates a future Route 37 interchange ramp slightly south of the VDOT proposed ramp location. This option proposes a full time, two-way access (right-in, right-out) until the construction of Route 37. An emergency egress (left out) median crossover is proposed to allow traffic to exit to southbound U.S. Route 17/50 in an emergency. The emergency median crossover would be converted to the proposed U.S. Route 17/50 intersection with the construction of the Route 37 ramps. Under this option, a traffic signal is anticipated to be installed at U.S. Route 17/50 intersection with Independence Drive and Channing Drive. Additional improvements such as medians, signs, and turning and deceleration lanes may also be incorporated if warranted by the final site design. Once the final site design is determined, a site specific traffic impact study will be submitted for approval by VDOT to ensure that any traffic impacts are mitigated to less than significant.

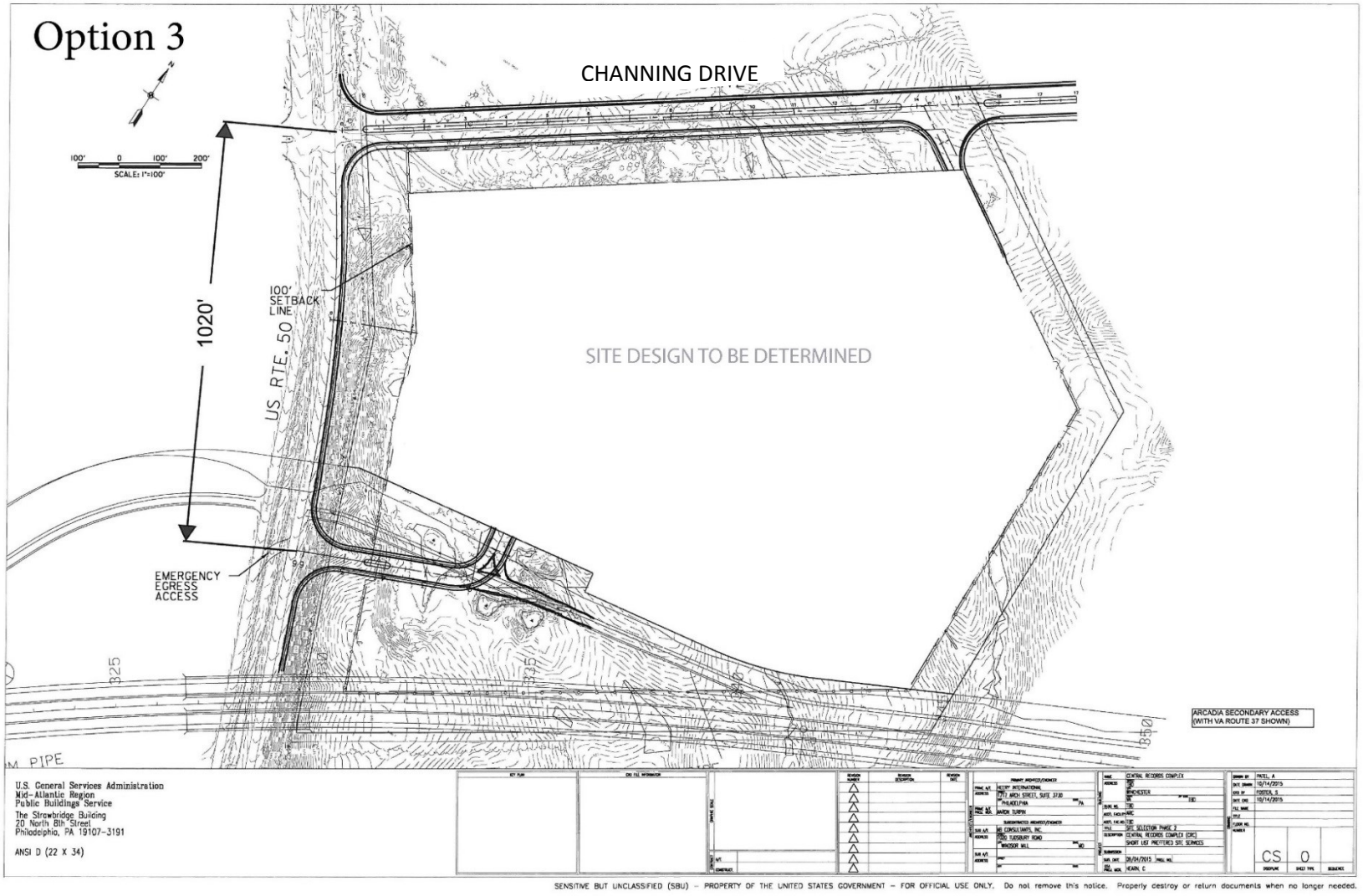

Figure 4.7-1. Proposed Access and Egress – Arcadia

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4.7.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed. There would be no changes in traffic patterns in the area as a result of the FBI CRC; therefore, the No Action Alternative would not contribute to area roadway capacity issues and there would be no impacts to traffic.

4.7.4 Mitigation

To mitigate the excessive delays expected with the stop sign control at U.S. 17 and Victory Road and U.S. 17 and Independence Drive and Channing Drive, proposed mitigation measures include the installation of a traffic signal at U.S. Route 17/50 and Independence Drive and Channing Drive and the installation of additional signage, medians and turning and decelerations lanes as appropriate. A site specific traffic impact analysis would be submitted to VDOT once the site design has been finalized to ensure that traffic impacts resulting from the proposed action are mitigated to less than significant.

4.8 BIOLOGICAL RESOURCES

4.8.1 Affected Environment

4.8.1.1 Vegetation

The Arcadia site consists of approximately 7.7 ac of coniferous forest, 24.5 ac of mixed coniferous/deciduous forest, and 21.2 ac of grassland according to an Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*) habitat assessment completed in June 2015 (Copperhead Environmental Consulting 2015).

Forested portions of the site are dominated by multiple oak species, maples, and pines. Specifically, the forests are composed of tulip poplar (*Liriodendron tulipifera*), chestnut oak (*Quercus prinus*), Virginia pine (*Pinus virginiana*), northern red oak (*Quercus rubra*), white oak, (*Quercus alba*), flowering dogwood (*Cornus florida*), black locust (*Robinia pseudoacacia*), common privet (*Ligustrum sinensis*), Morrow's honeysuckle (*Lonicera morrowii*), Japanese honeysuckle (*Lonicera japonica*), poison ivy (*Toxicodendron radicans*), and Virginia creeper (*Parthenocissus quinquefolia*) (Cardno 2015e).

4.8.1.2 Wildlife

Wildlife at the Arcadia site is typical of that found within Frederick County, Virginia and includes the white-tailed deer (*Odocoilus virginianus*), eastern gray squirrel (*Sciurius carolinensis*), southern flying squirrel (*Glaucomys volans*), eastern cottontail (*Sylvilagus floridanus*), opossum (*Didelphis virginiana*), and raccoon (*Procyon lotor*).

The Arcadia site is located along the Atlantic migration flyway, which is one of the four main U.S. migration flyways for bird species recognized by the USFWS. **Table 4.8-1** lists the migratory birds known to occur or potentially occur in Frederick County.

Table 4.8-1. Migratory Birds Known to Occur or Potentially Occur in Frederick County, Virginia

Common Name	Scientific Name
N bobwhite	*Colinus virginianus*
Great blue heron	*Ardea herodias*
Cattle egret	*Bubulcus ibis*
Turkey vulture	*Cathartes aura*
American kestrel	*Falco sparverius*
Red-tailed hawk	*Buteo jamaicensis*
Sharp-shinned hawk	*Accipiter striatus*
American coot	*Fulica americana*
Killdeer	*Charadrius vociferus*
Mourning dove	*Zenaida macroura*
Barn owl	*Tyto alba*
Great-horned owl	*Bubo virginianus*
E screech owl	*Megascops asio*
Common nighthawk	*Chordeiles minor*
E whip-poor-will	*Antrostomus vociferus*
Belted kingfisher	*Megaceryle alcyon*
Downy woodpecker	*Dryobates pubescens*
N flicker	*Colaptes auratus*
E wood-pewee	*Contopus virens*
E kingbird	*Tyrannus tyrannus*
Blue-headed vireo	*Vireo solitarius*
Red-eyed vireo	*Vireo olivaceus*
Blue jay	*Cyanocitta cristata*
American crow	*Corvus brachyrhynchos*
Tree swallow	*Tachycineta bicolor*
Barn swallow	*Hirundo rustica*
House wren	*Troglodytes aedon*
Carolina wren	*Thryothorus ludovicianus*
Hermit thrush	*Catharus guttatus*
American robin	*Turdus migratorius*
N mockingbird	*Mimus polyglottos*
European starling	*Sturnus vulgaris*
Tennessee warbler	*Oreothlypis peregrina*
Common yellowthroat	*Geothlypis trichas*
Yellow warbler	*Setophaga petechia*
Yellow-rumped warbler	*Setophaga coronata*
Black-throated green warbler	*Setophaga virens*
E towhee	*Pipilo erythrophthalmus*
Chipping sparrow	*Spizella passerina*
Song sparrow	*Melospiza melodia*
Dark-eyed junco	*Junco hyemalis*
N cardinal	*Cardinalis cardinalis*
House finch	*Haemorhous mexicanus*
House sparrow	*Passer domesticus*

Source: Virginia Society of Ornithology 2015.

Threatened and Endangered Species

Federal and state-listed threatened and endangered species known to occur or potentially occur in Frederick County are listed in **Table 4.8-2**.

Table 4.8-2. Threatened and Endangered Species Known to Occur or Potentially Occur in Frederick County, Virginia

Group	Common Name (Scientific Name)	Status*	Habitat	Within Project Area
Plants	Harperella (*Ptilimnium nodosum*)	FE	Rocky/gravelly shoals or cracks in bedrock outcrops beneath the water surface in clear, swift-flowing streams	U
Mammals	Indiana Bat (*Myotis sodalis*)	FE	Hibernation occurs in caves and abandoned mines; summer roosting occurs under the peeling bark of dead and dying trees	P
	Northern Long-eared Bat (*Myotis septentrionalis*)	FT	Hibernation occurs in small cracks and crevices of caves and mines that have large passages and relatively constant, cool temperatures with high humidity and no air currents; summer roosting occurs singly or in colonies underneath bark or in cavities, crevices, or hollows of both live and dead trees within forests, woodlots	P
Reptiles	Wood turtle (*Glyptemys insculpta*)	ST	Clear streams with adjacent forested floodplains and nearby fields, wet meadows, and farmlands	P
Mussels	Green Floater (*Lasmigona Subviridis*)	ST	Smaller stable streams with good water quality, gravel, and sandy bottoms; not those prone to flooding and drying	U

Source: USFWS 2015a.
*FE = federally endangered; FT = federally threatened; ST = state threatened; P = potential; U = unlikely.

In a letter dated March 31, 2015, GSA completed a project review using the USFWS, Virginia Field Office's online project review process and submitted the project review package in accordance with instructions for further review. The project review package included information about the species considered in the review and a species conclusions table, which identified GSA's determination of impacts for the resources that may be affected by the project. The USFWS responded in an email dated May 5, 2015, that stated the Arcadia site is within the range of the federally endangered Indiana bat and federally threatened northern long-eared bat (NLEB). The USFWS stated that there is the potential for impacts to both species from the proposed action and recommended a habitat assessment be conducted (Appendix A).

In a letter dated June 8, 2015, the Virginia Department of Conservation and Recreation (VADCR), Natural Heritage Resources, stated that the project area is downstream from the Opequon Creek Stream Conservation Unit (SCU) (Appendix A). SCUs identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within this reach. SCUs are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain on a scale of 1-5, with 1 being most significant. The

Opequon Creek SCU has been given a biodiversity significance ranking of B5, which represents a site of general significance. The natural heritage resource of concern associated with this SCU is the wood turtle.

Plants

Harparella is a flowering plant that grows to a height of 6 to 36 inches. The small, white flowers occur in heads, and resemble the Queen Anne's lace (*Daucus carota*) flowerhead. Harperella typically occurs in rocky or gravel shoals and along swift-flowing stream sections. The primary threats to this plant are poor water flow and water quality. Although the harparella has the potential to occur within Frederick County, because of lack of suitable habitat, it is unlikely to occur within the Arcadia site.

Mammals

The USFWS lists the Indiana bat as endangered under the ESA. Indiana bats are found over most of the eastern half of the U.S. Indiana bats are quite small, weighing only one-quarter of an ounce (about the weight of three pennies) although in flight they have a wingspan of 9 to 11 inches. Their fur is dark-brown to black. Indiana bats hibernate during winter in caves or, occasionally, in abandoned mines. During summer they roost under the peeling bark of dead and dying trees. Indiana bats are vulnerable to disturbance because they hibernate in large numbers in only a few caves (the largest hibernation caves support from 20,000 to 50,000 bats). Other threats that have contributed to the Indiana bat's decline include commercialization of caves, loss of summer habitat, pesticides and other contaminants, and most recently, the disease white-nose syndrome. Indiana bats eat a variety of flying insects found along rivers or lakes and in uplands (USFWS 2015b).

On April 2, 2015, the USFWS listed the NLEB as threatened under the ESA. The NLEB is a medium-sized bat with a body length of 3 to 3.7 inches but a wingspan of 9 to 10 inches. Their fur color can be medium to dark brown on the back and tawny to pale-brown on the underside. As its name suggests, this bat is distinguished by its long ears (USFWS 2015c). The NLEB hibernates in the small cracks and crevices of caves and mines that have large passages and relatively constant, cool temperatures with high humidity and no air currents. During the summer they roost singly or in colonies underneath bark or in cavities, crevices, or hollows of both live and dead trees within forests, woodlots with dense or loose aggregates of trees, riparian forests, and other wooded corridors. Males or non-reproductive females may also roost in caves or mines. In addition, NLEBs have been observed roosting in structures such as barns and bridges. They are not considered to be a long-distance migrant, as they typically migrate 35–55 miles between their winter hibernacula and summer habitat (USFWS 2015c).

A habitat assessment of potential summer and winter bat habitat was conducted in June 2015. The habitat assessment for potential summer habitat was conducted in accordance with the *2015 USFWS Range-Wide Indiana Bat Summer Survey Guidelines* (USFWS 2015d). Currently, there is no standardized range-wide guidance specific to surveys of potential winter habitat (i.e., caves, quarries, and/or abandoned mines); therefore, assessment of potential winter habitat was conducted in accordance with the *Supplemental Indiana Bat Survey Guidance for Kentucky* (USFWS and Kentucky Department of Fish and Wildlife Resources 2015).

The Arcadia site provides poor to moderate roosting habitat for Indiana bats due to the presence of potential roost trees with sufficient solar exposure. Roosting habitat for NLEB is moderate to excellent in

quality due to several suitable potential roost trees and the amount of forested habitat. In addition, the site provides moderate Indiana bat foraging habitat especially along edges, above the canopy, or in areas with lower stem density, and moderate to excellent foraging habitat for NLEB. Therefore, it is possible that the Indiana bat and NLEB could use the site during the summer maternity season (Copperhead Environmental Consulting 2015). For more detailed information the Phase I survey is included in Appendix D.

Although no longer a listed species under the ESA, the bald eagle is protected under the Bald and Golden Eagle Protection Act. There are no known active bald eagle nests within or in proximity to the Arcadia site.

Reptiles

The wood turtle is currently classified as threatened by the Virginia Department of Game and Inland Fisheries (VDGIF). The wood turtle ranges from southeastern Canada, south to the Great Lake states and New England. In Virginia, it is known from northern counties within the Potomac River drainage (Nature Serve 2009 in VADCR 2015, Appendix A). The wood turtle inhabits areas with clear streams with adjacent forested floodplains and nearby fields, wet meadows, and farmlands (Buhlmann et al. 2008 and Mitchell 1994 in VADCR 2015, Appendix A). Since this species overwinters on the bottoms of creeks and streams, a primary habitat requirement is the presence of water (Mitchell 1994 in VADCR 2015, Appendix A). Threats to the wood turtle include habitat fragmentation, urbanization, and automobile or farm machinery mortality (Buhlmann et al. 2008 in VADCR 2015, Appendix A).

Opequon Creek has been designated by the VDGIF as a “Threatened and Endangered Species Water.” The species associated with this threatened and endangered species water is the wood turtle.

Mussels

The green floater is a type of freshwater mussel, most commonly found in smaller stable streams with good water quality, gravel, and sandy bottoms; not those prone to flooding and drying. Although the green floater has the potential to occur within Frederick County, because of lack of suitable habitat, it is unlikely to occur within the Arcadia site.

4.8.2 Environmental Consequences

Implementation of Alternative 1 would result in adverse impacts to vegetation at the Arcadia site. Potential adverse impacts would occur during construction of the CRC facility. Development of facilities would take place on roughly 49.3 ac of the entire 59 ac project area. Based on the conceptual design layout, implementing Alternative 1 would result in the removal of up to 14.17 ac of forested habitat within the area to be developed (**Figure 4.8-1**). Establishment of construction staging areas, to be determined during the design phase, may also result in temporary impacts to vegetation, which would be minimized and avoided to the extent practicable. Following construction, grass would be planted around buildings, with the addition of ornamental shrubs, trees, and mulching in select areas

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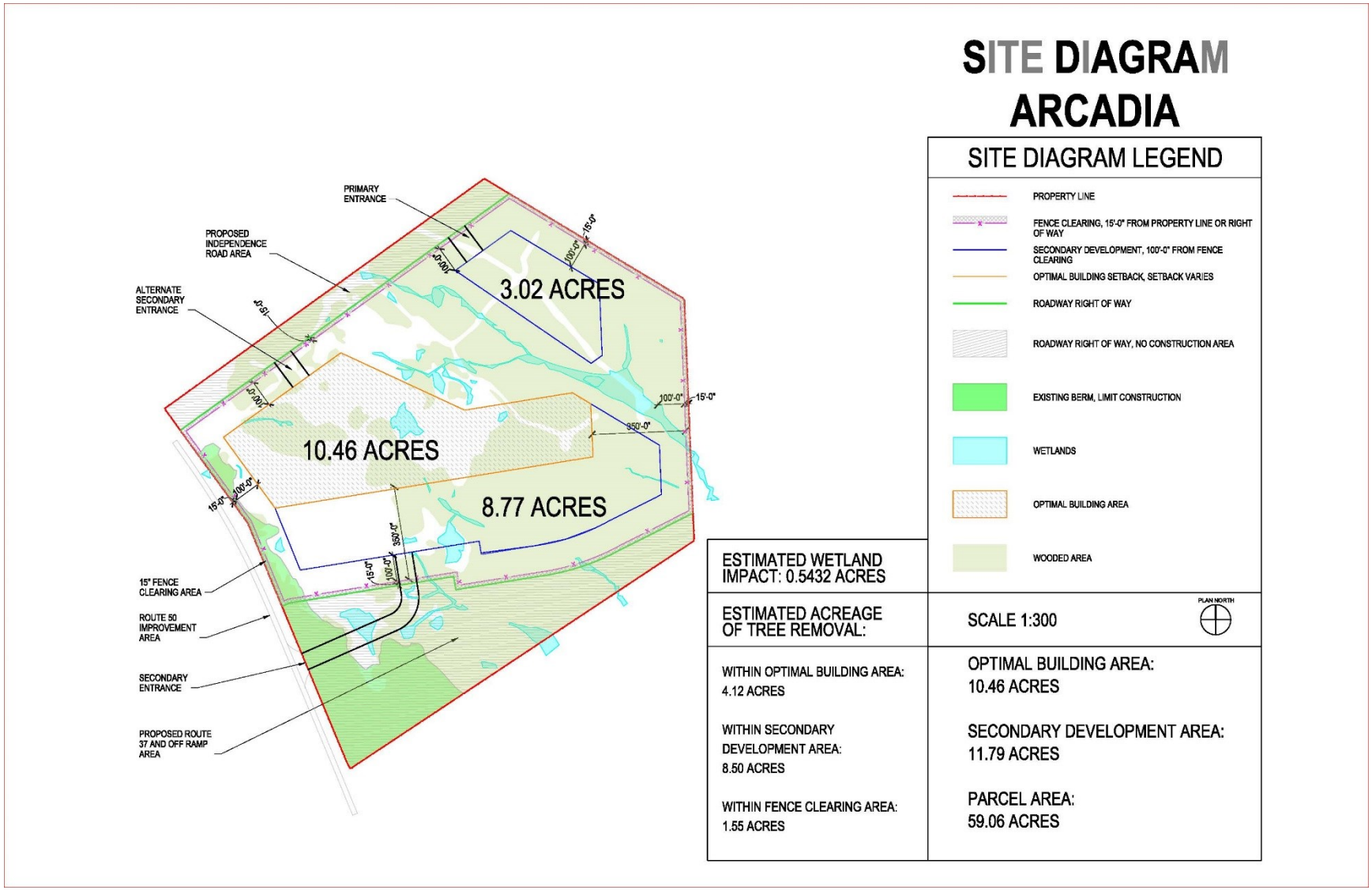

Figure 4.8-1. Forest and Wetland Impacts – Arcadia

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Wildlife

Alternative 1 would result in adverse impacts to wildlife that would not be considered significant. The removal of mixed coniferous/deciduous forest at the Arcadia site would cause birds, mammals, and reptiles to be permanently displaced once land is cleared. Less mobile species at the site would experience direct mortality. Wildlife residing in the periphery of the construction site may be temporarily displaced as a result of the noise and activity of construction.

Alternative 1 would have direct impacts on migratory birds by displacing them from suitable habitat in the project area. Long-term, permanent impacts to migratory bird populations are not anticipated because the more tolerant bird species would rapidly repopulate suitable portions of the site after construction. Less tolerant bird species would find suitable habitat in the adjacent forested areas.

Threatened and Endangered Species

GSA initiated informal consultation with the USFWS in March 2015 in accordance with section 7 of the ESA and the Bald and Golden Eagle Protection Act, including review of GSA's determination of alternatives (Appendix A). The USFWS responded in an email dated May 5, 2015, and recommended that a detailed habitat assessment be conducted for the Indiana bat and NLEB to identify suitable habitat. The USFWS concurred that no Eagle Act permit is required for the Arcadia site.

GSA provided the Indiana bat and NLEB habitat assessment to USFWS on June, 17 2015. In subsequent correspondence between GSA and USFWS on August 11, 2015, concurrence with the determinations for the Harparella (*Ptilimnium nodosum*), federally designated critical habitat, and bald eagle (*Haliaeetus leucocephalus*) were obtained. Additionally, a time-of-year restriction on tree clearing activities for the period of April 15-September 15 was placed on the site to avoid impacts to protected bat species. GSA will comply with the time-of-year restriction for tree clearing activities to ensure that the proposed project has no significant impacts on protected bat species. If for any reason the construction schedule cannot comply with the time of year restriction of tree clearing, GSA will continue to consult with USFWS to ensure adverse impacts are minimized. A copy of the correspondence is contained in Appendix A.

Wood turtles are primarily found in and around clear brooks and streams in deciduous woodlands and although highly terrestrial, wood turtles typically remain in moist areas within approximately 300 ft of a stream. According to the VDGIF perennial waters or lands within 900 ft of perennial waters are considered to be wood turtle habitat. Because the streams on the Arcadia site are ephemeral, they would not provide habitat for wood turtle. Additionally, no perennial streams were located within 900 ft of the site. Therefore, the proposed action would have no direct impacts on wood turtle or wood turtle habitat. Due to the location and the distance of the Arcadia site to Opequon Creek, wood turtles are known to occur downgradient from proposed site. Therefore, erosion and sediment control measures, as well as a stormwater management plan will ensure the safety of the wood turtle habitat from sedimentation, erosion, and run off. As a result the proposed action would have no significant impacts on wood turtle or wood turtle habitat.

In a letter from VADCR dated June 8, 3015, VADCR stated that implementation of Alternative 1 would not affect any documented state-listed plants or insects (refer to Appendix A). However, to minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, VADCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/stormwater management laws and regulations.

4.8.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed. The No Action Alternative would not result in impacts to vegetation, wildlife, or threatened and endangered species. Therefore, no significant impacts to vegetation, wildlife, or threatened and endangered species would occur.

4.8.4 Mitigation

Coordination has occurred with USFWS. Compliance with time of year restrictions for tree clearing activities would minimize impacts to protected bat species. There are no anticipated adverse impacts to the wood turtle habitat and, therefore, no mitigation is required.

4.9 TOPOGRAPHY, GEOLOGY, AND SOILS

4.9.1 Affected Environment

The Arcadia site is located in the Great Valley subprovince of the Valley and Ridge physiographic province. The Valley and Ridge is characterized by long, parallel, narrow ridges rising above valleys of varying size. The valleys are typically underlain by limestone, dolomites, and shale with the predominant types being limestone and dolomite (VADCR 2013). The Great Valley subprovince is known as the Shenandoah Valley in northern Virginia and is a long and wide valley with low to moderate ridges between the Appalachian Plateau to the west and the Blue Ridge province to the east (Bailey 1999). According to the United States Geological Survey (USGS) 7.5-minute Stephenson, Virginia-West Virginia topographic quadrangle map, the elevation of the Arcadia site ranges from 630 to 660 ft above mean sea level.

Arcadia is underlain by the Martinsburg and Oranda Formations, which comprise shale, sandstone, siltstone, and limestone (USGS 2015 and DMME 1996). Preliminary geotechnical investigations, including laboratory testing, on the Arcadia site found the presence of pyricitic sulfide in bedrock (Geotechnical Subsurface Investigation Report – CRC- Arcadia, AB Consultants, Inc. October 12, 2015). Pyticitic rock when exposed produces pyrite oxidation that can result in heave and acid production.

The soils underlying Arcadia are predominantly not prime farmland soils. The majority of the site is comprised of Berks (3-15% slope) and to a lesser degree Weikert-Berks (8-25% slope). Clearbrood (7-15% slope) and Blairton (7-15% slope) series comprise the remainder of the site. Blairton is the only series that is considered prime farmland (NRCS 2013) and comprises approximately 7 ac of the Arcadia site.

4.9.2 Environmental Consequences

Minor impacts to site topography may occur when the site is prepared for construction. These impacts are anticipated to occur from excavation and grading activities and are not anticipated to change the overall topography of the site.

It is not anticipated that blasting activities would occur or that major excavation activities would occur; therefore, impacts to geology are anticipated to be minor. The presence of pyricitic sulfide in areas of bedrock on the site would need to be managed during construction. It is recommended in the preliminary geotechnical report done for this site that pyritic rock be encapsulated with synthetic high density polyethylene membrane. It is also recommended that any surface water be diverted from the pyritic rock and that stormwater management systems be lined to prohibit water from being discharged onto the subject rock formations (AB Consultations, Inc. 2015).

Impacts to soils associated with excavation and grading activities would total approximately 50 ac. Approximately 7 of the 50 ac are prime farmland soils. In accordance with FPPA, an AD-1006 form was prepared and reviewed by US Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS). The site assessment criteria scored 84 points, well below the 160 point threshold requiring further consultation with the NRCS. Therefore, the proposed action would have no significant impacts on soils.

4.9.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed. Therefore, no impacts to topography, geology, or soils would occur.

4.9.4 Mitigation

A soil erosion and sedimentation plan would be prepared and approved by the Virginia Department of Natural Resources prior to construction. The erosion and sedimentation plan would outline the requirements for controlling erosion and sedimentation on site including the use of BMPs. BMPs may include placement of silt fencing adjacent to surface waters and wetlands to prevent the introduction of sediment; the use of hay bales to minimize the spread of sediment off the construction site; stabilization of steep slopes; and use of tree clearing plans and stormwater control plans to manage stormwater runoff and keep it on site during construction. Additionally, revegetation of disturbed areas following the completion of construction would minimize the erosion of exposed soil.

4.10 WATER RESOURCES

4.10.1 Affected Environment

4.10.1.1 Surface Water

Surface water features within the Arcadia site consist of ephemeral streams that are associated with wetlands (refer to **Figure 4.10-1**). There are approximately 2,168 lf of streams within the site.

The Arcadia site is within the Opequon Creek watershed. The Opequon Creek is a tributary stream of the Potomac River that flows into the Potomac northeast of Martinsburg in Berkeley County, West Virginia, and its source lies northwest of the community of Opequon at the foot of Great North Mountain in Frederick County, Virginia. The Opequon Creek is approximately 1.18 miles from the Arcadia site, 0.33 miles from the Sulphur Spring Run, and 0.8 miles from Buffalo Lick Run. Five stream segments in the Opequon Creek watershed are currently listed on Virginia's 303(d) list of impaired waters for aquatic life use and fecal coliform impairments. However, none of these five streams are located near the Arcadia site. Total maximum daily load studies are currently in progress within the Opequon watershed.

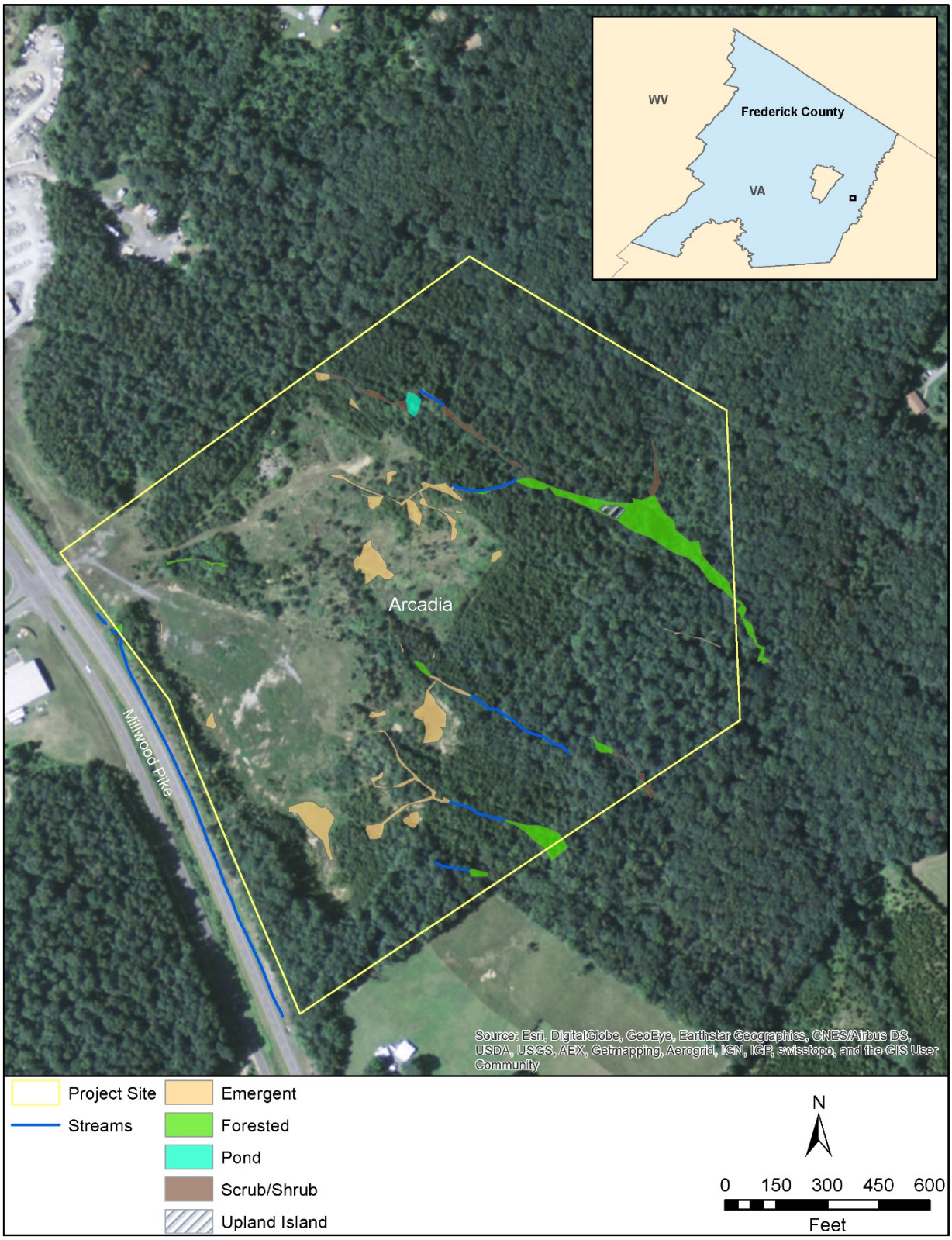

Figure 4.10-1. Water Resources at the Arcadia Site

4.10.1.2 Groundwater

The carbonate aquifer system of the Northern Shenandoah Valley provides an important water supply to local communities in Frederick County, Virginia. The county depends on groundwater as a source of water supply. The county and surrounding areas are undergoing increased urbanization as part of development around the city of Winchester and along U.S. Route 11 and I-81 (USGS 2005).

The geological units are generally unconfined, fractured rock aquifers that are recharged by precipitation and discharge locally to streams and springs as evapotranspiration; however, confined groundwater may be present locally. Groundwater discharge from springs comprises much of the base flow to streams in the area (USGS 2005).

In October 2000, the USGS began an investigation to better characterize the carbonate aquifer system of Frederick County, Virginia, and provide relevant hydrogeologic information that can be used to guide the development and management of this important water resource. Effective groundwater recharge was estimated in both the Cedar and Opequon Creek Basins for 2001–02. Average estimated recharge was 5.8 and 6.2 inches above the two gauges in the Cedar Creek Basin. Base flow accounted for between 60 and 64% of streamflow. For the part of the basin draining the carbonate aquifer system, the average estimated recharge was 5.0 inches. Average estimated recharge ranged from 3.2 to 3.8 inches in the Opequon Creek Basin and accounted for between 86 and 92% of streamflow (USGS 2005).

4.10.1.3 Wetlands

The Arcadia site contains forested wetlands with emergent and scrub/shrub wetlands. The wetlands within the Arcadia site were delineated using the *1987 USACE Wetland Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (USACE 2012).

A wetland delineation was conducted at the Arcadia site between May 2 and 4, 2015. The on-site investigation identified potential wetland areas, none of which were previously identified on National Wetland Inventory (NWI) mapping. The wetlands were identified within areas of topographic relief. The topography of the site has been altered from how it is depicted on the USGS topographic quadrangle map. The alteration is due to historic mining activities, which created low areas that have transitioned into wetlands. Despite being the result of previous site disturbance all the wetlands identified during the delineations are believed to constitute the normal circumstance and many of them have a connection to jurisdictional waters, which would result in the USACE taking jurisdiction of them (Cardno 2015e). A total of 2.62 ac of wetlands are present at the Arcadia site (**Figure 4.8-1**).

Jurisdictional features within the Arcadia site are predominantly comprised of forested wetlands, with emergent and scrub/shrub wetlands present to a lesser degree. The dominant vegetation within the undisturbed palustrine wetlands includes red maple (*Acer rubrum*), sycamore (*Platanus occidentalis*), black gum (*Nyssa sylvatica*), green ash (*Fraxinus pennsylvanica*), spice bush (*Lindera benzoin*), river birch (*Betula nigra*), soft rush (*Juncus effusus*), and poverty rush (*Juncus tenuis*). The dominant wetland species in the disturbed wetlands on site comprised cattails (*Typha* spp.), blunt spikerush (*Eleocharis obtusa*), curly dock (*Rumex crispus*), wool grass (*Scirpus cyperinus*), and an unidentified sedge species (*Carex* spp.).

4.10.1.4 Floodplains

Per project requirements, development cannot occur within 100 ft of the 100-year floodplain, and must be 5 ft above the 100-year floodplain. The Arcadia site is located outside the 100-year floodplain (**Figure 4.10-1**).

4.10.2 Environmental Consequences

4.10.2.1 Surface Water

Construction activities would involve clearing, grading, filling, and excavation that would result in ground disturbance. The site design would be configured to minimize direct impacts to streams, however, one stream crossing would be required and would directly impact approximately 0.30 acres of stream habitat. Such disturbance would have the potential to cause soil erosion and transport of sediment into waterways via stormwater. Sediment entering waterways has the potential to cause increased turbidity and suspended solids, and carry pollutants contained in the sediment into the surrounding waterways. Potential indirect impacts to the streams would be mitigated through the use of BMPs for erosion and sedimentation control and through the proper engineering of the stream crossings. Mitigation measures for direct impacts to streams, such as in lieu fee mitigation, may be implemented, if warranted. As a result, impacts to surface waters would not be significant.

Stormwater quality and quantity control would be required in compliance with state and county requirements. A Virginia Stormwater Management Program (VSMP) General Permit for construction activity stormwater discharges would be obtained from the VADCR. Additionally, a Stormwater Pollution Prevention Plan (SWPPP), which is based on the approved sediment and erosion control plans, would be prepared in compliance with the VSMP permit. Any impacts to surface waters associated with an increase of stormwater runoff due to construction activities would be minimized by implementation of SWPPP and BMPs. Therefore, construction of the proposed CRC facility at the Arcadia site would not have significant adverse impacts to surrounding surface waters.

4.10.2.2 Groundwater

The construction of the CRC facility would not require significant quantities of groundwater. Therefore, it is unlikely that groundwater use for construction would result in a significant impact in the region. Under Alternative 1, no increase in personnel is anticipated; therefore, there would be no increase in demand of municipal groundwater availability.

4.10.2.3 Wetlands

There were 2.62 ac of wetlands delineated in the 59-acre project area (**Figure 4.10-1**). As shown in **Figure 4.8-2**, approximately 0.54 ac of wetlands would be impacted.

Significant impacts to wetlands are not expected under Alternative 1 because GSA would mitigate for these impacts in accordance with wetland permit conditions to satisfy permit requirements. Wetland mitigation measure may include wetland creation, restoration or preservation elsewhere within the watershed, in lieu fee mitigation contributions or wetland mitigation bank credit purchases, as appropriate.

4.10.2.4 Floodplains

There would be no impact to floodplains as a result of Alternative 1, as no floodplains exist within the Arcadia site.

4.10.3 No Action Alternative

Under the No Action Alternative, GSA would not construct the FBI CRC. The site would remain undeveloped and no impacts to surface waters or wetlands would occur.

4.10.4 Mitigation

A detailed sediment and erosion control plan would be developed prior to construction. This plan would ensure that appropriate soil erosion and sediment control measures are followed during the construction of the FBI CRC facility, parking lot, and associated infrastructure. The use of BMPs during construction, including the use of silt fences and other soil retention measures, would minimize soil erosion from precipitation and the transport of sediment to wetlands.

GSA would coordinate with the USACE to determine mitigation and permit requirements associated with stream and wetlands impacts at the Arcadia site. Coordination with the USACE would occur prior to any disturbance occurring at the site and mitigation and permits would be in place before the site would be developed. Mitigation measures for direct impacts to streams and wetlands may include wetland creation, restoration or preservation elsewhere within the watershed; in lieu fee mitigation contributions; or wetland mitigation bank credit purchases, as appropriate. As a result, impacts to water resources would not be significant.

4.11 CULTURAL AND TRADITIONAL RESOURCES

4.11.1 Affected Environment

An APE for cultural resources was defined to take into account both potential direct effects resulting from the construction and operation of the proposed FBI CRC, and for potential indirect effects to the setting of historic properties from visual, audible, and/or traffic changes. The APE for Alternative 1 was defined as an approximately 1,000-foot buffer around the proposed Arcadia project site (**Figure 4.11-1**). Effects to archaeological resources, however, would be limited to the 59-acre Arcadia site where ground disturbance would occur from construction.

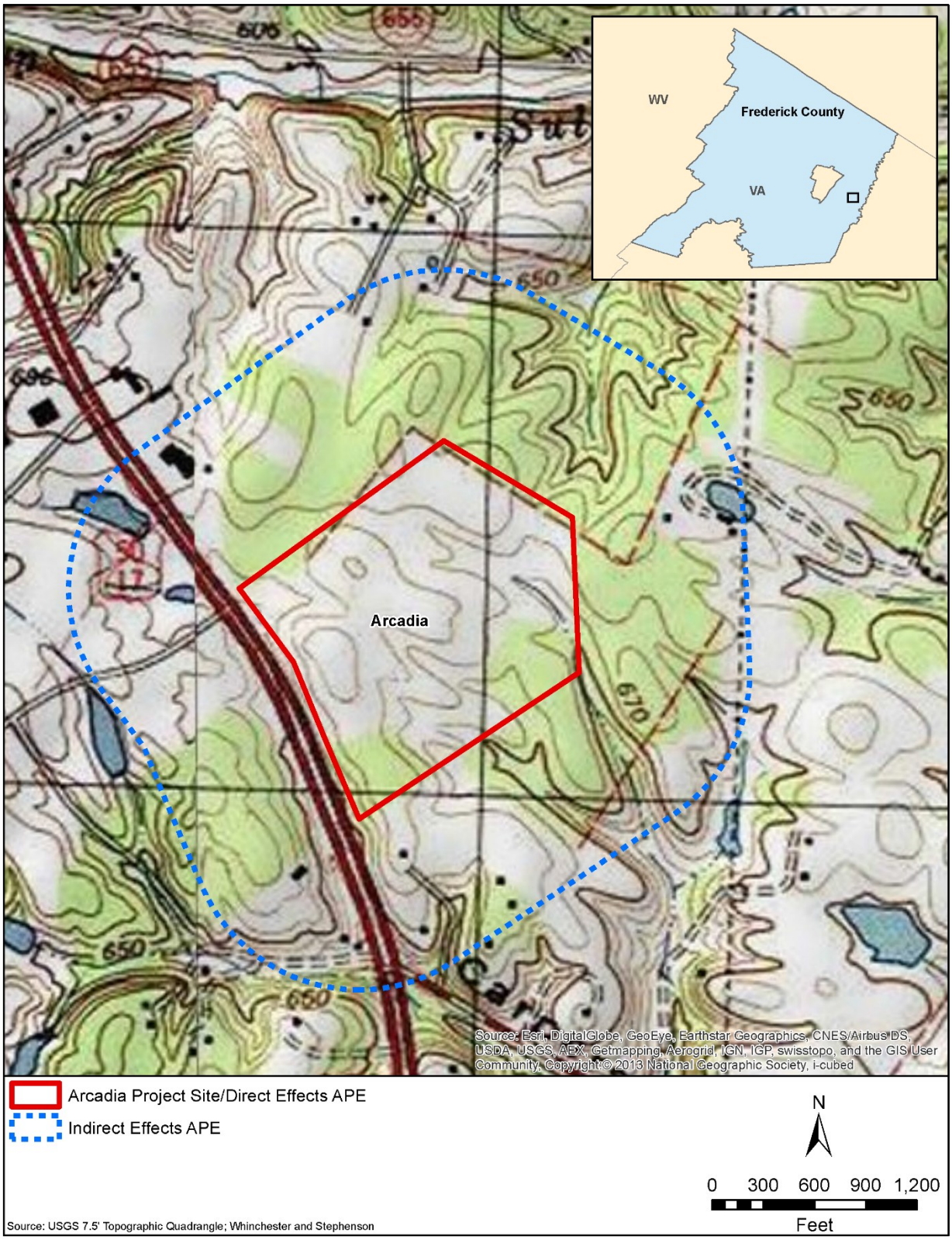

Figure 4.11-1. Area of Potential Effects for Alternative 1

4.11.1.1 Architectural Resources

A review of the Virginia Department of Historic Resources Virginia Cultural Resources Information System (V-CRIS) revealed one previously surveyed resource is located within the Arcadia site APE. It is a circa (ca.) 1930 dwelling (DHR #034-1174) located on the west side of Millwood Pike (U.S. Route 17/50) at the south end of the APE. The building was originally surveyed in 1992 as part of a county survey, and its NRHP eligibility was not evaluated.

A Phase I identification survey was conducted in April 2015 to identify and document architectural resources 45 years and older in the APE and determine whether any may qualify for inclusion in the NRHP. The survey documented a total of eight architectural resources within the Arcadia site APE, including the previously surveyed house on Millwood Pike (**Table 4.11-1**). Except for the previously surveyed house, the architectural resources were built between 1950 and 1970 and largely consist of residences. The survey concluded that none of the resources are historically or architecturally significant, and recommended each one as not eligible for listing in the NRHP (Cardno 2015a). The GSA consulted with the SHPO on the findings of the survey and the SHPO concurred that none of the architectural resources are eligible for the NRHP (Burke 2015).

Table 4.11-1. Pre-1971 Architectural Resources in the Arcadia Site APE

Inventory Number	Resource Name	Year Built	Description	NRHP Status
034-1174	House 50-17 (previously surveyed); House 2 and Building (newly surveyed)	ca. 1930; ca. 1950	1½-story frame house; 1-story frame house, partially collapsed; 1-story concrete block building in ruins	Not Eligible
034-5197	Simpson House	ca. 1970	1-story frame Ranch-style house	Not Eligible
034-5198	Grove House	ca. 1970	1-story brick Ranch-style house	Not Eligible
034-5199	Boyce House	ca. 1967	1-story frame Ranch-style house	Not Eligible
034-5200	Williams House	ca. 1967	1-story frame Ranch-style house	Not Eligible
034-5201	Winchester Building Supply Co.	ca. 1965–1970	1-story concrete block and 2-story concrete block commercial/light industrial buildings	Not Eligible
034-5202	Arcadia Building	ca. 1950	1-story frame building	Not Eligible
034-5203	D. Honesty House	ca. 1966	1-story brick house with International-Style elements	Not Eligible

4.11.1.2 Archaeological Resources

A review of the V-CRIS showed that no archaeological surveys had been completed on the Arcadia property. Consequently, a Phase I archaeological investigation was conducted on the Arcadia property in April 2015 (Cardno 2015c). The work was performed in accordance with professional standards set forth in Section 106 of the NHPA, as amended, and its implementing regulations (36 CFR Part 800: Protection

of Historic Properties), the Archaeological and Historic Preservation Act of 1974; and the *Guidelines for Conducting Historic Resources Survey in Virginia* (Virginia Department of Historic Resources 2011).

The Phase I investigation of the approximately 59 ac property included background research, examination of aerial images, pedestrian survey, and systematic shovel testing. The aerial imagery of the Arcadia property revealed that approximately 20 ac on the west side of the property were surface mined for shale and gravel during the late twentieth century (1990s). Field observation of the area confirmed that it was heavily disturbed by the mining activities, and the mined area was not shovel tested for the survey. Therefore, approximately 39 ac of the Arcadia site were surveyed during the Phase I. Two historic trash scatters (44FK0785 and 44FK0786), an isolated prehistoric artifact, and an isolated historic artifact were identified (**Table 4.11-2**). The archaeological sites and artifact locations were recommended not eligible for listing in the NRHP, and no additional archaeological work at the Arcadia property was recommended (Cardno 2015c). The GSA consulted with the SHPO on the findings of the survey and the SHPO concurred that the archaeological sites are not eligible for the NRHP (Burke 2015).

Table 4.11-2. Archaeological Resources Identified During the Phase I Survey of the Arcadia Property.

Name	Site Number	Type	NRHP-eligibility Recommendation	Work Recommendation
Arcadia 1	Artifact Location	Prehistoric	Not eligible	No additional work
Arcadia 2	Artifact Location	Historic	Not eligible	No additional work
Arcadia 3	44FK0785	Historic	Not eligible	No additional work
Arcadia 4	44FK0786	Historic	Not eligible	No additional work

4.11.1.3 Traditional Cultural Properties

Under Section 106 of the NHPA, a federal agency is required to give consideration to issues of traditional religious or cultural areas concerning Native American groups. As such, GSA invited all Native American tribes that have ties to northern Virginia to be consulting parties under the NHPA. Correspondence to all parties contacted is provided in Appendix A. The United Keetoowah Band of Cherokee Indians requested to be informed about any unanticipated discoveries during construction. Consultation with the tribes has not resulted in the identification of any Traditional Cultural Properties within the APE for the Arcadia site.

4.11.2 Environmental Consequences

4.11.2.1 Architectural Resources

Because none of the architectural resources in the APE are eligible for listing in the NRHP, there will be no historic properties affected by Alternative 1 and no impacts to architectural resources. The VA SHPO concurred with GSA's finding of no historic properties affected in a letter dated October 26, 2015 (Appendix A).

4.11.2.2 Archaeological Resources

The Phase I archaeology survey did not identify any archaeological sites eligible for inclusion in the NRHP. Therefore Alternative 1 would have no effect on NRHP-listed or eligible archaeological resources. The VA

SHPO concurred with GSA's finding of no historic properties affected in a letter dated October 26, 2015 (Appendix A).

4.11.2.3 Traditional Cultural Properties

No Traditional Cultural Properties have been identified in the APE for the Arcadia site. Therefore, implementation of Alternative 1 would have no impacts to Traditional Cultural Properties.

4.11.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed and the site would remain undeveloped and no potential impacts to cultural resources would occur.

4.11.4 Mitigation

Alternative 1 would have no impact to NRHP-listed or eligible cultural resources; therefore, no mitigation is required.

4.12 HAZARDOUS MATERIALS AND WASTE

4.12.1 Affected Environment

4.12.1.1 Hazardous Materials Management

A review of aerial photos of the Arcadia site between 1997 and the present depicts the parcel as being consistently disturbed and possibly subject to soil and gravel excavation. The existing structure observed on the site is assumed to have been constructed prior to 1979 and, as such, has the potential to contain lead based paint, asbestos containing materials and polychlorinated biphenyls.

A Phase I Environmental Site Assessment (ESA) was performed on the property in October 2015 (GSA 2015b) in accordance with American Society for Testing and Materials (ASTM) Standard E1527-13. According to the findings of the ESA, areas of residential solid waste were observed in two areas of the property; however, the solid waste was residential, was only on the surface, and did not include any hazardous substances or petroleum containers. The land adjacent to the subject property is a mix of industrial, residential, and commercial, and showed no indicators of potential contamination of the subject property. Based upon a review of historical information, including historical topographic maps, historical aerial photographs, and Sanborn (fire insurance) maps, no indications of on- or off-site recognized environmental conditions (RECs) were identified. The regulatory review identified 6 records in various databases pertaining to the subject property or nearby properties. The underground storage tanks located on adjacent properties have been removed, have been newly installed, are not leaking or abandoned, and/or do not have the potential to impact the subject property based on the topography between the tanks and the subject property. A review of the database records pertaining to the subject property found no RECs.

4.12.1.2 Hazardous Waste Management

One RCRA generator, Clariant Additive Masterbatches, was identified approximately one-half mile west of the Arcadia site. Clariant Additive Masterbatches is a producer of color, additive, and special effect concentrates for use in plastics.

According to VDEQ, Perry Engineering, located approximately, 0.2 miles north of the Arcadia site is registered with the state under RCRA (VAD#007861933). It is unknown whether they are a generator of hazardous waste or have been subject to corrective actions. This site did not appear in the database search conducted as part of the Phase I ESA. The Arcadia site is located on a topographic rise and is not likely to be affected by the Perry Engineering site.

The Frederick County Regional Landfill is located approximately 1.2 miles east of the Arcadia site. The landfill is a state-of-the-art Subtitle D sanitary landfill operated by the Frederick County Public Works Department.

4.12.1.3 Toxic Substance

Frederick County and Winchester, Virginia have been classified by the USEPA as having a predicted average indoor radon screening level greater than 4 pCi/L.

4.12.2 Environmental Consequences

4.12.2.1 Construction

Hazardous Materials Management

Construction activities would require the use of hazardous materials. The majority of the hazardous materials expected to be used are common to construction and include diesel fuel, gasoline, and propane to fuel the construction equipment; hydraulic fluids, oils, and lubricants; and batteries. The transport and use of hazardous materials would have the potential to result in accidental spills that could adversely impact soil, surface water, and groundwater on and adjacent to the construction site or along transportation routes. Hazardous materials associated with construction activities would be delivered and stored in a manner that would prevent these materials from leaking, spilling, and potentially polluting soils, groundwater, and surface waters, and in accordance with applicable federal, state, and local environmental and public and occupational health and safety regulations. Adherence to these regulations would minimize the potential impacts from accidental releases during construction. As a result, environmental impacts from hazardous materials would be less than significant under Alternative 1.

Hazardous Waste Management

Hazardous waste would be generated during construction activities and could include empty containers, spent solvents, waste oil, spill cleanup materials (if used), and lead-acid batteries from construction equipment. Construction contractors would be responsible for safely removing these construction-generated wastes from the construction site and for arranging for recycling or disposal in accordance with applicable regulations. The total monthly generation of hazardous waste during construction is anticipated to be less than 100 kilograms. The construction contractor would be responsible for determining their regulatory status regarding hazardous waste generation during construction, and obtaining and maintaining compliance in accordance with federal and state laws. Hazardous wastes associated with construction activities would be handled and stored in a manner that would minimize human exposure to these materials and prevent these materials from polluting soils, groundwater, and surface waters and in accordance with applicable federal, state, and local environmental and human health and safety regulations. Adherence to these policies, procedures, and regulations would minimize

the potential impacts from exposure and accidental releases during construction. In the event of an accidental release, contaminated media would be treated on site or would be promptly removed and disposed of in accordance with applicable federal and state regulations. With the implementation of appropriate handling and management procedures and adherence to applicable regulations, hazardous wastes generated during construction would result in no significant impacts to the environment.

Toxic Substances

Prior to its removal, the historic structure on the Arcadia site would be surveyed for asbestos-containing materials, as required by 40 C.F.R. 61.145, as well as lead based paint and polychlorinated biphenyls. If these substances are identified, they would be removed by a licensed contractor and disposed of in accordance with applicable regulations. Therefore, adverse impacts associated with toxic substances would not occur. The removal of the material from the site would be beneficial in nature.

Frederick County and Winchester, Virginia have been classified by the USEPA as having a predicted average indoor radon screening level greater than 4 pCi/L; therefore, there is potential for radon levels at or above the USEPA Action level requiring radon treatment.

4.12.2.2 Operation

Operation of the FBI CRC facility would require the use of batteries, pesticides, herbicides, paints, solvents, and fluorescent light fixtures. Most hazardous materials (such as paints, solvents, pesticides, and herbicides) would be used up and thus not require disposal. Pesticides and herbicides would be used as part of routine grounds and facility maintenance and would be applied and managed in accordance with applicable regulations and manufacturer instructions. Those hazardous materials that do require disposal would be properly managed and stored in accordance with federal and state regulations. As a result, operation of the FBI CRC facility would have less than significant impacts with regards to hazardous materials and wastes.

4.12.3 No Action Alternative

Under the No Action Alternative, GSA would not construct the FBI CRC. The site would remain undeveloped and no impacts to the environment from hazardous materials or waste would occur.

4.12.4 Mitigation

The proposed FBI CRC would be designed to prevent occupant exposures to radon above the USEPA action level of 4 pCi/L. Therefore, there would be no adverse impacts associated with radon under Alternative 1.

4.13 CLIMATE CHANGE

4.13.1 Affected Environment

Temperatures in the proposed project area have been recorded to have risen 1-1.5 degrees fahrenheit (°F) in the past 22 years (Melillo et. al. 2014). The 2014 National Climate Assessment concluded that the evidence of human-induced climate change continues to strengthen and associated impacts are increasing worldwide. Long-term, independent records from weather stations, satellites, ocean buoys, tide gauges, and many other data sources all provide supporting evidence of the theory of global warming.

Precipitation patterns are changing, sea level is rising, the oceans are becoming more acidic, and the frequency and intensity of some extreme weather events are increasing. Much of the supporting evidence demonstrates that the global warming trends are primarily the result human activities such as the burning of fossil fuels, the emission of heat trapping gasses such as methane and nitrous oxide, and the clearing of forests (Melillo et. al. 2014).

Temperatures are projected to rise another 2°F to 4°F in most areas of the United States over the next few decades. As a result, impacts of global climate change on the southeastern region of the U.S. include decreased water availability, exacerbated by population growth and land-use change, resulting in increased competition for water and increased risks associated with extreme events such as hurricanes (Melillo et. al. 2014).

4.13.2 Environmental Consequences

Construction and operation activities would generate GHGs. The estimated GHG emissions from the proposed construction activities at either site are considerably less than the 25,000 metric ton per year reference point recommended for quantitative disclosure by the Council on Environmental Quality (CEQ 2014). Nonetheless, best management practices for construction would be implemented to reduce both criteria pollutants and GHGs. These practices include idling restrictions for equipment operating onsite, and promotion of carpooling by construction workers. In addition to GHGs that would be generated by the operation of equipment during construction, there would also be a slight overall reduction in carbon sequestration capability due to the loss of approximately 40 acres of vegetation at the Arcadia site. Approximately 40-acres of long-term carbon storage would be permanently lost at the Arcadia site, which is an estimated annual storage loss of 1,388 metric tons of CO_2 using the method developed by the USDA Forest Service to calculate carbon sequestration in a forest approximately 25 years old (USDA 2006).

Climate impacts are not attributable to any single action. Although the project emissions would contribute to the overall amount of atmospheric GHG, there is no current methodology or policy guidance to determine how the projects' incremental contribution to GHGs would translate into physical effects on the global environment.

4.13.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed. The No Action Alternative would not result in emissions of any air pollutants. Therefore, there would be no impact to climate change.

4.13.4 Mitigation

BMP would be implemented to reduce air emissions. They may include, but are not limited to:

- Utilizing alternatively fueled equipment
- Utilizing other emission controls that are applicable to the equipment being used on-site
- Reducing idling time of equipment and construction vehicles

All domestic leased or government-owned space over 5,000 square feet is designed and constructed based on sustainable design principles (Leadership in Energy and Environmental Design (LEED) Silver certified or better). Where possible, the GSA would implement renewable energy solutions for the facility to promote energy independence and heat and cool buildings off-peak hours in an effort to be

good energy stewards during times where grid stress is anticipated. To address climate change risks, the design of the CRC would include alternative energy opportunities such as solar for power generation and a geothermal heating system, if appropriate.

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5.0 ALTERNATIVE 2 – WHITEHALL

5.1 NOISE

5.1.1 Affected Environment

The Whitehall site is located in the town of Clear Brook, approximately 4 miles north of Winchester. It is approximately 1,000 ft east of I-81 and 400 ft east of U.S. Route 11. According to the Frederick County Department of Planning and Development, the Whitehall site is zoned M1 - Light Industrial (Frederick County Department of Planning and Development 2015a). Sensitive receptors (i.e., residences) are located adjacent to the property along the northwest and southwest property boundaries, approximately 350 ft from the proposed facility.

5.1.2 Environmental Consequences

Noise impacts under Alternative 2 would be greater than those under Alternative 1 as residences are located adjacent to the proposed site. Using the same metrics as presented in Section 4.1.2, the short-term noise level during the time period when the loudest piece of equipment is used would result in a noise level of 72 dB at the nearest sensitive receptor (i.e., residences) located approximately 350 ft from the site. As a result, noise from construction activity would have temporary adverse impacts to nearby residences.

Long-term impacts from the operation of the facility would be minimal as noise levels predominantly would be associated with traffic increases to and from the facility. Traffic increases would be greatest during shift changes and would be temporary in nature. Because the surrounding area is zoned for business and light industrial uses, long-term noise increases would be consistent with the existing noise levels expected to occur in the surrounding area and would not be significant.

5.1.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed and no increases in noise as a result of construction or operation would occur. It is anticipated that the site would remain undeveloped; therefore, no increases in noise that may present impacts to nearby noise receptors would occur.

5.1.4 Mitigation

To minimize the impact to noise receptors during construction activities a variety of measures could be taken, including but not limited to:

- Using noise bellows systems to provide further noise attenuation
- Performing work during daytime hours
- Scheduling louder construction activities for less intrusive times (mid-morning to mid-afternoon)

5.2 AIR QUALITY

5.2.1 Affected Environment

The affected environment for Alternative 2 air quality would be the same as that described for Alternative 1.

5.2.2 Environmental Consequences

The environmental consequences for Alternative 2 would be the same as that described for Alternative 1.

5.2.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed in Frederick County. The No Action Alternative would not result in emissions of any air pollutants. Therefore, there would be no impact to regional air quality.

5.2.4 Mitigation

Mitigation measures for Alternative 2 would be the same as those described for Alternative 1.

5.3 LAND USE

5.3.1 Affected Environment

The Whitehall site consists of approximately 51 ac of undeveloped farmland in Frederick County, Virginia. The site did not appear to be actively farmed during the 2015 site visits. The site is located in Clear Brook, approximately 4 miles north of Winchester. It is approximately 1,000 ft east of I-81 and 400 ft east of U.S. Route 11. Access to the site would be at the intersection of U.S. Route 11 and Rest Church Road. A secondary access road would be located along Woodbine Road (a proffer road would be constructed to extend and connect Rest Church Road to Woodbine Road). The Whitehall site is also adjacent to the Conrail/CSX Railroad line.

According to the Frederick County Department of Planning and Development, the Whitehall site is zoned M1 - Light Industrial (Frederick County Department of Planning and Development 2015a). The Whitehall site is completely within the Sewer and Water Service Area (Frederick County Planning and Development 2015b).

5.3.2 Environmental Consequences

Construction of the FBI CRC on the Whitehall site would result in a change in land use from farmland to Federal office space and parking. According to the 2015–2016 Frederick County Capital Improvement Plan, U.S. Route 11 from Winchester to the West Virginia border is proposed for widening (Frederick County Department of Planning and Development 2014). This widening would not affect the proposed CRC site and would provide for a more efficient means of access/egress to the facility. According to the 2030 Frederick County Comprehensive Plan, this site is within an area slated for long-term development to support business and industrial land uses (Frederick County Planning Commission 2011). Therefore, the change in land use that would occur as a result of the proposed action is consistent with the desired land use for the site and would have no adverse impacts.

5.3.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed and changes in land use would occur.

5.3.4 Mitigation

Mitigation measures for Alternative 2 would be the same as those described for Alternative 1.

5.4 INFRASTRUCTURE AND UTILITIES

5.4.1 Affected Environment

The Whitehall site is located along the West Virginia border and is bounded by Route 11 and Rest Church Road, which terminates shortly after crossing Route 11. The site does not currently contain utilities, however, utility systems are located in close proximity to the site. The utility sections herein describe the availability of utilities connections near the proposed site and proposed improvements to provide utility service to the proposed FBI CRC facility. The information was obtained from the listed utility authorities (August 2015) as well as a site specific utilities study as noted in Section 4.4.1.

5.4.1.1 Water

The Whitehall site is located within the FCSA boundaries. The FCSA provides and maintains potable water supply and distribution systems. The FCSA participates in the Commonwealth's Local Standards and Review Program. The VDH administers the water portion of the program and VDEQ the sewer portion. Additionally, VDEQ must approve plans that serve greater than 400 persons or have a design flow greater than 40,000 gpd. Maintenance easements are required for all water and sewer lines and appurtenances except where installed within a public right-of-way of VDOT. Near the site, a 12-inch water main is located on the eastern side of U.S. Route 11 (Martinsburg Pike) near VA Route 669 (Rest Church Road). An 8-inch water main also near the site runs along the north side of Woodbine Road (E. Wiley, personal communication, 2015).

5.4.1.2 Wastewater

The Whitehall site is located within the FCSA boundaries. A lift station is located to the southeast of the property, and is within an easement granted to the FCSA. A 6-inch force main sewer is located in a 40-foot wide easement that runs along Woodbine Road at the southern limits of the Whitehall site property. The sewerage lift station has capacity of 100,000 gpd (E. Wiley, personal communication, 2015 and GSA 2015a).

5.4.1.3 Stormwater

Stormwater in Frederick County is regulated by the Frederick County Department of Public Works. A new Stormwater/Erosion and Sediment Control Ordinance became effective July 1, 2014. There are currently no stormwater controls on the property.

5.4.1.4 Electricity

Both Shenandoah Valley and Rappahannock Electric Cooperatives provide electrical service to Frederick County. The closest substation to the Whitehall site is the Inwood Substation, which is 5.3 miles from the site. The Redbud Substation is also available, which is 6.4 miles away. The existing transmission lines follow I-81 and U.S. Route 11. These are 34.5 kV 3-wire lines. Additionally, existing 138 kV transmission lines are located within a mile of the site (S. Wilson and R. Eubanks, personal communication, 2015).

5.4.1.5 Natural Gas

Natural gas service to the site would be provided by Washington Gas. (GSA, 2015a). A high-pressure natural gas transmission main passes approximately 2,600 ft east of the Whitehall site. The transmission main pipe is rated at 500 psi, and the gas pressure could be as high as 400 psi (T. Hockmann, personal communication, 2015).

5.4.1.6 Solid Waste

Frederick County owns and operates a regional landfill located on Sulphur Spring Road approximately 10.5 miles south of the site. This landfill is scheduled to remain open for up to 30 years for MSW operations. It also receives C&D wastes. Private MSW haulers are contracted by and provide services to County businesses and residents.

5.4.2 Environmental Consequences

5.4.2.1 Water

Water service would be supplied via a proposed 12-inch water line from the proposed building site to the existing potable water line located along the east side of Martinsburg Pike (U.S. 11).The proposed new 12-inch water line would be constructed within the proposed roadway system on the site and would wrap around the building to provide adequate fire protection. Approximately 3,400 linear ft of the proposed water main would be required with approximately 8 fire hydrants along its route. (GSA 2015a).The installation of the new water line would involve trenching to lay the lines. The operation of the proposed FBI facility would result in an increase in use of potable water in the area, though there is sufficient water supply available from the FCSA. Thus, the construction and operation of the proposed facility would only have a negligible adverse impact on the water supply.

5.4.2.2 Wastewater

A proposed 8-inch gravity sewer line would be constructed from the proposed building in a southeasterly direction across the site, Rest Church Road Extended, and the remaining lot to a point at the southeast corner of the property at Woodbine Road. At this point, there is an existing lift station with a capacity of 100,000 gpd that would not provide available capacity to accept wastewater from the proposed project. (GSA 2015a). The peak flow into the wet well of the lift station is relatively close to the peak pumping capacity (148 gpm vs 180 gpm). If the lift station cannot accommodate all incoming peak flows additional storage may be needed. As an alternative, onsite storage for wastewater could be provided to allow for use of the lift station during off-peak periods. Wastewater generated at the facility would be treated at the Opequon Water Reclamation Facility. This Reclamation Facility has enough capacity to readily

accommodate the volume of wastewater that would be generated at the FBI facility (E. Wiley, personal communication, 2015). The impacts from construction and operation of the facility would have a negligible adverse impact on the community wastewater infrastructure.

5.4.2.3 Stormwater

The site generally drains to the north. The development of the parcel would result in a portion of the site transitioning to impervious surfaces, which would be consistent with the M1 (light industrial) zoning. The increase in impervious surfaces would increase stormwater runoff and require stormwater management. Management activities would be done in accordance with the Frederick County Stormwater Regulations and the Virginia Stormwater Management Program General Permit for construction activity stormwater discharges. The parking area could be designed with a pervious surface, which would help reduce the impervious surface acreage. Preliminary water quality and quantity calculations were prepared for the pre and post development of the Whitehall site. The findings indicate that it is feasible to meet the stormwater management and storm drain requirements of the proposed CRC development on the Whitehall site. Given the presence of Karst geology, the Whitehall site would require special attention to line all stormwater management and drainage facilities to reduce the potential for contributions to sinkholes (GSA 2015a). A stormwater detention pond, or other engineered controls, may be employed to mitigate impacts to stormwater, and would be included in the final site design if required.

5.4.2.4 Electricity

Construction of electrical distribution lines would be required to provide the site with access to the electrical grid. Adequate distribution lines are available close to the property so that the construction required to add the distribution lines would not be extensive. It is estimated that utility poles with overhead wiring would be furnished/installed from across the street and into the property by the utility. At that point, the owner would be responsible for furnishing/installing manholes and concrete encased duckbank for placement of underground wiring (GSA 2015a). The construction and operation of the facility would result in an overall increase in electricity consumption. This increase in power consumption translates to a negligible adverse impact.

5.4.2.5 Natural Gas

The addition of distribution lines would be required in order for the site to have access to natural gas. A current distribution main could be extended from an area east of the site. Additionally, easements would be required from CSX and adjoining property owners to permit the new gas lines on their properties (T. Hockmann, personal communication, 2015). A proposed 6-inch gas pipeline would be furnished/installed by the gas utility to extend service from an existing gas pipeline. The proposed line would extend 2,700 ft to the proposed building location. Since the existing gas pipeline is a transmission line, a pressure reducing station would also be required with this proposed installation of the line to the building (GSA 2015a). The addition of the gas lines would be consistent with the zoning of the property as light industrial. The construction of the new gas lines and pressure reducing station would have minor long-term impacts to vegetation and soils. The operation of the facility would increase natural gas consumption in the area, and therefore result in a negligible adverse impact.

5.4.2.6 Solid Waste

Solid waste generation for the area would increase during construction of the facility. Once it becomes operational, it is unlikely that MSW generation would increase because the operations are already occurring in disparate locations within the area, and the proposed facility is providing consolidation but not an increase in staff or activities. Recyclables would remain separated at the source so that MSW and recyclables are not commingled. A private hauler would be contracted to pick up the MSW and recyclables.

5.4.3 No Action Alternative

Under the No Action Alternative the FBI CRC would not be constructed and no additional infrastructure and utilities would be utilized at the site; therefore, no impact to infrastructure and utilities would occur.

5.4.4 Mitigation

No specific mitigation activities are identified based on the negligible impacts anticipated from the construction and operation of the proposed facility.

5.5 SOCIOECONOMICS

5.5.1 Affected Environment

With regards to state, county and city demographics, the affected environment for Alternative 2 would be the same as that described for Alternative 1. At the Census block level, there are four census blocks with the potential to be affected by the proposed action, two in Virginia and two in West Virginia.

Population data for the area surrounding the Whitehall site demonstrates a declining population in both Virginia and West Virginia Census blocks (**Table 5.5-1**). Virginia census blocks experiences a 7-8% decrease in population between 2010 and 2014. West Virginia Census block experiences larger population declines during the same period with a 29% decrease observed in tract 9721.01, block 1 and a 10% decline being observed in tract 9721.01, block 3.

Table 5.5-1. Population Characteristics

	VA Tract 501, Block 1	VA Tract 501, Block 2	WV Tract 9721.01, Block 1	WV Tract 9721.01, Block 3
Population				
2014	1140	1042	1045	2458
2013	1287	1044	1307	2712
2010	1240	1117	1458	2734
Race and Ethnicity, 2014[1]				
White	1042	985	1029	2321
Black/African American	98	0	16	38
American Indian/ Alaska Native	0	0	0	0
Asian	0	18	0	6
Native Hawaiian/ Other Pacific Islander	0	0	0	0
Hispanic or Latino origin2	0	39	0	47

Source: U.S. Census Bureau 2015a.
Notes: [1]One race. Data presented reflects most reported race and ethnicity categories; percentages may not add to 100% due to rounding.
[2]Hispanic origin may be of any race.

As shown in **Table 5.5-2**, the 2014 unemployment rate for The Virginia census block is relatively low, whereas West Virginia unemployment rates are much higher in Tract 3. All unemployment rates in the area, with the exception of West Virginia Tract three, were below those observed at the city, county and state level.

Table 5.5-2. Economic Characteristics

	VA Tract 501, Block 1	VA Tract 501, Block 2	WV Tract 9721.01, Block 1	WV Tract 9721.01, Block 3
Unemployment Rates				
2014	3.0%	1.0%	2%	17%
2010	-			
Income[1]				
Per Capita	$26,586	$30,293	$30,692	$25,581
Mean Family	$68,125	$47,500	$64,972	$52,697
Families Below Poverty Level	10%	4%	0%	4%
Individuals Below Poverty Level	10%	5%	3%	13%

Sources: Virginia Employment Commission 2015, U.S. Census Bureau 2015b.
Note: [1]2010–2014 American Community Survey 3-year estimates.

Per capita income in the vicinity of the Whitehall site ranges between $25,581 and $30,629. Mean family incomes range between $47,500 and $68,125. Frederick County is approximately $30,404 and the mean family income is $91,771 (**Table 4.5-2**). The City of Winchester per capita income is $25,073, and the mean family income is $75,832. Per capita income in Virginia is approximately $33,103, and the mean family income is $99,930 (U.S. Census Bureau 2015b). The percentage of families and people whose income in the previous 12 months was below the poverty level is 3.6% and 6.6%, respectively, in Frederick County.

In Winchester, it is 11.2% and 16.3%, respectively and in the census blocks surrounding the Whitehall site it ranges between 0 and 10% for families and 3-13% for individuals respectively. The comparable rates for the Commonwealth of Virginia are 8.4% and 11.7% (U.S. Census Bureau 2015b). While Frederick County has lower per capita and mean family incomes than Virginia, it also has a lower percentage of families and individuals living below the poverty level. The City of Winchester has lower per capita and mean family incomes, and a greater percentage of families and individuals living below the poverty level compared to Frederick County and Virginia. The population residing within the Whitehall census blocks have lower per capita than Virginia, but higher than Winchester and approximately equal to Frederick County. Family and individual poverty rates in the areas around the Whitehall site similar to those observed by the city, county and state.

5.5.2 Environmental Consequences

Environmental consequences for Alternative 2 would be the same as those described for Alternative 1.

5.5.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed and no adverse or beneficial socioeconomic impacts would occur.

5.5.4 Mitigation

Mitigation for Alternative 2 would be the same as that described for Alternative 1.

5.6 COMMUNITY SERVICES

5.6.1 Affected Environment

5.6.1.1 Schools

The Whitehall site falls within the following public school districts: Stonewall Elementary, James Wood Middle School, and James Wood High School. According to the Frederick County Public Schools website, Stonewall Elementary has a program capacity of 532 students and a membership of 526, James Wood Middle School has a capacity of 850 students and a membership of 847 students, and James Wood High School has a program capacity of 1,400 students and a membership of 1,295 (Frederick County Public Schools 2015). All of these schools are operating under or near their program capacity.

5.6.1.2 Police Protection

Police protection services for the Whitehall site are the same as described for the Arcadia site.

5.6.1.3 Fire Protection

Similar to the Arcadia site, the Frederick County Fire and Rescue Department provides support and guidance to 11 volunteer fire and rescue companies within the county limits. All of the volunteer companies provide fire suppression service. In addition to county services, the City of Winchester has four fire and rescue companies that provide mutual aid to the County. Fire and rescue stations in the city handle a high number of emergency calls due to the concentrated population, and routinely assist the County with emergency response.

The Whitehall site is served by the Clear Brook Volunteer Fire and Rescue Company (Company #13), located 2.5 miles from the site at 1256 Brucetown Road in Clear Brook. The Clear Brook Volunteer Fire and Rescue Company provides firefighting, hazardous material response, and ALS emergency medical service. The station houses two Class A pumpers, one 110-foot ladder truck, one 3,500-gallon tanker, one brush truck, and two ALS ambulances. The staff includes 30 volunteer firefighters and two career staff who are on duty 24 hours a day, seven days a week. According to the career staff person on duty, the station responds to an average of 1,200 calls per year (H. Price, personal communication, 2015). The next closest Virginia Fire and Rescue Company is located at the Greenwood Station, approximately 10 miles from the site. The nearest West Virginia Volunteer Fire Station is the South Berkeley Volunteer Fire Company #20 in Inwood, approximately 5 miles north of the Whitehall Site on U.S. Route 11. The station, located at 8009 Winchester Avenue, has two engine/pumpers, two brush trucks, one rescue truck, and an ambulance. The South Berkeley Station responds to approximately 700 calls per year (South Berkeley Volunteer Fire Company 2015).

5.6.1.4 Health Services

Health services for the Whitehall site are the same as described under Alternative 1. The Winchester Medical Center is approximately 9 miles from the Whitehall Site.

5.6.1.5 Parks and Recreation

Clearbrook Park is 2 miles from the Whitehall Site. This 55-acre park contains a 3-acre fishing lake with paddleboats, four lighted ball fields, several picnic shelters and tables, approximately 3,000 ft of paved walking paths, an outdoor pool, playground, and volleyball courts.

5.6.2 Environmental Consequences

Under Alternative 2, indirect impacts to the community facilities and services near the Whitehall site are expected as a result of the FBI CRC.

5.6.2.1 Schools

Impacts to schools under Alternative 2 would be the same as described under Alternative 1.

5.6.2.2 Police Protection, Fire Protection, and Health Services

The new CRC facility could indirectly affect medical, police, fire, or rescue services. The FBI CRC would have its own security measures, including a perimeter fence. Local fire and rescue staff would provide emergency services to the facility, supported by a mutual aid agreement with Berkeley County in West Virginia to provide emergency services as needed. The addition of this new facility could have negligible to minor long-term, indirect, adverse effects on these services in Frederick County, VA and Berkeley County, WV. However, the FBI CRC is not expected to affect their ability to provide service in the rest of their jurisdiction.

5.6.2.3 Parks and Recreation

The proposed facility would not affect the quantity or quality of existing recreational facilities. Employee use of Clearbrook Park, which is 2 miles from the Whitehall site, may result in an increase in park visitation.

Under Alternative 2, there could be a minor, indirect, long-term beneficial impact on the use of this nearby park.

5.6.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed. Community facilities and services would continue to operate under existing conditions; therefore, no impacts to community facilities and services would occur.

5.6.4 Mitigation

Impacts to community services would not occur; therefore, no mitigation would be warranted.

5.7 TRAFFIC AND TRANSPORTATION

5.7.1 Affected Environment

Roadways in the area of the Whitehall site include U.S. Route 11, I-81, Rest Church Road, and Woodbine Road. U.S. Route 11 is a three-lane major collector road. Rest Church Road is a four-lane local collector from U.S. Route 11 to I-81. Rest Church Road transitions to two lanes west of I-81. A traffic impact study was conducted to determine existing roadway conditions. Using the existing turning movement volumes and lane geometries, intersection capacity analysis was performed for both the AM and PM peak hours. As part of the study, 2014 traffic count data was provided by the VDOT for the intersections requiring analysis. Additionally, since no counts were conducted and existing data was used for the analysis, an assumption was made to account for heavy vehicles in the area. Specifically, the traffic modeling assumed 25% heavy vehicles for the I-81 ramps, 7% for the U.S. 11 intersections with Rest Church Road and Woodbine Road. The intersections studied included:

- I-81 Southbound Ramp and Rest Church Road
- I-81 Northbound Ramp and Rest Church Road
- U.S. Route 11 and Rest Church Road
- U.S. Route 11 and Woodbine Road

Based on the traffic impact study, all intersections associated with the Whitehall site are currently operating at acceptable levels of service. The Traffic Impact Study is included in Appendix C for more detailed information on the traffic analysis. VDOT correspondence containing comments to the traffic impact analysis is also contained in Appendix C.

5.7.2 Environmental Consequences

Primary access to the proposed FBI CRC would be from a single access point from Rest Church Road and U.S. Route 11. A secondary access point would be located along Woodbine Road, east of U.S. Route 11. The traffic impact study took these access points into account when analyzing the potential impacts associated with implementation of the proposed action under Alternative 2. Based on the traffic impact study, the overall intersection LOS under Alternative 2 is expected to operate at LOS D or better during peak hours in 2019 (Cardno 2015d). **Table 5.7-1** compares the existing LOS AM and PM peak hour with LOS AM PM peak hour in 2019. Based on the traffic impact study there would be no excessive delays;

therefore, adverse impacts to traffic would not be significant. Implementation of the mitigation measures outlined in Section 5.7.4 would further reduce the minor delays that would occur.

Table 5.7-1: Whitehall Existing and 2019 AM/PM Level of Service

Intersection	Approach	Turning Movement	Existing LOS AM/PM	2019 LOS AM/PM
I-81 SB Ramp at Rest Church Road	EB	Through	A/B	B/B
	WB	Left	D/E	E/E
	WB	Through	A/B	A/A
	SB	Left/Through	D/C	D/C
	SB	Right	A/A	A/A
I-81 NB Ramp and Rest Church Road	EB	Left	A/B	C/B
	EB	Through	A/B	C/B
	WB	Through/Right	B/C	B/B
	NB	Left/Through	C/C	C/C
	NB	Right	A/A	A/A
U.S. Route 11 at Rest Church Road	EB	Left	E/E	D/D
	EB	Right	A/A	E/B
	WB	Left	---	D/D
	WB	Through	---	D/D
	WB	Right	---	A/A
	NB	Left	E/E	D/E
	NB	Through	A/B	A/C
	NB	Right	---	A/A
	SB	Left	---	B/C
	SB	Through	A/C	B/C
	SB	Right	A/A	A/A
U.S. Route 11 at Woodbine Road	WB	Left/Right	A/B	A/B
	SB	Left/Right	A/A	A/A

5.7.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed. There would be no changes in traffic patterns in the area as a result of the FBI CRC; therefore, the No Action Alternative would not contribute to area roadway capacity issues and there would be no impacts to traffic.

5.7.4 Mitigation

Improvements that may offset the impacts identified in the traffic impact study include:

- Removing existing striping and installing the southbound left-turn lane striping at U.S. Route 11 and Rest Church Road
- Activating signals for westbound approach at U.S. Route 11 and Rest Church Road and adjust the signal timings for coordinated signals
- Maintaining shorter cycle lengths to prevent vehicles from blocking intersections along Rest Church Road.

5.8 BIOLOGICAL RESOURCES

5.8.1 Affected Environment

5.8.1.1 Vegetation

Vegetation at the Whitehall site consists of limited forested habitat present in two fence rows and a small woodlot in the northwest corner of the property. During an Indiana and NLEB habitat assessment completed in June 2015, the largest habitat types observed were agricultural: planted wheat (28.7 ac) and shrub (18.4 ac) dominated by dense bush honeysuckle (*Diervilla*) and cedar (*Juniperus*) (4.2 ac) (Copperhead Environmental Consulting 2015, refer to Appendix D). The forested woodlot in the northwest corner of the site is dominated by young canopy trees with a dense/cluttered understory of bush honeysuckle.

5.8.1.2 Wildlife

Wildlife at the Whitehall site is similar to that of the Arcadia site as described in Section 4.8.1.

5.8.1.3 Threatened and Endangered Species

Federal and state-listed threatened and endangered species known to occur or potentially occur in Frederick County are listed in **Table 4.8-2** and described in Section 4.8.1.3, *Threatened and Endangered Species*.

As discussed in Section 4.8.1, the USFWS sent correspondence to GSA stating that there is the potential for impacts to the Indiana bat and NLEB from the project and recommended a habitat assessment be conducted (Appendix A, Agency Correspondence). A habitat assessment of potential summer and winter bat habitat was conducted in June 2015. The habitat assessment for potential summer habitat was conducted in accordance with the *2015 USFWS Range-Wide Indiana Bat Summer Survey Guidelines* (USFWS 2015b). Currently, there is no standardized range-wide guidance specific to surveys of potential winter habitat (i.e., caves, quarries, and/or abandoned mines); therefore, assessment of potential winter habitat was conducted in accordance with the *Supplemental Indiana Bat Survey Guidance for Kentucky* (USFWS and Kentucky Department of Fish and Wildlife Resources 2015).

Habitat within the Whitehall site is not likely to be used by Indiana bat or NLEB due to the small amount and quality of available forested habitat, lack of quality foraging and commuting habitat, and lack of potential roost trees. Therefore, it is unlikely that populations of Indiana bat or NLEB would use the site during the summer maternity season or fall/spring migration.

Although no longer a listed species under the ESA, the bald eagle is protected under the Bald and Golden Eagle Protection Act. There are no known active bald eagle nests within or in proximity to the Whitehall site.

5.8.2 Environmental Consequences

5.8.2.1 Vegetation

Implementation of Alternative 2 would impact vegetation at the Whitehall site. Development of facilities would take place on roughly 40 ac of the entire 51-acre project area. Based on the conceptual design

layout (**Figure 5.8-1**), implementing Alternative 2 would result in the removal of up to 15.1 ac of shrub and cedar habitat within the area to be developed. Establishment of construction staging areas, to be determined during the design phase, may also result in temporary impacts to vegetation, which would be minimized and avoided to the extent practicable. Following construction, grass would be planted around buildings, with the addition of ornamental shrubs, trees, and mulching in select areas.

5.8.2.2 Wildlife

Alternative 2 would result in adverse impacts to wildlife that would not be considered significant. The removal of shrub and cedar habitat at the Whitehall site would cause wildlife to be displaced once land is cleared. Wildlife residing in the periphery of the construction site may be temporarily displaced as a result of the noise and activity of construction.

Alternative 2 would not have direct impacts on migratory birds because suitable habitat does not exist in the area.

5.8.2.3 Threatened and Endangered Species

GSA initiated informal consultation with the USFWS in March 2015 in accordance with Section 7 of the ESA and the Bald and Golden Eagle Protection Act, including review of GSA's determination of alternatives (Appendix A, Agency Correspondence). The USFWS responded in an email dated May 5, 2015, and recommended that a detailed habitat assessment be conducted for the Indiana bat and NLEB to identify suitable habitat. The USFWS concurred that no Eagle Act permit is required for the Whitehall site.

GSA provided the Indiana bat and NLEB habitat assessment to USFWS on June, 17 2015. In subsequent correspondence between GSA and USFWS on August 11, 2015, concurrence with the determinations for the Harparella (*Ptilimnium nodosum*), federally designated critical habitat, and bald eagle (*Haliaeetus leucocephalus*) were obtained. Additionally, a time-of-year restriction on tree clearing activities for the period of April 15-September 15 was placed on the site to avoid impacts to protected bat species GSA would comply with the time-of-year restriction for tree clearing activities to ensure that the proposed project has no significant impacts on protected bat species. If for any reason the construction schedule cannot comply with the time of year restriction of tree clearing, GSA would continue to consult with USFWS to ensure adverse impacts are minimized. A copy of the correspondence is contained in Appendix A.

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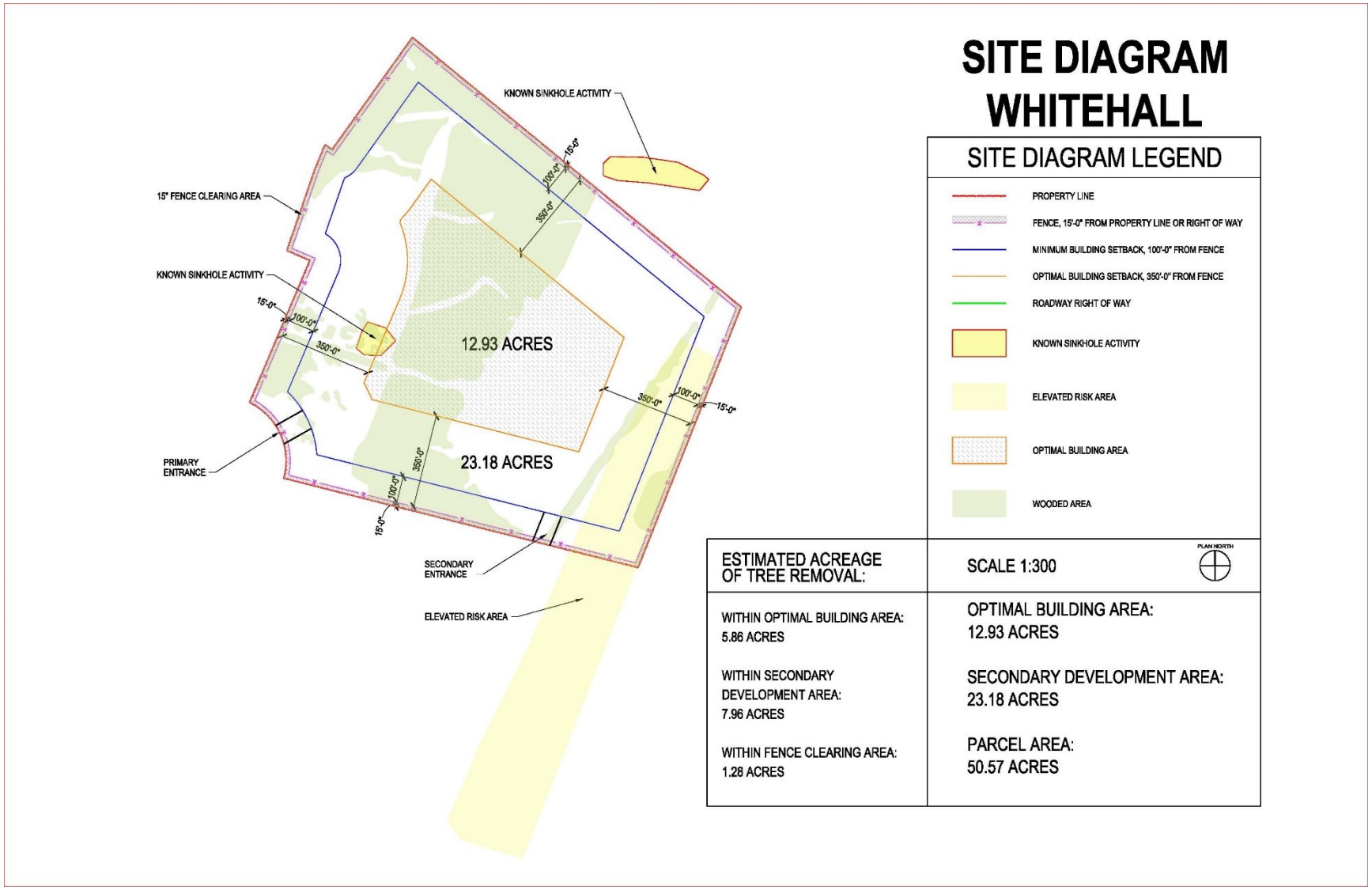

Figure 4.8-1. Forest and Impacts – Whitehall

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Wood turtles are primarily found in and around clear brooks and streams in deciduous woodlands and although highly terrestrial, wood turtles typically remain in moist areas within approximately 300 ft of a stream. According to the VDGIF perennial waters or lands within 900 ft of perennial waters are considered to be wood turtle habitat. There are no streams on the Whitehall site. Additionally, no perennial streams were located within 900 ft of the site. Therefore, the proposed action would have no direct impacts on wood turtle or wood turtle habitat. Erosion and sediment control measures, as well as a stormwater management plan will ensure the safety of any downgradient wood turtle habitat from sedimentation, erosion, and run off. As a result the proposed action would have no significant impacts on wood turtle or wood turtle habitat.

In a letter from VADCR, dated June 8, 3015, VADCR stated that implementation of the proposed action at the Whitehall site would not affect any documented state-listed plants or insects (refer to Appendix A, Agency Correspondence).

5.8.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed. The No Action Alternative would not result in impacts to vegetation, wildlife, or threatened and endangered species. Therefore, no significant impacts to vegetation, wildlife, or threatened and endangered species would occur.

5.8.4 Mitigation

Mitigation for Alternative 2 would be the same as that described for Alternative 1.

5.9 TOPOGRAPHY, GEOLOGY, AND SOILS

5.9.1 Affected Environment

The Whitehall site is located in the Great Valley subprovince of the Valley and Ridge physiographic province of Virginia. The Valley and Ridge is characterized by long, parallel, narrow ridges rising above valleys of varying size. The valleys are typically underlain by limestone, dolomites, and shale with the predominant types being limestone and dolomite (VADCR 2013). The Great Valley subprovince is known as the Shenandoah Valley in northern Virginia and is a long and wide valley with low to moderate ridges between the Appalachian Plateau to the west and the Blue Ridge province to the east (Bailey 1999). According to the USGS 7.5-minute Inwood, Virginia-West Virginia topographic quadrangle map, the elevation of the Whitehall site ranges from 610 to 640 ft above mean sea level and the topography of the site is relatively flat.

Whitehall is underlain by the Beekmantown Group, which is composed of Pinesburg Station Dolomite, Rockdale Run Formation, Beekmantown Formation, Stonehenge Limestone, and Chepultepec Formation. The geology underlying Whitehall is primarily the Pinesburg Station Dolomite and Rockdale Run Formation (USGS 2015 and DMME 1996). Preliminary geotechnical study of this site indicates that portions of the Whitehall site are located in a Karst zone, which indicates limestone/carbonate bedrock. A sinkhole was also identified on the site (GSA 2015).

The soils underlying Whitehall are predominantly prime farmland soils of the Oaklet series. The majority of the site is comprised of Oaklet (2-15% slope) and to a lesser degree Carbo-Oaklet (2-15% slope).

Chilhowie (7-15% slope) and Pagebrook series comprise the remainder of the site and are not considered prime farmland (NRCS 2013).

5.9.2 Environmental Consequences

Impacts to topography and geology would be the same as those discussed for Alternative 1.

Impacts to soils associated with excavation and grading activities would total approximately 40 ac, the majority of which are prime farmland soils. In compliance with the Farmland Protection Policy Act requirements, the Farmland Conversion Impact Rating Form was as part of the 2007 EIS process. Site conditions at Whitehall have not changed substantially since the publication of the 2007 EIS and, therefore, the existing conditions described in the 2007 EIS for farmland soils are considered to be applicable to the current condition of prime farmland soils at the site. The Whitehall site yielded a rating of 158 (USDA 2006). A copy of the form can be found in Appendix A. A score of over 160 requires Federal agencies to avoid, minimize, and/or mitigate for conversion of prime farmland soils. Where the total is below 160 points, the area is considered already effectively committed to urban development and no further studies are necessary to comply with the Farmland Protection Policy Act. Therefore, the proposed action would have no significant impacts on soils.

It would be prudent to avoid construction within the Karst zone. Also, Karst geology can be altered with the introduction of water infiltration that would contribute to an increased risk of sinkholes. If the construction footprint for the building or infrastructure would be near the Karst zone, it would be necessary to line components of the stormwater systems to eliminate the risk of water infiltration to the subsurface Karst geology.

5.9.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed. Therefore, no impacts to topography, geology, or soils would occur.

5.9.4 Mitigation

Mitigation activities for Alternative 2 would be the same as those described for Alternative 1. Lined stormwater components would be needed to eliminate the risk of water infiltration into Karst geology that is present on the Whitehall site.

5.10 WATER RESOURCES

5.10.1 Affected Environment

5.10.1.1 Surface Water

A small ephemeral pond was found at the edge of the woodlot in the northwest corner of the site during an Indiana bat and NLEB habitat assessment completed in June 2015 (Copperhead Environmental Consulting 2015, refer to Appendix A). No other surface waters were observed on site.

The closest waterway to the Whitehall site is Duncan Run, located south of and approximately 900 ft outside the Whitehall site boundary. Duncan Run runs parallel to Woodbine Road and drains into Opequon Creek. This waterway is considered Category 4B by the VDEQ. Waters assigned to Category 4

are impaired or threatened. When conditions exist that no longer require impaired or threatened waters to be included on a state's Section 303(d) list, those waters are placed in Category 4. Category 4b means a total maximum daily load study is not needed because other pollution control requirements are expected to result in the attainment of an applicable water quality standard.

The Whitehall site is approximately 16 miles west of the Shenandoah River and 20 miles southwest of the Potomac River.

5.10.1.2 Groundwater

Groundwater at the Whitehall site is similar to that of the Arcadia site as described in Section 4.10.1.2.

5.10.1.3 Wetlands

According to NWI mapping, there are no wetlands present within the Whitehall site (**Figure 5.10-1)**.

5.10.1.4 Floodplains

Based upon the Federal Emergency Management Agency Flood Insurance Rate Map for Frederick County (Panel Number 510063 0075B). The Whitehall site, in accordance with GSA requirements, is located outside the 100-year floodplain, Zone A (**Figure 5.10-1**).

5.10.2 Environmental Consequences

5.10.2.1 Surface Water

Under Alternative 2, construction activities would involve clearing, grading, filling, and excavation that would result in ground disturbance. However, the small ephemeral pond found at the edge of the woodlot in the northwest corner of the site would be avoided during construction.

Ground surface disturbance would have the potential to cause soil erosion and transport of sediment into waterways via stormwater. Sediment entering waterways has the potential to cause increased turbidity and suspended solids and carry pollutants contained in the sediment into the surrounding waterways. Stormwater quality and quantity control would be required in compliance with state and county requirements. A VSMP General Permit for construction activity stormwater discharges would be obtained from the VADCR. Additionally, a SWPPP, which is based on the approved sediment and erosion control plans, would be prepared in compliance with the VSMP permit. Any impacts to surface waters associated with an increase of stormwater runoff due to construction activities would be minimized by implementation of SWPPP and BMPs. Therefore, construction of the proposed CRC facility at the Whitehall site would not have significant adverse impacts to surrounding surface waters.

5.10.2.2 Groundwater

The construction of the proposed FBI CRC facility would not require significant quantities of groundwater. Therefore, it is unlikely that groundwater use for construction would result in a significant impact in the region. Under Alternative 2, no increase in personnel is anticipated; therefore, there would be no increase in demand of municipal groundwater availability.

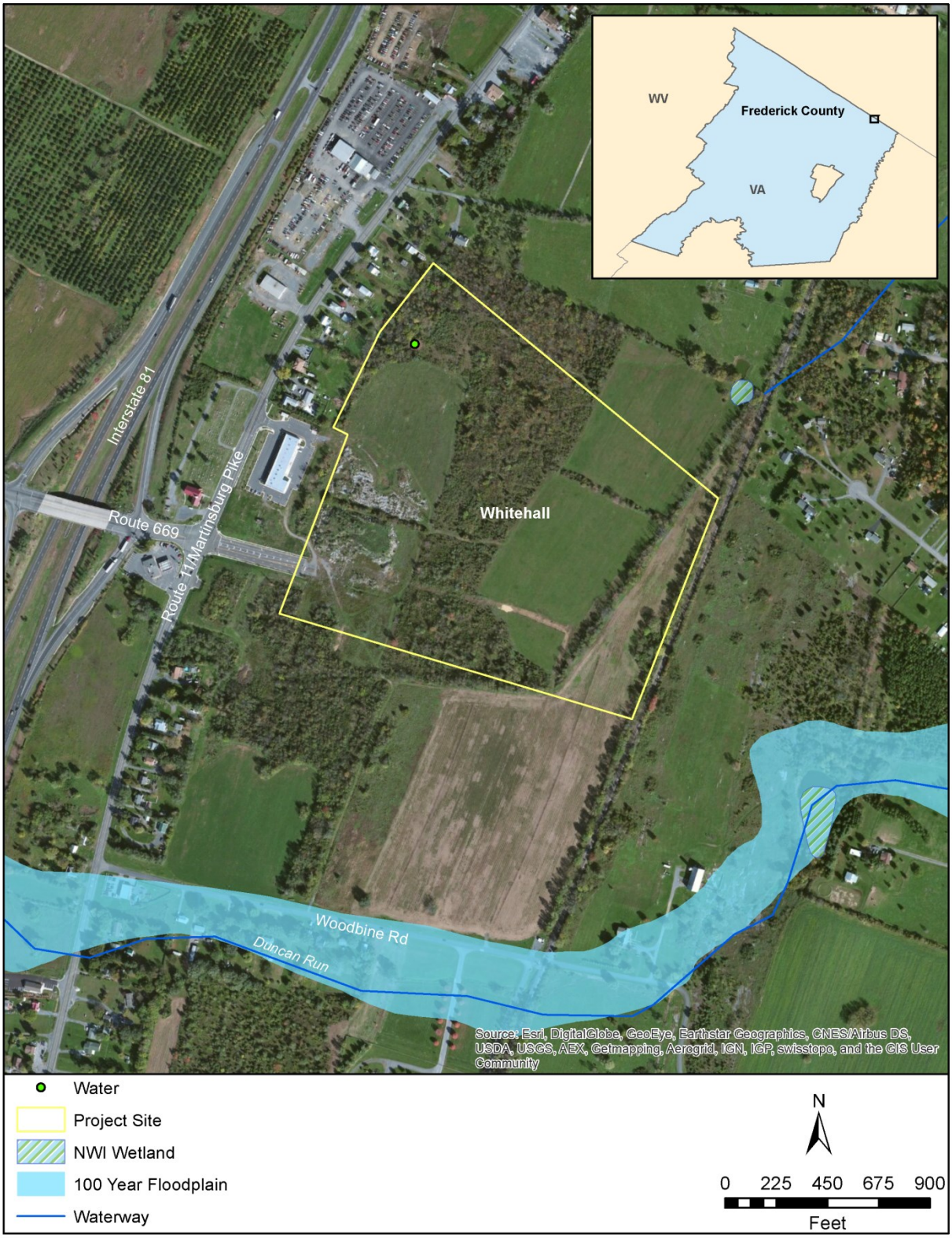

Figure 5.10-1. Wetlands and Floodplains within the Vicinity of the Whitehall Site

5.10.2.3 Wetlands

There are no wetlands within the Whitehall site boundary that are likely to be considered jurisdictional. There is one wet area located in the northwest portion of the site. However, construction in this area would be avoided. Therefore, implementation of Alternative 2 would have no impact to wetlands.

5.10.2.4 Floodplains

There are no floodplains within the Whitehall site boundary. Therefore, no impacts would occur to floodplains under Alternative 2.

5.10.3 No Action Alternative

Under the No Action Alternative, GSA would not construct the FBI CRC. The site would remain undeveloped and no impacts to surface waters or wetlands would occur.

5.10.4 Mitigation

A detailed sediment and erosion control plan would be developed prior to construction. This plan would ensure that appropriate soil erosion and sediment control measures are followed during the construction of the proposed FBI CRC facility, parking lot, and associated infrastructure. The use of BMPs during construction, including the use of silt fences and other soil retention measures, would minimize soil erosion from precipitation and the transport of sediments.

5.11 CULTURAL AND TRADITIONAL RESOURCES

5.11.1 Affected Environment

The APE for Alternative 2 was defined as an approximately 1,000-foot buffer around the proposed Whitehall project site (**Figure 5.11-1**). Because the northern boundary of the proposed Whitehall site is situated on the Virginia-West Virginia state line, the APE extends into West Virginia. Effects to archaeological resources, however, would be limited to the 51-acre Whitehall site where ground disturbance would occur from construction.

5.11.1.1 Architectural Resources

A review of V-CRIS and the WV SHPO's Interactive GIS Map Viewer revealed 15 previously surveyed resources are located within the Whitehall site APE, 10 in Virginia and 5 in West Virginia. The majority of these resources had been documented during previous surveys for the proposed undertaking in 2006 and 2007 (Greenhorne and O'Mara 2006, 2007a). One of the previously surveyed resources in the APE, the James Nathanial Burwell House (BY-0069-0084), was listed in the NRHP in 1991. Built in 1842, the two-story house is from the late Federal period. The L-plan house was constructed of brick in Flemish and common bonds on a stone foundation. It features two Greek Revival-style entrance porches, one on the front and one on the ell. The James Nathanial Burwell House was listed under Criterion C for its local architectural significance as a rare example of late Federal-period architecture in the region. The property includes a mid-nineteenth century barn, which is a contributing resource, and a non-contributing swimming pool (Ruth and Pauley 1991). A garage and metal corncrib have since been added to the property.

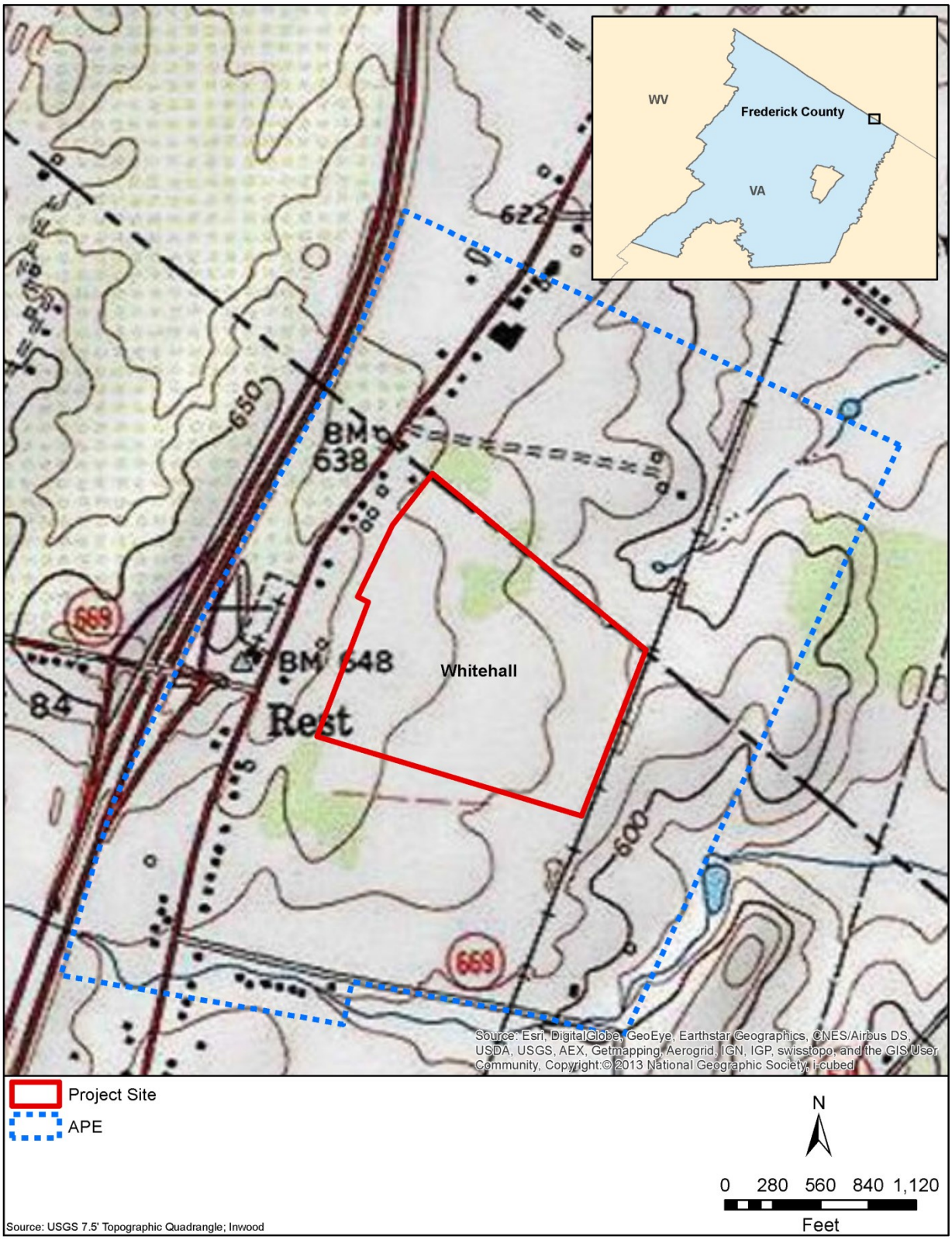

Figure 5.11-1. Area of Potential Effects for Alternative 2

Phase I identification surveys were conducted in April 2015 to identify and document architectural resources 45 years and older in the APE and determine whether any may qualify for inclusion in the NRHP. Previously surveyed resources were field-checked to determine whether significant changes had occurred to the buildings since the last time they were documented. A total of 31 architectural resources are located within the APE, 24 in Virginia and 7 in West Virginia (**Table 5.11-1**). The majority of the resources are twentieth-century residences, but also include several early- to mid-nineteenth century residences (including the NRHP-listed James Nathanial Burwell House), a late-nineteenth century residence, an early-twentieth century church and associated cemetery, and an early-twentieth century farmstead. Except for the James Nathanial Burwell House (BY-0069-0084), the other architectural resources in the Whitehall site APE do not meet the eligibility criteria for the NRHP. Lacking historical or architectural significance, the surveys recommended them not eligible for listing in the NRHP (Cardno 2015a, 2015b). The GSA consulted with the VA and WV SHPOs on the findings of the survey. The VA SHPO concurred that none of the 24 architectural resources in the APE in Virginia are eligible for the NRHP (Burke 2015). Excluding the NRHP-listed James Nathanial Burwell House, the WV SHPO concurred that the other six architectural resources in the APE in West Virginia are not eligible for inclusion in the NRHP (Pierce 2015).

Table 5.11-1. Pre-1971 Architectural Resources in the Whitehall Site APE

Inventory Number	Resource Name	Year Built	Description	NRHP Status
034-0156	Sasparilla Springs	1840	2-story Federal I-house	Not Eligible
034-0915	Raymond Shiley House	ca. 1820	2-story Folk Victorian house	Not Eligible
034-0916	Smallwood-Swartz House	ca. 1820–1840	2-story log house	Not Eligible
034-0917	Smallwood House	ca. 1925	1½-story hipped roof cottage	Not Eligible
034-0918	Larry Stotler House	ca. 1810–1830	2-story log house	Not Eligible
034-0919	House	ca. 1920	2½-story American Foursquare house	Not Eligible
034-0920	Brining-Adams House	ca. 1880	2-story vernacular house	Not Eligible
034-0921	Rest United Methodist Church	ca. 1900	Vernacular church and cemetery	Not Eligible
034-5063	House	ca. 1950	1½-story Bungalow/ Craftsman house	Not Eligible
034-5064	House	ca. 1955	1½-story frame house	Not Eligible
034-5204	McGowan House	ca. 1960	1-story frame Ranch-style house	Not Eligible
034-5205	Fitzwater House	ca. 1959	1½-story frame house	Not Eligible
034-5206	House	ca. 1950	1-story frame Ranch-style house	Not Eligible
034-5207	Dean House	ca. 1955	1-story frame Ranch-style house	Not Eligible
034-5208	Jennings House	ca. 1955	1-story brick Ranch-style house	Not Eligible
034-5209	Manning House	ca. 1947	1-story concrete block house	Not Eligible
034-5210	Manning House	ca. 1957	1-story concrete block Ranch-style house	Not Eligible
034-5211	Manning House	ca. 1950	1-story frame Ranch-style house	Not Eligible
034-5212	Frazier-Peyton House	ca. 1965	1½-story frame house	Not Eligible
034-5213	Helsley House	ca. 1954	1-story frame house	Not Eligible

Table 5.11-1. Pre-1971 Architectural Resources in the Whitehall Site APE

Inventory Number	Resource Name	Year Built	Description	NRHP Status
034-5214	Curry House	ca. 1954	1½-story frame Ranch-style house	Not Eligible
034-5215	Kitts House	ca. 1956	1½-story brick and frame Ranch-style house	Not Eligible
034-5216	Larrick House	ca. 1965	2-story frame house	Not Eligible
034-5217	Fiddler House	ca. 1920	1-story frame house	Not Eligible
No number	L. Hager House	ca. 1933	1-story frame house	Not Eligible
No number	C. Hager House	ca. 1930	1½-story brick house	Not Eligible
No number	Ridgeway/West Farmstead	ca. 1901	2½-story frame vernacular Queen Anne-style house, ca. 1901 privy, ca. 1901 barn, ca. 1980 barn, and garage	Not Eligible
No number	House	ca. 1940	1½-story frame house	Not Eligible
BY-0069-0052	Herbert House	ca. 1940	2-story frame I-house	Not Eligible
BY-0069-0084	James Nathanial Burwell House	ca. 1842	2-story brick late Federal-period house with Greek Revival elements	Listed
No number	Winpigler House	ca. 1900	1-story frame Shotgun house	Not Eligible

5.11.1.2 Archaeological Resources

Archaeological studies were conducted for the 2007 FEIS. No NRHP-listed or eligible archaeological resources were identified during this study (Greenhorne and O'Mara 2007b). Based on the previous studies no additional archaeological studies were conducted.

5.11.1.3 Traditional Cultural Properties

GSA invited all Native American tribes that have ties to northern Virginia and eastern panhandle of West Virginia to be consulting parties under the NHPA. Correspondence to all parties contacted is provided in Appendix A. The United Keetoowah Band of Cherokee Indians requested to be informed about any unanticipated discoveries during construction. Consultation with the tribes has not resulted in the identification of any Traditional Cultural Properties within the APE for the Whitehall site.

5.11.2 Environmental Consequences

5.11.2.1 Architectural Resources

The APE for Alternative 2 includes one architectural resource that is listed in the NRHP, the James Nathanial Burwell House. The NRHP property is located in the northern part of the APE, approximately 900 ft north of the Whitehall site (**Figure 5.11-2**). GSA has determined that construction of the 5-story CRC building under Alternative 2 would introduce a new element within the rural setting of the James Nathanial Burwell House that would diminish its integrity of setting and feeling and thus, result in an adverse effect under Section 106 of the NHPA. The WV SHPO concurred with GSA's finding of adverse effect.

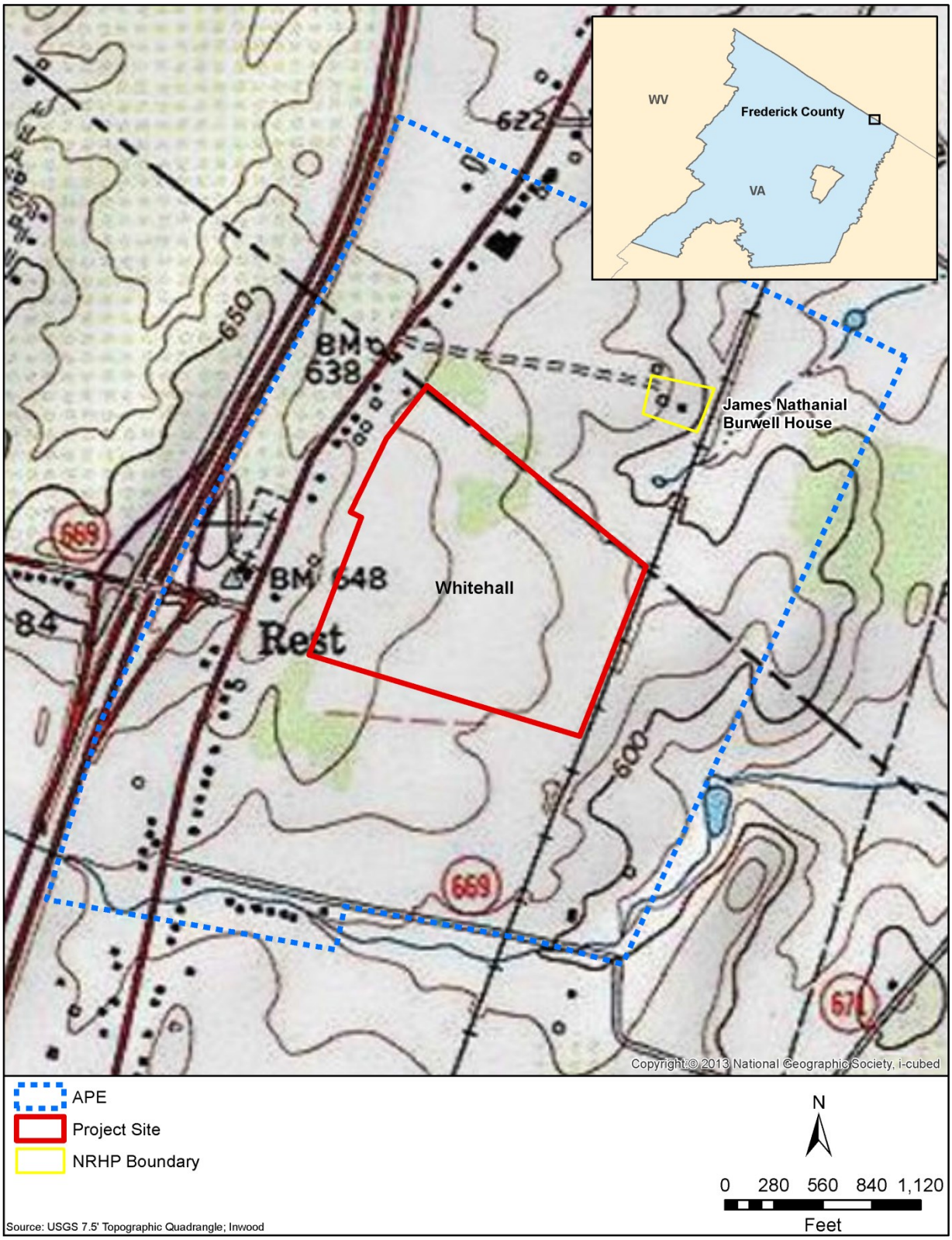

Figure 5.11-2. NRHP Property Located in the Northern Part of the APE

In 2007, the GSA, in consultation with the WV SHPO, determined the construction of the CRC would result in an adverse effect to the James Nathanial Burwell House due to the introduction of a new visual element within the property's setting. The GSA and WV SHPO executed a Memorandum of Agreement (MOA) on November 15, 2007 to minimize and mitigate the adverse effect (Appendix A). The GSA consulted with the WV SHPO to update the MOA, and its stipulations would be implemented for the proposed action, should Alternative 2 be selected as the preferred alternative. Therefore, while there would be an adverse effect to historic properties under NHPA, there would be no significant impacts under NEPA because the MOA includes stipulations to resolve adverse effects.

5.11.2.2 Archeological Resources

No archaeological sites are present with in the project area; therefore, no impacts to archaeological sites eligible for inclusion in the NRHP for Alternative 2 would occur.

5.11.2.3 Traditional Cultural Properties

No Traditional Cultural Properties have been identified in the APE for the Whitehall site. Therefore, implementation of Alternative 2 would have no impacts to Traditional Cultural Properties.

5.11.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed and the site would remain undeveloped and no potential impacts to cultural resources would occur.

5.11.4 Mitigation

Alternative 2 would adversely affect the NRHP-listed James Nathanial Burwell House. Between September and December 2015, GSA and the WV SHPO reviewed and updated the stipulations from the 2007 MOA. Minimization and mitigation measures included in the revised MOA between the GSA and WV SHPO include using a vegetated berm between the CRC facility and the security fence; developing a lighting plan for the CRC that includes the use of low intensity exterior lighting that meets Dark Sky requirements developed by the International Dark Sky Association; ensuring the building design for the FBI CRC follows the principles in GSA's Design Excellence program, including those for Federal Architecture, and conforms to local zoning limitations for building height and setbacks and parking requirements; and providing the WV SHPO the exterior design, landscaping, and lighting plans and specifications for review and comment at the 35% and 95% completion stages. In its letter dated December 8, 2015, the WV SHPO indicated the stipulations included in the revised MOA adequately mitigate the adverse visual effects to the NRHP-listed James Nathanial Burwell House (Appendix A).

5.12 HAZARDOUS MATERIALS AND WASTE

5.12.1 Affected Environment

5.12.1.1 Hazardous Materials Management

A Phase I ESA was conducted on the Whitehall site in accordance with ASTM Standard 1527-13 in October 2015. The Phase I ESA identified several properties in the vicinity of the Whitehall site with leaking underground storage tanks. The majority of the sites were distant from the Whitehall site and/or at lower

elevations. Therefore, there were not likely to affect conditions at the Whitehall site. One site, the Gregory Strosnider property, was determined to have the potential to affect conditions at the Whitehall site. This property is located 0.062 miles (327 ft.) west of the Whitehall site and is located at a higher elevation.

Two properties in the vicinity of the Whitehall site, Stateline Exxon and Flying J Travel Plaza 752, were listed in the Virginia Underground Storage Tank Database (VA UST). The VA UST database contains registered USTs provided by the VADEQ and was last updated on May 1, 2015. Stateline Exxon has three gasoline USTs that were installed in 1981, and one used oil UST that was removed. Flying J Travel Plaza 752 has four gasoline USTs and three diesel USTs installed in 1997 and 2012. One gasoline tank has been closed in place.

A review of aerial photos of the Whitehall site between 1991 and the present depicts the parcel as being used for agricultural purposes until 2007, when development of an adjacent strip mall began. As such, heavy use of pesticides and fertilizers is suspected. During construction of the strip mall, the site appears to have been used to borrow and stockpile soil. The site has remained fallow since completion of strip mall construction.

Electrical power lines were observed running in an east-west direction along Woodbine Road and at least two transformers are located on the subject property. Ownership of the utility was not determined. A diesel powered generator was observed on the southeastern corner of the site abutting the railroad tracks and likely contains petroleum products required to operation and maintenance of the generator. The site has a history of nuisance dumping of debris and household waste.

One residence, a garage, and a former log cabin were located on the westernmost portion of the site, abutting U.S. Route 11 (Martinsburg Pike). Prior to the publication of the Final EIS in 2007, the residence and garage were demolished. It is assumed that prior to demolition, all hazardous waste, hazardous materials and toxic substances were removed from the structure, if present, and disposed of in accordance with applicable regulations.

5.12.1.2 Hazardous Waste Management

Reimers Electra Steam, Incorporated, a manufacturer of electric boilers, electric steam generators, and quality steam products and a conditionally exempt small quantity generator (CESQG) of hazardous waste, is located approximately 1,600 ft southwest of the Whitehall site. CESQGs generate 100 kilograms or less per month of hazardous waste or 1 kilogram or less per month of acutely hazardous waste. This facility is not anticipated to have any impact on the conditions at the Whitehall site as the Whitehall site is at a higher elevation.

A Phase I ESA was conducted on the Whitehall site in accordance with ASTM Standard 1527-13 in October 2015. The Phase I ESA identified one property near the Whitehall site in the Resource Conservation and Recovery Act (RCRA)-CESQG database. The Stateline Exxon facility is a RCRA-CESQG and generates less than 220 pounds of hazardous waste or 2.2 pounds of acute hazardous waste per month.

The Phase I ESA also identified one property near the Whitehall site in the PA Manifest database. The PA Manifest database lists generators of hazardous waste and was last updated in December 2014. The Frederick County Public School buildings located 0.239 miles (1,263 ft) south of the Whitehall Site, and

0.227 miles (1,201 ft) southeast of the Whitehall site were listed in the database. Because the School sites are at lower elevations that the Whitehall site, they are not likely to impact conditions at the Whitehall site.

5.12.1.3 Toxic Substance

Frederick County and Winchester, Virginia have been classified by the USEPA as having a predicted average indoor radon screening level greater than 4 pCi/L.

5.12.2 Environmental Consequences

5.12.2.1 Hazardous Materials Management

Construction activities would require the use of hazardous materials. The majority of the hazardous materials expected to be used are common to construction and include diesel fuel, gasoline, and propane to fuel the construction equipment; hydraulic fluids, oils, and lubricants; and batteries. The transport and use of hazardous materials would have the potential to result in accidental spills that could adversely impact soil, surface water, and groundwater on and adjacent to the construction site or along transportation routes. Hazardous materials associated with construction activities would be delivered and stored in a manner that would prevent these materials from leaking, spilling, and potentially polluting soils, groundwater, and surface waters, and in accordance with applicable federal, state, and local environmental and public and occupational health and safety regulations. Adherence to these regulations would minimize the potential impacts from accidental releases during construction. As a result, environmental impacts from hazardous materials would be less than significant under Alternative 2.

If the generator is to be removed from site as part of construction activities, all petroleum products would be managed and disposed of in accordance with applicable regulations and there would be no impact to the environment.

5.12.2.2 Hazardous Waste Management

Hazardous waste would be generated during construction activities and could include empty containers, spent solvents, waste oil, spill cleanup materials (if used), and lead-acid batteries from construction equipment. Construction contractors would be responsible for safely removing these construction-generated wastes from the construction site and for arranging for recycling or disposal in accordance with applicable regulations. The total monthly generation of hazardous waste during construction is anticipated to be less than 100 kilograms. The construction contractor would be responsible for determining their regulatory status regarding hazardous waste generation during construction, and obtaining and maintaining compliance in accordance with federal and state laws. Hazardous wastes associated with construction activities would be handled and stored in a manner that would minimize human exposure to these materials and prevent these materials from polluting soils, groundwater, and surface waters and in accordance with applicable federal, state, and local environmental and human health and safety regulations. Adherence to these policies, procedures, and regulations would minimize the potential impacts from exposure and accidental releases during construction. In the event of an accidental release, contaminated media would be treated on site or would be promptly removed and disposed of in accordance with applicable federal and state regulations. With the implementation of

appropriate handling and management procedures and adherence to applicable regulations, hazardous wastes generated during construction would result in no significant impacts to the environment.

5.12.2.3 Toxic Substances

Frederick County and Winchester, Virginia have been classified by the USEPA as having a predicted average indoor radon screening level greater than 4 pCi/L; therefore, there is potential for radon levels at or above the USEPA Action level requiring radon treatment.

5.12.2.4 Operation

Operation of the FBI CRC facility would require the use of batteries, pesticides, herbicides, paints, solvents, and fluorescent light fixtures. Most hazardous materials (such as paints, solvents, pesticides, and herbicides) would be used up and thus not require disposal. Pesticides and herbicides would be used as part of routine grounds and facility maintenance and would be applied and managed in accordance with applicable regulations and manufacturer instructions. Those hazardous materials that do require disposal would be properly managed and stored in accordance with federal and state regulations. As a result, operation of the FBI CRC facility would have less than significant impacts with regards to hazardous materials and wastes.

5.12.3 No Action Alternative

Under the No Action Alternative, GSA would not construct the FBI CRC. The site would remain undeveloped and no impacts to the environment from hazardous materials or waste would occur.

5.12.4 Mitigation

The proposed FBI CRC would be designed to prevent occupant exposures to radon above the USEPA action level of 4 pCi/L. Therefore, there would be no adverse impacts associated with radon under Alternative 2.

5.13 CLIMATE CHANGE

5.13.1 Affected Environment

The affected environment for Alternative 2 would be the same as that described for Alternative 1.

5.13.2 Environmental Consequences

The environmental consequences for Alternative 2 would be the same as that described for Alternative 1. However, because most of the Whitehall site is currently farmland, carbon sequestration losses would be lower than those observed for the Arcadia site.

5.13.3 No Action Alternative

Under the No Action Alternative, the FBI CRC would not be constructed. The No Action Alternative would not result in emissions of any air pollutants. Therefore, there would be no impact to climate change.

5.13.4 Mitigation

Mitigation measures for Alternative 2 would be the same as those described for Alternative 1.

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6.0 ACTION ALTERNATIVES COMPAIRSON AND SELECTION OF PREFERRED ALTERNATIVE

This section compares the merits and challenges of Action Alternative 1 (Arcadia) with Action Alternative 2 (Whitehall). The Preferred Alternative is included in this section. The Preferred Alternative has been chosen by GSA and the FBI as the best site location for acquisition and construction that would result in an implementable, cost effective and environmentally sound FBI Central Records Complex (CRC).

Table 6.0-1 provides a comparison of the two alternative sites and their respective attributes to meet the site development needs for the proposed FBI CRC. While each site has sufficient land to accommodate the proposed building and related development, the sites do differ and present differing opportunities. Selection of the Preferred Alternative depends on the evaluation of several factors. GSA and the FBI have broken the decision process into the following eight siting factors:

- Site Characteristics & Program
- Environmental
- Energy & Utilities
- Security & Operations
- Local Planning & Development
- Budget / Site Costs
- Schedule
- Location & Accessibility

Results of the site selection process have determined Arcadia as the more favorable site for the FBI CRC, Therefore, Action Alternative 1 (Arcadia) has been selected as the Preferred Alternative for this Final Supplemental EIS. When taking the eight site criteria into consideration, Arcadia was evaluated overall more favorably than Whitehall. None of the anticipated impacts at Arcadia are considered significant and all can be mitigated. Although fewer environmental impacts would occur at the Whitehall site through the implementation of the proposed action, Arcadia has been identified as the overall preferred site to meet the needs of the project requirements and the overall best value for the government.

Table 6.0-1. Comparison of Alternatives

SELECTION FACTORS	Alternative 1 (Arcadia)	Alternative 2 (Whitehall)
Site Characteristics and Program	59 ac; can accommodate proposed CRC development; size of site has room for building and setbacks, allowing design flexibility; presence of pyrite in bedrock can be managed by deep foundations and other BMPs. Lining the storm water management system to prevent water infiltration to underlying geology would also be required.	51 ac; can accommodate proposed CRC development; size, geometry and topography support development of the site, but is tight fit that would limit design flexibility. The project site is located within Karst (limestone) geology region that is subject to sinkholes. Mitigation would require lining storm water management system to prevent water infiltration to Karst geology.
Environmental		
Flood Hazard Area	Not in 100 year flood zone.	Not in 100 year flood zone (5 ft above); however, the secondary entrance at Woodbine Road is located within 100 year floodplain.
Wetland Impacts	Site development would adversely affect 0.5 ac of wetland and 0.3 ac of streams.	Although there is a pond on the northeast corner of the site, it can be avoided and no wetlands would be impacted by site development.
Biological Resources Impacts	Quality bat habitat identified on site. Approximately 14 ac of forested area would be affected by proposed development.	Marginal bat habitat identified on site. Approximately 23 ac of scrub-shrub habitat would be affected by proposed development.
Cultural Resource Impacts	No impacts to cultural resources.	Adverse impact (visual) to the integrity of the James Nathanial Burwell House. GSA developed a Memorandum of Agreement to minimize and mitigate the adverse impact.
Traffic Impacts	There are existing excess traffic delays near the site that would be made worse by proposed CRC development. Installation of new traffic signal and modification of some traffic lanes would mitigate both existing and future traffic conditions.	The level of service of traffic with the proposed development would be acceptable. However, the close proximity of the I-81 ramp and other proposed development would require coordination and adjustments to roadway and signalization to safely accommodate future traffic.
Energy & Utilities	All utilities including sewer are available along Route 50 and can be extended to the Arcadia site. Installation of electric and telephone service would be costly due to the length of the lines.	All utilities can be readily extended to the site. The installation of natural gas, water and sewer services would be more costly.
Security & Operations	Given the large size of site, the 350 ft security setback can be obtained and forested areas and berm along Route 50 would aid in security at property boundaries.	There are currently no known security risks or hazards identified at or in close proximity to the site.

Table 6.0-1. Comparison of Alternatives

SELECTION FACTORS	Alternative 1 (Arcadia)	Alternative 2 (Whitehall)
Local Planning & Development	Zoned B2 (General Business District); suitable for proposed CRC development; located in non-residential area that is vacant and partially wooded. Arcadia site is located east of City of Winchester in a more urbanized area with related amenities nearby.	Zoned M1 (Light Industrial District); suitable for proposed CRC development; however, the surrounding area is predominately agricultural and commercial with some residential houses located adjacent to the site. Whitehall site is located in a more remote area at the Virginia/West Virginia border with less amenities in the area.
Budget/Site Costs	Lower costs for site and building development.	Higher costs for site and building development given presence of Karst geology (limestone-sinkholes) and need for specialized foundation systems.
Schedule	Schedule would be slightly shorter for development of the Arcadia site.	Schedule would be longer including longer timeframes for site development and utility installations.
Location and Accessibility	The Arcadia site is accessible to major roadways and interstates being located along Route 50 and approximately 2.4 miles from I-81.	The Whitehall site is accessible to major roadways and interstates, including having access to I-81 within 1,200 ft of the site.

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7.0 CUMLATIVE IMPACTS

7.1 PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS

This section identifies past, present, and reasonably foreseeable future actions not related to the proposed action that have the potential to cumulatively impact the resources in the affected environment of the proposed project and its vicinity.. Geographic distribution, intensity, duration, and historical effects of the various identified projects were considered when determining whether a particular activity may contribute cumulatively and significantly to the impacts of the proposed CRC. **Table 7.1-1** summarizes which past, present, and reasonably foreseeable future projects have the potential for cumulative impacts to the resources affected by the proposed action.

Table 7.1-1. Summary of Projects and Resources for Cumulative Impacts Analysis

Project	Noise	Air Quality	Land Use	Infrastructure and Utilities	Socioeconomics	Community Services	Traffic and Transportation	Biological Resources	Topography, Geology, and Soils	Water Resources	Cultural and Traditional Resources	Hazardous Materials and Waste
Past and Present Actions												
Navy Federal Credit Union Call Center (2013–2018)	X	X		X	X	X	X		X	X		
I-81 Exit 310 at Route 37 (Kernstown Interchange) (2015–2018)	X	X	X	X	X	X	X	X	X	X	X	
Reasonably Foreseeable Future Actions												
Route 37 Bypass	X	X	X	X	X	X	X	X	X	X	X	
Reconstruction of Route 655 at Route 50 (2018)	X	X		X	X	X	X		X	X	X	

7.1.1 Past and Present Actions

Coordination with the Frederick County Department of Planning and Development identified two past or present actions for inclusion in the cumulative impact analysis. In August 2013, the Navy Federal Credit Union expanded its Winchester facility by constructing a call center facility across from its existing office at 144 Security Drive, which is on the west side of Millwood Pike (U.S. Route 17/50), across from the Arcadia site. The existing building includes more than 700 employees, and the new call center is expected to add 450 jobs by 2018 (Voth 2014).

The VDOT I-81 Exit 310 at State Route 37 interchange project on the south side of Winchester includes reconstructing the exit ramps to widen and spread them outward from their current configuration, and relocating Tasker Road and Hillandale Lane to the east. In addition, on the west side of the interchange, an existing cloverleaf ramp from State Route 37 to U.S. Route 11, will be widened, and a traffic light will be installed on U.S. Route 11. The project will help move traffic more efficiently as well as lay the groundwork for the possible eastward extension of State Route 37 for a planned mixed-use development.

With an estimated cost of $25 million, project construction began in April 2015 and is estimated to be completed by May 2018 (VDOT 2015a; Zimmerman 2015).

7.1.2 Reasonably Foreseeable Future Actions

Coordination with the Frederick County Department of Planning and Development identified the Route 37 Bypass project as a reasonably foreseeable future project. The Route 37 Bypass project is proposed to address long range transportation needs of the county. The proposed bypass would carry traffic from I-81, north of the city of Winchester through the eastern part of Frederick County, where it would connect with I-81 south of the city of Winchester. One of the proposed interchanges associated with the Route 37 Bypass project would require a portion of the proposed Arcadia site.

One other reasonably foreseeable future project was identified. VDOT is planning to reconstruct a 1.2-mile section of State Route 655 (Sulphur Spring Road) from its intersection with U.S. Route 50. The project, which is located north of the Arcadia site, consists of widening the existing two-lane road with 12-foot traveling lanes and adding 6-foot paved shoulders. Right and left turn lanes will be constructed on State Route 655 at U.S. Route 50 and State Route 656. Construction is estimated to begin in winter 2018. State Route 655 provides access to several residential neighborhoods and the county landfill. The project will improve safety and enhance the driving experience of the travelling public by providing adequate pavement sections and turn lanes (VDOT 2015b).

7.2 CUMULATIVE IMPACTS

No environmental documents are available on the Navy Federal Credit Union Call Center, I-81 Exit 310 Interchange Modification, or Route 655 Reconstruction projects. At this time no funding has been secured for the Route 37 Bypass project and no date of construction has been identified. A qualitative analysis of cumulative effects was undertaken because quantifiable data is not available.

7.2.1 Noise

Construction activities associated with the I-81 Exit 310 Interchange Modification, Route 37 Bypass, and Route 655 Reconstruction would result in short-term noise impacts. The I-81 Exit 310 Interchange Modification and Route 37 Bypass projects have the potential for long-term noise impacts as a result of the increase in traffic-related noise. The increase in automobile traffic at the Navy Federal Credit Union Call Center would result in a minor increase in local noise.

Noise associated with the proposed action is anticipated to be short-term and temporary, resulting from construction activities.

Long-term noise impacts from the operation of the facility would be minimal as noise levels predominantly would be associated with traffic increases to and from the facility. Traffic increases would be greatest during shift changes; would be intermittent in nature; and would be consistent with the existing noise levels in the surrounding area.

The projects identified in **Table 7.1-1** could contribute cumulatively to the potential noise impacts associated with Alternative 1 as construction of Route 655 at Route 50 and the Federal Credit Union Call Center may occur at the same time and is in the same vicinity as Alternative 1. However, it is assumed

that construction-related noise impacts generated from the projects would be short in duration and would occur during normal working hours. A minor long-term cumulative increase in local noise from an increase in automobile traffic from operations at the Navy Federal Credit Union Call Center and implementation of Alternative 1 would also be likely to occur. However, the surrounding area is zoned for business and light industrial uses, so long-term noise increases would be consistent with the existing noise levels expected to occur in the surrounding area. Cumulative noise impacts under Alternative 2 would occur to a lesser degree as the Whitehall site is not located in close proximity to the past, present and reasonably foreseeable future projects. Therefore, when past, present, and reasonably foreseeable future projects are analyzed together with the proposed action, implementation of either Alternative 1 or 2 would not result significant cumulative impacts to the noise environment.

7.2.2 Air Quality

The I-81 Exit 310 Interchange Modification, Route 37 Bypass, and Route 655 Reconstruction would likely contribute to short-term and temporary air quality impacts during construction. Based on the nature of the projects it is anticipated that minor, short-term emissions associated with construction equipment and fugitive dust would occur. Short-term emissions would not adversely impact ambient air quality to the point that an NAAQS standard would be violated. The construction of the eastern Route 37 Bypass and the related interchange modification at Exit 310 would provide local traffic management as an alternative to the frequently congested I-81. Because the Bypass primarily addresses local traffic, the air quality impacts are not expected to be significantly different from impacts if the bypass is not built. The Route 655 Reconstruction is not anticipated to impact the volume of traffic, and so would not specifically result in adverse air quality impacts if constructed.

The proposed action is not anticipated to impact air quality as a result of the construction or operation of the FBI CRC. Construction activities would have minor temporary increases in air emissions; however, the short- and long-term impacts would not have a significant impact on ambient air quality. When combined with past, present, and reasonably foreseeable future projects, the proposed action would not contribute to cumulative impacts to air quality.

7.2.3 Land Use

Of the projects listed in **Table 7.1-1,** the proposed I-81 Exit 310 Interchange Modification and Route 37 Bypass projects would result in changes in land use. Both proposed transportation projects would result in land use changing from non-transportation use to a transportation use. The proposed action under both Alternative 1 and Alternative 2 would change the existing land use of each site. Both sites would be converted from undeveloped uses to governmental uses. Alternative 1 would result in compatibility issues with future proposed land use as the Route 37 bypass project also proposes to construct access ramps on the southern portion of the site. In cooperation with VDOT, GSA has developed a potential site development strategy that will accommodate the proposed Route 37 development. Therefore, when combined with reasonably foreseeable future projects, the proposed action would potentially contribute to cumulative changes to land use. Through mitigation efforts and coordination with the county planning officials, the proposed action would be implemented to minimize the cumulative impact.

7.2.4 Infrastructure and Utilities

Cumulative impacts to infrastructure and utilities are likely to occur as a result of the proposed action. The I-81 Exit 310 Interchange Modification, Route 37 Bypass, and Route 655 Reconstruction may result in the relocation of some utility systems to accommodate the roadway modifications but would not affect the long-term use or capacity of the utility and infrastructure systems under either Alternative 1 or Alternative 2. The Federal Credit Union Call Center and Alternative 1 would result in a cumulative increase in demand on the utility systems in that area during business hours due to the increase in personnel at each facility. This increase in utility demand would also occur under Alternative 2 but to a lesser degree since the Whitehall site is not located in close proximity to the past, present and reasonably foreseeable future projects and would likely be serviced by different utility mains.

7.2.5 Socioeconomics

The projects listed in **Table 7.1-1** would each generate long-term socioeconomic effects. Temporary increases in local economic activity during construction of the projects identified in **Table 7.1-1** may be additive with the construction spending under the proposed action. All the projects, along with the proposed action under either Alternative 1 or Alternative 2, would result in increased employment opportunities and income in Frederick County from construction.

The Navy Federal Credit Union Call Center will add a total of 450 positions over the next five years, which would result in a beneficial economic impact in Frederick County. Under either Alternative 1 or Alternative 2, the proposed action would not change employment trends in the study area as the transfer of 446 positions from the existing FBI facility would reduce employment in the City of Winchester, but increase it by the same amount in Frederick County. Overall, the transfer of positions would continue the long-term beneficial impacts associated with the FBI facility in the study area.

When combined with past, present, and reasonably foreseeable future projects, the proposed action under either Alternative 1 or Alternative 2 would result in beneficial short- and long-term cumulative socioeconomic impacts in Frederick County. There would be no significant adverse cumulative impacts to socioeconomic resources.

7.2.6 Community Service

The projects identified in **Table 7.1-1** would be expected to have negligible to minor indirect adverse effects to community services. Existing fire, police, and rescue services are sufficient to provide service to the Navy Federal Credit Union Call Center when necessary. It is expected that construction plans for the I-81 Exit 310 Interchange Modification or Route 655 Reconstruction projects would ensure unimpeded access of through routes for emergency service vehicles. Likewise, access to any nearby schools or public parks and recreational facilities would be maintained at all times. Similarly, temporary access provisions would be expected to be incorporated in construction plans for the Route 37 Bypass.

The proposed action under either Alternative 1 or Alternative 2 would have negligible indirect adverse impacts to community services. When combined with past, present, and reasonably foreseeable future projects, the proposed action would not result in significant cumulative impacts to community services.

7.2.7 Traffic and Transportation

The traffic modeling that was prepared for the proposed action at the Arcadia site includes existing traffic accessing the Navy Federal Credit Union Call Center from U.S. Route 17/50. Traffic associated with the I-81 Exit 310 Interchange Modification would not be expected to overlap with area roadways associated with either the Arcadia or Whitehall site. The Route 655 Reconstruction project is anticipated to have negligible adverse impacts on area roadways, as the road will remain open during construction (VDOT 2015b). The volume of traffic is not expected to increase on Route 655 upon the completion, and the improvement project would result in beneficial impacts to traffic and transportation by enhancing safety.

The proposed Route 37 Bypass project was considered when the traffic modeling was prepared for the proposed action at the Arcadia site. It is anticipated that the proposed Route 37 Bypass project would increase traffic on area roadways in the vicinity of the Arcadia site. It is assumed that this project would also implement mitigation to offset the impacts to area roadways due to increases in traffic.

Implementation of the proposed action under either Alternative 1 or Alternative 2 would have adverse impacts to area roadways. However, mitigation that would offset these adverse impacts has been proposed for both build alternatives. Therefore, the proposed action does have the potential to contribute to cumulative impacts to traffic when combined with the proposed Route 37 Bypass project; however, it is assumed that mitigation would occur for both projects that would reduce these impacts to be less than significant and the cumulative impact to traffic and transportation would also be less than significant.

7.2.8 Biological Resources

Development of the proposed build alternatives would result in impacts to forested areas. The I-81 Exit 310 Interchange Modification and proposed Route 37 Bypass project would also contribute to the loss of vegetation, including forested areas; therefore, the proposed action would contribute to cumulative impacts to vegetation. It is anticipated that mitigation efforts to re-vegetate areas would occur for both the proposed action and the I-81 Exit 310 Interchange Modification and Route 37 Bypass projects to reduce the impacts.

It is also anticipated that under Alternative 1 Indiana bat and NLEB habitat would be impacted. Given that the Route 37 Bypass project is proposed to impact portions of the Arcadia site, it is anticipated that the proposed project would also impact Indiana bat and NLEB bat habitat. Potential impacts to Indiana bat and NLEB habitat from the I-81 Exit 310 Interchange Modification project are not known, but could be expected. GSA would implement the USFWS defined time-of-year restrictions to minimize impacts to Indiana bat and NLEB. It is assumed that the Route 37 Bypass project would have the same minimization and mitigation requirements. Therefore, while the proposed action has the potential to contribute to cumulative impacts to the Indiana bat and NLEB when combined with the Route 37 Bypass project, it is assumed that through minimization and mitigation measures the cumulative impact would be reduced to less than significant.

When combined with past, present, and reasonably foreseeable future projects, implementation of Alternative 1 or Alternative 2 would not result in significant cumulative impacts to biological resources.

7.2.9 Topography, Geology, and Soils

Development of the proposed build alternatives would have temporary impacts on topography as a result of grading activities and ground disturbance during construction. Following completion of construction, existing grades would be restored. Changes in topography associated with the proposed action would be localized and very minor and would not result in significant cumulative impacts when combined with grading and ground disturbance activities associated with the projects identified in **Table 7.1-1**.

The projects listed in **Table 7.1-1** would result in minor short-term temporary impacts to soils as a result of construction activities, and minor long-term impacts due to compaction from grading and paving. Implementation of Alternative 1 along with the Navy Federal Credit Union Call Center, I-81 Exit 310 Interchange Modification, Route 37 Bypass, and Route 655 Reconstruction projects would disturb and redistribute soils within the study areas. However, erosion and sedimentation controls would be employed for all construction projects as required by federal and state regulations. Therefore, cumulative impacts to geology and soils would not be significant when considered with the past, present, and reasonably foreseeable future projects.

7.2.10 Water Resources

Soil erosion and stormwater runoff are largely responsible for degradation of surface waters. Implementation of either Alternative 1 or Alternative 2 along with the projects identified in **Table 7.1-1** would disturb soils and would result in temporary increases in soil disturbance and potential soil erosion and a permanent increase in impervious surfaces in the area, with a consequential increase in stormwater runoff. Any construction project where clearing, grading, and excavating activities would disturb 1 acre or more, including smaller sites in a larger common plan of development, would be required to obtain a General Construction Permit for their stormwater discharges under the CWA. A stormwater pollution prevention plan is a requirement of the National Pollutant Discharge Elimination System permit process. Compliance with the Virginia Erosion and Sediment Control Law, Regulations, and Certification Regulations would be required. Compliance with these programs would ensure the use of BMPs for erosion, sedimentation, and stormwater flow control. This assessment assumes BMPs would be effective at controlling soil erosion and stormwater flow for the FBI CRC, as well as, the past, present, and reasonably foreseeable future projects. As a result, cumulative construction impacts to water resources would not be significant.

The proposed action combined with the projects listed in **Table 7.1-1** would result in an increase in impervious surface area in the area, resulting in a corresponding increase in stormwater runoff that has the potential to carry elevated levels of contaminants, such as sediments, nutrients, heavy metals, organic and inorganic compounds, and detrimental microorganisms. The increase in impervious surfaces would result in an associated increase in stormwater discharge intensities and volume. This increase would likely be accommodated by existing or new stormwater infrastructure to ensure the timely and low-impact flow of stormwater to minimize erosion and flooding concerns. As a result, cumulative impacts to water resources would not be significant.

The proposed action and the project identified in **Table 7.1-1** would result in increases in the amount of petroleum, oil, and lubricants, hazardous waste, pesticides, and fertilizers being stored, transported, and

utilized. Increasing the storage, transportation, and use of these substances would increase the potential for releases to water resources. Implementation of BMPs associated with addressing site- and activity-specific water resource protection needs and with the provisions of facility-specific SWPPPs and Spill Prevention, Control, and Countermeasure Plans would minimize potential impacts from facility operations, including the transportation, storage, and use of fuel, on all water resources. As a result, cumulative impacts to water resources would not be significant.

An estimated 0.5 ac of wetlands would be adversely affected under Alternative 1-Arcadia, which would require compensatory mitigation under CWA Section 404. There is the potential for the I-81 Exit 310 Interchange Modification, Route 37 Bypass, and Route 655 Reconstruction projects to impact wetlands; therefore, there is the potential for cumulative impacts to wetlands to occur as a result of the implementation of the proposed action. However, it is anticipated that compensatory mitigation would result in the cumulative impact to wetlands being less than significant.

When combined with past, present, and reasonably foreseeable future projects, implementation of Alternative 1 or Alternative 2 would not result in significant cumulative impacts to water resources.

7.2.11 Cultural and Traditional Resources

Implementation of Alternative 1 would have no effect on cultural or traditional resources. Implementation of Alternative 2 would have an adverse effect to the James Nathanial Burwell House. None of the projects identified in **Table 7.1-1** would have an adverse effect on this property. Therefore, when combined with past, present, or reasonably foreseeable future projects, implementation of either proposed action alternative would not contribute to cumulative impacts to the James Nathanial Burwell House or other significant cultural or traditional resources.

7.2.12 Hazardous Materials and Waste

Construction of the I-81 Exit 310 Interchange Modification, Route 37 Bypass, and Route 655 Reconstruction projects each has the potential to use or disturb hazardous materials or toxic substances during construction. Most of the hazardous materials expected to be used are common to construction (e.g., diesel fuel, gasoline, and propane; hydraulic fluids, oils, and lubricants; welding gases; paints and solvents; adhesives; and batteries). Additionally, any hazardous substances encountered during construction would be removed from the site. All hazardous substances would be handled, stored, and disposed of according to applicable best management practices; standard operating procedures; and federal and state regulations. Likewise, transport and disposal of hazardous waste would be conducted using existing public transportation routes. Transportation of all materials would be conducted in compliance with the U.S. Department of Transportation regulations and CFR Title 49. No hazardous wastes are anticipated to be generated from the operation of the roadways. Reducing traffic congestion and improving the safety of each transportation facility would reduce the potential for vehicle accidents, which would also reduce the potential for the release of hazardous materials from accidents. Under the proposed action, the potential cumulative impacts from the use of hazardous materials and transport and disposal of hazardous waste from construction activities would be avoided by following best management practices, standard operating procedures and all applicable federal, state, and local regulations.

Operation of the Navy Federal Credit Union Call Center would require the use of batteries, pesticides, herbicides, paints, solvents, and fluorescent light fixtures. Most hazardous materials (such as paints, solvents, pesticides and herbicides) would be used up and thus not require disposal. Pesticides and herbicides would be used as part of facility management to control nuisance species and would be applied and managed in accordance with applicable regulations and manufacturer instructions. Batteries would be recycled and fluorescent light fixtures would be managed as special waste. As a result, there would be no cumulative impacts with regards to hazardous materials and wastes.

Implementation of the proposed action at either of the build alternative sites, when combined with past, present, or reasonably foreseeable future projects, would not result in significant cumulative impacts to hazardous waste and materials.

7.2.13 Climate Change

The emissions from the construction of the CRC facility would temporarily emit GHS to the atmosphere as a result of the burning of fossil fuels in construction machinery. The GHG emissions associated with the construction of the proposed project are identified in sections 4.2 and 5.2. This increase in the atmospheric concentration of GHGs, in combination with past, present and reasonably foreseeable future emissions from all other sources would contribute incrementally to climate change. The significance of this incremental contribution cannot be determined.

8.0 OTHER NEPA CONSIDERATIONS

8.1 CONSISTENCY WITH OTHER FEDERAL, STATE AND LOCAL PLANS, POLICIES AND REGULATIONS

The proposed action and alternatives have been assessed to determine their consistency and compliance with applicable environmental regulations and other plans, policies, and controls. This assessment indicates the proposed action and action alternatives would not conflict with the objectives of applicable plans, policies, and regulations. A summary of this compliance status is provided in **Table 8.1-1**.

Table8.1-1. Applicable Federal State Plans, Policies and Regulations

Federal and State Plans, Policies and Controls	Status of Compliance
NEPA of 1969 (42 U.S. Code [USC] §§ 4321, et seq.), Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] §§ 1500-1508)	This Supplemental EIS has been prepared in accordance with the CEQ's Regulations implementing NEPA and GSA's NEPA procedures. Preparation of this Supplemental EIS and provisions for public participation and review are being conducted in compliance with NEPA.
Clean Air Act	The air quality analysis in the Supplemental EIS concludes that proposed emissions under Alternatives 1 and 2: 1) would not create a major regional source of air pollutants or affect the current attainment status of the area, and 2) would comply with all applicable state and regional air agency rules and regulations.
Clean Water Act	Permits under CWA Sections 401 and 404 would be required. Stormwater runoff during construction would be managed in compliance with Virginia's General Permit for Discharges of Stormwater from Construction Activities. Proposed demolition and construction activities would require preparation of a Stormwater Pollution Prevention Plan and use of BMPs to limit potential erosion and runoff.
Pollution Prevention Act	The FBI CRC facility would incorporate measures to reduce hazardous substances from being released into the environment prior to recycling, treatment or disposal. The construction and operation of the facility would incorporate practices that increase efficiency in the use of energy, water, or other natural resources, and protect resources.
Oil Pollution Act	All petroleum storage areas associated with FBI CRC would be managed in accordance with this Act.
Safe Drinking Water Act	All drinking water sources at FBI CRC would meet the requirements of this Act.
Noise Control Act	Construction and operation of the FBI CRC would be conducted in accordance with applicable regulations to protect the general population and workers from excessive noise exposure.
Endangered Species Act	Coordination with the USFWS has been done for this proposed project with agency correspondence included in Appendix A of this Final Supplemental EIS.
Fish and Wildlife Coordination Act	This would be coordinated during compliance with the CWA as appropriate.
Migratory Bird Treaty Act	The build alternatives would not impact populations of migratory birds or their critical habitat.

Table8.1-1. Applicable Federal State Plans, Policies and Regulations

Federal and State Plans, Policies and Controls	Status of Compliance
Bald and Golden Eagle protection Act	The build alternatives would not result in any takes of bald or golden eagles.
National Historic Preservation Act	Correspondence from the State SHPO is included in Appendix A of this Final Supplemental EIS.
Archaeological Resources Protection Act	Correspondence from the State SHPO is included in Appendix A of this Final Supplemental EIS.
Native American Graves Protection and Repatriation Act	No Native American human remains, funerary objects, sacred objects, and objects of cultural importance have been discovered within the study area.
Farmland Protection Policy Act	The build alternatives analyzed in this Supplemental EIS were evaluated with regard to impacts to prime farmland.
Comprehensive, Environmental Response, Compensation and Liability Act	The build alternatives would not impact CERCLA sites.
Resource Conservation and Recovery Act	The build alternatives would not result in hazardous materials related impacts.
Toxic Substances Control Act	No toxic substances regulated under this Act are proposed to be utilized during the FBI CRC construction or operation.
Energy Independence and Security Act	The FBI CRC would be designed in a manner that would manage stormwater runoff so that it does not exceed the predevelopment rate or volume.
EO 11593 (Protection and Enhancement of the Cultural Environment)	The build alternatives have provided measures to ensure the protection, restoration, and maintenance of federally owned sites, structures, and objects of historical, architectural, or archaeological significance.
EO 11990 (Protection of Wetlands)	Construction activities under Alternative 1-Arcadia would impact wetlands directly and indirectly. Specific measures would be taken during the design process to avoid and minimize impacts to wetlands. GSA would obtain a Section 404 permit and wetland impact mitigation measures would be implemented to compensate for adverse impacts.
EO 11988 (Floodplain Management)	The build alternatives would not impact floodplains or floodplain management.
EO 12088 (Federal Compliance with Pollution Control Standards)	The build alternatives would be implemented in compliance with environmental laws and fully cooperate with USEPA, Virginia, interstate, and local agencies to prevent, control, and abate environmental pollution.
EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations)	The build alternatives would not have disproportionately high and adverse effects on minority and low-income populations.
EO 13045 (Protection of Children from Environmental Health Risks and Safety Risks)	The build alternatives would not have adverse health and safety risks that disproportionately affect children.
EO 13101 (Greening the Government through Waste Prevention, Recycling, and Federal Acquisition)	The FBI CRC would promote recycling and utilize recycled-content and environmentally preferable products to the extent feasible.

Table8.1-1. Applicable Federal State Plans, Policies and Regulations

Federal and State Plans, Policies and Controls	Status of Compliance
EO 13123 (Greening the Government through Efficient Energy Management)	Through LEED design standards the FBI CRC would improve building energy, promote the use of renewable energy, and reduce greenhouse gas emissions associated with energy use.
EO 13148 (Greening the Government through Leadership in Environmental Management)	LEED and LID practices would implement cost-effective, environmentally sound landscaping practices, and reduce adverse impacts to the natural environment.
EO 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds)	The build alternatives have incorporated steps to protect migratory birds.
VDOT Road Design Manual	Potential traffic improvements were analyzed in accordance with the design standards specified in the manual.
Virginia Construction General Permit	A Virginia General Construction Permit would be obtained for FBI CRC construction.
Virginia Erosion and Sediment Control Program	The minimum standards specified by this Program would be implemented during construction of the FBI CRC.
Virginia Stormwater Management Program	A General Construction Permit would be obtained for FBI CRC Construction in accordance with Program requirements.

8.2 Relationship Between Short Term Uses of the Environment and Enhancement of Long-term Productivity

Construction of the proposed FBI CRC is not expected to result in the types of impacts that would reduce environmental productivity, have long-term impacts on sustainability, affect biodiversity, or narrow the range of long-term beneficial uses of the environment. As discussed in Chapters 4 and 5, the action alternatives would result in both short- and long-term environmental effects.

Short-term uses of the environment associated with the build alternatives would include improvements to existing undeveloped land for both action alternatives. Short-term effects would include localized disruptions and higher noise levels in some areas. Project-related construction activities would temporarily increase air pollution emissions and noise in the immediate vicinity of the affected area(s). Noise from construction activities would be short-term and would not be expected to result in permanent damage of long-term changes in wildlife productivity or habitat use.

8.3 Irreversible and Irretrievable Commitments of Resources

NEPA requires that environmental analysis include identification of "…any irreversible or irretrievable commitments of resources which would be involved in the proposal should it be implemented." The term "resources" (both renewable and nonrenewable) means the natural and cultural resources committed to, or lost by, the action, as well as labor, funds, and materials committed to the action.

The permanent use and subsequent loss of non-renewable resources, such as oil, natural gas, and iron ore, are considered irreversible because non-renewable resources cannot be replenished by natural means. An action that causes a loss in the value of an affected resource, which cannot be restored (e.g., disturbance of a cultural site), is considered an irretrievable commitment of resources. Similarly, the

consumption of a renewable resource that would be lost for a period of time is also considered an irretrievable commitment of resources. Renewable natural resources include water, lumber, and soil, all of which can be replenished by natural means within a reasonable timeframe.

The action alternatives would both involve irretrievable commitments of both non-renewable and renewable resources. Facility development involving demolition and construction activities would expend fuel, construction materials, and labor. The operation and maintenance of the new facilities associated with the FBI CRC would require energy to heat, cool, and light the buildings. The increase in personnel under the action alternatives may result in additional residential construction in and around Winchester, which would also expend fuel, construction materials, and labor. Conducting maintenance activities and office operations would require the expenditure of fuel and certain types of materials.

All new construction would comply with EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management, and EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance. EO 13423 sets goals for federal agencies in areas such as energy efficiency, renewable energy, toxic chemical reduction, recycling, sustainable buildings, electronics stewardship, and water conservation. EO 13514 expands on the EO 13423 requirements with mandates for federal agencies to meet numerical and non-numerical targets. For example, EO 13514 requires that 95% of all new contracts require the use of water-efficient fixtures, low-flow fixtures, non-toxic or less toxic products, and energy-efficient products. EO 13514 also requires that all new construction comply with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings. This includes employing design and construction strategies that increase energy efficiency, eliminate solid waste, and reduce stormwater runoff.

The total amount of construction materials (e.g., concrete, insulation, wiring, etc.) required for the build alternatives is relatively small when compared to the resources available in the region. The construction materials and energy required for facility development and operations are not in short supply. Moreover, the use of construction materials and energy would not have an adverse impact on the continued availability of these resources. The commitment of energy resources to implement the build alternatives is not anticipated to be excessive in terms of region-wide usage. Furthermore, compliance with EO 13514 and EO 13423 requirements would minimize irreversible or irretrievable effects to multiple non-renewable and renewable resources.

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10.0 DISTRIBUTION LIST

Officials and Agencies

The Honorable Tim Kaine
U.S. Senator (VA)
231 Russell Senate Office Building
Washington D.C. 20510

The Honorable Terry McAuliffe
Governor of VA
P.O. Box 1475
Richmond VA 23218

The Honorable Shelly Moore Capito
U.S. Senator (WV)
172 Russell Senate Office Building
Washington D.C. 20510

Ms. Rene Hypes
VA Dept. of Conservation and Recreation Division of Natural Heritage
600 E. Main St, 24th Fl
Richmond VA 23219

Mr. Ray Fernald
VA Dept. of Inland Fisheries Environmental Services Section
P.O. Box 90778
Henrico VA 23228

The Honorable Mark Warner
U.S. Senator (VA)
475 Russell Senate Office Building
Washington D.C. 20510

The Honorable Larry Faircloth
State Representative District 60 (WV)
Room 225E, Building 1
State Capitol Complex
Charleston WV 25305

Ms.Kimberly Smith
Endangered Species Section USFWS
6669 Short Lane
Glouchester VA 23061

Ms. Karen DelGrosso (3EA30)
U.S. EPA Region III
1650 Arch Street
Philadelphia PA 19103

The Honorable Joe Manchin
U.S. Senator (WV)
306 Hart Senate Office Building
Washington D.C. 20510

The Honorable Jill Holtzman Vogel
State Senator District 27 (VA)
117 East Piccadilly Street
Suite 100-A
Winchester VA 22601

Mr. Jeffery Rogers
VA Dept. of Agriculture and Consumer Services
102 Governor St.
Richmond VA 23219

The Honorable J. Randal lMinchew
House of Delegates District 10 (VA)
P.O. Box 406
General Assembly Building
Richmond VA 23218

The Honorable Eric Householder
State Representative District 64 (WV)
Room 217E, Building 1
State Capitol Complex
Charleston WV 25305

The Honorable Elizabeth Minor
Mayor of Winchester
15 North Cameron Street
Whinchester VA 22601

The Honorable Earl Ray Tomblin
Governor of WV
1900 Kanawha Blvd. E
Charleston WV 25305

Mr. Dennis Jones
U.S. Dept. of Agriculture National Resources Conservation Service
100 Dominion Dr
Farmville VA 23901

Ms. Deanna Beachman
Virginia Council of Indians
P.O. Box 1475
Richmond VA 23218

The Honorable David LaRock
House of Delegates District 33 (VA)
P.O. Box 406
General Assembly Building
Richmond VA 23218

The Honorable Craig Blair
State Senator District 15 (WV)
Room 217W, Building 1
State Capitol Building
Charleston WV 25305

The Honorable Charles Trump
State Senator District 15 (WV)
Room 210W, Building 1
State Capitol Building
Charleston WV 25305

The Honorable Barbara Comstock
U.S. Representative (VA)
226 Cannon HOB
Washington D.C. 20515

The Honorable Alexander Mooney
U.S. Representative (WV)
1232 Longwoth House Office Building
Washington D.C. 20515

Tribes

Stephen Adkins
Chickahominy Indian Tribe
8200 Lott Cary Rd
Providence Forge VA 23140

Gene Adkins
Chickahominy Indians – Eastern Division
3120 Mount Pleasant Road
Providence Forge VA 23140

Barry Bass
Nansemond Indian Tribe
P.O. Box 6558
Portsmouth VA 23703

Kevin Brown
Pamunkey Tribe
175 Lay Landing Road
King William VA 23086

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

Kenneth Adams
Upper Mattaponi Indian Tribe
P.O. Box 174
King William VA 23086

Walt Brown
Cheroenhaka (Nottoway) Indian Tribe
P.O. Box 397
Courtland VA 23837

Lynette Lewis Allston
Nottoway Indian Tribe of Virginia
P.O. Box 246
Capron VA 23829

Bill Harris
Catawba Indian Nation
996 Avenue of the Nations
Rock Hill SC 29730

Wenonah G. Haire
Catawba Cultural Preservation Project
1536 Tom Steven Road
Rock Hill SC 29730

Clint Halftower
Cayuga Nation of Indians
2540 State Route 89
Seneca Falls NY 13148

Bill John Baker
Cherokee Nation
P.O. Box 948
Tahlequah OK 74465

Michell Hicks
Eastern Band of Cherokee Indians
P.O. Box 455
Cherokee NC 28719

Russell Townsend
Eastern Band of Cherokee Indians
Qualla Boundary Reservation
P.O. Box 455
Cherokee NC 28719

George Wickliffe
United Keetoowah Band of Cherokee Indians
2450 Muskogee Avenue
Tahlequah OK 74464

Leo R. Henry
Tuscarora Nation of New York
2006 Mt. Hope Road
Lewiston NY 14092

Property Owners

Perry Properties
1945 Millwood Pike
Winchester VA 22602

Mr. Donald and Melvina Moulden
932 Allen Dr.
Winchester VA 22601

Mr. David and Carol Ann Robinson
315 Shaffer Ln
Winchester VA 22602

Mr. Eugene Grove
322 W Parkins Mill Rd
Winchester VA 22602

Mr. Virgil and Ruth Fiddler
4836 Martinsburg Pike
Clear Brook VA 22624

Mr. Marvin and Elizabeth Renner
4822 Martinsburg Pike
Clear Brook VA 22624

Margie Golliday
4810 Martinsburg Pike
Clear Brook VA 22624

Laymi Kesari
11499 White Oak Ct
Herndon VA 20170

Mr. Steven Lenox
2018 Colin Dr
Winchester VA 22601

300N LLC
300 N Main St
Moorefield WV 26836

Four Oaks Properties LP LLP
P.O. Box 2468
Winchester VA 22604

Mr.George Semples
331 Woodbine Rd
Clear BrookVA22624

Mr. Albert and Priscilla Jackson
12819 Winchester Ave
Bunker Hill WV 25413

Acradia Communities Inc
1602 Village Market Blvd SE
STE 200
Leesburg VA 20175

Mr. Tommy and Jayne Walker
4768 Martinsburg Pike
Clear Brook VA 22624

Arogas Inc
P.O. Box 580
Saint Charles MO 63376

Middle Ridge Traditional Stone
P.O. Box 1004
Berryville VA 22611

Mr. Michael and Teresa Heflin
12823 Winchester Ave
Bunker HillWV25413

Cecilia Kusnirak
329 Jason Way
Bunker Hill WV 25413

11.0 LIST OF PREPARERS

This Supplemental Draft EIS was prepared for the U.S. General Services Administration by Cardno. A list of primary GSA individuals who contributed to the preparation and review of this document include:

United States General Services Administration
Mid-Atlantic Region
20 N. Eighth Street
Philadelphia, PA 19107

Courtenay Hoernemann,
Regional Environmental Planning Programs

Donna Andrews

Regional Historic Preservation Officer

Erika Fuery
M.S. Environmental Science
Years of Experience: 16

Lesley Hamilton
B.A. Chemistry
Years of Experience: 24

Sharon Simpson
A.S. Science
Years of Experience: 12

Deborah Henson
M.S. Geoenvironmental Studies
Years of Experience: 17

Jaclyn Johnson
B.S. Ecology
Years of Experience: 15

Mark Modjeski
B.S. Chemical Engineer
Years of Experience: 28

Abigail Shoff
B.S. Geographical Information Systems
Year of Experience: 28

Lori Thursby
M.S. Architectural History
Years of Experience: 20

APPENDIX A
AGENCY COORDINATION

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SHPO CORRESPONDENCE

GSA Mid-Atlantic Region

March 20, 2015

Ms. Andrea Kampinen
Office of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

Re: Section 106 Consultation
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Ms. Kampinen:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

GSA began the site selection process for an approximately 100-acre site in Frederick County, Virginia in 2006 in order to procure via lease construction a central records storage facility for the FBI (see DHR file no 2006-0949). The facility, referred to as the CRC, would consolidate FBI's records from the Washington DC area, nationwide field offices, and nationwide information technology centers.

The project requirements were 947,000 rentable square feet consisting of three buildings: an office building, a records storage facility, and a data center. Three alternatives were considered during site selection. As part of the site selection process, GSA prepared an Environmental Impact Statement (EIS) and Record of Decision (ROD) completed in May 2007 for the selected alternative, the Sempeles Site. GSA continued with the procurement process but was unable to successfully award a lease due to market conditions and the specialized nature of the facility.

FBI then determined that the records storage piece of the project was the number one priority. GSA and FBI decided that the best way to move forward with meeting this mission critical function was through a federal construction funding request. The project requirements were revised to an overall square footage of 256,425 gross square feet, to include the records storage building, support area, visitor's screening facility, service center, and guard booth.

In 2014, federal funding was approved, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, including environmental reconnaissance, application of site criteria, and

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Philadelphia, PA 19107-3191
www.gsa.gov

site test fits, a short list of three alternatives has been reached, one of which was included in the 2007 EIS: the Sempeles Site, now referred to as Whitehall Commerce Center.
The proposed project is an undertaking subject to Section 106 Consultation. GSA would like to formally initiate Section 106 consultation at this time in accordance with 36 CFR § 800.3. At this time, the Area of Potential Effects (APE) for this undertaking includes the three short-listed alternatives. As identification efforts commence, GSA and our cultural resource consultant, Cardno TEC, Inc., will identify additional layers of APE, including but not limited to direct effects, visual effects, audible effects, and other indirect effects. Location maps for the three short-listed alternatives are included in Attachment 1.

Alternative 1: Arcadia Route 50 Property, 2117 Millwood Pike, Winchester Virginia
Alternative 2: Blackburn Limited Partnership, Apple Valley Road, Winchester, Virginia
Alternative 3: Whitehall Commerce Center, Route 669 & Route 11, Clear Brook, Virginia

The expressions of interest gathered by GSA in 2014 resulted in a long list of 12 alternatives. All of the long-listed alternatives were visited by GSA and FBI and studied in an environmental reconnaissance report by GSA's contractor, Cardno TEC, Inc. The environmental reconnaissance report identified cultural resource identification and evaluation work expected at each of the sites. Portions of the environmental reconnaissance report relating to the three short-listed alternatives are included in Attachment 2.

At this time, GSA has identified a preliminary list of potential consulting parties we will be contacting with invitations to be consulting parties for this undertaking. Please see Attachment 3 for the list. We would welcome any additions to this list that your office may have. We assume that we will be adding consulting parties to this list via public outreach and interaction during the NEPA process, and that some invited parties will choose not to participate.

We look forward to working with your office on this undertaking. At this time, GSA would welcome any initial comments you have on the short-listed alternatives, the proposed identification and evaluation work to be conducted at each site, and the proposed consulting parties to be invited to participate in the consultation. If you need additional information, please do not hesitate to contact me at (215) 446-4570 or donna.andrews@gsa.gov.

Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

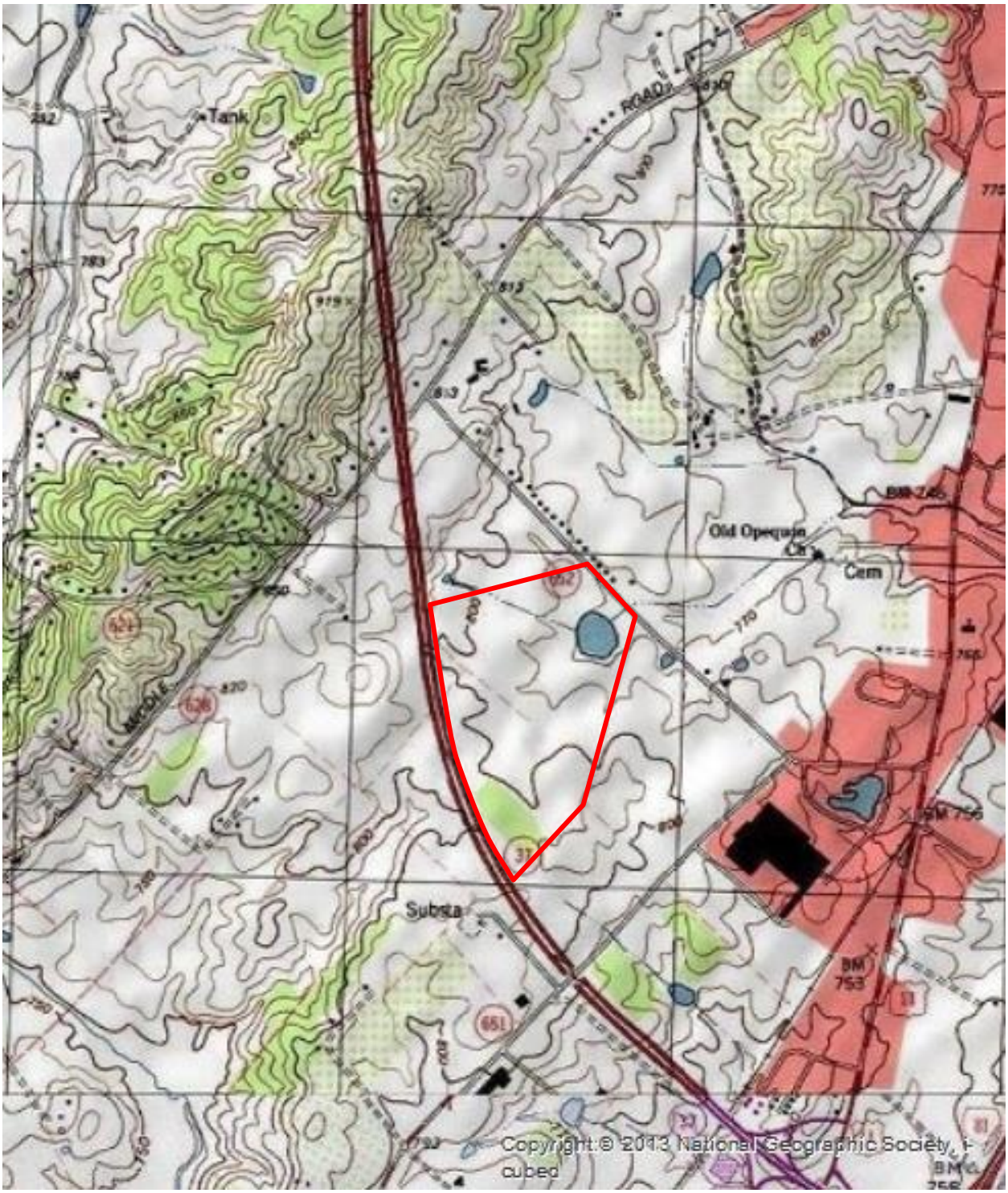
Cc: Ms. Kirsten Brinker Kulis – ACHP
Mr. Paul Hawke – NPS, American Battlefield Protection Program
Mr. John D. Hutchinson V. – Shenandoah Valley Battlefields Foundation

Attachment 1 – Location Maps for Short-Listed Alternatives

Attachment 1 – Location Maps for Short-Listed Alternatives

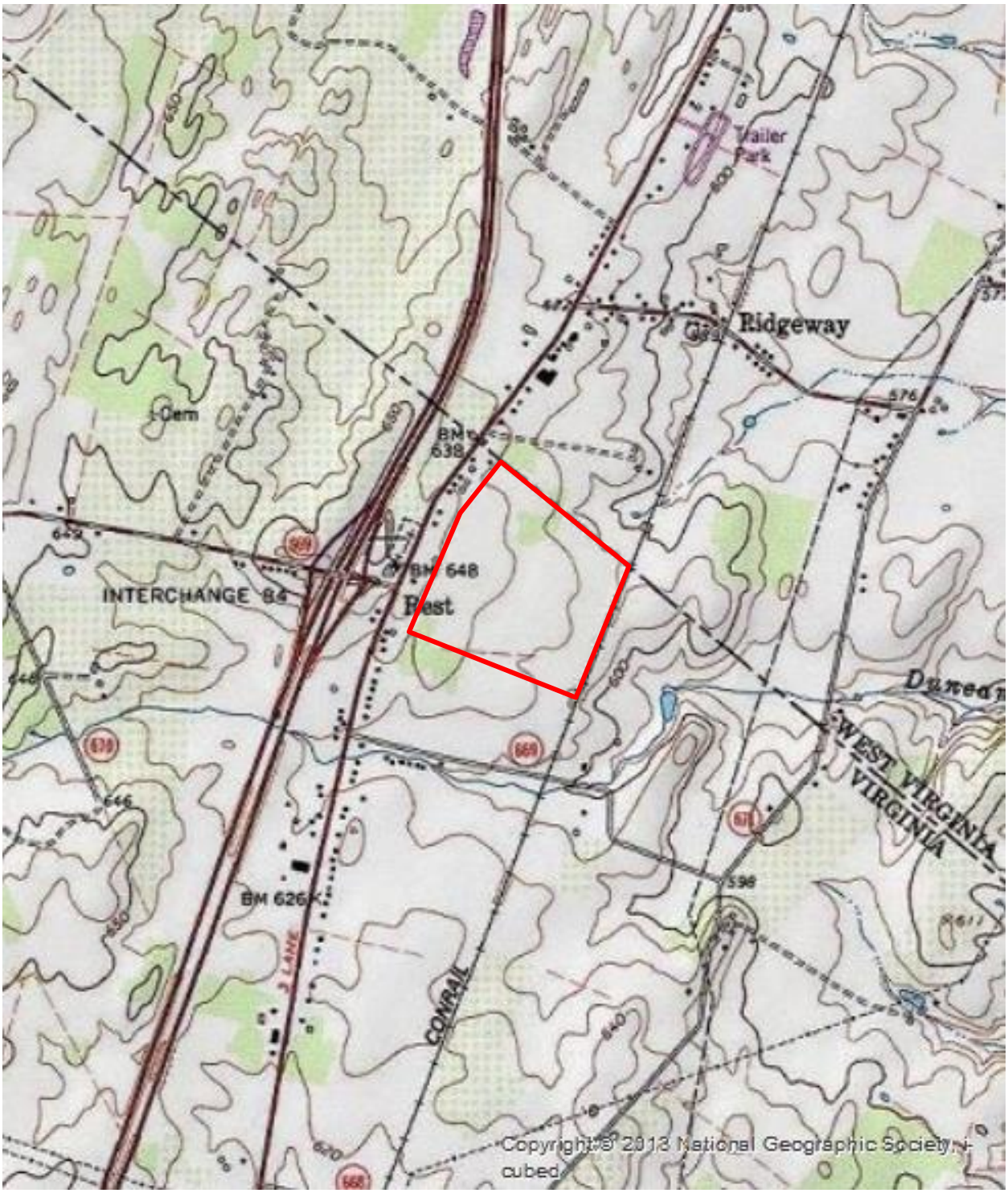
Portion of the Stephenson, VA U.S.G.S. 7.5' Quadrangle depicting the Arcadia Alternative (outlined in red – offered property boundary not exact).

Attachment 1 – Location Maps for Short-Listed Alternatives



Portion of the Winchester, VA U.S.G.S. 7.5' Quadrangle depicting the Blackburn Alternative (outlined in red – offered property boundary not exact).

Attachment 1 – Location Maps for Short-Listed Alternatives



Portion of the Inwood WV-VA U.S.G.S. 7.5' Quadrangle depicting the Whitehall Commerce Center Alternative (outlined in red – offered property boundary not exact).

Attachment 2 – Sections from the Environmental Reconnaissance Report

Arcadia

This site is located at 2117 Millwood Pike. The site offered consists of approximately 59 acres. The site has not previously been developed; however, the site has experienced a large degree of ground disturbance. In the past, the majority of the property has been mined for shale, cut and filled, used as a construction staging area, logged, and experienced dumping activities. Historic aerial photos illustrate the amount of ground disturbance at this property. The areas of the site that are currently located in open land are disturbed to a degree that no archaeological survey is necessary. There are no previously identified historic architectural resources located at the site or within the probable viewshed.

Actions needed to fulfill Section 106 requirements at this site may include:

- Should any portions of the property that have not been previously disturbed by mining, earthmoving activities, logging, or other disturbance be utilized Phase I Archaeological Survey may be necessary on those areas.
- Determine the presence of any architectural resources greater than 50 years of age that may be within the viewshed of the proposed FBI building and have not been previously documented. Any architectural resources that are 50 years of age or greater may require documentation, determination of eligibility, and assessment of effects completed.
- Coordinate with Section 106 consulting parties.

Blackburn

This site is located on Apple Valley Road. The site is approximately 90 acres. The Blackburn property has not been previously developed and is currently comprised of a former agricultural field covered with low shrubs and scrub brush. The property has not been surveyed for archaeological sites and no previously recorded archaeological sites are located here. Two historic resources, the NRHP-eligible Second Winchester Battlefield (034-5023) and the NRHP-eligible Kernstown Battlefield (034-0007) are located on the property.

Actions needed to fulfill Section 106 requirements at this site may include:

- Determine if the proposed action would have an adverse effect on the NRHP-eligible Second Winchester Battlefield and Kernstown Battlefield. If there is a determination of an adverse effect to either of these resources, mitigation may be necessary to reduce the effects and may involve the execution of a MOA between the VDHR, GSA, and other interested parties.
- Determine the presence of any architectural resources greater than 50 years of age that may be within the viewshed of the proposed FBI building and have not been previously documented. Any architectural resources that are 50 years of age or greater may require documentation, determination of eligibility, and assessment of effects completed.
- Conduct Phase I Archaeological Survey of the property.
- Coordinate with Section 106 consulting parties.

Whitehall

The Whitehall site is located at the intersection of Route 669 and Route 11 North (Martinsburg Pike). The site offered for development is approximately 58 acres and consists of agricultural fields and areas previously disturbed that are now in early successional stages. The Whitehall property has not been previously developed and is currently comprised of woods, agricultural fields, and open, fallow fields. This site has been previously evaluated in the 2007 EIS and the property has been surveyed archaeologically. One archaeological site, 44FK0644, a historic military camp, is located on the property. This site has been determined to be not eligible for the NRHP. There are no historic architectural resources on this property and the adjacent historic resources along Martinsburg Pike have been surveyed. One previously surveyed historic resource, the James Nathaniel Burwell House, is located to the north of the Whitehall property, in Berkeley County, West Virginia. This resource is listed in the NRHP and a MOA has previously been entered into between GSA and the WV SHPO.

Actions needed to fulfill Section 106 requirements at this site may include:

- Determine the presence of any architectural resources greater than 50 years of age that may be within the viewshed of the proposed FBI building and have not been previously documented. Any architectural resources that are 50 years of age or greater may require documentation, determination of eligibility, and assessment of effects.
- Coordinate with Section 106 consulting parties.
- Revisit and possibly revise the existing MOA if the James Nathaniel Burwell House is in the APE and could be adversely affected by the proposed action.

Attachment 3 – Preliminary List of Potential Consulting Parties

Sal	First Name	Last Name	Title	Organization	Address 1	Address 2	City	State	Zip	Phone	Fax	Email
Federal Agencies												
Mr.	Paul	Hawke	Chief	American Battlefield Protection Program	National Park Service	1201 Eye Street, NW (2287)	Washington	DC	20005	202-354-2023		Paul-_Hawke@nps.gov
Ms.	Kirsten Brinker	Kulis	GSA Liasion	Advisory Council on Historic Preservation	1100 Pennsylvania Avenue, NW	Suite 803	Washington	DC	20004	202-606-8517		kkulis@achp.gov
SHPO												
Ms.	Andrea	Kampinen	Architectural Historian	Virginia Department of Historic Resources	Office of Review and Compliance	2801 Kensington Avenue	Richmond	VA	23221	804-367-2323		andrea.kampinen@dhr.virginia.gov
Ms.	Ethel	Eaton	Senior Policy Analyst, Archaeologist	Virginia Department of Historic Resources	Office of Review and Compliance	2801 Kensington Avenue	Richmond	VA	23221	804-482-6088		ethel.eaton@dhr.virginia.gov
State Recognized Tribes												
Chief	Walt	Brown		Cheroenhaka (Nottoway) Indian Tribe	PO Box 397		Courtland	VA	23837	757-562-7760	757-516-8125	wdbrowniii@aol.com
Chief	Stephen R.	Adkins		Chickahominy Indian Tribe	8200 Lott Cary Road		Providence Forge	VA	23140	804-829-5548		chickahominytribe@gmail.com
Chief	Gene	Adkins		Chickahominy Indians – Eastern Division	2895 Mt. Pleasant Road		Providence Forge	VA	23140	804-966-7815		chief@cied.org
Chief	Carl	Custalow		Mattaponi Indian Tribe	1467 Mattaponi Reservation Circle		West Point	VA	23181	804-769-4508	804-769-0294	
Chief	Sharon	Bryant		Monacan Indian Nation	PO Box 1136		Madison Heights	VA	24572	434-946-0389	434-946-0390	MNation538@aol.com
Chief	Barry W.	Bass		Nansemond Indian Tribe	PO Box 6558		Portsmouth	VA	23703	757-487-5853		ebass@nansemond.org
Chief	Lynette	Lewis Allston		Nottoway Indian Tribe of Virginia	PO Box 246		Capron	VA	23829	434-658-4454		nottowayofva@aol.com
Chief	Kevin	Brown		Pamunkey Tribe	175 Lay Landing Road		King William	VA	23086	804-843-4792		
Chief	John	Lightner		Patawomeck Indian Tribe	1416 Brent Street		Fredericksburg	VA	22401	540-371-4437		cowboy_john1@msn.com
Chief	G. Anne	Richardson		Rappahannock Tribe	5036 Indian Neck Road		Indian Neck	VA	23148	804-769-0260		info@rappahannocktribe.org
Chief	Kenneth	Adams		Upper Mattaponi Indian Tribe	PO Box 174		King William	VA	23086	804-769-0041		
No Federal Recognized Tribes Identified in HUD's TDAT - Tribes we know from other projects have interests in VA												
Dr.	Wenonah G.	Haire	THPO and Director	Catawba Cultural Preservation Project	1536 Tom Steven Road		Rock Hill	SC	29730	803-328-2427	803-328-5791	wenonahh@ccppcrafts.com
Mr.	Clint	Halftower	Nation Representative	Cayuga Nation of Indians	2540 State Route 89	PO Box 803	Seneca Falls	NY	13148	315-568-0750	315-568-0752	sharon.leroy@cayuganation-nsn.gov
Mr.	Bill John	Baker	Principal Chief	Cherokee Nation	17675 South Muskogee Avenue	PO Box 948	Tahlequah	OK	74465	918-456-0671	918-458-5580	bill-baker@cherokee.org
Mr.	Russell	Townsend	THPO	Eastern Band of Cherokee Indians	Qualla Boundary Reservation	PO Box 455	Cherokee	NC	28719	828-554-6851	828-488-2462	russtown@nc-cherokee.com
Ms.	Lisa	Larue	THPO	United Keetoowah Band of Cherokee Indians	2450 Muskogee Avenue	PO Box 746	Tahlequah	OK	74464	918-431-1818	918-431-1873	gwickliffe@unitedkeetoowhanband.org
Chief	Leo R.	Henry		Tuscarora Nation of New York	2006 Mt. Hope Road		Lewiston	NY	14092	716-297-1148	716-297-7355	
Representatives of Local Governments												
Mr.	Roderick B .	Williams	County Administrator	Frederick County	107 N. Kent Street		Winchester	VA	22601	540-665-5600	540-667-0370	
Ms.	Elizabeth A.	Minor	Mayor	City of Winchester	15 North Cameron Street		Winchester	VA	22601	540-667-1815		elizabeth.minor@winchesterva.gov
Mr.	John A.	Willingham	City Council President	City of Winchester	16 North Cameron Street		Winchester	VA	22601	540-667-1815		john.willingham@winchesterva.gov
Additional Consulting Parties												
Mr.	Robert	Nieweg	Director & Regional Attorney	National Trust for Historic Preservation	Southern Field Office	1785 Massachusetts Avenue, NW	Washington	DC	20036-211	202-588-6040	202-588-6223	robert_nieweg@nthp.org
Mr.	James	Lighthizer	President	Civil War Trust	1156 15th Street NW	Suite 900	Washington	DC	20005	202-367-1861	202-367-1865	president@civilwar.org
Ms.	Elizabeth	Kostelny	Executive Director	APVA/Preservation Virginia	204 West Franklin Street		Richmond	VA	23220	804-648-1889	804-775-0802	apva@apva.org
Mr.	John D.	Hutchinson V	Conservation Director	Shenandoah Valley Battlefields Foundation	PO Box 897	9386 Congress Street	New Market	VA	22844	540-292-0396	540-740-4509	jhutch@svbf.net
Mr.	Gary	Crawford	President	Kernstown Battlefield Association	PO Box 1327		Winchester	VA	22604	540-869-2896		GCrawford@kernstownbattle.org
			President	Winchester-Frederick County Historical Society	1340 South Pleasant Valley Road		Winchester	VA	22601	540-662-6550		
Mr.	Don	Wood	Chairman	Berkeley County Historic Landmarks Commission	136 East Race Street	PO Box 1624	Martinsburg	WV	25401-1624	304-267-4713		

GSA Mid-Atlantic Region

March 20, 2015

Ms. Susan Pierce
Deputy State Historic Preservation Officer
West Virginia Division of Culture and History
The Cultural Center
1900 Kanawha Boulevard
Charleston, West Virginia 25305

Re: Section 106 Consultation
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Ms. Pierce:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

GSA began the site selection process for an approximately 100-acre site in Frederick County, Virginia in 2006 in order to procure via lease construction a central records storage facility for the FBI (see FR# 06-1096-BY). The facility, referred to as the CRC, would consolidate FBI's records from the Washington DC area, nationwide field offices, and nationwide information technology centers.

The project requirements were 947,000 rentable square feet consisting of three buildings: an office building, a records storage facility, and a data center. Three alternatives were considered during site selection. As part of the site selection process, GSA prepared an Environmental Impact Statement (EIS) and Record of Decision (ROD) completed in May 2007 for the selected alternative, the Sempeles Site. A Memorandum of Agreement (MOA) was executed with your office in October and November of 2007 to resolve adverse effects to the James Nathaniel Burwell House in Berkeley County, West Virginia. GSA continued with the procurement process but was unable to successfully award a lease due to market conditions and the specialized nature of the facility.

FBI then determined that the records storage piece of the project was the number one priority. GSA and FBI decided that the best way to move forward with meeting this mission critical function was through a federal construction funding request. The project requirements were revised to an overall square footage of 256,425 gross square feet, to include the records storage building, support area, visitor's screening facility, service center, and guard booth.

In 2014, federal funding was approved, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, including environmental reconnaissance, application of site criteria, and

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site test fits, a short list of three alternatives has been reached, one of which was included in the 2007 EIS: the Sempeles Site, now referred to as Whitehall Commerce Center. This alternative is the only one under consideration with the potential to affect any historic properties in West Virginia.

The proposed project is an undertaking subject to Section 106 Consultation. GSA would like to formally initiate Section 106 consultation at this time in accordance with 36 CFR § 800.3. At this time, the Area of Potential Effects (APE) for this undertaking includes the boundaries of the Whitehall Commerce Center alternative. As identification efforts commence, GSA and our cultural resource consultant, Cardno TEC, Inc., will identify additional layers of APE, including but not limited to direct effects, visual effects, audible effects, and other indirect effects. A location map illustrating the boundaries of the Whitehall Commerce Center alternative, located at Route 669 and Route 11, Clear Brook, Virginia, is included in Attachment 1. The portion of the Whitehall Commerce Center property that GSA would acquire and develop, if that property is identified as the preferred alternative, would not include any parcel of land in West Virginia.

The expressions of interest gathered by GSA in 2014 resulted in a long list of 12 alternatives. All of the long-listed alternatives were visited by GSA and FBI and studied in an environmental reconnaissance report by GSA's contractor, Cardno TEC, Inc. The environmental reconnaissance report identified cultural resource identification and evaluation work expected at each of the alternatives. A portion of the environmental reconnaissance report relating to the Whitehall Commerce Center is included in Attachment 2.

At this time, GSA has identified a preliminary list of potential consulting parties we will be contacting with invitations to be consulting parties for this undertaking. Please see Attachment 3 for the list. We would welcome any additions to this list that your office may have. We assume that we will be adding consulting parties to this list via public outreach and interaction during the NEPA process, and that some invited parties will choose not to participate.

GSA assumes, at this time, that the 2007 MOA executed with your office for the prior lease construction undertaking would need to be updated and revised, should the Whitehall Commerce Center alternative be selected as the preferred alternative.

We look forward to working with your office on this undertaking. At this time, GSA would welcome any initial comments you have on the undertaking. If you need additional information, please do not hesitate to contact me at (215) 446-4570 or donna.andrews@gsa.gov.

Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

Cc: Ms. Kirsten Brinker Kulis – ACHP
Mr. Paul Hawke – NPS, American Battlefield Protection Program
Mr. John D. Hutchinson V. – Shenandoah Valley Battlefields Foundation

Attachment 1 – Location Map for the Whitehall Commerce Center Alternative

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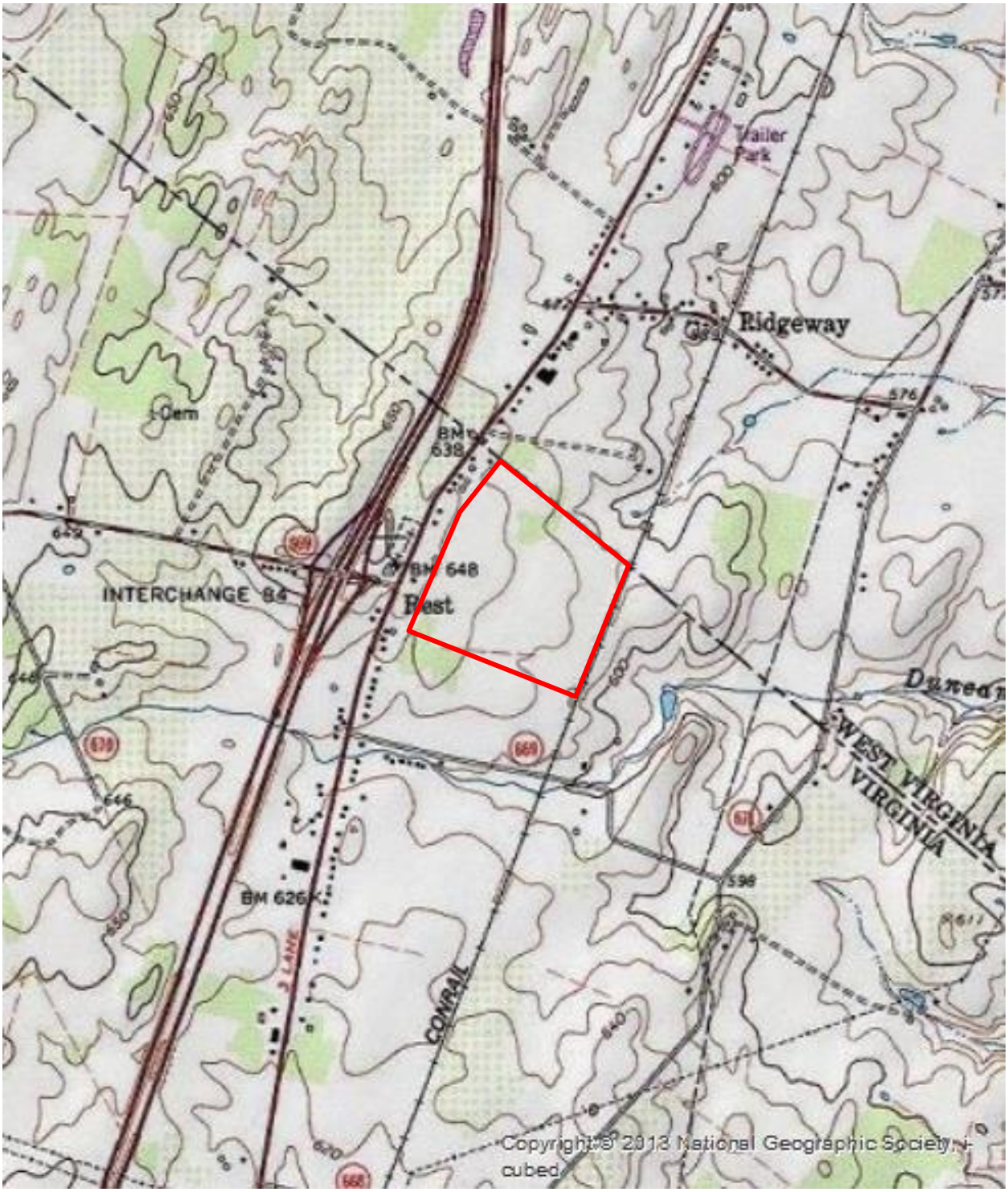

Portion of the Inwood WV-VA U.S.G.S. 7.5' Quadrangle depicting the Whitehall Commerce Center Alternative (outlined in red – offered property boundary not exact).

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Actions needed to fulfill Section 106 requirements at this site may include:

- Determine the presence of any architectural resources greater than 50 years of age that may be within the viewshed of the proposed FBI building and have not been previously documented. Any architectural resources that are 50 years of age or greater may require documentation, determination of eligibility, and assessment of effects.
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Chief	Gene	Adkins		Chickahominy Indians – Eastern Division	2895 Mt. Pleasant Road		Providence Forge	VA	23140	804-966-7815		chief@cied.org
Chief	Carl	Custalow		Mattaponi Indian Tribe	1467 Mattaponi Reservation Circle		West Point	VA	23181	804-769-4508	804-769-0294	
Chief	Sharon	Bryant		Monacan Indian Nation	PO Box 1136		Madison Heights	VA	24572	434-946-0389	434-946-0390	MNation538@aol.com
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Chief	Lynette	Lewis Allston		Nottoway Indian Tribe of Virginia	PO Box 246		Capron	VA	23829	434-658-4454		nottowayofva@aol.com
Chief	Kevin	Brown		Pamunkey Tribe	175 Lay Landing Road		King William	VA	23086	804-843-4792		
Chief	John	Lightner		Patawomeck Indian Tribe	1416 Brent Street		Fredericksburg	VA	22401	540-371-4437		cowboy_john1@msn.com
Chief	G. Anne	Richardson		Rappahannock Tribe	5036 Indian Neck Road		Indian Neck	VA	23148	804-769-0260		info@rappahannocktribe.org
Chief	Kenneth	Adams		Upper Mattaponi Indian Tribe	PO Box 174		King William	VA	23086	804-769-0041		
No Federal Recognized Tribes Identified in HUD's TDAT - Tribes we know from other projects have interests in VA												
Dr.	Wenonah G.	Haire	THPO and Director	Catawba Cultural Preservation Project	1536 Tom Steven Road		Rock Hill	SC	29730	803-328-2427	803-328-5791	wenonahh@ccppcrafts.com
Mr.	Clint	Halftower	Nation Representative	Cayuga Nation of Indians	2540 State Route 89	PO Box 803	Seneca Falls	NY	13148	315-568-0750	315-568-0752	sharon.leroy@cayuganation-nsn.gov
Mr.	Bill John	Baker	Principal Chief	Cherokee Nation	17675 South Muskogee Avenue	PO Box 948	Tahlequah	OK	74465	918-456-0671	918-458-5580	bill-baker@cherokee.org
Mr.	Russell	Townsend	THPO	Eastern Band of Cherokee Indians	Qualla Boundary Reservation	PO Box 455	Cherokee	NC	28719	828-554-6851	828-488-2462	russtown@nc-cherokee.com
Ms.	Lisa	Larue	THPO	United Keetoowah Band of Cherokee Indians	2450 Muskogee Avenue	PO Box 746	Tahlequah	OK	74464	918-431-1818	918-431-1873	gwickliffe@unitedkeetoowhanband.org
Chief	Leo R.	Henry		Tuscarora Nation of New York	2006 Mt. Hope Road		Lewiston	NY	14092	716-297-1148	716-297-7355	
Representatives of Local Governments												
Mr.	Roderick B .	Williams	County Administrator	Frederick County	107 N. Kent Street		Winchester	VA	22601	540-665-5600	540-667-0370	
Ms.	Elizabeth A.	Minor	Mayor	City of Winchester	15 North Cameron Street		Winchester	VA	22601	540-667-1815		elizabeth.minor@winchesterva.gov
Mr.	John A.	Willingham	City Council President	City of Winchester	16 North Cameron Street		Winchester	VA	22601	540-667-1815		john.willingham@winchesterva.gov
Additional Consulting Parties												
Mr.	Robert	Nieweg	Director & Regional Attorney	National Trust for Historic Preservation	Southern Field Office	1785 Massachusetts Avenue, NW	Washington	DC	20036-211	202-588-6040	202-588-6223	robert_nieweg@nthp.org
Mr.	James	Lighthizer	President	Civil War Trust	1156 15th Street NW	Suite 900	Washington	DC	20005	202-367-1861	202-367-1865	president@civilwar.org
Ms.	Elizabeth	Kostelny	Executive Director	APVA/Preservation Virginia	204 West Franklin Street		Richmond	VA	23220	804-648-1889	804-775-0802	apva@apva.org
Mr.	John D.	Hutchinson V	Conservation Director	Shenandoah Valley Battlefields Foundation	PO Box 897	9386 Congress Street	New Market	VA	22844	540-292-0396	540-740-4509	jhutch@svbf.net
Mr.	Gary	Crawford	President	Kernstown Battlefield Association	PO Box 1327		Winchester	VA	22604	540-869-2896		GCrawford@kernstownbattle.org
			President	Winchester-Frederick County Historical Society	1340 South Pleasant Valley Road		Winchester	VA	22601	540-662-6550		
Mr.	Don	Wood	Chairman	Berkeley County Historic Landmarks Commission	136 East Race Street	PO Box 1624	Martinsburg	WV	25401-1624	304-267-4713		

Donna Andrews - 3PCMC <donna.andrews@gsa.gov>

Federal Bureau of Investigation, Central Records Complex, Frederick County, Virginia

Kirsten B. Kulis <kkulis@achp.gov> Wed, Mar 25, 2015 at 1:14 PM
To: Donna Andrews <donna.andrews@gsa.gov>

Donna – Please keep me posted once you're ready to invite us to participate. We can talk about the resources/potential for AE's and see if ACHP participation is warranted. Thanks! – Kirsten

From: Donna Andrews - 3PCMC [mailto:donna.andrews@gsa.gov]
Sent: Friday, March 20, 2015 4:20 PM
To: Kirsten B. Kulis; Paul_Hawke@nps.gov; jhutch@svbf.net
Subject: Federal Bureau of Investigation, Central Records Complex, Frederick County, Virginia

[Quoted text hidden]

COMMONWEALTH of VIRGINIA

Department of Historic Resources

Molly Joseph Ward
Secretary of Natural Resources

2801 Kensington Avenue, Richmond, Virginia 23221

Julie V. Langan
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
www.dhr.virginia.gov

17 April 2015

Ms Donna Andrews
U.S. General Services Administration
The Strawbridge Building
20 North Eighth Street
Philadelphia, Pennsylvania 19107-3191

RE: Land acquisition and development of the FBI Central Records Complex
Three alternative sites in Virginia
DHR File No. 2006-0949

Dear Ms Andrews:

The Department of Historic Resources (DHR) received your letter of 20 March 2015 regarding the above referenced project. It is our understanding that the United States General Services Administration (GSA) plans to construct a new records storage facility for the Federal Bureau of Investigation (FBI). The new facility will be 256,425 gross square feet, will require a site between minimum 40 acres and a maximum 108 acres, and consist of the records storage building, support area, visitor's screening facility, service center, and guard booth.

From an initial list of 12 alternatives, the GSA has selected three final possible site locations for the FBI Central Records Complex, all of which are located in Virginia. These three finalists are: Alternative 1: Arcadia Route 50 Property, 2117 Millwood Pike, Winchester; Alternative 2: Blackburn Limited Partnership, Apple Valley Road, Winchester; and, Whitehall Commerce Center, Route 669 & Route 11, Clear Brook. Construction of the proposed records center at any of the shortlisted sites has the potential to affect historic properties listed in or eligible for listing in the National Register of Historic Places. This is particularly true for any archaeological sites that may be present. The GSA will need to

Administrative Services
10 Courthouse Ave.
Petersburg, VA 23803
Tel: (804) 862-6408
Fax: (804) 862-6196

Eastern Region Office
2801 Kensington Avenue
Richmond, VA 23221
Tel: (804) 367-2323
Fax: (804) 367-2391

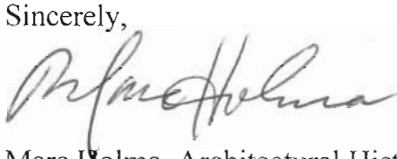
Western Region Office
962 Kime Lane
Salem, VA 24153
Tel: (540) 387-5443
Fax: (540) 387-5446

Northern Region Office
5357 Main Street
PO Box 519
Stephens City, VA 22655
Tel: (540) 868-7029
Fax: (540) 868-7033

conduct cultural resources studies to identify any historic architectural or archaeological resources within the undertaking's Area of Potential Effects and consult with DHR on the findings of those studies. Please continue to involve the DHR pursuant to Section 106 of the National Historic Preservation Act, as amended, and its implanting regulation 36 CFR Part 800 as the GSA moves forward with this project.

If you have any questions about our comments, please contact me at (804) 482-6090.

Sincerely,



Marc Holma, Architectural Historian
Review and Compliance Division

WEST VIRGINIA
Division of Culture and History

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300
Randall Reid-Smith, Commissioner
Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EEO/AA Employer

April 24, 2015

Ms. Donna Andrews
Regional Historic Preservation Officer
GSA, Public Buildings Service
The Strawbridge's Building
20 North Eight Street
Philadelphia, PA 19107-3191

RE: Proposed FBI Central Records Complex-Frederick County, Virginia
FR#: 06-1096-BY-9

Dear Ms. Andrews:

We have reviewed the above referenced project to determine potential effects to cultural resources. As required by Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

According to submitted information, the U.S. General Services Administration (GSA) is moving forward with plans to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). Consultation for this project was initially undertaken in 2007 and resulted in the execution of a Memorandum of Agreement between GSA and the West Virginia State Historic Preservation Office to resolve adverse effects to the James Nathaniel Burwell House in Berkeley County, West Virginia and site 46BY209 (Sempeles X-1). We understand that a short list of three alternatives has been reached and includes the Sempeles Site, now referred to as Whitehall Commerce Center. This is the only alternative that has the potential to affect historic properties in West Virginia.

Architectural Resources:
Based upon your March 20, 2015 letter, it is our understanding that if the Whitehall Commerce Center alternative is selected; the 2007 MOA will be reviewed and updated as necessary. We have no objections to this plan.

Archaeological Resources:
Submitted information indicates that the proposed construction activities will occur within Frederick County, Virginia and will therefore avoid impacting site 46BY209 which was considered during the previous consultation. With this understanding, we are of the opinion that there are no historic archaeological properties that will be affected by the proposed project. No further consultation is necessary with respect to archaeological resources.

Public Comments:
You requested any additions to the list of potential consulting parties. Should the Whitehall Commerce Center be selected, you may wish to consult the Berkeley County Historical Society and the Berkeley County Historic Landmark Commission. The latter is a Certified Local Government.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact me or Carolyn Kender, Archaeologist, at (304) 558-0240.*

Sincerely,

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/CMK

July 6, 2015

Ms. Susan Pierce
Deputy State Historic Preservation Officer
West Virginia Division of Culture and History
The Cultural Center
1900 Kanawha Boulevard
Charleston, West Virginia 25305

Re: Section 106 Consultation
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia
FR# 06-1096-BY

Dear Ms. Pierce:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). GSA initiated Section 106 consultation with your office for this undertaking in March 2015. At that time, the Area of Potential Effects (APE) for this undertaking included three short-listed alternatives, only one of which had the potential to affect any historic properties in West Virginia: the Whitehall Commerce Center, Route 669 & Route 11, Clear Brook, Virginia

In April and May of 2015 architectural survey was undertaken at the Whitehall Commerce Center alternative. Included in this package is a draft "Historic Resources Survey and Determination of Eligibility Report" report prepared by GSA's cultural resource consultant, Cardno. This report delineates the APE for Indirect Effects and includes the identification of historic properties and assessment of effects.

To summarize the identification and assessment findings, for above-ground (architectural) resources, GSA did not identify any new potentially eligible or eligible historic properties within the APE for Indirect Effects at the Whitehall Commerce Center alternative. The National Register-listed James Nathanial Burwell House (NR: 5/16/91) is located in the APE for Indirect Effects. The proposed CRC will have an Adverse Effect on the viewshed of the James Nathanial Burwell House.

In terms of archaeological resources, the portion of the Whitehall Commerce Center property that GSA would acquire and develop, if that property is identified as the preferred alternative, would not include any parcel of land in West Virginia. There would be no direct effects to any potentially eligible or eligible historic properties located in the State of West Virginia.

The purpose of this letter is to seek your concurrence with the APEs and identification of historic properties established by GSA for the purpose of completing our identification responsibilities, and to seek your acceptance of the aforementioned information as documentation regarding this

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20 N. 8th Street
Philadelphia, PA 19107-3191

action for consultation purposes. In accordance with Section 106 of the National Historic Preservation Act and 36 CFR 800.5(d)(2), it is the opinion of GSA that the potential land acquisition and development of the CRC for FBI at the Whitehall Commerce Center alternative would result in an Adverse Effect to historic properties located in the State of West Virginia. A Memorandum of Agreement (MOA) was signed during a previous incarnation of this undertaking in 2007 to mitigate the adverse visual effect to the James Nathanial Burwell House. This MOA will need to be reviewed and updated. Accordingly, GSA seeks your concurrence with our determination of effect.

If you need additional information, please do not hesitate to contact me at (215) 446-4570 or donna.andrews@gsa.gov.

Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

Cc: Ms. Kirsten Brinker Kulis – ACHP
Mr. Paul Hawke – NPS, American Battlefield Protection Program
Mr. John D. Hutchinson V. – Shenandoah Valley Battlefields Foundation
Ms. Lisa LaRue Baker – United Keetoowah Band of Cherokee Indians in Oklahoma
Mr. Don Wood – Berkeley County Historic Landmarks Commission

July 20, 2015

Mr. Marc Holma
Office of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

Re: Section 106 Consultation
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia
DHR File No 2006-0949

Dear Mr. Holma:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). GSA initiated Section 106 consultation with your office for this undertaking in March 2015. At that time, the Area of Potential Effects (APE) for this undertaking included three short-listed alternatives:

Alternative 1: Arcadia Route 50 Property, 2117 Millwood Pike, Winchester Virginia
Alternative 2: Blackburn Limited Partnership, Apple Valley Road, Winchester, Virginia
Alternative 3: Whitehall Commerce Center, Route 669 & Route 11, Clear Brook, Virginia

Since March 2015, the second alternative property, Blackburn Limited Partnership, has been purchased by a private developer and is no longer available for consideration. GSA is now considering two short-listed alternatives:

Alternative 1: Arcadia Route 50 Property, 2117 Millwood Pike, Winchester Virginia
Alternative 2: Whitehall Commerce Center, Route 669 & Route 11, Clear Brook, Virginia

In April and May of 2015 Phase I architectural survey was undertaken at both alternatives and a Phase I archaeological survey was undertaken at the Arcadia Route 50 Property alternative. Phase I archaeological survey was undertaken at the Whitehall Commerce Center alternative during a previous incarnation of this undertaking in 2007. Included in this package are draft "Phase I Architectural Survey" and "Phase I Archaeological Survey of the Arcadia Property" reports prepared by GSA's cultural resource consultant, Cardno. These reports delineate the APE for both Direct and Indirect Effects and include the identification of historic properties and assessment of effects at both alternatives.

To summarize the identification findings, for above-ground (architectural) resources, GSA did not identify any eligible historic properties within the APE for Direct or Indirect Effects at either alternative.

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Philadelphia, PA 19107-3191

In terms of archaeological resources, through a Phase I investigation conducted over 59 acres of land at the Arcadia Route 50 Property alternative, GSA did not identify any potentially eligible or eligible historic properties. The Whitehall Commerce Center alternative was tested in 2007 and no potentially eligible or eligible historic properties were identified at that time.

The purpose of this letter is to seek your concurrence with the APEs and identification of historic properties established by GSA for the purpose of completing our identification responsibilities, and to seek your acceptance of the aforementioned information as documentation regarding this action for consultation purposes. In accordance with Section 106 of the National Historic Preservation Act and 36 CFR 800.4(d)(1), it is GSA's determination that the proposed land acquisition and development of the CRC for FBI at either one of the alternatives will result in No Historic Properties Affected for historic properties located in the Commonwealth of Virginia. Accordingly, GSA seeks your concurrence with our determination of effect.

If you need additional information, please do not hesitate to contact me at (215) 446-4570 or donna.andrews@gsa.gov.

Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

Cc: Ms. Kirsten Brinker Kulis – ACHP
Mr. Paul Hawke – NPS, American Battlefield Protection Program
Mr. John D. Hutchinson V. – Shenandoah Valley Battlefields Foundation
Ms. Lisa LaRue Baker – United Keetoowah Band of Cherokee Indians in Oklahoma
Ms. Brenda Garton – Frederick County

WEST VIRGINIA
Division of Culture and History

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300
Randall Reid-Smith, Commissioner
Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EEO/AA Employer

August 10, 2015

Ms. Donna Andrews
Regional Historic Preservation Officer
GSA, Public Buildings Service
The Strawbridge's Building
20 North Eight Street
Philadelphia, PA 19107-3191

RE: Proposed FBI Central Records Complex-Frederick County, Virginia
FR#: 06-1096-BY-10

Dear Ms. Andrews:

We have reviewed the above referenced project to determine potential effects to cultural resources. As required by Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

According to submitted information, the U.S. General Services Administration (GSA) is moving forward with plans to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). Consultation for this project was initially undertaken in 2007 and resulted in the execution of a Memorandum of Agreement between GSA and the West Virginia State Historic Preservation Office to resolve adverse effects to the James Nathaniel Burwell House in Berkeley County, West Virginia and site 46BY209 (Sempeles X-1). We understand that a short list of three alternatives has been reached and includes the Sempeles Site, now referred to as Whitehall Commerce Center (Whitehall). This is the only alternative that has the potential to affect historic properties in West Virginia. In April and May 2015, architectural survey was undertaken at the Whitehall Commerce Center Alternative. Following the field work, GSA's cultural resource consultant, Cardno, prepared a draft "Historic Resources Survey and Determination of Eligibility Report."

Architectural Resources:
We have reviewed the draft report. In it, Cardno explained their survey methodology for this project, justified the selected Area of Potential Effects (APE), and presented the results of their historic resource survey. The APE consists of an approximately 1,000-foot buffer around the proposed project site and takes into account both direct and indirect effects. Cardno identified seven architectural resources, 45 years or older, within the APE for the proposed project. These seven resources include the James Nathanial Burwell House (91000553), listed in the National Register of Historic Places in 1991, and six remaining architectural resources. Following an evaluation of these six remaining resources, Cardno recommends they are not eligible for the NRHP. None of these six resources are considered noteworthy examples of their architectural style nor are they historically significant and they do not meet the NRHP eligibility criteria. We concur that the proposed APE is appropriate and we also concur with the assessment that the six architectural resources within the APE as enumerated in Table 4-1 are not eligible for NRHP listing. No further consultation is necessary regarding architectural resources for the Whitehall Alternative; however, we ask that you contact our office if your project should change in any way. In addition, if the Whitehall Alternative is selected, we remind your office to continue consultation specific to revisions to the 2007 Memorandum of Agreement.

Archaeological Resources:
Your report states that the portion of the Whitehall Commerce Center property that GSA would acquire and develop would not include any parcel of land in West Virginia. There would be no direct effects to any potentially eligible or eligible historic sites in the State of West Virginia. We concur with this assessment.

Public Comments:
We recommend that your office keep the Berkeley County Historical Society and the Berkeley County Historic Landmark Commission apprised of this project developments.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Jeffrey S Smith, Structural Historian, or Carolyn Kender, Archaeologist, at (304) 558-0240.*

Sincerely,

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/JSS/CMK

GSA Mid-Atlantic Region

September 8, 2015

Ms. Kirsten Brinker Kulis
GSA Liasion
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue NW, Suite 803
Washington, DC 20004

Re: Notification of Potential for Adverse Effect
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Ms. Kulis:

I would like to notify the Advisory Council on Historic Preservation (ACHP) of the U.S. General Services Administration's (GSA's) determination that the proposed construction of a Central Records Center (CRC) for the Federal Bureau of Investigations (FBI) has the potential to adversely affect historic properties.

The proposed undertaking would include the acquisition of property for, and construction and operation of, a CRC for the FBI. GSA would acquire one site with a minimum of 40 acres and a maximum of 108 acres. GSA would then construct a five-story, approximately 256,425 gross square foot building with records storage, support area, visitor screening facility, service center, and guard booth, and approximately 427 parking spaces. The facility would have a secure perimeter consisting of a perimeter fence and natural features. The CRC would be operated by approximately 430 employees who would primarily come from the existing facility on Marcel Drive in Winchester, Virginia. It is anticipated that acquisition of a site would occur in 2016 and the facility would begin occupancy and transition into operations in late 2019.

GSA is considering two alternatives for this undertaking:

Alternative 1: Arcadia Route 50 Property, 2117 Millwood Pike, Winchester Virginia
Alternative 2: Whitehall Commerce Center, Route 669 & Route 11, Clear Brook, Virginia

GSA has been in consultation with the Virginia State Historic Preservation Office and West Virginia State Historic Preservation Office via mail, email, and phone, and has

U.S. General Services Administration
20 N. 8th Street
Philadelphia, PA 19107-3191
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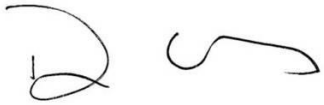
made every effort to meet the goals of the project and avoid adverse effects. Potential consulting parties have been contacted and several have positively responded that they wish to be consulting parties.

GSA has determined that the proposed construction of the CRC will potentially have an Adverse Effect on the James Nathaniel Burwell House as defined in 36 CFR 800.5. The James Nathaniel Burwell House is located in West Virginia, and the proposed construction of the CRC will have an adverse visual effect on this historic property should Alternative 2, the Whitehall Commerce Center, be selected as the preferred alternative. GSA will continue to comply with the Section 106 consultation process to resolve adverse effects and involve the public, interested parties, and consulting parties in accordance with 36 CFR 800.2.

We are requesting that the ACHP review the information outlined in this letter, and the previously submitted documentation, for the purpose of determining if the Council wishes to join the consultation process for this undertaking. GSA has previously submitted, to your attention, copies of correspondence with the Virginia State Historic Preservation Office and West Virginia State Historic Preservation Office and copies of survey reports and other documentation regarding this undertaking. If the ACHP chooses to participate, we would appreciate a response within 15 days of receipt of this notice. If you need additional information, please do not hesitate to contact me at (215) 446-4570 or donna.andrews@gsa.gov.

Sincerely,



Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

Cc: Joanna Rosato, Mid-Atlantic Region, GSA
Beth Savage, Center for Historic Buildings, GSA
Andrea Burke, Virginia Department of Historic Resources
Susan Pierce, West Virginia State Historic Preservation Office
Lisa LaRue Baker, United Keetoowah Band of Cherokee Indians in Oklahoma
Paul Hawke, NPS, American Battlefield Protection Program
John D. Hutchinson V., Shenandoah Valley Battlefields Foundation
Brenda Garton, Frederick County
Todd Funkhouser, Berkeley County Historic Landmarks Commission

Preserving America's Heritage

September 21, 2015

Ms. Donna Andrews
Regional Historic Preservation Officer
U.S. General Services Administration
Mid-Atlantic Region
20 North Eighth Street
Philadelphia, PA 19107-3191

Ref: *Proposed Land Acquisition and Development, Federal Bureau of Investigation, Central Records Complex, Frederick County, Virginia*

Dear Ms. Andrews:

On September 8, 2015, the Advisory Council on Historic Preservation (ACHP) received your letter transmitting additional documentation we requested regarding the subject project. Based upon the information you provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of our regulations, "Protection of Historic Properties" (36 CFR Part 800), does not apply to this undertaking. Accordingly, we do not believe that our participation in the consultation to resolve adverse effects is needed. However, if we receive a request for participation from the State Historic Preservation Officer, Tribal Historic Preservation Officer, affected Indian tribe, a consulting party, or other party, we may reconsider this decision. Additionally, should circumstances change, and you determine that our participation is needed to conclude the consultation process, please notify us.

Pursuant to 36 CFR §800.6(b)(1)(iv), you will need to file the final Memorandum of Agreement (MOA), developed in consultation with the applicable State Historic Preservation Office (SHPO) and other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the MOA and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with your notification of adverse effect. If you have any questions or require our further assistance, please contact Ms. Kirsten Kulis, General Services Administration Liaison, at 202-517-0217 or via e-mail at kkulis@achp.gov.

Sincerely,

Artisha Thompson
Historic Preservation Technician
Office of Federal Agency Programs

GSA Mid-Atlantic Region

September 29, 2015

Ms. Susan Pierce
Deputy State Historic Preservation Officer
West Virginia Division of Culture and History
The Cultural Center
1900 Kanawha Boulevard
Charleston, West Virginia 25305

Re: Section 106 Consultation
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia
FR# 06-1096-BY

Dear Ms. Pierce:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). Your office concurred with GSA's identification of historic properties and determination of a possible adverse visual effect to the James Nathaniel Burwell House by letter dated August 10, 2015. GSA has since notified the Advisory Council on Historic Preservation (ACHP) of the potential for adverse effect, and the ACHP has declined to participate in the consultation process by letter dated September 21, 2015.

At this time GSA would like to solicit your review and comment of a draft revision of the Memorandum of Agreement (MOA) executed in 2007. The preferred alternative for this undertaking has not yet been selected, but GSA would like to have MOA stipulations agreed upon and MOA executed, or ready for execution, should the Whitehall alternative be selected as the preferred alternative this coming winter. By copy of this letter, GSA also invites the Berkeley County Historic Landmarks Commission and Berkeley County Historical Society to participate in the MOA as consulting parties.

Stipulation IV from the 2007 MOA has been removed, as that related to the potential for development on seven acres of land located in West Virginia. GSA does not intend to acquire the West Virginia portion of the Whitehall site. Stipulations I through III have been slightly revised to reference current zoning requirements in Frederick County, Virginia. The design review stipulation remains and GSA looks forward to your comments. Additional standard language stipulations have been added for duration, monitoring and reporting, dispute resolution, amendments, and termination.

Please return any comments or suggested changes you may have to me for incorporation into a revised draft. Once all parties have agreed upon the language of the MOA and contents of the stipulations, the MOA will be signed first by GSA's Federal Preservation Officer, Beth Savage.

U.S. General Services Administration
100 S. Independence Mall West
Philadelphia, PA 19106
www.gsa.gov

Please be aware that GSA's Mid-Atlantic Regional office is moving in October. Our new mailing address will be: 100 South Independence Mall West, Suite 415, Philadelphia, PA 19106. If you need additional information, please do not hesitate to contact me at (215) 446-4570 or donna.andrews@gsa.gov.

Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

Cc: Mr. Todd Funkhouser – Berkeley County Historic Landmarks Commission / Berkeley County Historical Society

MEMORANDUM OF AGREEMENT

BETWEEN THE U.S. GENERAL SERVICES ADMINISTRATION AND THE WEST VIRGINIA STATE HISTORIC PRESERVATION OFFICER REGARDING THE FEDERAL BUREAU OF INVESTIGATIONS CENTRAL RECORDS COMPLEX, FREDERICK COUNTY, VIRGINIA

WHEREAS, the U.S. General Services Administration (GSA) proposes to construct a facility to house the Federal Bureau of Investigation's (FBI's) Central Records Complex (CRC) pursuant to Prospectus PVA-FBSC-FR14; and

WHEREAS, the undertaking consists of the construction of a five story, approximately 256,425 gross square foot building with records storage, a support area, a visitor screening facility, a service center, a guard booth, approximately 427 parking spaces, and a secure perimeter consisting of a perimeter fence and natural features, on a site totaling approximately 58 acres situated in Frederick County, Virginia; and

WHEREAS, GSA and the West Virginia State Historic Preservation Officer (SHPO) agree on the Area of Potential Effect (APE) for the Undertaking as depicted in Attachment I; and

WHEREAS, the GSA has applied the Criteria of Adverse Effect as set forth in 36 CFR § 800.5(a)(1) and finds that the construction of the CRC will have an indirect adverse effect upon the James Nathaniel Burwell House located in Berkeley County, West Virginia, which is listed in the National Register of Historic Places; and

WHEREAS, GSA has consulted with the SHPO and other interested parties pursuant to 36 CFR § 800, the regulations implementing Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470f); and

WHEREAS, GSA has consulted with the Berkeley County Historic Landmarks Commission regarding the effects of the undertaking on historic properties and has invited them to sign this MOA as a concurring party; and

WHEREAS, the Signatories have provided for public involvement in the proposed undertaking by coordinating the Section 106 consultation with the public review and consultation under the National Environmental Policy Act of 1969, as amended, 42 U.S.C. § 4321 et seq.; and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), GSA has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination with specified documentation, and the ACHP has chosen not to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii); and

NOW, THEREFORE, the GSA and the WV SHPO agree that the undertaking will be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

STIPULATIONS

I. LANDSCAPING

The GSA shall ensure that the view shed of the James Nathaniel Burwell House is maintained by mandating that the landscaping plan for the northeast corner of the CRC site take into account the use of a vegetated berm between the CRC complex and the security fence, which along with the existing tree line will aid in maintaining the view shed.

II. LIGHTING

The GSA will ensure, to the greatest extent possible, that the lighting plan for the facility uses low intensity exterior lighting that meets Dark Sky requirements developed by the International Dark Sky Association for the protection and preservation of the nighttime environment and to stop the adverse effects of light pollution on dark skies.

III. DESIGN REVIEW

GSA will continue consultation with the SHPO regarding the design of the CRC to ensure that it complements the surrounding features of the landscape and attempts to preserve significant natural elements of the selected site, including view sheds. The building height will conform to local zoning limitations. The guiding design principles for the FBI CRC will follow the principles in GSA's Design Excellence program.

A. GSA will submit the 35% and 95% relevant plans and specifications for the elevations and associated exterior details including landscaping and lighting.

    a. The SHPO will provide any comments in writing within thirty calendar (30) days of their receipt of the design drawing submissions.

    b. Should the SHPO not comment within 30 days after receipt of the 95% design drawings, GSA will assume no comments are forthcoming and finalize the design documents.

B. GSA will have no obligation to provide copies of any "sensitive but unclassified" documents to any party that does not agree to comply with the terms and conditions of GSA Order PBS P 3490.2 *Document Security for Sensitive But Unclassified Building Information,* dated October 22, 2014, a copy of which is attached hereto as Attachment 2 and incorporated herein by reference. The GSA Order sets forth the agency's policy regarding the dissemination of "sensitive" but "unclassified" documents for Federal facilities only to persons on a "need to know basis". GSA reserves the right to withhold, consistent with the terms of the GSA Order, any portion of the plans and specifications unrelated to the historic preservation aspects of the construction of the CRC.

C. If after receiving comments on any plan, or other document that has been reviewed and commented on pursuant to this MOA, if GSA proposes any material or substantial additions or deletions that may adversely affect any historic property GSA will notify the SHPO explaining the reasons for the requested material changes, additions, and/or deletions. GSA will provide the SHPO thirty (30) days from the receipt of project information and GSA’s request to review and comment, in writing, on

the proposed material changes. The SHPO will notify GSA as soon as practicable if additional information is necessary to complete its review. If the SHPO does not provide written comments to GSA within thirty (30) days after receipt, GSA will assume that the SHPO does not object to the proposed project alterations and will finalize the plans, specifications and/or other documentation provided for review.

IV. DURATION

This MOA will expire if its terms are not carried out within five (5) years from the date of its execution. Prior to such time, GSA may consult with the other Signatories to reconsider the terms of the MOA and amend it in accordance with Stipulation VII below.

V. MONITORING AND REPORTING

Each year following the execution of this MOA until it expires or is terminated, GSA shall provide all parties to this MOA a summary report detailing work undertaken pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in GSA's efforts to carry out the terms of this MOA.

VI. DISPUTE RESOLUTION

Should any Signatory or Concurring Party to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, GSA shall consult with such party to resolve the objection. If GSA determines that such objection cannot be resolved, GSA will:

A. Forward all documentation relevant to the dispute, including the GSA's proposed resolution, to the ACHP. The ACHP shall provide GSA with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, GSA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, Signatories and Concurring Parties, and provide them with a copy of this written response. GSA will then proceed according to its final decision.

B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, GSA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, GSA shall prepare a written response that takes into account any timely comments regarding the dispute from the Signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.

C. GSA's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

VII. AMENDMENTS

This MOA may be amended when such an amendment is agreed to in writing by all Signatories. The amendment will be effective on the date a copy, signed by all of the Signatories, is filed with the ACHP.

VIII. TERMINATION

If any Signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation VII, above. If within thirty (30) days (or another time period agreed to by all Signatories) an amendment cannot be reached, any Signatory may terminate the MOA upon written notification to the other Signatories.

Once the MOA is terminated, and prior to work continuing on the Undertaking, GSA must either (a) execute an MOA pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. GSA shall notify the Signatories as to the course of action it will pursue.

Execution of this MOA by the GSA and SHPO and implementation of its terms evidence that GSA has taken into account the effects of this Undertaking on historic properties and afforded the ACHP an opportunity to comment.

END STIPULATIONS

SIGNATORIES:

U.S. General Services Administration

_____ Date _____
Beth Savage
Federal Preservation Officer

_____ Date_____
Joanna Rosato
Public Buildings Service Mid-Atlantic Regional Commissioner

West Virginia Division of Culture and History

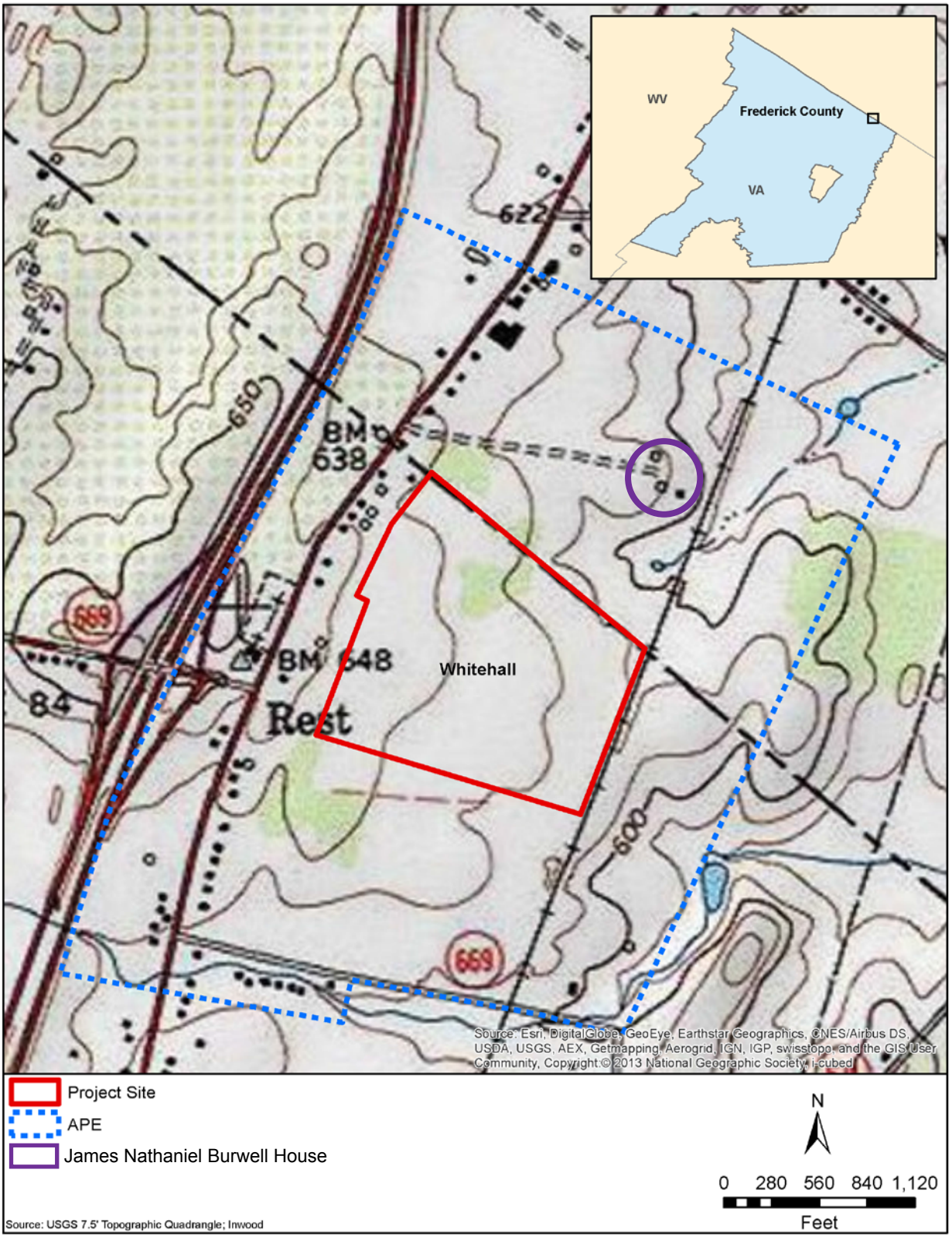
_____ Date _____
Susan Pierce
Deputy State Historic Preservation Officer

CONSULTING PARTIES

Berkeley County Historic Landmarks Commission / Berkeley County Historical Society

_____ Date _____
Todd Funkhouser
Chairman

ATTACHMENTS:
Attachment I: APE
Attachment 2: GSA Order PBS P 3490.2



Attachment 1: Whitehall APE

GENERAL SERVICES ADMINISTRATION
Washington, DC 20405

PBS P 3490.2

GSA POLICY AND PROCEDURE

SUBJECT: Document Security for Sensitive But Unclassified Building Information

1. Purpose. This directive describes GSA's policy to protect sensitive but unclassified (SBU) building information for GSA-controlled space. GSA-controlled space includes owned, leased, and delegated Federal facilities. Not all building information is automatically considered sensitive but unclassified. Only specific applicable information, marked with SBU designations, needs to be controlled in accordance with this policy. GSA will use SBU terminology and markings on all building information in all formats (see Appendix B). Both legacy SBU and new SBU building information will be subject to the terms of this directive.

2. Background. GSA has been marking and managing sensitive but unclassified building information and has issued several updates to the policy since the bombing of the Alfred Murrah Federal Building in 1995.

Executive Order 13556, signed on November 4, 2010, establishes a program for managing Controlled Unclassified Information, with the National Archives and Records Administration (NARA) serving as the executive agent. This Executive Order emphasizes "…the openness and uniformity of Government-wide practice." GSA has been working with NARA in developing Controlled Unclassified Information (CUI) standards and best practices. Upon completion of NARA's CUI efforts and directives (with expected implementation to start April 2016), GSA's SBU designation will be replaced with the NARA CUI designation and this directive will be updated to reflect the new CUI requirements.

3. Cancellation. PBS 3490.1A Document Security for Sensitive but Unclassified Building Information, issued June 1, 2009, is cancelled, effective immediately.

4. Scope and Applicability. This directive applies to the access to and generation, dissemination, storage, transfer and disposal of all SBU building information related to GSA-controlled space and to procurements to obtain, alter, or manage space, either Government-owned or leased, including GSA space that is delegated to other Federal agencies.

a. All sensitive building information shall be marked and managed as SBU in accordance with this directive.

i. General Services Administration Information Technology (GSA IT), along with PBS business lines, will develop a system to track project SBU building information, to be implemented in a phased approach and completed within five years of the issuance date of this directive.

b. Existing SBU documents shall be controlled under this directive when procuring and contracting for design and construction services for renovations to existing facilities. For new facilities, the building drawings and other related building information will be reviewed and may be designated SBU, as appropriate. This designation applies at the time SBU building information is turned over by the Architect-Engineering (A-E) personnel to the Government as part of the final construction control documents. However, not all building information will be designated as SBU.

THIS DIRECTIVE DOES **NOT** APPLY TO CLASSIFIED BUILDING INFORMATION, which is governed by Executive Order 13526 - Classified National Security Information.

5. Policy Objectives. This directive has three principal objectives:

a. To diminish the potential that building information will be available for use by a person or persons with an interest in causing harm, and

b. To allow access to this information to those recipients who have a legitimate business need to know such information.

c. To ensure a "Business Need to Know" exists. All individuals must have a legitimate purpose to handle SBU building information. They must use good judgment, common sense and take reasonable care to ensure that sensitive building information is protected in accordance with this directive.

6. Definitions.

a. "SBU building information" is information related to GSA-controlled space that is sufficiently sensitive to warrant some level of protection from full and open public disclosure, but does not warrant classification. This information requires safeguarding and dissemination controls in order to diminish the potential that building information will be accessible to a person or persons with an interest in causing harm. Appendix A provides a list of examples of SBU building information. This list is for illustrative purposes and is not comprehensive.

b. A "Business Need to Know" exists when access to SBU building information is necessary for the conduct of official GSA business. Some examples of individuals who may have a legitimate "business need to know" are GSA project managers, staff from the Office of the Inspector General (OIG), authorized vendors, utilities, state and local fire department personnel, among others. This directive does not describe all instances of a legitimate "business need to know".

7. Clarification of GSA Order CIO P 2181.1. All building drawings or building information should not be designated, automatically, as SBU. Refer to Appendix A of this document for guidance. GSA Order CIO P 2181.1 provides the policy and procedures for issuing and maintaining GSA credentials. Chapter 2, Section 4.b.(4) of GSA Order CIO P 2181.1 states, “Those individuals whose duties require a higher degree of trust, such as IT system administrators, those who handle financial transactions, or those who deal with PII, and other sensitive information (e.g., building drawings, etc.), will continue to require investigations associated with higher levels of trust such as the Minimum Background Investigation (MBI) or the Limited Background Investigation (LBI).” These requirements shall not be used to restrict access to SBU building information further than as clarified in Section 4 (Applicability) of this directive. Access to sensitive building drawings may be granted on a 'Business Need to Know' basis (as concurred on by the respective GSA business line) without regard to the credentialing cited above.

8. Signature.

/S/ September 2, 2014
NORMAN DONG
Commissioner
Public Buildings Service

PBS P 3490.2 Document Security for Sensitive But Unclassified Building Information

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GENERAL REQUIREMENTS AND RESPONSIBILITIES

The principles governing the management of SBU building information are as follows for all GSA personnel and contractors:

1. SBU building information shall be controlled so that building information in electronic and hard copy formats are made available only to individuals who have a legitimate business need to know (see Appendices A and B).

2. Adequate controls shall be used to monitor access to and dissemination of SBU building information.

3. SBU building information shall be safeguarded during use and either properly destroyed or returned to GSA after use.

4. SBU information shall not be presented in public forums.

5. The SBU designation of each building's information (for design, construction bidding, facility management, etc.) shall be based on the specific information's level of sensitivity and the physical security level of the building itself.

SPECIFIC REQUIREMENTS AND RESPONSIBILITIES

1. Public Buildings Service. The Public Buildings Service (PBS) is ultimately responsible for protecting SBU building information from unauthorized use and for making the initial determination of whether an entire building, or portion thereof, is considered sensitive.

2. PBS Regional Commissioners (RCs). PBS RCs or authorized designee (or in the case of delegated buildings, agency officials), make the initial determination regarding whether a building's documents/information or portion thereof are/is considered sensitive. That determination shall in turn trigger an action on the part of the PBS Project Manager or Program Manager to mark the necessary related building information as SBU.

a. RCs shall consider the physical security level of the building itself, as well as comparable building types and occupants in making the determination whether or not a building's documents/information or portion thereof are/is sensitive.

b. The RC shall designate an individual responsible for controlling SBU building information.

c. RCs must implement this directive within their Regions in a uniform, consistent manner so that all items containing SBU building information are marked and handled appropriately.

d. In the case of a new building in the planning stages, for a single tenant, the RC in consultation with the tenant will hold decision-making authority in determining the appropriate sensitivity of building information.

e. In the case of a new building in the planning stages, for multiple tenants, the RC in consultation with all planned tenants will hold decision-making authority in determining the appropriate sensitivity of building information.

3. Tenants. In the case where the tenant or tenants require/s a greater sensitivity designation than for comparable building types and occupants, this tenant or group of tenants will be required to pay any extra costs associated with higher security requirements and less competition in procurement. The tenant/s will agree to fund such costs via rent, Reimbursable Work Authorization, etc., as applicable. Extra costs may be due to limits on Architect-Engineering (A-E) personnel access, bidding restrictions, reduced competition for construction or facility management, or other factors. The RC or designee will assist the tenant in identifying the cost of higher security requirements. Within a Federal campus, the SBU designation may apply to one or more buildings as needed, but will not automatically apply to all buildings within the same campus if any particular building(s) is (are) designated as SBU.

4. PBS Project Manager or Program Manager (PM). The PBS PM is responsible for reviewing all building documents, identifying and marking SBU building information, and

including instructions in Statements of Work (SOWs) for contractors to mark documents as SBU, if appropriate.

a. The PBS PM shall identify and mark as SBU, in electronic or paper formats, only the building information that meets the criteria for SBU, which must be controlled, as stated herein. The PBS PM shall refer to Appendix A of this directive for further guidance.

b. The PBS PM shall coordinate with various groups (tenants, stakeholders, the Facility Security Committee, etc.) on all matters pertaining to building information.

c. The PBS PM, in consultation with the Facility Security Committee (FSC), is responsible for reviewing all building information at every milestone where there is a change in the physical space or tenant, to validate SBU markings are correct and current.

d. If building information designation is found to be incorrectly marked or no longer required, the PBS PM shall follow the instructions related to Mandatory Review in paragraph 11 below.

5. Facility Security Committee (FSC). After construction is complete, FSC or its current equivalent, as established by the standards of the Interagency Security Committee (ISC), shall advise the PBS PM regarding specific building information where SBU markings are necessary.

a. When a building is not designated as sensitive, the FSC, or its current equivalent, may still determine that some specific building information must be controlled. In this case, the FSC shall advise the PM to mark only that specific building information as SBU. The FSC shall refer to Appendix A of this directive for further guidance.

6. Disseminators. Disseminators of SBU building information must comply with the all policy principles and requirements of this directive. SBU building drawings that are part of a procurement must be issued in accordance with FAR 5.102(a)(4) on the secure side of the FedBizOpps website (https://www.fbo.gov/), or any successor system, with proper document control protocols to allow legitimate registered vendors access to the documents for proposing and pricing the procurements.

7. Contracting Officers (COs). COs shall include the clause in Appendix C, or a similar updated clause per the General Services Administration Acquisition Manual (GSAM), in all solicitations (including Solicitations for Offers (SFOs)) and in all building contracts and/or final leases that may contain, require access to, or cause the generation of SBU building information. This applies to all contracts issued after issuance of this directive and implementation of the rule making process, whichever occurs later.

a. Examples of such contracts are A-E design, construction, facility management contracts, and related professional service contracts such as construction manager as agent (CMa) and Commissioning Agent (CxA) contracts.

b. COs must take appropriate action when they become aware that contractors have not fulfilled contractual obligations regarding the protection of SBU building information. Such action may include an investigation, referring the contractor for suspension or debarment proceedings, and/or terminating the contract for default.

8. GSA Employees. GSA Employees may disseminate SBU building information only after a proper review and the imprinting or affixing of a mark, as required by this directive (see Appendix B for marking guidance), and after determining that the recipient of SBU building information is authorized to receive such information before dissemination of that information.

9. General Counsel. The Office of General Counsel (OGC) provides legal advice concerning Freedom of Information Act (FOIA) requests that apply to SBU building information. OGC also provides counsel regarding the application of this directive.

10. All PBS Regional Commissioners, Assistant Commissioner and Deputy Assistant Commissioners must make their respective personnel aware of the requirements in this directive and require that their staffs be trained in the proper application of this directive, including encryption software applications available to GSA personnel and contractors.

11. Mandatory review. For building projects (for design, construction, facility management, etc.), the PBS PM is responsible for reviewing all building information which does or may contain SBU building information at regular milestones (such as change in use, configuration or tenant); the PBS PM is responsible for identifying and validating that SBU markings are correct and current. If building information designation is found to be incorrectly marked or no longer required, the PBS PM will correct the marking immediately or ensure that action is taken promptly to change or remove the marking.

12. Marking information. For any electronic or printed SBU building information created after the issuance date of this directive, pages containing SBU building information must have the markings shown in Appendix B imprinted or affixed.

13. Limiting dissemination to authorized recipients. SBU building information may be disseminated only after it is determined by GSA personnel that each recipient is authorized to receive it. The criterion to determine whether a recipient is authorized to receive SBU building information is that the recipient must have a legitimate business need to know, as further described in Section 4 (Scope and Applicability) of the transmittal for this directive.

a. Federal, State, and local government entities. GSA must provide SBU building information for the performance of official Federal, State, and local government functions, such as inspections, OIG audits, code compliance reviews and issuance of building permits, among other purposes. Public safety entities such as fire departments may require access to SBU building information on a 'need to know' basis. This directive must not prevent or encumber the dissemination of SBU building information to public safety entities.

b. Vendors, Nongovernment entities and utilities. Unless the action is exempt under FAR 4.1102, all disseminators are responsible for verifying that a contractor or contracting firm is currently registered as "active" in the System of Award Management (SAM) database at www.sam.gov and also has a legitimate business need to know SBU building information before releasing it to any contractor or firm. Nongovernment entities and/or utility companies may also require access to SBU building information for the performance of work on GSA-controlled space on a 'need to know' basis and do not necessarily need to register within the SAM database.

14. Electronic transmission of SBU building information. GSA employees, who electronically transmit SBU building information outside of the GSA network, must encrypt the data with an approved NIST algorithm, such as Advanced Encryption Standard (AES) or Triple Data Encryption Standard (3DES), in accordance with Federal Information Processing Standards Publication (FIPS PUB) 140-2, Security Requirements for Cryptographic Modules. As email outside of the GSA network is not encrypted, GSA personnel working within the GSA network may only transmit SBU building information using GSA-approved encryption procedures. ("Within the GSA network" means inside the firewall, including Citrix and GSA VPNs.)

15. Dissemination of SBU building information in non-electronic form or on portable electronic data storage devices. Portable electronic data storage devices include but are not limited to CDs, DVDs, and USB drives. Non-electronic forms of SBU building information include paper documents.

a. By mail. GSA employees must utilize only methods of shipping that provide confirmation of receipt of the SBU building information, such as track and confirm, proof of delivery, signature confirmation, or return receipts.

b. In person. GSA employees must provide SBU building information only to authorized representatives of Federal, State, local government entities, SAM-registered firms, and others that have a legitimate business need to know such information.

16. Safeguarding SBU building information. GSA employees must not take SBU building information outside of GSA facilities, except as necessary for the performance of a GSA project. If a GSA employee takes SBU building information outside of a GSA facility, access to the information must be limited to those with a legitimate business need to know. Such information must be returned to a GSA facility or destroyed when no longer needed for the performance of a GSA project. GSA employees must not store or retain SBU building information on any electronic device or media not owned by GSA.

17. Destroying SBU building information. When SBU information, in any format, is no longer needed, SBU building information must be destroyed such that the information is rendered unreadable and incapable of being restored, in accordance with GSA CIO IT

Security 06-32, Media Sanitization Guide and Appendix A of NIST Special Publication 800-88, Guidelines for Media Sanitation. Alternately, the SBU building information may be returned to the CO.

18. Freedom of Information Act (FOIA) requests. SBU markings do not control the decision of whether to disclose or release the information to any entity that files a FOIA request. Any determination to disclose SBU building information, in accordance with a FOIA request, must be made after consultation with the servicing legal office.

19. Reporting incidents of concern. Any actual or suspected unauthorized disclosure of SBU information must be reported immediately to the CO for the related contract or the appropriate RC. RCs are required immediately to notify the FSC for the building involved. Any incident involving suspected computer or cyber security breach or attack, as defined by NIST Special Publication 800-61, Computer Security Incident Handling Guide, must be reported in accordance with the current version of GSA CIO P 2100.1, Information Technology (IT) Security Policy Order and GSA CIO IT Security Procedural Guide: CIO-IT Security-01-02, Incident Response (IR).

Appendix A. Examples of Sensitive But Unclassified Building Information

Not all building information is automatically considered Sensitive But Unclassified (SBU). After the PBS Project Manager (PM) has reviewed, identified, and marked SBU building information, then access to the information must be controlled. SBU building information may be contained in any document (including drawings, specifications, virtual modeling, reports, studies, analyses) and in any format with information pertaining to:

1. Location and details of secure functions or secure space in a building, location or space. Examples include:

   a. Prisoner or judges' secure circulation paths or routes (both vertical and horizontal).
   b. Detention or holding cells.
   c. Sally ports.
   d. Security areas, including but not limited to control rooms and incident command centers
   e. Building automation systems.
   f. Telephone and riser closets

2. Location and type of structural framing for the building, including any information regarding structural analysis. Examples include information related to:

   a. Progressive collapse.
   b. Seismic.
   c. Building security.
      i. Blast mitigation.
      ii. Counterterrorism methods taken to protect the occupants and the building.

3. Risk assessments and information regarding security systems or strategies of any kind. Examples include:

   a. Camera locations.
   b. Nonpublic security guard post information (e.g., number, location, operations, etc.).

Note: In the case of building information related to a specific suite, room/space, or other component that is designated as SBU (i.e. Building Automation System (BAS) diagram, security camera layout, etc.), the SBU designation does not necessarily carry over to the entire building, or to the entire campus.

Note: Building information for a stand-alone steam plant facility or similar service facility and its associated tunnels shall be designated SBU when it services a building that is designated SBU.

Appendix B. Sensitive But Unclassified Marking Information

1. Any electronic or printed document, pages containing SBU building information must have the following markings:

SENSITIVE BUT UNCLASSIFIED (SBU)
PROPERTY OF THE UNITED STATES GOVERNMENT
FOR OFFICIAL USE ONLY
Do not remove this notice
Properly destroy or return documents when no longer needed

2. The following mark must be affixed to the cover or first page of any document (such as the cover page on a set of construction drawings).

SENSITIVE BUT UNCLASSIFIED (SBU)
PROPERTY OF THE UNITED STATES GOVERNMENT
COPYING, DISSEMINATION, OR DISTRIBUTION OF THIS DOCUMENT TO UNAUTHORIZED RECIPIENTS IS PROHIBITED
Do not remove this notice
Properly destroy or return documents when no longer needed

3. The previous two markings must be prominently labeled in bold type in a size appropriate for the document or portable electronic data storage device or both, if applicable. On a set of construction drawings, for example, the statements must be in a minimum of 14 point bold type or equivalent.

4. The SBU markings must be used regardless of the medium through which the information appears or is conveyed.

Appendix C. SBU Contract Clause

Contracting Officers (COs) shall include the following clause, or a similar updated clause per the General Services Administration Acquisition Manual (GSAM), in: (1) all solicitations containing SBU building information (including Solicitations for Offers (SFOs)); and shall include the following clause in: (2) contracts and/or final leases that may contain, require access to, or cause the generation of SBU building information.

[Begin clause]

Safeguarding and Dissemination of Sensitive But Unclassified (SBU) Building Information

This clause applies to all recipients of SBU building information, including offerors, bidders, awardees, contractors, subcontractors, lessors, suppliers and manufacturers.

1. Marking SBU. Contractor-generated documents that contain building information must be reviewed by GSA to identify any SBU content, before the original or any copies are disseminated to any other parties. If SBU content is identified, the Contracting Officer (CO) may direct the contractor, as specified elsewhere in this contract, to imprint or affix SBU document markings to the original documents and all copies, before any dissemination.

2. Authorized recipients.

   a. Building information designated SBU must be protected with access strictly controlled and limited to those individuals having a legitimate business need to know such information. Those with a need to know may include Federal, State and local government entities, and nongovernment entities engaged in the conduct of business on behalf of or with GSA. Nongovernment entities may include architects, engineers, consultants, contractors, subcontractors, suppliers, utilities, and others submitting an offer or bid to GSA, or performing work under a GSA contract or subcontract. Recipient contractors must be registered as "active" in the System for Award Management (SAM) database at www.sam.gov and have a legitimate business need to know such information. If a subcontractor is not registered in the SAM and has a need to possess SBU building information, the subcontractor shall provide to the contractor its DUNS number or its tax ID number and a copy of its business license. The contractor shall keep this information related to the subcontractor for the duration of the contract and subcontract.

   b. All GSA personnel and Contractors must be provided SBU building information when needed for the performance of official Federal, State, and local government functions, such as for code compliance reviews and for the issuance of building permits. Public safety entities such as fire and utility departments may require access to SBU building information on a need to know basis. This clause must

not prevent or encumber the dissemination of SBU building information to public safety entities.

3. Dissemination of SBU building information:

a. By electronic transmission. Electronic transmission of SBU information outside of the GSA network must use session encryption (or alternatively, file encryption). Encryption must be via an approved NIST algorithm with a valid certification, such as Advanced Encryption Standard (AES) or Triple Data Encryption Standard (3DES), in accordance with Federal Information Processing Standards Publication (FIPS PUB) 140-2, Security Requirements for Cryptographic Modules per GSA policy.

b. By nonelectronic form or on portable electronic data storage devices. Portable electronic data storage devices include, but are not limited to CDs, DVDs, and USB drives. Nonelectronic forms of SBU building information include paper documents, among other formats.

i. By mail. Contractors must utilize only methods of shipping that provide services for monitoring receipt such as track and confirm, proof of delivery, signature confirmation, or return receipt.

ii. In person. Contractors must provide SBU building information only to authorized recipients with a need to know such information. Further information on authorized recipients is found in Section 2 of this clause.

4. Record keeping. Contractors must maintain a list of all entities to which SBU is disseminated, in accordance with sections 2 and 3 of this clause. This list must include at a minimum: (1) the name of the State, Federal, or local government entity, utility, or firm to which SBU has been disseminated; (2) the name of the individual at the entity or firm who is responsible for protecting the SBU building information, with access strictly controlled and limited to those individuals having a legitimate business need to know such information; (3) contact information for the named individual; and (4) a description of the SBU building information provided. Once “as built” drawings are submitted, the contractor must collect all lists maintained in accordance with this clause, including those maintained by any subcontractors and/or suppliers, and submit them to the CO. For Federal buildings, final payment may be withheld until the lists are received.

5. Safeguarding SBU documents. SBU building information (both electronic and paper formats) must be protected, with access strictly controlled and limited to those individuals having a legitimate business need to know such information. GSA contractors and subcontractors must not take SBU building information outside of GSA or their own facilities or network, except as necessary for the performance of that

contract. Access to the information must be limited to those with a legitimate business need to know.

6. Destroying SBU building information. When no longer needed, SBU building information must be destroyed so that marked information is rendered unreadable and incapable of being restored, in accordance with guidelines provided for media sanitization within GSA CIO IT Security 06-32, Media Sanitization Guide and Appendix A of NIST Special Publication 800-88, Guidelines for Media Sanitization. Alternatively, SBU building information may be returned to the CO.

7. Notice of disposal. The contractor must notify the CO that all SBU building information has been returned or destroyed by the contractor and its subcontractors or suppliers in accordance with paragraphs 4 and 6 of this clause, with the exception of the contractor's record copy. This notice must be submitted to the CO at the completion of the contract to receive final payment. For leases, this notice must be submitted to the CO at the completion of the lease term. The contractor may return the SBU documents to the CO rather than destroying them.

8. Incidents. All improper disclosures of SBU building information must be immediately reported to the CO at _____<insert address and contact information>____ . If the contract provides for progress payments, the CO may withhold approval of progress payments until the contractor provides a corrective action plan explaining how the contractor will prevent future improper disclosures of SBU building information. Progress payments may also be withheld for failure to comply with any provision in this clause until the contractor provides a corrective action plan explaining how the contractor will rectify any noncompliance and comply with the clause in the future.

9. Subcontracts. The contractor and subcontractors must insert the substance of this clause in all subcontracts.

[End of clause]

COMMONWEALTH of VIRGINIA

Molly Joseph Ward
Secretary of Natural Resources

Department of Historic Resources
2801 Kensington Avenue, Richmond, Virginia 23221

Julie V. Langan
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
TDD: (804) 367-2386
www.dhr.virginia.gov

October 26, 2015

Donna Andrews
U.S. General Services Administration, Mid-Atlantic Region
The Strawbridge's Building
20 North Eighth Street
Philadelphia, PA 19107 - 3191

Re: Federal Bureau of Investigation - Central Records Complex
Land Acquisition and Development
Frederick County, Virginia
DHR File No. 2006-0949

Dear Ms. Andrews,

On July 21, 2015, and August 21, 2015, the Virginia Department of Historic Resources (DHR) received additional information regarding the above-referenced project for our review and comment pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended. DHR understands that the U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex for the Federal Bureau of Investigation (FBI). GSA would acquire one site with a minimum of 40 acres and a maximum of 108 acres. Subsequent construction would consist of a five-story building with room for records storage, support area, visitor screening facility, service center, and guard booth, and approximately 427 parking spaces.

The Alternatives have been narrowed down to two (2) properties: 1) Arcadia Route 50 Property, 2117 Millwood Pike, Winchester, Virginia; and 2) Whitehall Commerce Center, Route 669 and Route 11, Clear Brook, Virginia. On August 7th, DHR concurred with your Area of Potential Effects (APE) for direct and indirect effects for both Virginia properties. We also received the reports, *DRAFT Federal Bureau of Investigation Central Records Complex, Winchester, Virginia – Phase I Architectural Survey*, and *DRAFT Phase I Archaeological Survey of the Arcadia Property, Winchester, Virginia*, prepared by Cardo Tech for GSA in July and June 2015, respectively. We have reviewed the reports and we are pleased to inform you that the revisions adequately meet the federal *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (48 FR 44716-44742, September 1983) and our state *Guidelines for Conducting Historic Resources Survey in Virginia* (rev. 2011). The architectural survey forms met our quality control standards on September 17th.

The architectural study identified eight (8) previously surveyed architectural resources and twenty-four (24) newly recorded architectural resources within APE for both alternatives. No resources in either alternative are currently listed or determined eligible for listing in the Virginia Landmarks Register (VLR)

Administrative Services
10 Courthouse Ave.
Petersburg, VA 23803
Tel: (804) 862-6416
Fax: (804) 862-6196

Capital Region Office
2801 Kensington Ave.
Richmond, VA 23221
Tel: (804) 367-2323
Fax: (804) 367-2391

Western Region Office
962 Kime Lane
Salem, VA 24153
Tel: (540) 387-5443
Fax: (540) 387-5446

Northern Region Office
5357 Main Street
P.O. Box 519
Stephens City, VA 22655
Tel: (540) 868-7029
Fax: (540) 868-7033

and the National Register of Historic Places (NRHP). DHR concurs with your eligibility recommendations. Please see the attached tables regarding our eligibility recommendations for the 32 total resources, separated by alternative.

The archaeological survey for the Arcadia property resulted in the identification of two new sites, 44FK0785 and 44FK0786. Based on the results of the survey, we concur with the consultant's recommendation. Sites 44FK0785 and 44FK0786 do not meet the criteria for listing on the National Register of Historic Places due to their compromised integrity and low information potential. No further archaeological investigations are warranted.

For the Whitehall property, we previously reviewed the archaeological report, *Phase I Archaeological Survey of the Sempeles Property, Frederick County, Virginia*, prepared by Greenhorne & O-Mara, Inc. in 2007. We concurred that no historic properties were identified on this site, which has been downsized as an alternative since 2007.

Arcadia Property

DHR ID#	Property Name	Eligibility – GSA July 2015	Eligibility – DHR October 2015
034-1174	House 50-17	Not individually eligible	Not individually eligible
034-5197	Simpson House	Not individually eligible	Not individually eligible
034-5198	Grove House	Not individually eligible	Not individually eligible
034-5199	Boyce House	Not individually eligible	Not individually eligible
034-5200	Williams House	Not individually eligible	Not individually eligible
034-5201	Winchester Building Supply Co.	Not individually eligible	Not individually eligible
034-5202	Arcadia Building	Not individually eligible	Not individually eligible
034-5203	D. Honesty House	Not individually eligible	Not individually eligible
44FK0785	Modern Trash Scatter	Not eligible	Not eligible
44FK0786	Modern Trash Scatter	Not eligible	Not eligible

Whitehall Property

DHR ID#	Property Name	NR Eligibility – GSA July 2015	Eligibility – DHR October 2015
034-0156	Sasparilla Springs	Not individually eligible	Not individually eligible
034-0915	Raymond Shiley House	Not individually eligible	Not individually eligible
034-0916	Smallwood-Swartz House	Not individually eligible	Not individually eligible
034-0917	Smallwood House	Not individually	Not individually

		eligible	eligible
034-0918	Larry Stotler House	Not individually eligible	Not individually eligible
034-0919	House	Not individually eligible	Not individually eligible
034-0920	Brining-Adams House	Not individually eligible	Not individually eligible
034-0921	Rest United Methodist Church	Not individually eligible	Not individually eligible
034-5063	House	Not individually eligible	Not individually eligible
034-5064	House	Not individually eligible	Not individually eligible
034-5204	McGowan House	Not individually eligible	Not individually eligible
034-5205	Fitzwater House	Not individually eligible	Not individually eligible
034-5206	House	Not individually eligible	Not individually eligible
034-5207	Dean House	Not individually eligible	Not individually eligible
034-5208	Jennings House	Not individually eligible	Not individually eligible
034-5209	Manning House	Not individually eligible	Not individually eligible
034-5210	Manning House	Not individually eligible	Not individually eligible
034-5211	Manning House	Not individually eligible	Not individually eligible
034-5212	Frazier-Peyton House	Not individually eligible	Not individually eligible
034-5213	Helsey House	Not individually eligible	Not individually eligible
034-5214	Curry House	Not individually eligible	Not individually eligible
034-5215	Kitts House	Not individually eligible	Not individually eligible
034-5216	Larrick House	Not individually eligible	Not individually eligible
034-5217	Fiddler House	Not individually eligible	Not individually eligible

We request that final report copies are submitted to our office for incorporation into our archives. For these final copies, please include the updated Area of Potential Effects maps for direct and indirect effects. Furthermore, our *Guidelines* ask that the current vitae for the principal investigator and principal author of the report should be included in the report as an appendix. The vitae can be prepared as a summary, but must have sufficient detail to allow independent verification of meeting the *Secretary of the Interior's Professional Qualifications Standards.*

Administrative Services
10 Courthouse Ave.
Petersburg, VA 23803
Tel: (804) 862-6416
Fax: (804) 862-6196

Capital Region Office
2801 Kensington Ave.
Richmond, VA 23221
Tel: (804) 367-2323
Fax: (804) 367-2391

Western Region Office
962 Kime Lane
Salem, VA 24153
Tel: (540) 387-5443
Fax: (540) 387-5446

Northern Region Office
5357 Main Street
P.O. Box 519
Stephens City, VA 22655
Tel: (540) 868-7029
Fax: (540) 868-7033

Based on this analysis, DHR concurs with GSA's determination that *no historic properties will be affected* by the proposed project on either of the two Virginia alternatives. We also understand that there is a potential for an adverse effect from a Virginia alternative – the Whitehall Property – on a resource in West Virginia, and GSA has notified the Advisory Council on Historic Preservation.

For specific questions regarding archaeology, please contact Ethel Eaton at (804) 482-6088 or ethel.eaton@dhr.virginia.gov. For architectural questions and any other questions, please contact me at (804) 482-6084, or via email at andrea.burke@dhr.virginia.gov.

Sincerely,

Andrea Burke

Andrea Burke
Architectural Historian, Review and Compliance Division

Administrative Services
10 Courthouse Ave.
Petersburg, VA 23803
Tel: (804) 862-6416
Fax: (804) 862-6196

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Tel: (804) 367-2323
Fax: (804) 367-2391

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5357 Main Street
P.O. Box 519
Stephens City, VA 22655
Tel: (540) 868-7029
Fax: (540) 868-7033

WEST VIRGINIA
Division of Culture and History

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300
Randall Reid-Smith, Commissioner
Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EEO/AA Employer

October 27, 2015

Ms. Donna Andrews, Regional Historic Preservation Officer
Public Buildings Service
General Services Administration
100 South Indepedence Mall West, Suite 415
Philadelphia, PA 19106

RE: Proposed FBI Central Records Complex
Frederick County, Virginia
FR# 06-1096-BY-12

Dear Ms. Andrews:

We have reviewed the above mentioned project to determine its effects to cultural resources. As required by Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

According to submitted information, the U.S. General Services Administration (GSA) is proceeding with plans to acquire and develop land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). Consultation for this project was initially undertaken in 2007 and resulted in the execution of a Memorandum of Agreement (MOA) between GSA and the West Virginia State Historic Preservation Office (SHPO) to resolve adverse effects to the National Register of Historic Places (NRHP)-listed James Nathaniel Burwell House (91000553) in Berkeley County, West Virginia and site 46BY209 (Sempeles X-1). We understand that a short list of three alternatives has been reached and includes the Sempeles Site, now referred to as Whitehall Commerce Center.

Architectural Resources:
We have reviewed the revised draft MOA submitted by your office. We understand that the preferred alternative has not yet been selected, but GSA would prefer to have MOA stipulations agreed upon and MOA executed, or at least ready for execution, should the Whitehall alternative be selected as the preferred alternative. We note that Stipulation IV from the 2007 MOA has been removed. Stipulation IV related to the seven acres of the Whitehall site in West Virginia. GSA does not intend to acquire the West Virginia portion of the Whitehall site.

We note that Stipulations I through III have been slightly revised to reference current Frederick County, Virginia zoning requirements; however, should the specific stipulation(s) reflect that zoning more explicitly or should the zoning requirements be appended to the MOA? We also note that the design review stipulation, Stipulation III, remains in the MOA. We understand from Stipulation III that the guiding design principles for the FBI CRC will follow the principles in GSA's Design Excellence program. We suggest that the MOA include, or append, the relevant design program chapter(s). In addition, we understand from Stipulation III that your office will submit the 35% and 95% relevant plans and specifications for the elevations and associated exterior details including landscaping and lighting. Our office has thirty (30) calendar days of receipt of the design drawing submission to prove comments to the GSA. Consistent with the terms of GSA Order PBS 3490.2 *Document Security for Sensitive But Unclassified Building Information*, we understand that GSA reserves the right to withhold any portion of the plans and specifications unrelated to historic preservation aspects of the construction of the CRC.

We believe that the revised MOA adequately mitigates the indirect adverse effects to the NRHP-listed James Nathaniel Burwell House. Our comments at this time pertain to the addition of language specific to the Frederick County, Virginia zoning ordinance (or its inclusion as an MOA appendix) and the Design Excellence program.

Public Comment:
We note that your office has invited the Berkeley County Historic Landmark Commission and the Berkeley County Historical Society to participate in the MOA as consulting parties.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Jeffrey S. Smith, Structural Historian, at (304) 558-0240.*

Sincerely,

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/JSS

GSA

GSA Mid-Atlantic Region

November 17, 2015

Ms. Susan Pierce
Deputy State Historic Preservation Officer
West Virginia Division of Culture and History
The Cultural Center
1900 Kanawha Boulevard
Charleston, West Virginia 25305

Re: Section 106 Consultation
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia
FR# 06-1096-BY

Dear Ms. Pierce:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). Your office concurred with GSA's identification of historic properties and determination of a possible adverse visual effect to the James Nathaniel Burwell House by letter dated August 10, 2015. GSA has since notified the Advisory Council on Historic Preservation (ACHP) of the potential for adverse effect, and the ACHP has declined to participate in the consultation process by letter dated September 21, 2015. GSA submitted a draft revision of the Memorandum of Agreement (MOA) executed in 2007 to your office for review and comment by letter dated September 29, 2015 and received your comments on the draft by letter dated October 27, 2015.

Stipulation III has been revised per your comments. The current zoning for the Whitehall alternative is included in-line in the document, including relevant provisions for the building and parking location and size. Chapter 2 from GSA's *Design Excellence: Policies and Procedures* is now appended to the document. This chapter from GSA's Design Excellence guidance includes the Guiding Principles for Federal Architecture, which will be the guiding design principles for this undertaking.

Please return any comments or suggested changes you may have to me for incorporation into a revised draft. Once all parties have agreed upon the language of the MOA and contents of the stipulations, the MOA will be signed first by GSA's Federal Preservation Officer, Beth Savage. If you need additional information, please do not hesitate to contact me at (215) 446-4570 or donna.andrews@gsa.gov.

U.S. General Services Administration
The Dow Building
100 South Independence Mall West, Suite 415
Philadelphia, PA 19106
www.gsa.gov

Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

Cc: Mr. Todd Funkhouser – Berkeley County Historic Landmarks Commission / Berkeley County Historical Society

MEMORANDUM OF AGREEMENT

BETWEEN THE U.S. GENERAL SERVICES ADMINISTRATION AND THE WEST VIRGINIA STATE HISTORIC PRESERVATION OFFICER REGARDING THE FEDERAL BUREAU OF INVESTIGATIONS CENTRAL RECORDS COMPLEX, FREDERICK COUNTY, VIRGINIA

WHEREAS, the U.S. General Services Administration (GSA) proposes to construct a facility to house the Federal Bureau of Investigation's (FBI's) Central Records Complex (CRC) pursuant to Prospectus PVA-FBSC-FR14; and

WHEREAS, the undertaking consists of the construction of a five story, approximately 256,425 gross square foot building with records storage, a support area, a visitor screening facility, a service center, a guard booth, approximately 427 parking spaces, and a secure perimeter consisting of a perimeter fence and natural features, on a site totaling approximately 58 acres situated in Frederick County, Virginia; and

WHEREAS, GSA and the West Virginia State Historic Preservation Officer (SHPO) agree on the Area of Potential Effect (APE) for the Undertaking as depicted in Attachment I; and

WHEREAS, the GSA has applied the Criteria of Adverse Effect as set forth in 36 CFR § 800.5(a)(1) and finds that the construction of the CRC will have an indirect adverse effect upon the James Nathaniel Burwell House located in Berkeley County, West Virginia, which is listed in the National Register of Historic Places; and

WHEREAS, GSA has consulted with the SHPO and other interested parties pursuant to 36 CFR § 800, the regulations implementing Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470f); and

WHEREAS, GSA has consulted with the Berkeley County Historic Landmarks Commission regarding the effects of the undertaking on historic properties and has invited them to sign this MOA as a concurring party; and

WHEREAS, the Signatories have provided for public involvement in the proposed undertaking by coordinating the Section 106 consultation with the public review and consultation under the National Environmental Policy Act of 1969, as amended, 42 U.S.C. § 4321 et seq.; and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), GSA has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination with specified documentation, and the ACHP has chosen not to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii); and

NOW, THEREFORE, the GSA and the WV SHPO agree that the undertaking will be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

STIPULATIONS

I. LANDSCAPING

The GSA shall ensure that the view shed of the James Nathaniel Burwell House is maintained by mandating that the landscaping plan for the northeast corner of the CRC site take into account the use of a vegetated berm between the CRC complex and the security fence, which along with the existing tree line will aid in maintaining the view shed.

II. LIGHTING

The GSA will ensure, to the greatest extent possible, that the lighting plan for the facility uses low intensity exterior lighting that meets Dark Sky requirements developed by the International Dark Sky Association for the protection and preservation of the nighttime environment and to stop the adverse effects of light pollution on dark skies.

III. DESIGN REVIEW

A. The guiding design principles for the FBI CRC will follow the principles in GSA's Design Excellence program. Chapter 2 of *Design Excellence: Policies and Procedures*, which includes the Guiding Principles for Federal Architecture, is attached hereto as Attachment 2 and incorporated herein by reference.

B. The building design will conform to local zoning limitations.

   1. The site is currently zoned M1. Current zoning requirements include:

      a. Max Building Height: 60 Feet (100 Feet Allowed for ASRS Building);

      b. Building Setback from Road 75 Feet;

      c. Side and Rear Setbacks 25 Feet;

      d. Parking Lot Setback 10 Feet;

      e. Parking Requirements: 1.5 spaces per employee.

C. GSA will continue consultation with the SHPO regarding the design of the CRC to ensure that it complements the surrounding features of the landscape and attempts to preserve significant natural elements of the selected site, including view sheds.

   1. GSA will submit the 35% and 95% relevant plans and specifications for the elevations and associated exterior details including landscaping and lighting.

      a. The SHPO will provide any comments in writing within thirty calendar (30) days of their receipt of the design drawing submissions.

      b. Should the SHPO not comment within 30 days after receipt of the 95% design drawings, GSA will assume no comments are forthcoming and finalize the design documents.

2. GSA will have no obligation to provide copies of any "sensitive but unclassified" documents to any party that does not agree to comply with the terms and conditions of GSA Order PBS P 3490.2 *Document Security for Sensitive But Unclassified Building Information,* dated October 22, 2014, a copy of which is attached hereto as Attachment 3 and incorporated herein by reference. The GSA Order sets forth the agency's policy regarding the dissemination of "sensitive" but "unclassified" documents for Federal facilities only to persons on a "need to know basis". GSA reserves the right to withhold, consistent with the terms of the GSA Order, any portion of the plans and specifications unrelated to the historic preservation aspects of the construction of the CRC.

3. If after receiving comments on any plan, or other document that has been reviewed and commented on pursuant to this MOA, if GSA proposes any material or substantial additions or deletions that may adversely affect any historic property GSA will notify the SHPO explaining the reasons for the requested material changes, additions, and/or deletions. GSA will provide the SHPO thirty (30) days from the receipt of project information and GSA's request to review and comment, in writing, on the proposed material changes. The SHPO will notify GSA as soon as practicable if additional information is necessary to complete its review. If the SHPO does not provide written comments to GSA within thirty (30) days after receipt, GSA will assume that the SHPO does not object to the proposed project alterations and will finalize the plans, specifications and/or other documentation provided for review.

IV. DURATION

This MOA will expire if its terms are not carried out within five (5) years from the date of its execution. Prior to such time, GSA may consult with the other Signatories to reconsider the terms of the MOA and amend it in accordance with Stipulation VII below.

V. MONITORING AND REPORTING

Each year following the execution of this MOA until it expires or is terminated, GSA shall provide all parties to this MOA a summary report detailing work undertaken pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in GSA's efforts to carry out the terms of this MOA.

VI. DISPUTE RESOLUTION

Should any Signatory or Concurring Party to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, GSA shall consult with such party to resolve the objection. If GSA determines that such objection cannot be resolved, GSA will:

A. Forward all documentation relevant to the dispute, including the GSA's proposed resolution, to the ACHP. The ACHP shall provide GSA with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, GSA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, Signatories and Concurring Parties, and provide them with a copy of this written response. GSA will then proceed according to its final decision.

B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, GSA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, GSA shall prepare a written response that takes into account any timely comments regarding the dispute from the Signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.

C. GSA's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

VII. AMENDMENTS

This MOA may be amended when such an amendment is agreed to in writing by all Signatories. The amendment will be effective on the date a copy, signed by all of the Signatories, is filed with the ACHP.

VIII. TERMINATION

If any Signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation VII, above. If within thirty (30) days (or another time period agreed to by all Signatories) an amendment cannot be reached, any Signatory may terminate the MOA upon written notification to the other Signatories.

Once the MOA is terminated, and prior to work continuing on the Undertaking, GSA must either (a) execute an MOA pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. GSA shall notify the Signatories as to the course of action it will pursue.

Execution of this MOA by the GSA and SHPO and implementation of its terms evidence that GSA has taken into account the effects of this Undertaking on historic properties and afforded the ACHP an opportunity to comment.

END STIPULATIONS

SIGNATORIES:

U.S. General Services Administration

_____ Date _____
Beth Savage
Federal Preservation Officer

_____ Date_____
Joanna Rosato
Public Buildings Service Mid-Atlantic Regional Commissioner

West Virginia Division of Culture and History

_____ Date _____
Susan Pierce
Deputy State Historic Preservation Officer

CONSULTING PARTIES

Berkeley County Historic Landmarks Commission / Berkeley County Historical Society

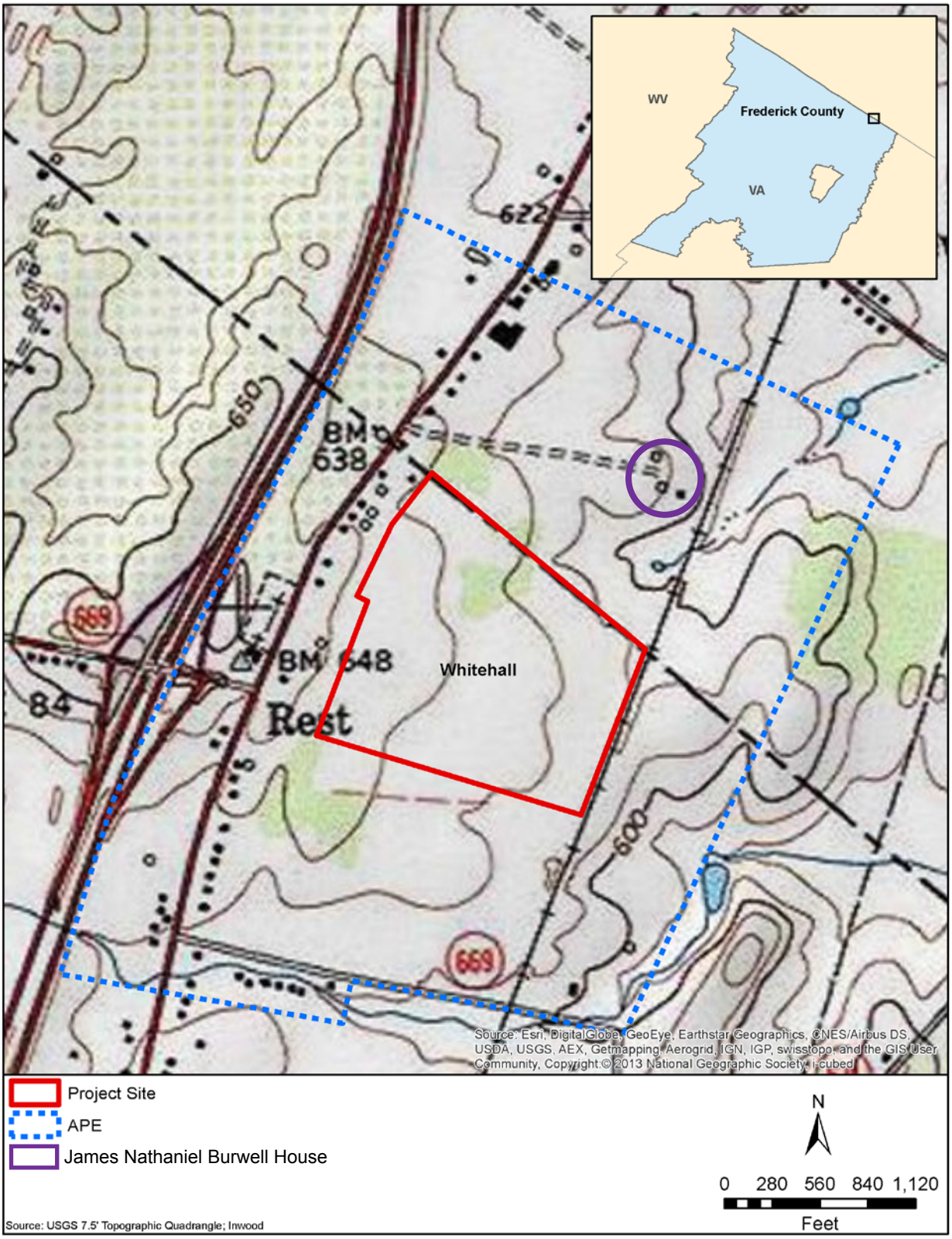
_____ Date _____
Todd Funkhouser
Chairman

ATTACHMENTS:
Attachment 1: APE
Attachment 2: *Design Excellence: Policies and Procedures*, Chapter 2
Attachment 3: GSA Order PBS P 3490.2

Attachment 1: APE

Attachment 2: *Design Excellence: Policies and Procedures*, Chapter 2

Attachment 3: GSA Order PBS P 3490.2



Attachment 1: Whitehall APE

2 The Design Excellence Mandate

2

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2 The Design Excellence Mandate

2.0 GSA's Public Buildings Service

Builder for the federal civilian government and steward of many examples of outstanding public architecture, the U.S. General Services Administration is establishing a reputation as a world-class real estate development and management organization. Under the auspices of its Public Buildings Service, GSA owns over 1,600 properties and leases more than 6,400 buildings and spaces. Ongoing projects represent $10 billion of work including new construction, major renovations, preservation, and adaptive re-use. GSA manages 414 historic buildings, 33 of which are national historic landmarks, and has an inventory of 336 million square feet, the workspace for 1.1 million federal employees.

2.1 Design Excellence Objectives

In meeting the challenges associated with the stewardship of these resources, GSA's performance standard is Design Excellence—buildings that express the vision, leadership, and commitment of the government to serving the public and the values of the nation. More specifically, Design Excellence in the Public Buildings Service means:

- Providing best value to our customer agencies and the American taxpayer.
- Developing safe, productive, and attractive workplaces.
- Operating efficiently and effectively—keeping projects on time and on budget.
- Ensuring that projects respond positively to national urban and environmental policies.
- Selecting America's best designers and artists to create facilities that ultimately become respected landmarks.

The PBS approach is holistic, incorporating expertise in many areas—architecture, urban design, landscape architecture, interior design, art, engineering, construction, security, sustainability, and workplace design. Design Excellence is about using this expertise to deliver projects that are exceptional—models others seek to emulate. In this effort, Design Excellence is neither veneer nor luxury. It is an integral feature of the GSA culture and how the Public Buildings Service addresses its work.

2.2 Design Excellence Policies and Procedures—Program Overview

This publication describes the policies and procedures for achieving Design Excellence results in new construction, modernization, preservation, and renovation. It sets decision-making priorities. It details Design Excellence processes and schedules. It spells out who should be involved and these individuals' respective roles.

In terms of organization, since Design Excellence is most easily and cost-effectively achieved in the early phases of a project, this book covers the following procedures and phases:

- Design Excellence Planning
- Design Excellence and Site Selection Priorities
- FedBizOpps—Defining and Announcing Design Excellence Opportunities
- Strategies for Selecting the Lead Designer and Design Excellence A/E Team
- Design Excellence in the Concept Development Process
- Art in Architecture Guidelines

So that project managers have what they need to implement the Design Excellence process, most chapters have a resources section that includes templates and examples of critical Design Excellence documents. Documents are also available on-line at **http://insite.pbs.gsa.gov/PM/PMB/Design_Excellence_and_the_Arts**.

The formal Design Excellence Program was established in 1994 and, based on experience and evaluations over the past decade, has been refined and expanded in such areas as FedBizOpps announcements, the option to include a charrette as part of Stage II team interviews, and a more comprehensive approach to design reviews and concept development. These modifications are fully explained in this publication.

At the same time, a consistent and essential focus remains: thoughtfully defining project requirements and selecting the most capable lead designer and A/E team. Another constant had been the involvement of distinguished private-sector professionals in the disciplines of architecture, urban design, historic preservation, landscape architecture, interior design, art, art conservation, engineering, and construction—national peers appointed biennially to the Commissioner's National Register of Peer Professionals—as voices in the selection of designers and the critique of projects through concept development. The insights and expertise of these individuals are invaluable in helping GSA fulfill its Design Excellence mandate.

What is absolutely clear is that, as it has evolved, the Design Excellence approach to decision-making significantly enhances the success of GSA projects for customers and the American public. In this context, the managers responsible for GSA commissions should closely follow these policies and procedures.

In 1962, President John F. Kennedy disseminated *Guiding Principles for Federal Architecture*. These principles stated that the government should (1) produce facilities that reflect the dignity, enterprise, vigor, and stability of the federal government, emphasizing designs that embody the finest contemporary architectural thought; (2) avoid an official style; and (3) incorporate the work of living American artists in public buildings. It was an initiative where each building would be both an individual expression of design excellence and part of a larger body of work representing the best that America's designers and artists could leave to later generations. Some 40 years later, Design Excellence is making this aspiration a reality.

2.3 Guiding Principles for Federal Architecture

1 The policy shall be to provide requisite and adequate facilities in an architectural style and form which is distinguished and which will reflect the dignity, enterprise, vigor, and stability of the American National Government. Major emphasis should be placed on the choice of designs that embody the finest contemporary American architectural thought. Specific attention should be paid to the possibilities of incorporating into such designs qualities which reflect the regional architectural traditions of that part of the Nation in which buildings are located. Where appropriate, fine art should be incorporated in the designs, with emphasis on the work of living American artists. Designs shall adhere to sound construction practice and utilize materials, methods and equipment of proven dependability. Buildings shall be economical to build, operate and maintain, and should be accessible to the handicapped.

2 The development of an official style must be avoided. Design must flow from the architectural profession to the Government, and not vice versa. The Government should be willing to pay some additional cost to avoid excessive uniformity in design of Federal buildings. Competitions for the design of Federal buildings may be held where appropriate. The advice of distinguished architects ought to, as a rule, be sought prior to the award of important design contracts.

3 The choice and development of the building site should be considered the first step of the design process. This choice should be made in cooperation with local agencies. Special attention should be paid to the general ensemble of streets and public places of which Federal buildings will form a part. Where possible, buildings should be located so as to permit a generous development of landscape.

Report to the President by the Ad Hoc Committee on Federal Office Space, June 1, 1962.

GENERAL SERVICES ADMINISTRATION
Washington, DC 20405

PBS P 3490.2

GSA POLICY AND PROCEDURE

SUBJECT: Document Security for Sensitive But Unclassified Building Information

1. Purpose. This directive describes GSA's policy to protect sensitive but unclassified (SBU) building information for GSA-controlled space. GSA-controlled space includes owned, leased, and delegated Federal facilities. Not all building information is automatically considered sensitive but unclassified. Only specific applicable information, marked with SBU designations, needs to be controlled in accordance with this policy. GSA will use SBU terminology and markings on all building information in all formats (see Appendix B). Both legacy SBU and new SBU building information will be subject to the terms of this directive.

2. Background. GSA has been marking and managing sensitive but unclassified building information and has issued several updates to the policy since the bombing of the Alfred Murrah Federal Building in 1995.

Executive Order 13556, signed on November 4, 2010, establishes a program for managing Controlled Unclassified Information, with the National Archives and Records Administration (NARA) serving as the executive agent. This Executive Order emphasizes "…the openness and uniformity of Government-wide practice." GSA has been working with NARA in developing Controlled Unclassified Information (CUI) standards and best practices. Upon completion of NARA's CUI efforts and directives (with expected implementation to start April 2016), GSA's SBU designation will be replaced with the NARA CUI designation and this directive will be updated to reflect the new CUI requirements.

3. Cancellation. PBS 3490.1A Document Security for Sensitive but Unclassified Building Information, issued June 1, 2009, is cancelled, effective immediately.

4. Scope and Applicability. This directive applies to the access to and generation, dissemination, storage, transfer and disposal of all SBU building information related to GSA-controlled space and to procurements to obtain, alter, or manage space, either Government-owned or leased, including GSA space that is delegated to other Federal agencies.

a. All sensitive building information shall be marked and managed as SBU in accordance with this directive.

i. General Services Administration Information Technology (GSA IT), along with PBS business lines, will develop a system to track project SBU building information, to be implemented in a phased approach and completed within five years of the issuance date of this directive.

b. Existing SBU documents shall be controlled under this directive when procuring and contracting for design and construction services for renovations to existing facilities. For new facilities, the building drawings and other related building information will be reviewed and may be designated SBU, as appropriate. This designation applies at the time SBU building information is turned over by the Architect-Engineering (A-E) personnel to the Government as part of the final construction control documents. However, not all building information will be designated as SBU.

THIS DIRECTIVE DOES **NOT** APPLY TO CLASSIFIED BUILDING INFORMATION, which is governed by Executive Order 13526 - Classified National Security Information.

5. Policy Objectives. This directive has three principal objectives:

a. To diminish the potential that building information will be available for use by a person or persons with an interest in causing harm, and

b. To allow access to this information to those recipients who have a legitimate business need to know such information.

c. To ensure a "Business Need to Know" exists. All individuals must have a legitimate purpose to handle SBU building information. They must use good judgment, common sense and take reasonable care to ensure that sensitive building information is protected in accordance with this directive.

6. Definitions.

a. "SBU building information" is information related to GSA-controlled space that is sufficiently sensitive to warrant some level of protection from full and open public disclosure, but does not warrant classification. This information requires safeguarding and dissemination controls in order to diminish the potential that building information will be accessible to a person or persons with an interest in causing harm. Appendix A provides a list of examples of SBU building information. This list is for illustrative purposes and is not comprehensive.

b. A "Business Need to Know" exists when access to SBU building information is necessary for the conduct of official GSA business. Some examples of individuals who may have a legitimate "business need to know" are GSA project managers, staff from the Office of the Inspector General (OIG), authorized vendors, utilities, state and local fire department personnel, among others. This directive does not describe all instances of a legitimate "business need to know".

7. Clarification of GSA Order CIO P 2181.1. All building drawings or building information should not be designated, automatically, as SBU. Refer to Appendix A of this document for guidance. GSA Order CIO P 2181.1 provides the policy and procedures for issuing and maintaining GSA credentials. Chapter 2, Section 4.b.(4) of GSA Order CIO P 2181.1 states, “Those individuals whose duties require a higher degree of trust, such as IT system administrators, those who handle financial transactions, or those who deal with PII, and other sensitive information (e.g., building drawings, etc.), will continue to require investigations associated with higher levels of trust such as the Minimum Background Investigation (MBI) or the Limited Background Investigation (LBI).” These requirements shall not be used to restrict access to SBU building information further than as clarified in Section 4 (Applicability) of this directive. Access to sensitive building drawings may be granted on a 'Business Need to Know' basis (as concurred on by the respective GSA business line) without regard to the credentialing cited above.

8. Signature.

/S/ September 2, 2014
NORMAN DONG
Commissioner
Public Buildings Service

PBS P 3490.2 Document Security for Sensitive But Unclassified Building Information

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GENERAL REQUIREMENTS AND RESPONSIBILITIES

The principles governing the management of SBU building information are as follows for all GSA personnel and contractors:

1. SBU building information shall be controlled so that building information in electronic and hard copy formats are made available only to individuals who have a legitimate business need to know (see Appendices A and B).

2. Adequate controls shall be used to monitor access to and dissemination of SBU building information.

3. SBU building information shall be safeguarded during use and either properly destroyed or returned to GSA after use.

4. SBU information shall not be presented in public forums.

5. The SBU designation of each building's information (for design, construction bidding, facility management, etc.) shall be based on the specific information's level of sensitivity and the physical security level of the building itself.

SPECIFIC REQUIREMENTS AND RESPONSIBILITIES

1. Public Buildings Service. The Public Buildings Service (PBS) is ultimately responsible for protecting SBU building information from unauthorized use and for making the initial determination of whether an entire building, or portion thereof, is considered sensitive.

2. PBS Regional Commissioners (RCs). PBS RCs or authorized designee (or in the case of delegated buildings, agency officials), make the initial determination regarding whether a building's documents/information or portion thereof are/is considered sensitive. That determination shall in turn trigger an action on the part of the PBS Project Manager or Program Manager to mark the necessary related building information as SBU.

a. RCs shall consider the physical security level of the building itself, as well as comparable building types and occupants in making the determination whether or not a building's documents/information or portion thereof are/is sensitive.

b. The RC shall designate an individual responsible for controlling SBU building information.

c. RCs must implement this directive within their Regions in a uniform, consistent manner so that all items containing SBU building information are marked and handled appropriately.

d. In the case of a new building in the planning stages, for a single tenant, the RC in consultation with the tenant will hold decision-making authority in determining the appropriate sensitivity of building information.

e. In the case of a new building in the planning stages, for multiple tenants, the RC in consultation with all planned tenants will hold decision-making authority in determining the appropriate sensitivity of building information.

3. Tenants. In the case where the tenant or tenants require/s a greater sensitivity designation than for comparable building types and occupants, this tenant or group of tenants will be required to pay any extra costs associated with higher security requirements and less competition in procurement. The tenant/s will agree to fund such costs via rent, Reimbursable Work Authorization, etc., as applicable. Extra costs may be due to limits on Architect-Engineering (A-E) personnel access, bidding restrictions, reduced competition for construction or facility management, or other factors. The RC or designee will assist the tenant in identifying the cost of higher security requirements. Within a Federal campus, the SBU designation may apply to one or more buildings as needed, but will not automatically apply to all buildings within the same campus if any particular building(s) is (are) designated as SBU.

4. PBS Project Manager or Program Manager (PM). The PBS PM is responsible for reviewing all building documents, identifying and marking SBU building information, and

including instructions in Statements of Work (SOWs) for contractors to mark documents as SBU, if appropriate.

a. The PBS PM shall identify and mark as SBU, in electronic or paper formats, only the building information that meets the criteria for SBU, which must be controlled, as stated herein. The PBS PM shall refer to Appendix A of this directive for further guidance.

b. The PBS PM shall coordinate with various groups (tenants, stakeholders, the Facility Security Committee, etc.) on all matters pertaining to building information.

c. The PBS PM, in consultation with the Facility Security Committee (FSC), is responsible for reviewing all building information at every milestone where there is a change in the physical space or tenant, to validate SBU markings are correct and current.

d. If building information designation is found to be incorrectly marked or no longer required, the PBS PM shall follow the instructions related to Mandatory Review in paragraph 11 below.

5. Facility Security Committee (FSC). After construction is complete, FSC or its current equivalent, as established by the standards of the Interagency Security Committee (ISC), shall advise the PBS PM regarding specific building information where SBU markings are necessary.

a. When a building is not designated as sensitive, the FSC, or its current equivalent, may still determine that some specific building information must be controlled. In this case, the FSC shall advise the PM to mark only that specific building information as SBU. The FSC shall refer to Appendix A of this directive for further guidance.

6. Disseminators. Disseminators of SBU building information must comply with the all policy principles and requirements of this directive. SBU building drawings that are part of a procurement must be issued in accordance with FAR 5.102(a)(4) on the secure side of the FedBizOpps website (https://www.fbo.gov/), or any successor system, with proper document control protocols to allow legitimate registered vendors access to the documents for proposing and pricing the procurements.

7. Contracting Officers (COs). COs shall include the clause in Appendix C, or a similar updated clause per the General Services Administration Acquisition Manual (GSAM), in all solicitations (including Solicitations for Offers (SFOs)) and in all building contracts and/or final leases that may contain, require access to, or cause the generation of SBU building information. This applies to all contracts issued after issuance of this directive and implementation of the rule making process, whichever occurs later.

a. Examples of such contracts are A-E design, construction, facility management contracts, and related professional service contracts such as construction manager as agent (CMa) and Commissioning Agent (CxA) contracts.

b. COs must take appropriate action when they become aware that contractors have not fulfilled contractual obligations regarding the protection of SBU building information. Such action may include an investigation, referring the contractor for suspension or debarment proceedings, and/or terminating the contract for default.

8. GSA Employees. GSA Employees may disseminate SBU building information only after a proper review and the imprinting or affixing of a mark, as required by this directive (see Appendix B for marking guidance), and after determining that the recipient of SBU building information is authorized to receive such information before dissemination of that information.

9. General Counsel. The Office of General Counsel (OGC) provides legal advice concerning Freedom of Information Act (FOIA) requests that apply to SBU building information. OGC also provides counsel regarding the application of this directive.

10. All PBS Regional Commissioners, Assistant Commissioner and Deputy Assistant Commissioners must make their respective personnel aware of the requirements in this directive and require that their staffs be trained in the proper application of this directive, including encryption software applications available to GSA personnel and contractors.

11. Mandatory review. For building projects (for design, construction, facility management, etc.), the PBS PM is responsible for reviewing all building information which does or may contain SBU building information at regular milestones (such as change in use, configuration or tenant); the PBS PM is responsible for identifying and validating that SBU markings are correct and current. If building information designation is found to be incorrectly marked or no longer required, the PBS PM will correct the marking immediately or ensure that action is taken promptly to change or remove the marking.

12. Marking information. For any electronic or printed SBU building information created after the issuance date of this directive, pages containing SBU building information must have the markings shown in Appendix B imprinted or affixed.

13. Limiting dissemination to authorized recipients. SBU building information may be disseminated only after it is determined by GSA personnel that each recipient is authorized to receive it. The criterion to determine whether a recipient is authorized to receive SBU building information is that the recipient must have a legitimate business need to know, as further described in Section 4 (Scope and Applicability) of the transmittal for this directive.

a. Federal, State, and local government entities. GSA must provide SBU building information for the performance of official Federal, State, and local government functions, such as inspections, OIG audits, code compliance reviews and issuance of building permits, among other purposes. Public safety entities such as fire departments may require access to SBU building information on a 'need to know' basis. This directive must not prevent or encumber the dissemination of SBU building information to public safety entities.

b. Vendors, Nongovernment entities and utilities. Unless the action is exempt under FAR 4.1102, all disseminators are responsible for verifying that a contractor or contracting firm is currently registered as "active" in the System of Award Management (SAM) database at www.sam.gov and also has a legitimate business need to know SBU building information before releasing it to any contractor or firm. Nongovernment entities and/or utility companies may also require access to SBU building information for the performance of work on GSA-controlled space on a 'need to know' basis and do not necessarily need to register within the SAM database.

14. Electronic transmission of SBU building information. GSA employees, who electronically transmit SBU building information outside of the GSA network, must encrypt the data with an approved NIST algorithm, such as Advanced Encryption Standard (AES) or Triple Data Encryption Standard (3DES), in accordance with Federal Information Processing Standards Publication (FIPS PUB) 140-2, Security Requirements for Cryptographic Modules. As email outside of the GSA network is not encrypted, GSA personnel working within the GSA network may only transmit SBU building information using GSA-approved encryption procedures. ("Within the GSA network" means inside the firewall, including Citrix and GSA VPNs.)

15. Dissemination of SBU building information in non-electronic form or on portable electronic data storage devices. Portable electronic data storage devices include but are not limited to CDs, DVDs, and USB drives. Non-electronic forms of SBU building information include paper documents.

a. By mail. GSA employees must utilize only methods of shipping that provide confirmation of receipt of the SBU building information, such as track and confirm, proof of delivery, signature confirmation, or return receipts.

b. In person. GSA employees must provide SBU building information only to authorized representatives of Federal, State, local government entities, SAM-registered firms, and others that have a legitimate business need to know such information.

16. Safeguarding SBU building information. GSA employees must not take SBU building information outside of GSA facilities, except as necessary for the performance of a GSA project. If a GSA employee takes SBU building information outside of a GSA facility, access to the information must be limited to those with a legitimate business need to know. Such information must be returned to a GSA facility or destroyed when no longer needed for the performance of a GSA project. GSA employees must not store or retain SBU building information on any electronic device or media not owned by GSA.

17. Destroying SBU building information. When SBU information, in any format, is no longer needed, SBU building information must be destroyed such that the information is rendered unreadable and incapable of being restored, in accordance with GSA CIO IT

Security 06-32, Media Sanitization Guide and Appendix A of NIST Special Publication 800-88, Guidelines for Media Sanitation. Alternately, the SBU building information may be returned to the CO.

18. Freedom of Information Act (FOIA) requests. SBU markings do not control the decision of whether to disclose or release the information to any entity that files a FOIA request. Any determination to disclose SBU building information, in accordance with a FOIA request, must be made after consultation with the servicing legal office.

19. Reporting incidents of concern. Any actual or suspected unauthorized disclosure of SBU information must be reported immediately to the CO for the related contract or the appropriate RC. RCs are required immediately to notify the FSC for the building involved. Any incident involving suspected computer or cyber security breach or attack, as defined by NIST Special Publication 800-61, Computer Security Incident Handling Guide, must be reported in accordance with the current version of GSA CIO P 2100.1, Information Technology (IT) Security Policy Order and GSA CIO IT Security Procedural Guide: CIO-IT Security-01-02, Incident Response (IR).

Appendix A. Examples of Sensitive But Unclassified Building Information

Not all building information is automatically considered Sensitive But Unclassified (SBU). After the PBS Project Manager (PM) has reviewed, identified, and marked SBU building information, then access to the information must be controlled. SBU building information may be contained in any document (including drawings, specifications, virtual modeling, reports, studies, analyses) and in any format with information pertaining to:

1. Location and details of secure functions or secure space in a building, location or space. Examples include:

   a. Prisoner or judges' secure circulation paths or routes (both vertical and horizontal).
   b. Detention or holding cells.
   c. Sally ports.
   d. Security areas, including but not limited to control rooms and incident command centers
   e. Building automation systems.
   f. Telephone and riser closets

2. Location and type of structural framing for the building, including any information regarding structural analysis. Examples include information related to:

   a. Progressive collapse.
   b. Seismic.
   c. Building security.
      i. Blast mitigation.
      ii. Counterterrorism methods taken to protect the occupants and the building.

3. Risk assessments and information regarding security systems or strategies of any kind. Examples include:

   a. Camera locations.
   b. Nonpublic security guard post information (e.g., number, location, operations, etc.).

Note: In the case of building information related to a specific suite, room/space, or other component that is designated as SBU (i.e. Building Automation System (BAS) diagram, security camera layout, etc.), the SBU designation does not necessarily carry over to the entire building, or to the entire campus.

Note: Building information for a stand-alone steam plant facility or similar service facility and its associated tunnels shall be designated SBU when it services a building that is designated SBU.

Appendix B. Sensitive But Unclassified Marking Information

1. Any electronic or printed document, pages containing SBU building information must have the following markings:

SENSITIVE BUT UNCLASSIFIED (SBU)
PROPERTY OF THE UNITED STATES GOVERNMENT
FOR OFFICIAL USE ONLY
Do not remove this notice
Properly destroy or return documents when no longer needed

2. The following mark must be affixed to the cover or first page of any document (such as the cover page on a set of construction drawings).

SENSITIVE BUT UNCLASSIFIED (SBU)
PROPERTY OF THE UNITED STATES GOVERNMENT
COPYING, DISSEMINATION, OR DISTRIBUTION OF THIS DOCUMENT TO UNAUTHORIZED RECIPIENTS IS PROHIBITED
Do not remove this notice
Properly destroy or return documents when no longer needed

3. The previous two markings must be prominently labeled in bold type in a size appropriate for the document or portable electronic data storage device or both, if applicable. On a set of construction drawings, for example, the statements must be in a minimum of 14 point bold type or equivalent.

4. The SBU markings must be used regardless of the medium through which the information appears or is conveyed.

Appendix C. SBU Contract Clause

Contracting Officers (COs) shall include the following clause, or a similar updated clause per the General Services Administration Acquisition Manual (GSAM), in: (1) all solicitations containing SBU building information (including Solicitations for Offers (SFOs)); and shall include the following clause in: (2) contracts and/or final leases that may contain, require access to, or cause the generation of SBU building information.

[Begin clause]

Safeguarding and Dissemination of Sensitive But Unclassified (SBU) Building Information

This clause applies to all recipients of SBU building information, including offerors, bidders, awardees, contractors, subcontractors, lessors, suppliers and manufacturers.

1. Marking SBU. Contractor-generated documents that contain building information must be reviewed by GSA to identify any SBU content, before the original or any copies are disseminated to any other parties. If SBU content is identified, the Contracting Officer (CO) may direct the contractor, as specified elsewhere in this contract, to imprint or affix SBU document markings to the original documents and all copies, before any dissemination.

2. Authorized recipients.

   a. Building information designated SBU must be protected with access strictly controlled and limited to those individuals having a legitimate business need to know such information. Those with a need to know may include Federal, State and local government entities, and nongovernment entities engaged in the conduct of business on behalf of or with GSA. Nongovernment entities may include architects, engineers, consultants, contractors, subcontractors, suppliers, utilities, and others submitting an offer or bid to GSA, or performing work under a GSA contract or subcontract. Recipient contractors must be registered as "active" in the System for Award Management (SAM) database at www.sam.gov and have a legitimate business need to know such information. If a subcontractor is not registered in the SAM and has a need to possess SBU building information, the subcontractor shall provide to the contractor its DUNS number or its tax ID number and a copy of its business license. The contractor shall keep this information related to the subcontractor for the duration of the contract and subcontract.

   b. All GSA personnel and Contractors must be provided SBU building information when needed for the performance of official Federal, State, and local government functions, such as for code compliance reviews and for the issuance of building permits. Public safety entities such as fire and utility departments may require access to SBU building information on a need to know basis. This clause must

not prevent or encumber the dissemination of SBU building information to public safety entities.

3. Dissemination of SBU building information:

a. By electronic transmission. Electronic transmission of SBU information outside of the GSA network must use session encryption (or alternatively, file encryption). Encryption must be via an approved NIST algorithm with a valid certification, such as Advanced Encryption Standard (AES) or Triple Data Encryption Standard (3DES), in accordance with Federal Information Processing Standards Publication (FIPS PUB) 140-2, Security Requirements for Cryptographic Modules per GSA policy.

b. By nonelectronic form or on portable electronic data storage devices. Portable electronic data storage devices include, but are not limited to CDs, DVDs, and USB drives. Nonelectronic forms of SBU building information include paper documents, among other formats.

i. By mail. Contractors must utilize only methods of shipping that provide services for monitoring receipt such as track and confirm, proof of delivery, signature confirmation, or return receipt.

ii. In person. Contractors must provide SBU building information only to authorized recipients with a need to know such information. Further information on authorized recipients is found in Section 2 of this clause.

4. Record keeping. Contractors must maintain a list of all entities to which SBU is disseminated, in accordance with sections 2 and 3 of this clause. This list must include at a minimum: (1) the name of the State, Federal, or local government entity, utility, or firm to which SBU has been disseminated; (2) the name of the individual at the entity or firm who is responsible for protecting the SBU building information, with access strictly controlled and limited to those individuals having a legitimate business need to know such information; (3) contact information for the named individual; and (4) a description of the SBU building information provided. Once “as built” drawings are submitted, the contractor must collect all lists maintained in accordance with this clause, including those maintained by any subcontractors and/or suppliers, and submit them to the CO. For Federal buildings, final payment may be withheld until the lists are received.

5. Safeguarding SBU documents. SBU building information (both electronic and paper formats) must be protected, with access strictly controlled and limited to those individuals having a legitimate business need to know such information. GSA contractors and subcontractors must not take SBU building information outside of GSA or their own facilities or network, except as necessary for the performance of that

contract. Access to the information must be limited to those with a legitimate business need to know.

6. Destroying SBU building information. When no longer needed, SBU building information must be destroyed so that marked information is rendered unreadable and incapable of being restored, in accordance with guidelines provided for media sanitization within GSA CIO IT Security 06-32, Media Sanitization Guide and Appendix A of NIST Special Publication 800-88, Guidelines for Media Sanitization. Alternatively, SBU building information may be returned to the CO.

7. Notice of disposal. The contractor must notify the CO that all SBU building information has been returned or destroyed by the contractor and its subcontractors or suppliers in accordance with paragraphs 4 and 6 of this clause, with the exception of the contractor's record copy. This notice must be submitted to the CO at the completion of the contract to receive final payment. For leases, this notice must be submitted to the CO at the completion of the lease term. The contractor may return the SBU documents to the CO rather than destroying them.

8. Incidents. All improper disclosures of SBU building information must be immediately reported to the CO at _____<insert address and contact information>____ . If the contract provides for progress payments, the CO may withhold approval of progress payments until the contractor provides a corrective action plan explaining how the contractor will prevent future improper disclosures of SBU building information. Progress payments may also be withheld for failure to comply with any provision in this clause until the contractor provides a corrective action plan explaining how the contractor will rectify any noncompliance and comply with the clause in the future.

9. Subcontracts. The contractor and subcontractors must insert the substance of this clause in all subcontracts.

[End of clause]

WEST VIRGINIA
Division of Culture and History

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300
Randall Reid-Smith, Commissioner
Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EEO/AA Employer

December 8, 2015

Ms. Donna Andrews, Regional Historic Preservation Officer
Public Buildings Service
General Services Administration
100 South Indepedence Mall West, Suite 415
Philadelphia, PA 19106

RE: Proposed FBI Central Records Complex
Frederick County, Virginia
FR# 06-1096-BY-13

Dear Ms. Andrews:

We have reviewed the above mentioned project to determine its effects to cultural resources. As required by Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

According to submitted information, the U.S. General Services Administration (GSA) is proceeding with plans to acquire and develop land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). Our office concurred with your identification of historic properties and determination of a possible adverse visual effect to the James Nathaniel Burwell House, listed on the National Register of Historic Resources in 1991. Your office has prepared a draft Memorandum of Agreement (MOA) between our office and the GSA to mitigate indirect effects to the historic property.

We have reviewed the draft MOA submitted by your office. Pursuant to our October 27, 2015 letter, your office revised the MOA to include language that is specific to the current Frederick County, Virginia zoning requirements. In addition, Chapter 2 of GSA's *Design Excellence: Policies and Procedures* which includes the Guiding Principles for Federal Architecture has been appended to the MOA.

At this time, we believe that the revised MOA adequately mitigates the adverse visual effects to the NRHP-listed James Nathaniel Burwell House.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Jeffrey S. Smith, Structural Historian, at (304) 558-0240.*

Sincerely,

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/JSS

cc: Mr. Todd Funkhauser

CONSULTING PARTY CORRESPONDENCE

Donna Andrews - 3PCMC <donna.andrews@gsa.gov>

Federal Bureau of Investigation, Central Records Complex, Frederick County, Virginia

Donna Andrews - 3PCMC <donna.andrews@gsa.gov> Fri, Mar 20, 2015 at 4:20 PM
To: Kirsten Kulis <kkulis@achp.gov>, Paul_Hawke@nps.gov, jhutch@svbf.net

Kirsten, Mr. Hawke, and Mr. Hutchinson -

I am writing to copy you on the initiation package for a new federal construction project to build a central records complex for the Federal Bureau of Investigation. This undertaking includes alternative sites with the potential to affect historic properties in both Virginia and West Virginia. This undertaking also has the potential to affect several battlefields in the Winchester, VA vicinity.

Please do not hesitate to contact me if you have any questions. I look forward to any initial comments you may have and to consulting with you on this undertaking.

Many thanks,

Donna

--
Donna Andrews
Regional Historic Preservation Officer
General Services Administration
20 North 8th Street
Philadelphia PA 19107
215.446.4570 (office)
267.644.5837 (cell)
215.873.8440 (e-fax)

2 attachments

01 FBI CRC_106 Initiation to WVSHPO.pdf
2022K

01 FBI CRC_106 Initiation to VDHR.pdf
2111K

Federal Bureau of Investigation, Central Records Complex (FBI CRC)
Section 106 Consulting Party Response Form

TO: **Donna Andrews**
U.S. General Services Administration
20 North 8th Street
Philadelphia PA 19107
Phone: 215-446-4570 Fax: 215-873-8440
Email: donna.andrews@gsa.gov

FROM: _____

_____

_____ DATE: _____

_____

Telephone/Fax Numbers: _____ / _____

Email Address: _____

☐ Yes. I, or my organization, would like to be a consulting party in the Section 106 process for the FBI CRC in Frederick County, Virginia.

_____ will be represented by
(Organization)

_____
(Representative)

Please indicated preferred document
(correspondence, reports) receipt method: _____

☐ I am a representative of a local government with jurisdiction over the area in which the project occurs. (If so, please go to the last question)

☐ No. I, or my organization, do(es) not wish to participate as a consulting party for the FBI CRC project.

☐ Future Participation. As the project progresses into effects, I, or my organization, would like the opportunity to reconsider participation.

Individual's or Organization's Demonstrated Interest
Please Check Appropriate Box(es)

☐ 1. legal interest
☐ 2. economic interest
☐ 3. historic property(s) concerns

Briefly describe your Demonstrated Interest: _____

_____

Do you know of another potential consulting party for this project?
Please list their name and contact information below.

GSA Mid-Atlantic Region

Chief Walt Brown
Cheroenhaka (Nottoway) Indian Tribe
PO Box 397
Courtland VA 23837

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Chief Brown:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

Alternative 1: Arcadia Route 50 Property, 2117 Millwood Pike, Winchester Virginia
Alternative 2: Blackburn Limited Partnership, Apple Valley Road, Winchester, Virginia
Alternative 3: Whitehall Commerce Center, Route 669 & Route 11, Clear Brook, Virginia

GSA is conducting analysis in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. Section 106 of the NHPA requires federal agencies to consider the effects of their undertakings on historic properties. In conjunction with this undertaking, GSA is identifying individuals and organizations with an interest in the FBI CRC project and its potential to affect historic resources. GSA is inviting you or your organization to participate in consultation regarding historic resources pursuant to the Advisory Council on Historic Preservation's (ACHP's) 36 CFR § 800 regulations implementing Section 106 of the NHPA. A historic property is defined as a building, site, district, structure or object, including archaeological resources, included in or eligible for inclusion in the National Register of Historic Places.

At this time, the Section 106 consultation process is just beginning. The goal of consultation is to identify historic properties potentially affected by the undertaking, assess effects to historic properties, and seek ways to avoid, minimize, or mitigate any adverse effects on historic properties. For this undertaking, in addition to the Virginia Department of Historic Resources (the State Historic Preservation Officer), the West Virginia State Historic Preservation Office, and the ACHP, consulting parties may include representatives of local governments, Indian tribes, and others who meet the definition of a consulting party.

U.S. General Services Administration
20 N. 8th Street
Philadelphia, PA 19107-3191

GSA will consider whether individuals or organizations meet the test of a demonstrated interest in the project. Those with a demonstrated interest in the undertaking may participate as consulting parties due to the nature of their legal or economic relation to the undertaking or affected properties, or their concern with the undertaking's effects on historic properties [36 CFR § 800.2(c)(5)]. Consulting parties will be requested to provide their views regarding the findings and determinations of GSA, and they will be asked to provide their views within the time frames prescribed in the ACHP regulations, usually 30 days. Organizations will be asked to nominate one representative to participate on behalf of the group. For more information on the Section 106 consultation process and the role of the public and consulting parties, I encourage you to read the Citizen's Guide to Section 106 Review, available from the ACHP (http://www.achp.gov/docs/CitizenGuide.pdf).

Please complete the enclosed form within 30 days of receipt of this letter and return it to GSA via mail, fax, or email. If the form is not returned within 30 days, it will be assumed that you or your organization does not wish to become a consulting party in the FBI CRC project at this time. This invitation is based upon your potential demonstrated interest. Plans may change or be refined as this undertaking develops, and this may affect whether you continue to have a demonstrated interest in the project. If you have any questions, please contact me at (215) 446-4570 or donna.andrews@gsa.gov.

Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Chief Stephen R. Adkins
Chickahominy Indian Tribe
8200 Lott Cary Road
Providence Forge VA 23140

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Chief Adkins:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

Alternative 1: Arcadia Route 50 Property, 2117 Millwood Pike, Winchester Virginia
Alternative 2: Blackburn Limited Partnership, Apple Valley Road, Winchester, Virginia
Alternative 3: Whitehall Commerce Center, Route 669 & Route 11, Clear Brook, Virginia

GSA is conducting analysis in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. Section 106 of the NHPA requires federal agencies to consider the effects of their undertakings on historic properties. In conjunction with this undertaking, GSA is identifying individuals and organizations with an interest in the FBI CRC project and its potential to affect historic resources. GSA is inviting you or your organization to participate in consultation regarding historic resources pursuant to the Advisory Council on Historic Preservation's (ACHP's) 36 CFR § 800 regulations implementing Section 106 of the NHPA. A historic property is defined as a building, site, district, structure or object, including archaeological resources, included in or eligible for inclusion in the National Register of Historic Places.

At this time, the Section 106 consultation process is just beginning. The goal of consultation is to identify historic properties potentially affected by the undertaking, assess effects to historic properties, and seek ways to avoid, minimize, or mitigate any adverse effects on historic properties. For this undertaking, in addition to the Virginia Department of Historic Resources (the State Historic Preservation Officer), the West Virginia State Historic Preservation Office, and the ACHP, consulting parties may include representatives of local governments, Indian tribes, and others who meet the definition of a consulting party.

GSA will consider whether individuals or organizations meet the test of a demonstrated interest in the project. Those with a demonstrated interest in the undertaking may participate as consulting parties due to the nature of their legal or economic relation to the undertaking or affected properties, or their concern with the undertaking's effects on historic properties [36 CFR § 800.2(c)(5)]. Consulting parties will be requested to provide their views regarding the findings and determinations of GSA, and they will be asked to provide their views within the time frames prescribed in the ACHP regulations, usually 30 days. Organizations will be asked to nominate one representative to participate on behalf of the group. For more information on the Section 106 consultation process and the role of the public and consulting parties, I encourage you to read the Citizen's Guide to Section 106 Review, available from the ACHP (http://www.achp.gov/docs/CitizenGuide.pdf).

Please complete the enclosed form within 30 days of receipt of this letter and return it to GSA via mail, fax, or email. If the form is not returned within 30 days, it will be assumed that you or your organization does not wish to become a consulting party in the FBI CRC project at this time. This invitation is based upon your potential demonstrated interest. Plans may change or be refined as this undertaking develops, and this may affect whether you continue to have a demonstrated interest in the project. If you have any questions, please contact me at (215) 446-4570 or donna.andrews@gsa.gov.

Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Chief Gene Adkins
Chickahominy Indians – Eastern Division
2895 Mt. Pleasant Road
Providence Forge VA 23140

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Chief Adkins:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

Alternative 1: Arcadia Route 50 Property, 2117 Millwood Pike, Winchester Virginia
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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Chief Carl Custalow
Mattaponi Indian Tribe
1467 Mattaponi Reservation Circle
West Point VA 23181

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Chief Custalow:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

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U.S. General Services Administration
20 N. 8th Street
Philadelphia, PA 19107-3191

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Chief Sharon Bryant
Monacan Indian Nation
PO Box 1136
Madison Heights VA 24572

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Chief Bryant:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

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U.S. General Services Administration
20 N. 8th Street
Philadelphia, PA 19107-3191

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Chief Barry W. Bass
Nansemond Indian Tribe
PO Box 6558
Portsmouth VA 23703

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Chief Bass:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

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U.S. General Services Administration
20 N. 8th Street
Philadelphia, PA 19107-3191

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Chief Lynette Lewis Allston
Nottoway Indian Tribe of Virginia
PO Box 246
Capron VA 23829

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Chief Lewis Allston:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Chief Kevin Brown
Pamunkey Tribe
175 Lay Landing Road
King William VA 23086

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Chief Brown:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

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U.S. General Services Administration
20 N. 8th Street
Philadelphia, PA 19107-3191

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Chief John Lightner
Patawomeck Indian Tribe
1416 Brent Street
Fredericksburg VA 22401

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Chief Lightner:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

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

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Chief Richardson:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Chief Kenneth Adams
Upper Mattaponi Indian Tribe
PO Box 174
King William VA 23086

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Chief Adams:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

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U.S. General Services Administration
20 N. 8th Street
Philadelphia, PA 19107-3191

GSA will consider whether individuals or organizations meet the test of a demonstrated interest in the project. Those with a demonstrated interest in the undertaking may participate as consulting parties due to the nature of their legal or economic relation to the undertaking or affected properties, or their concern with the undertaking's effects on historic properties [36 CFR § 800.2(c)(5)]. Consulting parties will be requested to provide their views regarding the findings and determinations of GSA, and they will be asked to provide their views within the time frames prescribed in the ACHP regulations, usually 30 days. Organizations will be asked to nominate one representative to participate on behalf of the group. For more information on the Section 106 consultation process and the role of the public and consulting parties, I encourage you to read the Citizen's Guide to Section 106 Review, available from the ACHP (http://www.achp.gov/docs/CitizenGuide.pdf).

Please complete the enclosed form within 30 days of receipt of this letter and return it to GSA via mail, fax, or email. If the form is not returned within 30 days, it will be assumed that you or your organization does not wish to become a consulting party in the FBI CRC project at this time. This invitation is based upon your potential demonstrated interest. Plans may change or be refined as this undertaking develops, and this may affect whether you continue to have a demonstrated interest in the project. If you have any questions, please contact me at (215) 446-4570 or donna.andrews@gsa.gov.

Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

Dr. Wenonah G. Haire
THPO and Director
Catawba Cultural Preservation Project
1536 Tom Steven Road
Rock Hill SC 29730

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Dr. Haire:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Mr. Clint Halftower
Nation Representative
Cayuga Nation of Indians
2540 State Route 89
PO Box 803
Seneca Falls NY 13148

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Mr. Halftower:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

Chief Bill John Baker
Principal Chief
Cherokee Nation
17675 South Muskogee Avenue
PO Box 948
Tahlequah OK 74465

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Chief Baker:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Mr. Russell Townsend
THPO
Eastern Band of Cherokee Indians
Qualla Boundary Reservation
PO Box 455
Cherokee NC 28719

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Mr. Townsend:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

Ms. Lisa Larue
THPO
United Keetoowah Band of Cherokee Indians
2450 Muskogee Avenue
PO Box 746
Tahlequah OK 74464

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Ms. Larue:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Chief Leo R. Henry
Tuscarora Nation of New York
2006 Mt. Hope Road
Lewiston NY 14092

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Chief Henry:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Mr. Roderick B . Williams
County Administrator
Frederick County
107 N. Kent Street
Winchester VA 22601

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Mr. Williams:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Ms. Elizabeth A. Minor
Mayor
City of Winchester
15 North Cameron Street
Winchester VA 22601

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Ms. Minor:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Mr. John A. Willingham
City Council President
City of Winchester
16 North Cameron Street
Winchester VA 22601

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Mr. Willingham:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

Alternative 1: Arcadia Route 50 Property, 2117 Millwood Pike, Winchester Virginia
Alternative 2: Blackburn Limited Partnership, Apple Valley Road, Winchester, Virginia
Alternative 3: Whitehall Commerce Center, Route 669 & Route 11, Clear Brook, Virginia

GSA is conducting analysis in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. Section 106 of the NHPA requires federal agencies to consider the effects of their undertakings on historic properties. In conjunction with this undertaking, GSA is identifying individuals and organizations with an interest in the FBI CRC project and its potential to affect historic resources. GSA is inviting you or your organization to participate in consultation regarding historic resources pursuant to the Advisory Council on Historic Preservation's (ACHP's) 36 CFR § 800 regulations implementing Section 106 of the NHPA. A historic property is defined as a building, site, district, structure or object, including archaeological resources, included in or eligible for inclusion in the National Register of Historic Places.

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GSA will consider whether individuals or organizations meet the test of a demonstrated interest in the project. Those with a demonstrated interest in the undertaking may participate as consulting parties due to the nature of their legal or economic relation to the undertaking or affected properties, or their concern with the undertaking's effects on historic properties [36 CFR § 800.2(c)(5)]. Consulting parties will be requested to provide their views regarding the findings and determinations of GSA, and they will be asked to provide their views within the time frames prescribed in the ACHP regulations, usually 30 days. Organizations will be asked to nominate one representative to participate on behalf of the group. For more information on the Section 106 consultation process and the role of the public and consulting parties, I encourage you to read the Citizen's Guide to Section 106 Review, available from the ACHP (http://www.achp.gov/docs/CitizenGuide.pdf).

Please complete the enclosed form within 30 days of receipt of this letter and return it to GSA via mail, fax, or email. If the form is not returned within 30 days, it will be assumed that you or your organization does not wish to become a consulting party in the FBI CRC project at this time. This invitation is based upon your potential demonstrated interest. Plans may change or be refined as this undertaking develops, and this may affect whether you continue to have a demonstrated interest in the project. If you have any questions, please contact me at (215) 446-4570 or donna.andrews@gsa.gov.

Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

Mr. Robert Nieweg
Director & Regional Attorney
National Trust for Historic Preservation
Southern Field Office
1785 Massachusetts Avenue, NW
Washington DC 20036-2117

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Mr. Nieweg:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Mr. James Lighthizer
President
Civil War Trust
1156 15th Street NW
Suite 900
Washington DC 20005

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Mr. Lighthizer:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Ms. Elizabeth Kostelny
Executive Director
APVA/Preservation Virginia
204 West Franklin Street
Richmond VA 23220

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Ms. Kostelny:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Mr. Gary Crawford
President
Kernstown Battlefield Association
PO Box 1327
Winchester VA 22604

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Mr. Crawford:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

In 2014, federal funding was approved for the construction of the FBI CRC, and a notice was put on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, a short list of three alternatives has been reached:

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

President
Winchester-Frederick County Historical Society
1340 South Pleasant Valley Road
Winchester VA 22601

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Sir or Madam,

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

GSA Mid-Atlantic Region

Mr. Don Wood
Chairman
Berkeley County Historic Landmarks Commission
136 East Race Street
PO Box 1624
Martinsburg WV 25401-1624

April 24, 2015

Reference: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia

Dear Mr. Wood:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). The delineated area for the site search includes Frederick County, Virginia.

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Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

Donna Andrews - 3PCMC <donna.andrews@gsa.gov>

Federal Bureau of Investigation, Central Records Complex, Frederick County, Virginia

Donna Andrews - 3PCMC <donna.andrews@gsa.gov> Tue, Apr 28, 2015 at 5:14 PM
To: Paul_Hawke@nps.gov, jhutch@svbf.net
Bcc: Deb Henson <Deborah.Henson@cardno-gs.com>, "Thursby, Lori O." <Lori.Thursby@cardno-gs.com>

Mr. Hawke, Mr. Hutchinson -

I am writing to copy you on the initiation responses received from the ACHP, VDHR, and WVSHPO. At this time I expect to distribute the draft architectural and archaeological survey reports for review and comment in late May / early June. That will probably be the next major event in the consultation.

Please let me know if you need anything.

Donna

--
Donna Andrews
Regional Historic Preservation Officer
General Services Administration
20 North 8th Street
Philadelphia PA 19107
215.446.4570 (office)
267.644.5837 (cell)
215.873.8440 (e-fax)

How Satisfied Are You Working With Us?
https://www.surveymonkey.com/s/R3-GSA-PBS-Pilot-Survey
[Quoted text hidden]

3 attachments

03 FBI CRC_VDHR Initiation Comments.pdf
71K

04 FBI CRC_WVSHPO Initiation Comments.pdf
658K

02 FBI CRC_ACHP Initiation Response.pdf
134K

Donna Andrews - 3PCMC <donna.andrews@gsa.gov>

FBI CRC, Virginia

Lisa LaRue-Baker - UKB THPO <ukbthpo-larue@yahoo.com> Wed, May 13, 2015 at 11:18 PM
Reply-To: Lisa LaRue-Baker - UKB THPO <ukbthpo-larue@yahoo.com>
To: Donna Andrews - 3PCMC <donna.andrews@gsa.gov>
Cc: Elizabeth Bird <ebird@unitedkeetoowahband.org>

The United Keetoowah Band of Cherokee Indians in Oklahoma has reviewed your project under Section 106 of the NHPA, and has no comments or objections at the present time. If any human remains are inadvertently discovered, please cease all work and contact us immediately.

The United Keetoowah Band of Cherokee Indians in Oklahoma reserves the right to re-enter consultation at any time during this project.

Thank you,

Lisa C. Baker
Acting THPO
United Keetoowah Band of Cherokee Indians in Oklahoma
PO Box 746
Tahlequah, OK 74465

c 918.822.1952
ukbthpo-larue@yahoo.com

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this email in error please notify the system manager. This message contains confidential information and is intended only for the individual named. If you are not the named addressee you should not disseminate, distribute or copy this e-mail. Please notify the sender immediately by e-mail if you have received this e-mail by mistake and delete this e-mail from your system. If you are not the intended recipient you are notified that disclosing, copying, distributing or taking any action in reliance on the contents of this information is strictly prohibited.

Please FOLLOW our historic preservation page and LIKE us on FACEBOOK

Donna Andrews - 3PCMC <donna.andrews@gsa.gov>

FBI CRC, Virginia

Donna Andrews - 3PCMC <donna.andrews@gsa.gov> Wed, May 20, 2015 at 9:57 AM
To: Lisa LaRue-Baker - UKB THPO <ukbthpo-larue@yahoo.com>

Thank you Lisa!

Do you want to be notified when we select a location, or only in the case of discoveries during archaeological investigation or unanticipated discoveries during construction?

Donna

--
Donna Andrews
Regional Historic Preservation Officer
General Services Administration
20 North 8th Street
Philadelphia PA 19107
215.446.4570 (office)
267.644.5837 (cell)
215.873.8440 (e-fax)

How Satisfied Are You Working With Us?
https://www.surveymonkey.com/s/R3-GSA-PBS-Pilot-Survey
[Quoted text hidden]

Donna Andrews - 3PCMC <donna.andrews@gsa.gov>

FBI CRC, Virginia

Lisa LaRue-Baker - UKB THPO <ukbthpo-larue@yahoo.com> Wed, May 20, 2015 at 10:12 AM
Reply-To: Lisa LaRue-Baker - UKB THPO <ukbthpo-larue@yahoo.com>
To: Donna Andrews - 3PCMC <donna.andrews@gsa.gov>

Just keep us in the loop, and we can alert you if there are any concerns :-)

Lisa C. Baker
Acting THPO
United Keetoowah Band of Cherokee Indians in Oklahoma
PO Box 746
Tahlequah, OK 74465

c 918.822.1952
ukbthpo-larue@yahoo.com

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this email in error please notify the system manager. This message contains confidential information and is intended only for the individual named. If you are not the named addressee you should not disseminate, distribute or copy this e-mail. Please notify the sender immediately by e-mail if you have received this e-mail by mistake and delete this e-mail from your system. If you are not the intended recipient you are notified that disclosing, copying, distributing or taking any action in reliance on the contents of this information is strictly prohibited.

Please FOLLOW our historic preservation page and LIKE us on FACEBOOK

[Quoted text hidden]

July 6, 2015

Ms. Susan Pierce
Deputy State Historic Preservation Officer
West Virginia Division of Culture and History
The Cultural Center
1900 Kanawha Boulevard
Charleston, West Virginia 25305

Re: Section 106 Consultation
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia
FR# 06-1096-BY

Dear Ms. Pierce:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). GSA initiated Section 106 consultation with your office for this undertaking in March 2015. At that time, the Area of Potential Effects (APE) for this undertaking included three short-listed alternatives, only one of which had the potential to affect any historic properties in West Virginia: the Whitehall Commerce Center, Route 669 & Route 11, Clear Brook, Virginia

In April and May of 2015 architectural survey was undertaken at the Whitehall Commerce Center alternative. Included in this package is a draft "Historic Resources Survey and Determination of Eligibility Report" report prepared by GSA's cultural resource consultant, Cardno. This report delineates the APE for Indirect Effects and includes the identification of historic properties and assessment of effects.

To summarize the identification and assessment findings, for above-ground (architectural) resources, GSA did not identify any new potentially eligible or eligible historic properties within the APE for Indirect Effects at the Whitehall Commerce Center alternative. The National Register-listed James Nathanial Burwell House (NR: 5/16/91) is located in the APE for Indirect Effects. The proposed CRC will have an Adverse Effect on the viewshed of the James Nathanial Burwell House.

In terms of archaeological resources, the portion of the Whitehall Commerce Center property that GSA would acquire and develop, if that property is identified as the preferred alternative, would not include any parcel of land in West Virginia. There would be no direct effects to any potentially eligible or eligible historic properties located in the State of West Virginia.

The purpose of this letter is to seek your concurrence with the APEs and identification of historic properties established by GSA for the purpose of completing our identification responsibilities, and to seek your acceptance of the aforementioned information as documentation regarding this

action for consultation purposes. In accordance with Section 106 of the National Historic Preservation Act and 36 CFR 800.5(d)(2), it is the opinion of GSA that the potential land acquisition and development of the CRC for FBI at the Whitehall Commerce Center alternative would result in an Adverse Effect to historic properties located in the State of West Virginia. A Memorandum of Agreement (MOA) was signed during a previous incarnation of this undertaking in 2007 to mitigate the adverse visual effect to the James Nathanial Burwell House. This MOA will need to be reviewed and updated. Accordingly, GSA seeks your concurrence with our determination of effect.

If you need additional information, please do not hesitate to contact me at (215) 446-4570 or donna.andrews@gsa.gov.

Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

Cc: Ms. Kirsten Brinker Kulis – ACHP
Mr. Paul Hawke – NPS, American Battlefield Protection Program
Mr. John D. Hutchinson V. – Shenandoah Valley Battlefields Foundation
Ms. Lisa LaRue Baker – United Keetoowah Band of Cherokee Indians in Oklahoma
Mr. Don Wood – Berkeley County Historic Landmarks Commission

Donna Andrews - 3PCMC <donna.andrews@gsa.gov>

FBI CRC, Winchester, VA - WV Review Package

Donna Andrews - 3PCMC <donna.andrews@gsa.gov> Tue, Jul 21, 2015 at 5:11 PM
To: Kirsten Kulis <kkulis@achp.gov>, Paul_Hawke@nps.gov, jhutch@svbf.net, Lisa Larue <ukbthpo-larue@yahoo.com>
Cc: George Siekkinen <george.siekkinen@gsa.gov>, Courtenay Hoernemann <courtenay.hoernemann@gsa.gov>, "Thursby, Lori O." <Lori.Thursby@cardno-gs.com>

Good afternoon -

Please find attached a digital cc of the review package and letter sent to the WV SHPO and the Berkeley County Landmarks Commission in hard copy earlier this month.

I have also attached, for reference, the MOA executed in 2007 with WV SHPO that will need to be revised as a part of this undertaking. The revisions will focus on the removal of Stipulation IV regarding archaeological impacts, as no construction would occur in WV should the Whitehall Commerce Center alternative be selected. Other stipulations would remain more or less the same.

Please let me know if you have any comments or questions.

Donna

--
Donna Andrews
Regional Historic Preservation Officer
General Services Administration
20 North 8th Street
Philadelphia PA 19107
215.446.4570 (office)
267.644.5837 (cell)
215.873.8440 (e-fax)

How Satisfied Are You Working With Us?
https://www.surveymonkey.com/s/R3-GSA-PBS-Pilot-Survey

3 attachments

05 FBI CRC_Identification and Effects to WVSHPO.pdf
83K

GSA FBI CRC_WV_Architecture_062415.pdf
12759K

Winchester FBI_MOA.pdf
1891K

Donna Andrews - 3PCMC <donna.andrews@gsa.gov>

FBI CRC, Winchester, VA - VA Review Package

Donna Andrews - 3PCMC <donna.andrews@gsa.gov> Wed, Jul 22, 2015 at 5:24 PM
To: Kirsten Kulis <kkulis@achp.gov>, Paul_Hawke@nps.gov, jhutch@svbf.net, Lisa Larue <ukbthpo-larue@yahoo.com>, bgarton@feva.us
Cc: George Siekkinen <george.siekkinen@gsa.gov>, Courtenay Hoernemann <courtenay.hoernemann@gsa.gov>, "Thursby, Lori O." <Lori.Thursby@cardno-gs.com>

Good afternoon -

Please find attached a digital cc of the review package and letter sent to VDHR in hard copy earlier this week.

Two notes: the architectural report has had Appendix A, the inventory forms, removed in order to downsize it enough to email. If you would like the full copy including the forms please let me know and I will send you a disc. All of the information contained in the survey forms is in the body of the report.

When we initiated Section 106 consultation earlier this year, GSA was considering three alternatives. Since that time, one of the alternatives, Blackburn, was sold to a private buyer and was not studied. Only two alternatives are under consideration at this point - Arcadia and Whitehall.

Please let me know if you have any comments or questions.

Donna

--
Donna Andrews
Regional Historic Preservation Officer
General Services Administration
20 North 8th Street
Philadelphia PA 19107
215.446.4570 (office)
267.644.5837 (cell)
215.873.8440 (e-fax)

How Satisfied Are You Working With Us?
https://www.surveymonkey.com/s/R3-GSA-PBS-Pilot-Survey

3 attachments

06 FBI CRC_Identification and Effects to VDHR.pdf
83K

GSA FBI CRC_Arcadia Archaeology_June 2015.pdf
6682K

GSA FBI CRC_Draft VA Architecture Report July 2015_red.pdf
6125K

July 20, 2015

Mr. Marc Holma
Office of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

Re: Section 106 Consultation
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County, Virginia
DHR File No 2006-0949

Dear Mr. Holma:

The U.S. General Services Administration (GSA) is proposing to acquire and develop a parcel of land for a Central Records Complex (CRC) for the Federal Bureau of Investigation (FBI). GSA initiated Section 106 consultation with your office for this undertaking in March 2015. At that time, the Area of Potential Effects (APE) for this undertaking included three short-listed alternatives:

Alternative 1: Arcadia Route 50 Property, 2117 Millwood Pike, Winchester Virginia
Alternative 2: Blackburn Limited Partnership, Apple Valley Road, Winchester, Virginia
Alternative 3: Whitehall Commerce Center, Route 669 & Route 11, Clear Brook, Virginia

Since March 2015, the second alternative property, Blackburn Limited Partnership, has been purchased by a private developer and is no longer available for consideration. GSA is now considering two short-listed alternatives:

Alternative 1: Arcadia Route 50 Property, 2117 Millwood Pike, Winchester Virginia
Alternative 2: Whitehall Commerce Center, Route 669 & Route 11, Clear Brook, Virginia

In April and May of 2015 Phase I architectural survey was undertaken at both alternatives and a Phase I archaeological survey was undertaken at the Arcadia Route 50 Property alternative. Phase I archaeological survey was undertaken at the Whitehall Commerce Center alternative during a previous incarnation of this undertaking in 2007. Included in this package are draft "Phase I Architectural Survey" and "Phase I Archaeological Survey of the Arcadia Property" reports prepared by GSA's cultural resource consultant, Cardno. These reports delineate the APE for both Direct and Indirect Effects and include the identification of historic properties and assessment of effects at both alternatives.

To summarize the identification findings, for above-ground (architectural) resources, GSA did not identify any eligible historic properties within the APE for Direct or Indirect Effects at either alternative.

In terms of archaeological resources, through a Phase I investigation conducted over 59 acres of land at the Arcadia Route 50 Property alternative, GSA did not identify any potentially eligible or eligible historic properties. The Whitehall Commerce Center alternative was tested in 2007 and no potentially eligible or eligible historic properties were identified at that time.

The purpose of this letter is to seek your concurrence with the APEs and identification of historic properties established by GSA for the purpose of completing our identification responsibilities, and to seek your acceptance of the aforementioned information as documentation regarding this action for consultation purposes. In accordance with Section 106 of the National Historic Preservation Act and 36 CFR 800.4(d)(1), it is GSA's determination that the proposed land acquisition and development of the CRC for FBI at either one of the alternatives will result in No Historic Properties Affected for historic properties located in the Commonwealth of Virginia. Accordingly, GSA seeks your concurrence with our determination of effect.

If you need additional information, please do not hesitate to contact me at (215) 446-4570 or donna.andrews@gsa.gov.

Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

Cc: Ms. Kirsten Brinker Kulis – ACHP
Mr. Paul Hawke – NPS, American Battlefield Protection Program
Mr. John D. Hutchinson V. – Shenandoah Valley Battlefields Foundation
Ms. Lisa LaRue Baker – United Keetoowah Band of Cherokee Indians in Oklahoma
Ms. Brenda Garton – Frederick County

Donna Andrews - 3PCMC <donna.andrews@gsa.gov>

FBI CRC, Winchester, VA - WV Review Package

Lisa LaRue-Baker - UKB THPO <ukbthpo-larue@yahoo.com> Wed, Jul 29, 2015 at 12:01 PM
Reply-To: ukbthpo-larue@yahoo.com
To: Donna Andrews - 3PCMC <donna.andrews@gsa.gov>
Cc: ebird@unitedkeetoowahband.org

The UKB has no objections.

Lisa C. Baker
Acting THPO
United Keetoowah Band of Cherokee Indians in Oklahoma
PO Box 746
Tahlequah, OK 74465

c 918.822.1952
ukbthpo-larue@yahoo.com

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On Tue, 7/21/15, Donna Andrews - 3PCMC <donna.andrews@gsa.gov> wrote:

Subject: FBI CRC, Winchester, VA - WV Review Package
To: "Kirsten Kulis" <kkulis@achp.gov>, Paul_Hawke@nps.gov, jhutch@svbf.net, "Lisa Larue" <ukbthpo-larue@yahoo.com>
Cc: "George Siekkinen" <george.siekkinen@gsa.gov>, "Courtenay Hoernemann" <courtenay.hoernemann@gsa.gov>, "Thursby, Lori O." <Lori.Thursby@cardno-gs.com>
Date: Tuesday, July 21, 2015, 4:11 PM
[Quoted text hidden]
https://www.surveymonkey.com/s/R3-GSA-PBS-Pilot-Survey

Donna Andrews - 3PCMC <donna.andrews@gsa.gov>

FBI CRC, Winchester, VA - VA Review Package

Lisa LaRue-Baker - UKB THPO <ukbthpo-larue@yahoo.com> Wed, Jul 29, 2015 at 12:04 PM
Reply-To: ukbthpo-larue@yahoo.com
To: Donna Andrews - 3PCMC <donna.andrews@gsa.gov>
Cc: ebird@unitedkeetoowahband.org

The United Keetoowah Band of Cherokee Indians in Oklahoma has reviewed your project under Section 106 of the NHPA, and at this time, have no comments or concerns. Should any human remains be inadvertently discovered, please cease all work and contact us immediately.
In addition, the UKB reserves the right to re-enter consultation at any time regarding this project.

Best,

Lisa C. Baker
Acting THPO
United Keetoowah Band of Cherokee Indians in Oklahoma
PO Box 746
Tahlequah, OK 74465

c 918.822.1952
ukbthpo-larue@yahoo.com

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On Wed, 7/22/15, Donna Andrews - 3PCMC <donna.andrews@gsa.gov> wrote:

Subject: FBI CRC, Winchester, VA - VA Review Package
To: "Kirsten Kulis" <kkulis@achp.gov>, Paul_Hawke@nps.gov, jhutch@svbf.net, "Lisa Larue" <ukbthpo-larue@yahoo.com>, bgarton@feva.us
Cc: "George Siekkinen" <george.siekkinen@gsa.gov>, "Courtenay Hoernemann" <courtenay.hoernemann@gsa.gov>, "Thursby, Lori O." <Lori.Thursby@cardno-gs.com>
Date: Wednesday, July 22, 2015, 4:24 PM
[Quoted text hidden]
https://www.surveymonkey.com/s/R3-GSA-PBS-Pilot-Survey

Donna Andrews - 3PCMC <donna.andrews@gsa.gov>

FBI CRC Winchester, VA - potential for adverse effect notification

Donna Andrews - 3PCMC <donna.andrews@gsa.gov> Tue, Sep 8, 2015 at 4:51 PM
To: Kirsten Kulis <kkulis@achp.gov>
Cc: Susan Pierce <Susan.M.Pierce@wv.gov>, Jeffrey.S.Smith@wv.gov, carolyn.m.kender@wv.gov, Andrea Burke <andrea.burke@dhr.virginia.gov>, "Eaton, Ethel (DHR)" <Ethel.Eaton@dhr.virginia.gov>, Beth Savage <beth.savage@gsa.gov>, Joanna Rosato - 3P <joanna.rosato@gsa.gov>, Lisa Larue <ukbthpo-larue@yahoo.com>, Paul_Hawke@nps.gov, jhutch@svbf.net, bgarton@fcva.us, admin@bchs.org, bchs@bchs.org

Kirsten -

Please find attached a letter notifying the ACHP of the potential for adverse effect from the proposed construction of a Central Records Center for the Federal Bureau of Investigation in Winchester, Virginia in accordance with 36 CFR § 800.6(a)(1).

Many thanks, and please let me know if you need anything.

Donna

--
Donna Andrews
Regional Historic Preservation Officer
General Services Administration
20 North 8th Street
Philadelphia PA 19107
215.446.4570 (office)
267.644.5837 (cell)
215.873.8440 (e-fax)

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08 Winchester FBI_Adverse Effect to ACHP.pdf
82K

GSA Mid-Atlantic Region

October 14, 2015

Mr. Kermit Hicks
598 Meadowview Circle
Greencastle, PA 17225

Re: Historic Resources Survey and Determination of Eligibility Report for Federal Bureau of Investigation Central Records Complex, Frederick County, Virginia

Dear Mr. Hicks:

On behalf of the United States General Services Administration (GSA), please find enclosed one (1) printed and bound copy of the "Draft Historic Resources Survey and Determination of Eligibility Report for Federal Bureau of Investigation Central Records Complex, Frederick County, Virginia." A copy of the enclosed document was requested via comment form at the public meeting for the above referenced project held on September 10, 2015 between 6:00 p.m. and 8:00 p.m. in the War Memorial Building Social Hall at Jim Barnett Park, War Memorial Drive, Winchester, VA 22601. GSA thanks you for your participation in this project. Should you require additional information about the project, contact GSA via the FBI CRC email address: frederick.va.siteacquisition@gsa.gov or by direct mailing Ms. Courtenay Hoernemann, GSA Project Environmental Planner, 100 South Independence Mall West, Suite 415, Philadelphia, PA 19107, or visit the project website at http://fbicrc-seis.com.

Sincerely,

Donna Andrews
Regional Historic Preservation Officer
Public Buildings Service

U.S. General Services Administration
100 S. Independence Mall West
Philadelphia, PA 19106
www.gsa.gov

Federal Bureau of Investigation Central Records Complex

GSA

Comment Form

FBI CRC Supplemental Draft Environmental Impact Statement

The U.S. General Services Administration (GSA) has prepared a Supplemental Draft Environmental Impact Statement (EIS) for the proposed FBI Central Records Complex in Frederick County, VA. The Supplemental Draft EIS is available at local libraries and on the project website: **www.fbicrc-seis.com**. Please submit your comments on the Supplemental Draft EIS no later than October 8, 2015 by:

1. Filling out this form and dropping it in the comment box at the public information meeting
2. Submitting comments electronically via email to: **frederick.va.siteacquisition@gsa.gov**
3. Mailing your comment form to: Ms. Courtenay Hoernemann, Project Environmental Planner, 20 North 8th Street, Philadelphia, PA 19107.

Please provide comments no later than October 8, 2015 to ensure they are considered during preparation of the Final Supplemental EIS.

Please Note: The information and comments provided are published in the Final Supplemental EIS and become part of the administrative record associated with this proposed action.

*Please check here if you would **NOT** like to be on the Email/mailing list* _____

Please check here if you would like your name and Email/mailing address kept private (i.e., not published in the Final Supplemental EIS documents) _____

PLEASE PRINT CLEARLY AND LEGIBLY

Name: KERMIT HICKS Date: 9/10/15

Organization/Affiliation:

Email/Mailing Address: 598 MEADOWVIEW CIRCLE

City, State, Zip Code: GREENCASTLE PA 17225

Comments: WOULD LIKE W VA SURVEY BOOKLET FOR THE WHITEHALL SITE

(Use reverse side for more space)

Donna Andrews - 3PCMC <donna.andrews@gsa.gov>

FBI CRC, Winchester, VA - VA Review Package

Donna Andrews - 3PCMC <donna.andrews@gsa.gov> Mon, Oct 26, 2015 at 1:25 PM
To: Kirsten Kulis <kkulis@achp.gov>, Paul_Hawke@nps.gov, jhutch@svbf.net, Lisa Larue <ukbthpo-larue@yahoo.com>, bgarton@fcva.us
Cc: Courtenay Hoernemann <courtenay.hoernemann@gsa.gov>, "Thursby, Lori O." <Lori.Thursby@cardno-gs.com>, Caroline Alderson <caroline.alderson@gsa.gov>

Good Afternoon -

Please find attached a letter from VDHR concurring with GSA's determination of No Historic Properties Affected for this undertaking. Consultation with WVSHPO remains ongoing; please let me know if you have any questions or concerns.

Thank you!

Donna

--
Donna Andrews
Regional Historic Preservation Officer
General Services Administration
100 S. Independence Mall West
Suite 415
Philadelphia, PA 19106
215.446.4570 (office)
267.644.5837 (cell)
215.873.8440 (e-fax)

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On Wed, Jul 22, 2015 at 5:24 PM, Donna Andrews - 3PCMC <donna.andrews@gsa.gov> wrote:

> Good afternoon -
>
> Please find attached a digital cc of the review package and letter sent to VDHR in hard copy earlier this week.
>
> Two notes: the architectural report has had Appendix A, the inventory forms, removed in order to downsize it enough to email. If you would like the full copy including the forms please let me know and I will send you a disc. All of the information contained in the survey forms is in the body of the report.
>
> When we initiated Section 106 consultation earlier this year, GSA was considering three alternatives. Since that time, one of the alternatives, Blackburn, was sold to a private buyer and was not studied. Only two alternatives are under consideration at this point - Arcadia and Whitehall.
>
> Please let me know if you have any comments or questions.
>
> Donna
>
> --
> Donna Andrews
> Regional Historic Preservation Officer

General Services Administration
20 North 8th Street
Philadelphia PA 19107
215.446.4570 (office)
267.644.5837 (cell)
215.873.8440 (e-fax)

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11 FBI CRC_VDHR Concurrence.pdf
158K

INVITATION FORMS

Federal Bureau of Investigation, Central Records Complex (FBI CRC)
Section 106 Consulting Party Response Form

TO: **Donna Andrews**
U.S. General Services Administration
20 North 8th Street
Philadelphia PA 19107
Phone: 215-446-4570 Fax: 215-873-8440
Email: donna.andrews@gsa.gov

FROM: Berkeley County Historic Landmarks
136 East Race St. P.O. Box 1624
Martinsburg WV 25401-1624

DATE: 4/30/15

Telephone/Fax Numbers: 304-267-4713 /

Email Address: bchs@bchs.org

☐ Yes. I, or my organization, would like to be a consulting party in the Section 106 process for the FBI CRC in Frederick County, Virginia.

_____ will be represented by
(Organization)

_____
(Representative)

Please indicated preferred document (correspondence, reports) receipt method: Electronic

☐ I am a representative of a local government with jurisdiction over the area in which the project occurs. (If so, please go to the last question)

☐ No. I, or my organization, do(es) not wish to participate as a consulting party for the FBI CRC project.

☒ Future Participation. As the project progresses into effects, I, or my organization, would like the opportunity to reconsider participation.

Individual's or Organization's Demonstrated Interest
Please Check Appropriate Box(es)

☐ 1. legal interest
☐ 2. economic interest
☒ 3. historic property(s) concerns

Briefly describe your Demonstrated Interest: _____

Do you know of another potential consulting party for this project?
Please list their name and contact information below.

FAX TRANSMISSION

OFFICE OF THE COUNTY ADMINISTRATOR
COUNTY OF FREDERICK, VIRGINIA
107 North Kent Street
Winchester, Virginia 22601
(540)665-6382
Fax: (540)667-0370
www.fcva.us

To:	Donna Andrews U.S. General Services Administration	**Date:**	May 22, 2015
Fax #:	215-873-8440	**Pages:**	2, including this cover sheet.
From:	Brenda G. Garton County Administrator		

Subject: Potential Section 106 Consulting Party
Land Acquisition and Development
Federal Bureau of Investigation, Central Records Complex
Frederick County Virginia

COMMENTS:

Per your correspondence dated April 24, 2015 to Roderick Williams, please see attached form.

Federal Bureau of Investigation, Central Records Complex (FBI CRC)
Section 106 Consulting Party Response Form

TO: **Donna Andrews**
U.S. General Services Administration
20 North 8th Street
Philadelphia PA 19107
Phone: 215-446-4570 Fax: 215-873-8440
Email: donna.andrews@gsa.gov

FROM: Brenda G. Garton
County Administrator, Frederick County
107 North Kent Street
Winchester, VA 22601

DATE: May 21, 2015

Telephone/Fax Numbers: 540-665-6382 / 540-667-0370

Email Address: bgarton@fcva.us

☑ Yes. I, or my organization, would like to be a consulting party in the Section 106 process for the FBI CRC in Frederick County, Virginia.

Frederick County (Organization) will be represented by Brenda Garton (Representative)

Please indicated preferred document (correspondence, reports) receipt method: email

☑ I am a representative of a local government with jurisdiction over the area in which the project occurs. (If so, please go to the last question)

☐ No. I, or my organization, do(es) not wish to participate as a consulting party for the FBI CRC project.

☐ Future Participation. As the project progresses into effects, I, or my organization, would like the opportunity to reconsider participation.

Individual's or Organization's Demonstrated Interest
Please Check Appropriate Box(es)

☐ 1. legal interest
☑ 2. economic interest
☑ 3. historic property(s) concerns

Briefly describe your Demonstrated Interest: Interested in overall project, historic review, etc.

Do you know of another potential consulting party for this project?
Please list their name and contact information below.

BIOLOGICAL RESOURCE CORRESPONDENCE

March 31, 2015

From: Courtenay Hoernemann
Environmental Protection Specialist
General Services Administration
20 North Eighth Street
Philadelphia, Pennsylvania 19107
215-446-4710
courtenay.hoernemann@gsa.gov

To: U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061

Re: PROPOSED CONSTRUCTION OF A FEDERAL BUREAU OF INVESTIGATION CENTRAL RECORDS COMPLEX IN WINCHESTER COUNTY, VIRGINIA

We have reviewed the referenced project using the Virginia Field Office's online project review process and have followed all guidance and instructions in completing the review. We completed our review on March 23, 2015 and are submitting our project review package in accordance with the instructions for further review.

Our proposed action consists of site acquisition and construction of a Federal Bureau of Investigation (FBI) Central Records Complex (CRC). The project requirements are for an overall square footage of 256,425 gross square feet, to include the records facility, support area, visitor's screening facility, service center, and guard booth; parking would be at 427 spaces.

The location of the project and the action areas being considered for the construction of the CRC facility are identified on the enclosed maps.

Site acquisition is anticipated to occur in the Spring of 2016 and construction is anticipated to be completed Winter of 2019.

This project review is needed for compliance with Section 7 of the Endangered Species Act and with the National Environmental Policy Act and is being funded by the General Services Administration.

The enclosed project review package provides the information about the species, critical habitat, and bald eagles considered in our review, and the species conclusions table included in the package identifies our determinations for the resources that may be affected by the project.

For additional information, please contact Courtenay Hoernemann at the address listed above.

Sincerely,

Courtenay Hoernemann
Environmental Protection Specialist

Enclosures:
1) Project location maps
2) Project review package

Deborah Henson

To: Courtenay Hoernemann - 3PMEE
Subject: RE: FBI Central Records Complex, Frederick County, VA

---------- Forwarded message ----------
From: **Mike Drummond** <mike_drummond@fws.gov>
Date: Tue, May 5, 2015 at 8:48 AM
Subject: FBI Central Records Complex, Frederick County, VA
To: courtenay.hoernemann@gsa.gov
Cc: troy_andersen@fws.gov

Our review and determinations are based on the limited project description information provided in your March 31, 2015 project review package, received on April 6, 2015. The following comments are provided under provisions of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), and Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668c, 54 Stat. 250) as amended.

The proposal contains three alternative site locations all within Frederick County, VA. We concur with your determinations made for Alternative Site 2 (Blackburn). The Service also concurs with your determination that no Eagle Act permit is required for all alternative site locations. If Alternative Site 2 is selected, no additional coordination with the Service is needed.

However, if Alternative Site 1 (Arcadia) or 3 (Whitehall) is selected, there is the potential for impacts to the federally listed endangered Indiana bat (*Myotis sodalis*) and/or the federally listed threatened northern long-eared bat (*Myotis septentrionalis*). The two bat species have some distinctive habitat requirements specific to the species, making it problematic to make generalized assessments. We recommend that a detailed habitat assessment be conducted for the two bat species by an approved surveyor in the action area to identify suitable habitat, and that a survey for the species be conducted within all suitable habitat identified in the action area. Surveys are not needed if the approved surveyor determines that no suitable habitat is present. A list of qualified surveyors can be found on our website at *http://www.fws.gov/northeast/virginiafield/endspecies/surveyors.html*. This list does not include all individuals qualified or authorized to survey for this species. If you select someone not on the pre-approved surveyor list, provide the proposed surveyor's qualifications and proposed survey design to this office for review and approval prior to initiating the survey. Send copies of all survey results to this office or inform this office if a survey will not be conducted.

After receiving the survey results and implementing any measures to avoid and minimize potential effects to listed species or their habitat that are identified during surveys, update your conclusions and determinations on your species conclusion table with the information received from the habitat assessment and/or survey, and submit the revised project review package, including the survey report.

Should project plans change or if additional information on the distribution of listed species or critical habitat becomes available, this determination may be reconsidered. If you have any questions, please contact me at (804) 824-2408, or via email at mike_drummond@fws.gov.

Mike Drummond
Endangered Species Biologist
U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, VA 23061
(804) 824 - 2408

--

Courtenay Hoernemann
Environmental Protection Specialist
Facilities Management & Services Programs
General Services Administration
20 N Eighth Street
Philadelphia PA 19107
215-446-4710
215-280-5381 mobile
215-209-0422

June 11, 2015

From: Courtenay Hoernemann
Environmental Protection Specialist
General Services Administration
20 North Eighth Street
Philadelphia, Pennsylvania 19107
215-446-4710
courtenay.hoernemann@gsa.gov

To: Mike Drummond
U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061

Re: PHASE I INDIANA AND NORTHERN LONG-EARED BAT SURVEYS FOR PROPOSED CONSTRUCTION OF A FEDERAL BUREAU OF INVESTIGATION CENTRAL RECORDS COMPLEX IN WINCHESTER COUNTY, VIRGINIA

Dear Mr. Drummond;

Per your e-mail date May 5, 2015 requesting addition studies be conducted at the Arcadia and Whitehall sites, GSA completed Phase I habitat surveys at both sites. Please find attached the report prepared by Copperhead Environmental which details the existing conditions of the Arcadia and Whitehall sites.

GSA is requesting your review of the study and a response on the findings to assist us in developing avoidance and minimization measures. If you have any questions, please contact me at the address or phone number listed above.

Sincerely,

Courtenay K. Hoernemann

Courtenay Hoernemann
Environmental Protection Specialist

Enclosures:
1) Project location maps
2) Project review package

Erika Fuery

Subject: FW: FBI CRC project, Winchester VA

---------- Forwarded message ----------
From: **Sumalee Hoskin** <sumalee_hoskin@fws.gov>
Date: Tue, Aug 11, 2015 at 4:06 PM
Subject: RE: FBI CRC project, Winchester VA
To: Courtenay Hoernemann - 3PMEE <courtenay.hoernemann@gsa.gov>
Cc: Troy Andersen <troy_andersen@fws.gov>

Courtenay,

As a follow up to our phone conversation on August 11, 2015 the following comments are provided under provisions of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended, and Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c, 54 Stat. 250), as amended.

We have reviewed the additional project information received June 11, 2015, the determinations provided in the Species Conclusion Table dated March 31, 2015, and concur with the determinations for the Harparella (*Ptilimnium nodosum*), federally designated critical habitat, and bald eagle (*Haliaeetus leucocephalus*).

This project involves tree clearing and a project modification can be made that would avoid the likelihood of adverse effects to the Indiana bat (*Myotis sodalis*) and the Northern long-eared bat (*Myotis septentrionalis*). This modification is:

1. Implement a time-of-year (TOY) restriction for no tree clearing from April 15 – September 15 of any year.

If the proposed activity is modified as described above, through changes in project design or incorporation into permit conditions, the Service believes that the project would not likely adversely affect listed species and that further consultation pursuant to section 7 of the ESA is not necessary. If the above project modifications are not adopted, further consultation with the Service will be necessary pursuant to 50 CFR 402.13 and 402.14.

We recommend bat surveys if winter tree clearing is not feasible. Follow the most recent survey guidelines at http://www.fws.gov/northeast/virginiafield/pdf/endspecies/2015IndianaBatSummerSurveyGuidelines01April2015.pdf.

Should project plans change or if additional information on the distribution of listed species or critical habitat becomes available, this determination may be reconsidered. If you have any questions, please contact me.

Sumalee

****

Sumalee Hoskin
US Fish & Wildlife Service
6669 Short Lane
Gloucester, VA 23061

Tel: 804-693-6694 ex. 2414
Fax: 804-693-9032
Cell: 804-654-1824
Visit us at http://www.fws.gov/northeast/virginiafield/

Erika Fuery

From: Courtenay Hoernemann - 3PMEE <courtenay.hoernemann@gsa.gov>
Sent: Thursday, October 22, 2015 1:39 PM
To: Erika Fuery
Subject: Fwd: FBI CRC project, Winchester VA

Here is the completion of the correspondence with FWS.

---------- Forwarded message ----------
From: **Hoskin, Sumalee** <sumalee_hoskin@fws.gov>
Date: Wed, Oct 21, 2015 at 4:42 PM
Subject: Re: FBI CRC project, Winchester VA
To: Courtenay Hoernemann - 3PMEE <courtenay.hoernemann@gsa.gov>

I think you can just state you're adhering to our TOY restriction recommendation.

On Wed, Oct 21, 2015 at 4:18 PM, Courtenay Hoernemann - 3PMEE <courtenay.hoernemann@gsa.gov> wrote:

> Great! Do I need official correspondence back from you to state in the Final SEIS that we will not adversely affect listed species? Or can I just state that we are adhering to the information provided in your email dated Aug 11th?
>
> Thanks, Courtenay
>
> On Wed, Oct 21, 2015 at 3:32 PM, Hoskin, Sumalee <sumalee_hoskin@fws.gov> wrote:
>
> > Hi Courtenay,
> > Thanks for circling back to me, this email will suffice.
> > Regards,
> > Sumalee
> >
> > On Wed, Oct 21, 2015 at 1:58 PM, Courtenay Hoernemann - 3PMEE <courtenay.hoernemann@gsa.gov> wrote:
> >
> > > Hi Sumalee,
> > >
> > > I know some time has passed since we last corresponded. GSA project team has been working towards finishing site evaluation, as well as moving our NEPA process along. After discussions with the project team, we have determined that GSA/FBI can adhere to the TOY restriction as proposed by FWS. The TOY will be built into the design and construction schedule as a mandatory time constraint and will also be incorporated into the program of requirements (POR). Of course, it will also be included in the ROD for whichever site is selected.
> > >
> > > My question is do I need to send you this commitment/confirmation in an official letter or will this email suffice? Please let me know what you require and I will be happy to provide it.
> > >
> > > Thanks so much,
> > > Courtenay

On Tue, Sep 1, 2015 at 11:09 AM, Sumalee Hoskin <sumalee_hoskin@fws.gov> wrote:

Hi Courtenay,

You pose an interesting question about TOY restrictions and tree size. We typically recommend a TOY restriction on all trees since the Northern long-eared bat uses trees ≥3" dbh and the Indiana bat uses trees ≥5" dbh. If there are areas or trees that are smaller than 3"dbh, then a TOY restriction would not pertain and you are free to cut them any time of year just don't hit trees that meet the ≥3" dbh criteria.

Yes, the TOY restriction applies to both sites. The April 15 – September 15 is the standard time frame to protect bats during their active season (when they are occupying trees). The timeframe expands if you are within 5 miles of a hibernacula, which you are not. The April 15-September 15 timeframe is larger than the TOY restriction listed in the interim 4(d) rule, which is only protective of bats when the pups are not able to fly. Because bats inhabit the trees during the summer months impacts may occur when implementing this shorter TOY restriction. Therefore, to avoid impacts we recommend the April 15-September 15 TOY restriction.

Let me know if you have any further questions,

Sumalee

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Sumalee Hoskin
US Fish & Wildlife Service
6669 Short Lane
Gloucester, VA 23061

Tel: 804-693-6694 ex. 2414
Fax: 804-693-9032
Cell: 804-654-1824
Visit us at http://www.fws.gov/northeast/virginiafield/

From: Courtenay Hoernemann - 3PMEE [mailto:courtenay.hoernemann@gsa.gov]
Sent: Monday, August 31, 2015 11:57 AM
To: Sumalee Hoskin
Subject: Re: FBI CRC project, Winchester VA

Good Monday morning Sumalee,

Thank you again for talking with me about the FBI CRC project. Since we spoke, the project has hit some speed bumps which have prevented me from coming back to you with our official response to your email. I have spoke with the project team, and I believe we are going to be able to incorporate the time of year restriction for tree clearing into the project requirements. I haven't been able to get final confirmation on this yet since the project team is focused on dealing with new information affecting the project. As soon as I can get a confirmed incorporation of the mitigation measures, then I will come back to you with our official response so we can conclude our unofficial ESA consultation.

I wanted to get clarification on a few points. First, I understood that the time of year restriction was for both sites under consideration, Whitehall and Arcadia. Could you please confirm this. Also, when we spoke you mentioned the time of year restriction was for trees of a certain size at breast diameter height. Your email states the restriction would be for all tree clearing on the project sites. Wanted to confirm that the restriction was indeed for all trees, not trees of a certain size. And lastly, is the time period restriction of April 15 to September 15 the standard time frame? I wondered if the standard time frame was applied to this project or if we were given a longer time restriction due to project or site factors. I am assuming it is the standard but wanted to be sure (question came from project team).

Thanks so much,

Courtenay

On Tue, Aug 11, 2015 at 4:06 PM, Sumalee Hoskin <sumalee_hoskin@fws.gov> wrote:

Courtenay,

As a follow up to our phone conversation on August 11, 2015 the following comments are provided under provisions of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended, and Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c, 54 Stat. 250), as amended.

We have reviewed the additional project information received June 11, 2015, the determinations provided in the Species Conclusion Table dated March 31, 2015, and concur with the determinations for the Harparella (*Ptilimnium nodosum*), federally designated critical habitat, and bald eagle (*Haliaeetus leucocephalus*).

This project involves tree clearing and a project modification can be made that would avoid the likelihood of adverse effects to the Indiana bat (*Myotis sodalis*) and the Northern long-eared bat (*Myotis septentrionalis*). This modification is:

1. Implement a time-of-year (TOY) restriction for no tree clearing from April 15 – September 15 of any year.

If the proposed activity is modified as described above, through changes in project design or incorporation into permit conditions, the Service believes that the project would not likely adversely affect listed species and that further consultation pursuant to section 7 of the ESA is not necessary. If the above project modifications are not adopted, further consultation with the Service will be necessary pursuant to 50 CFR 402.13 and 402.14.

We recommend bat surveys if winter tree clearing is not feasible. Follow the most recent survey guidelines at http://www.fws.gov/northeast/virginiafield/pdf/endspecies/2015IndianaBatSummerSurveyGuidelines01April2015.pdf.

Should project plans change or if additional information on the distribution of listed species or critical habitat becomes available, this determination may be reconsidered. If you have any questions, please contact me.

Sumalee

****

Sumalee Hoskin
US Fish & Wildlife Service
6669 Short Lane
Gloucester, VA 23061

Tel: 804-693-6694 ex. 2414
Fax: 804-693-9032
Cell: 804-654-1824
Visit us at http://www.fws.gov/northeast/virginiafield/

From: Courtenay Hoernemann - 3PMEE [mailto:courtenay.hoernemann@gsa.gov]
Sent: Tuesday, August 11, 2015 9:29 AM
To: Hoskin, Sumalee
Subject: Re: FBI CRC project, Winchester VA

May 7, 2015

Ms. Rene Hypes
Environmental Review Coordinator
Virginia Department of Conservation and Recreation Division of Natural Heritage
600 E. Main St., 24th Floor
Richmond, VA 23219

Re: PROPOSED CONSTRUCTION OF A FEDERAL BUREAU OF INVESTIGATION CENTRAL RECORDS COMPLEX IN WINCHESTER COUNTY, VIRGINIA.

Dear Ms. Hypes,

The United States (U.S.) General Services Administration (GSA) is preparing a Supplemental Environmental Impact Statement (SEIS) for the proposed action of site acquisition and construction of a Federal Bureau of Investigation (FBI) Central Records Complex (CRC). The project is expected to be completed with site acquisition in the spring of 2016 and construction completed in the winter of 2019. This letter is to request informal consultation with the Virginia Department of Conservation and Recreation (VDCR), Division of Natural Heritage in accordance with U.S. Fish and Wildlife Coordination Act.

Project Background

GSA began the site selection process for an approximately 100 acre site in Frederick County, Virginia in 2006 in order to procure via lease construction, a central records facility for the FBI. The facility, referred to as the CRC, would consolidate FBI's records currently housed within the Washington DC area, in addition to field offices and information technology centers nationwide. The project requirements were 947,000 rentable square feet consisting of three buildings; an office building, a records facility, and a data center. The center would accommodate 1,300 employees and 1,225 parking spaces.

Three sites were considered for site selection. As part of the site selection process, GSA prepared an Environmental Impact Statement (EIS) and Record of Decision (ROD) completed in May 2007 for the selected alternative, the Sempeles Site. GSA continued with the procurement process, however was unable to successfully award a lease due to market conditions and the specialized nature of the facility.

FBI then determined that the records facility component of the project was the number one priority, and it was decided that the best way to move forward with meeting this mission critical function was through a federal construction funding request. The revised project requirements are now for an overall square footage of 256,425 gross square feet, to include the records facility, support area, visitor's screening facility, service center, and guard booth; parking would be at 427 spaces.

In 2014, federal funding was approved, and a notice was placed on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, including environmental reconnaissance and application of site criteria, a short list of three (3) sites has been reached (Enclosure 1), one of which was in the 2007 EIS, the Sempeles Site, now referred to as Whitehall Commerce Center. The three sites will serve as Alternatives in the SEIS and are as follows:

Alternative 1: Arcadia Route 50 Property, 2117 Millwood Pike, Winchester VA (Enclosure 2).
Alternative 2: Blackburn Limited Partnership, Apple Valley Road, Winchester, VA (Enclosure 3).
Alternative 3: Whitehall Commerce Center, Route 669 & Route 11, Clear Brook, VA (Enclosure 4).

An internet database search of Natural Heritage Resources was conducted at the subwatershed level for each alternative and the following species were noted.

Alternative 1 and Alternative 2

Watershed: 02070004 Subwatershed: PU16

Species	Scientific Name	Global Conservation Status Rank	State Conservation Status Rank	Federal Legal Status	State legal Status
Green Floater	*Lasmigona subviridis*	G3	S2	None	LT
Wood turtle	*Glyptemya insculpta*	G3	S2	None	LT

G3=Vulnerable; S2=Imperiled; LT=Threatened

Alternative 3

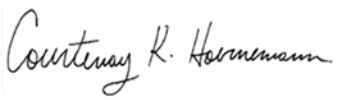
Watershed: 02070004 Subwatershed: PU19

Species	Scientific Name	Global Conservation Status Rank	State Conservation Status Rank	Federal Legal Status	State legal Status
Green Floater	*Lasmigona subviridis*	G3	S2	None	LT
Lance-tipped Darter	*Aeshna constricta*	G5	S1	None	None

G3=Vulnerable; G5=Secure; S1-Critically imperiled; S2=Imperiled; LT=Threatened

We would like to submit an environmental review request for the study area for the presence of the above listed and any additional state rare, threatened, or endangered species. If you require additional information, please do not hesitate to contact me at (215) 446-4710 or courtenay.hoernemann@gsa.gov.

Sincerely,



Courtenay Hoernemann
Environmental Protection Specialist

Enclosures

1) Project location maps

Molly Joseph Ward
Secretary of Natural Resources

Clyde E. Cristman
Director

Joe Elton
Deputy Director of Operations

Rochelle Altholz
Deputy Director of Administration
and Finance

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

600 East Main Street, 24th Floor
Richmond, Virginia 23219
(804)786-6124

June 8, 2015

Courtenay Hoernemann
U.S. General Services Administration
20 N. 8th Street
Philadelphia, PA 19107

Re: FBI Central Records Complex

Dear Ms. Hoernemann:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

Arcadia (Alternative 1)
According to the information currently in our files, the Opequon Creek Stream Conservation Unit (SCU) is downstream of the project site. SCUs identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within this reach. SCUs are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. The Opequon Creek SCU has been given a biodiversity significance ranking of B5, which represents a site of general significance. The natural heritage resource of concern associated with this SCU is:

Glyptemys insculpta	Wood turtle	G3/S2/NL/LT

The Wood turtle ranges from southeastern Canada, south to the Great Lake states and New England. In Virginia, it is know from northern counties within the Potomac River drainage (NatureServe, 2009). The Wood turtle inhabits areas with clear streams with adjacent forested floodplains and nearby fields, wet meadows, and farmlands (Buhlmann et al., 2008; Mitchell, 1994). Since this species overwinters on the bottoms of creeks and streams, a primary habitat requirement is the presence of water (Mitchell, 1994).

Threats to the wood turtle include habitat fragmentation, urbanization, and automobile or farm machinery mortality (Buhlmann et al., 2008). Please note that the Wood turtle is currently classified as threatened by the Virginia Department of Game and Inland Fisheries (VDGIF).

In addition, Opequon Creek has been designated by the VDGIF as a “Threatened and Endangered Species Water”. The species associated with this T & E Water is the Wood turtle.

To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations. Due to the legal status of the Wood turtle, DCR recommends coordination

with Virginia's regulatory authority for the management and protection of this species, the VDGIF, to ensure compliance with the Virginia Endangered Species Act **(**VA ST §§ 29.1-563 – 570).

Blackburn (Alternative 2) and Whitehall (Alternative 3)
These project sites are situated on karst-forming carbonate rock and can be characterized by sinkholes, caves, disappearing streams, and large springs. If such features are encountered during the projects, please coordinate with Wil Orndorff (540-230-5960), Wil.Orndorff@dcr.virginia.gov) to document and minimize adverse impacts. Discharge of runoff to sinkholes or sinking streams, filling of sinkholes, and alteration of cave entrances can lead to surface collapse, flooding, erosion and sedimentation, groundwater contamination, and degradation of subterranean habitat for natural heritage resources. If the projects involve filling or "improvement" of sinkholes or cave openings, DCR would like detailed location information and copies of the design specifications. In cases where sinkhole improvement is for stormwater discharge, copies of VDOT Form EQ-120 will suffice. New "Karst Assessment Guidelines" developed by the Virginia Cave Board for land development can be found at http://www.dcr.virginia.gov/natural_heritage/documents/karst_assessment_guidelines.pdf.

In addition, the Green Floater (*Lasmigona subviridis*, G3/S2/NL/LT) has been documented downstream of the Blackburn site in Opequon Creek. However, according to our records the occurrence of this rare freshwater mussel has been extirpated. Due to the legal status of this natural heritage resource, DCR recommends coordination with Virginia Department of Game and Inland Fisheries,Virginia's regulatory authority for the management and protection of this species to ensure compliance with the Virginia Endangered Species Act **(**VA ST §§ 29.1-563 – 570).

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

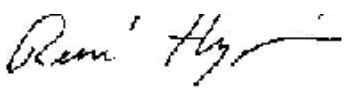
Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from http://vafwis.org/fwis/ or contact Angela Weller at 804-364-8747 or Angela.Weller@dgif.virginia.gov.

Should you have any questions or concerns, feel free to contact me at 804-371-2708. Thank you for the opportunity to comment on this project.

Sincerely,



S. Rene' Hypes
Project Review Coordinator

CC: Ernie Aschenbach, VDGIF
Wil Orndorff, DCR-Karst

Literature Cited

Buhlmann, K, T. Tuberville, and W. Gibbons. 2008. Turtles of the southeast. University of Georgia Press. Athens, GA. 252 pp.

Mitchell, J. C. 1994. Reptiles of Virginia. Smithsonian Institution Press, Washington. pp. 88-91.

NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: April 8, 2010).

April 22, 2015

Mr. Jeffrey Rogers
Environmental Program Planner
Virginia Department of Agriculture and Consumer Services
102 Governor Street
Richmond, Virginia 23219

Re: PROPOSED CONSTRUCTION OF A FEDERAL BUREAU OF INVESTIGATION CENTRAL RECORDS COMPLEX IN WINCHESTER COUNTY, VIRGINIA.

Dear Mr. Rogers,

The United States (U.S.) General Services Administration (GSA) is preparing a Supplemental Environmental Impact Statement (SEIS) for the proposed action of site acquisition and construction of a Federal Bureau of Investigation (FBI) Central Records Complex (CRC). The project is expected to be completed with site acquisition in the spring of 2016 and construction completed in the winter of 2019. This letter is to request informal consultation with the Virginia Department of Agriculture (VDOA) in accordance with U.S. Fish and Wildlife Coordination Act.

Project Background

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In 2014, federal funding was approved, and a notice was placed on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, including environmental reconnaissance and application of site criteria, a short list of three (3) sites has been reached, one of which was in the 2007 EIS, the Sempeles Site, now referred to as Whitehall Commerce Center. The three sites will serve as Alternatives in the SEIS and are as follows:

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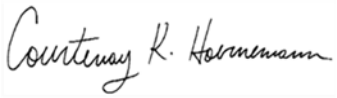

Courntenay Hoernemann
Environmental Protection Specialist

Enclosures

1) Project location maps

March 31, 2015

Gladys Cason
Virginia Department of Game and Inland Fisheries Environmental Services Section
P.O. Box 11104
4010 W. Broad Street
Richmond, VA 23230

Re: PROPOSED CONSTRUCTION OF A FEDERAL BUREAU OF INVESTIGATION CENTRAL RECORDS COMPLEX IN WINCHESTER COUNTY, VIRGINIA.

Dear Ms. Cason,

The United States (U.S.) General Services Administration (GSA) is preparing a Supplemental Environmental Impact Statement (SEIS) for the proposed action of site acquisition and construction of a Federal Bureau of Investigation (FBI) Central Records Complex (CRC). The project is expected to be completed with site acquisition in the spring of 2016 and construction completed in the winter of 2019. This letter is to request informal consultation with the Virginia Department of Game and Inland Fisheries (VDGIF) in accordance with U.S. Fish and Wildlife Coordination Act.

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Alternative 2: Blackburn Limited Partnership, Apple Valley Road, Winchester, VA (Enclosure 3).
Alternative 3: Whitehall Commerce Center, Route 669 & Route 11, Clear Brook, VA (Enclosure 4).

State Threatened and Endangered species
A Virginia Fish and Wildlife Information Service (VaFWIS) query was conducted on an area with a 3-mile radius that fully encompassed the project parcels as well as outlying areas (Enclosures 5, 6, and 7). The following species were listed by the VaFWIS as having potential to occur in the project areas being considered for development for the FBI CRC facility and are afforded legal status under the Endangered Species Act and/or under the provisions of the Virginia Endangered Plant and Insect Species Act (Chapter 10 §3.2-1000 through 1011 of the Code of Virginia):

Alternative 1

BOVA Code	Status*	Tier**	Common Name	Scientific Name
070001	FTST	II	Isopod, Madison Cave	*Antrolana lira*
040267	SE	I	Wren, Bewick's	*Thryomanes bewickii*
030062	ST	I	Turtle, wood	*Glyptemys insculpta*
040096	ST	I	Falcon, peregrine	*Falco peregrinus*
040129	ST	I	Sandpiper, upland	*Bartramia longicauda*
040293	ST	I	Shrike, loggerhead	*Lanius ludovicianus*
100155	FSST	I	Skipper, Appalachian grizzled	*Pyrgus wyandot*
040292	ST		Shrike, migrant loggerhead	*Lanius ludovicianus migrans*
050022	FP		Bat, northern long-eared	*Myotis septentrionalis*
100248	FS	I	Fritillary, regal	*Speyeria idalia idalia*
040093	FS	II	Eagle, bald	*Haliaeetus leucocephalus*
100256	FS	II	Crescent, tawny	*Phyciodes batesii batesii*
030063	CC	III	Turtle, spotted	*Clemmys guttata*
030012	CC	IV	Rattlesnake, timber	*Crotalus horridus*

FE=Federal Endangered; FT=Federal Threatened; FP = Federal Proposed; FS=Federal Species of Concern* The Bald Eagle was removed from the Federal List of Endangered and Threatened Wildlife in 2007. SE=State Endangered; ST=State Threatened; CC = Collection Concern

Alternative 2

BOVA Code	Status*	Tier**	Common Name	Scientific Name
050023	FESE	I	Bat, Indiana	*Myotis sodalis*
070001	FTST	II	Isopod, Madison Cave	*Antrolana lira*
040267	SE	I	Wren, Bewick's	*Thryomanes bewickii*
060006	SE	II	Floater, brook	*Alasmidonta varicosa*
060201	FSSE	II	Springsnail, Appalachian	*Fontigens bottimeri*
030062	ST	I	Turtle, wood	*Glyptemys insculpta*
040096	ST	I	Falcon, peregrine	*Falco peregrinus*
040129	ST	I	Sandpiper, upland	*Bartramia longicauda*
040293	ST	I	Shrike, loggerhead	*Lanius ludovicianus*
100155	FSST	I	Skipper, Appalachian grizzled	*Pyrgus wyandot*
040292	ST		Shrike, migrant loggerhead	*Lanius ludovicianus migrans*
050022	FP		Bat, northern long-eared	*Myotis septentrionalis*
100248	FS	I	Fritillary, regal	*Speyeria idalia idalia*
040093	FS	II	Eagle, bald	*Haliaeetus leucocephalus*
100343	FS	II	Beetle, thin-neck cave	*Pseudanophthalmus parvicollis*
100256	FS	II	Crescent, tawny	*Phyciodes batesii batesii*
060029	FS	III	Lance, yellow	*Elliptio lanceolata*
030012	CC	IV	Rattlesnake, timber	*Crotalus horridus*

FE=Federal Endangered; FT=Federal Threatened; FP = Federal Proposed; FS=Federal Species of Concern* The Bald Eagle was removed from the Federal List of Endangered and Threatened Wildlife in 2007. SE=State Endangered; ST=State Threatened; CC = Collection Concern

Alternative 3

BOVA Code	Status*	Tier**	Common Name	Scientific Name
070001	FTST	II	Isopod, Madison Cave	*Antrolana lira*
040267	SE	I	Wren, Bewick's	*Thryomanes bewickii*
030062	ST	I	Turtle, wood	*Glyptemys insculpta*
040096	ST	I	Falcon, peregrine	*Falco peregrinus*
040129	ST	I	Sandpiper, upland	*Bartramia longicauda*
040293	ST	I	Shrike, loggerhead	*Lanius ludovicianus*
100155	FSST	I	Skipper, Appalachian grizzled	*Pyrgus wyandot*
060081	ST	II	Floater, green	*Lasmigona subviridis*
040292	ST		Shrike, migrant loggerhead	*Lanius ludovicianus migrans*
050022	FP		Bat, northern long-eared	*Myotis septentrionalis*
100248	FS	I	Fritillary, regal	*Speyeria idalia idalia*

040093	FS	II	Eagle, bald	*Haliaeetus leucocephalus*
100256	FS	II	Crescent, tawny	*Phyciodes batesii batesii*
030063	CC	III	Turtle, spotted	*Clemmys guttata*
030012	CC	IV	Rattlesnake, timber	*Crotalus horridus*

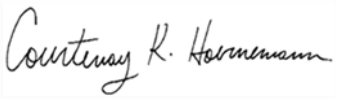
FE=Federal Endangered; FT=Federal Threatened; FP = Federal Proposed; FS=Federal Species of Concern* The Bald Eagle was removed from the Federal List of Endangered and Threatened Wildlife in 2007. SE=State Endangered; ST=State Threatened; CC = Collection Concern

Bald and Golden Eagle Protection Act

Although no longer a listed species under the Endangered Species Act, bald eagles (*Haliaeetus leucocephalus*) are protected under the Bald and Golden Eagle Protection Act and are listed as threatened by the Commonwealth of Virginia. The Center for Conservation Biology online Eagle Mapping Portal was accessed to determine whether any bald eagle nests were known to occur near any of the site being considered for development for the FBI CRC facility. No bald eagle nests were identified in the vicinity of any of the project areas being considered.

We appreciate your review of the proposed project. If you have any questions, please contact me at 215-446-4710 or courtenay.hoernemann@gsa.gov.

Sincerely,



Courtenay Hoernemann
General Services Administration

Enclosures:

1. Project Location Map
2. Alternative 1 Site Map
3. Alternative 2 Site Map
4. Alternative 3 Site Map
5. VaFWIS Initial Project Assessment Alternative 1
6. VaFWIS Initial Project Assessment Alternative 2
7. VaFWIS Initial Project Assessment Alternative 3

VDOT
CORRESPONDENCE

COMMONWEALTH of VIRGINIA
DEPARTMENT OF TRANSPORTATION
811 COMMERCE ROAD
STAUNTON, VIRGINIA 24401-9029
www.VirginiaDOT.org

Charles A. Kilpatrick, P.E.
Commissioner

3/10/2015

Courtenay Hoernemann
Project Environmental Planner
General Services Administration
20 North 8th Street
Philadelphia, PA 19107

Dear Ms. Hoernemann:

The Virginia Department of Transportation (VDOT) Staunton District Planning has completed the review of the Notice of Intent to Prepare a Supplemental Draft Environmental Impact Statement for the Federal Bureau of Investigation Central Records Complex in Frederick County, Virginia.

The project will consist of a records storage building, support area, visitor screening facility, service entrance, and guard booth, along with 427 parking spaces. The project will cover a total of 256,425 gross square feet. Three separate project sites within Frederick County will be considered as alternatives in the preparation of the Environmental Impact Report. Given the scope of the project and to comply with the requirements of Frederick County at the time of Site Plan or Rezoning submission, following project site selection, a Traffic Impact Analysis should be prepared for each site for utilization in site evaluation. The Traffic Impact Analysis should be prepared in accordance with the adopted Traffic Impact Analysis Standards within the Frederick County Code.

Sincerely,

Adam Campbell, PLA
Assistant District Planner
Staunton District Planning

CC: John Fisher, DEQ
Elizabeth Jordan, Ph. D., VDOT
Jim Cromwell, VDOT
Chip Ray, VDOT
Terry Short Jr., VDOT
Clifton Balderson, VDOT

APPENDIX B
AIR QUALITY CALCULATIONS

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TAB A. EMISSIONS SUMMARY

Table 1. Arcadia Construction Emissions

Year	VOC Tons	CO Tons	NOx Tons	SO2 Tons	PM10 Tons	PM2.5 Tons	CO_2 Metric Tons
Year 1	1.06	5.31	19.95	0.10	50.50	5.87	1,770
Year 2	1.06	5.31	19.95	0.10	17.46	2.56	1,770

Table 2. White Hall Construction Emissions

Year	VOC Tons	CO Tons	NOx Tons	SO2 Tons	PM10 Tons	PM2.5 Tons	CO_2 Metric Tons
Year 1	1.11	5.59	20.99	0.11	37.53	4.61	1,863
Year 2	1.11	5.59	20.99	0.11	13.17	2.18	1,863

TAB B. **CONSTRUCTION EMISSIONS - ARCADIA**

Basic Conversions

453.59	grams per pound
43,560	Conversion from Acre to SF
0.03704	Cubic feet to Cubic Yards
0.1111	Square Feet to Square Yards
1.4	tons/CY for Gravel
80,000	lbs/Truck Load for Delivery
1.66	CY for each CY of asphalt/concrete demo
0.33333333	asphalt thickness for demolition
0.33333333	asphalt thickness for pavement
2000	pounds per ton
145	lb/ft^3 density of Hot Mix Asphalt

Table 1.1 Clearing 39 acres

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Dozer	456	145	0.58	0.38	1.41	4.17	0.12	0.30	0.29	536
Loader/Backhoe	456	87	0.21	1.43	7.35	6.35	0.15	1.06	1.03	692
Small Backhoe	456	55	0.21	1.43	7.35	6.35	0.15	1.06	1.03	692
				VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
			Dozer	31.84	119.58	352.86	9.74	25.02	24.27	45,291
			Loader w/ integral Backhoe	26.30	134.99	116.61	2.73	19.53	18.94	12,704
			Small backhoe	16.62	85.34	73.72	1.73	12.34	11.97	8,031

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Dump Truck	209	230	16	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
			Dump Truck	5.16	27.26	122.25	0.06	5.10	4.94	11,654
			Subtotal in lbs	80	367	665	14	62	60	77680
			Clearing Grand Total in Tons	**0.04**	**0.18**	**0.33**	**0.01**	**0.03**	**0.03**	
			Clearing Grand Total in Metric Tons							**35.2**

Table 1.2 **Site Prep**

Site Prep - Excavate/Fill (CY) 58,061 CY

Grading (SY) 257,004 SY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Excavator	194	243	0.59	0.34	1.21	4.03	0.12	0.22	0.22	536
Skid Steer Loader	232	160	0.23	0.38	1.47	4.34	0.12	0.31	0.30	536
Dozer (Rubber Tired)	210	145	0.59	0.38	1.41	4.17	0.12	0.30	0.29	536
Compactor	198	103	0.58	0.40	1.57	4.57	0.12	0.32	0.31	536
Grader	91	285	0.58	0.34	1.21	4.07	0.12	0.23	0.22	536
				VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
			Excavator	21.09	74.15	247.09	7.07	13.66	13.25	32,854
			Skid Steer Loader	7.21	27.67	81.66	2.17	5.75	5.58	10,083
			Dozer (Rubber Tired)	14.92	56.02	165.30	4.56	11.72	11.37	21,217
			Compactor	10.30	40.95	119.07	3.00	8.32	8.07	13,968
			Grader	11.40	40.06	134.98	3.82	7.48	7.26	17,768

On-road Equipment	Hours	MPH	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Dump Truck (14 CY)	194	5	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
			Dump Truck (12 CY)	1.48	7.80	34.99	0.02	1.46	1.41	3,335
			Subtotal in lb:	**66**	**247**	**783**	**21**	**48**	**47**	**99,226**
			Site Prep Grand Total in Tons	**0.03**	**0.12**	**0.39**	**0.01**	**0.02**	**0.02**	
			Site Prep Grand Total in Metric Tons							**45**

Table 1.3 **Gravel Work** 3,070 CY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM_{10} g/hp-hr	$PM_{2.5}$ g/hp-hr	CO_2 g/hp-hr
Dozer	31	185	0.59	0.34	1.21	4.08	0.12	0.23	0.22	536
Wheel Loader for Spreading	38	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536
Compactor	85	103	0.43	0.36	1.34	4.45	0.12	0.26	0.25	536

	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dozer	2.56	9.01	30.44	0.86	1.69	1.64	3,997
Wheel Loader for Spreading	1.50	5.37	18.20	0.50	1.03	1.00	2,304
Compactor	2.98	11.11	36.95	0.96	2.13	2.07	4,446

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM_{10} lb/mile	$PM_{2.5}$ lb/mile	CO_2 lb/mile
Dump Truck	6,140	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
			VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Dump Truck			9.34	49.38	221.47	0.11	9.24	8.95	21,113
Subtotal (lbs):			**16**	**75**	**307**	**2**	**14**	**14**	**31,860**
Gravel Work Grand Total in Tons			**0.01**	**0.04**	**0.15**	**0.00**	**0.01**	**0.01**	
Gravel Work Grand Total in Metric Tons									**14**

Table 1.4 **Concrete Work**

Foundation Work	950	CY
Sidewalks, etc.	63	CY
Total	1,013	CY

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Concrete Mixer	53	3.5	0.43	0.69	3.04	6.17	0.13	0.54	0.52	588
Concrete Truck	48	300	0.43	0.38	1.75	6.18	0.11	0.27	0.26	530
				Annual Emissions VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Concrete Mixer				0.12	0.54	1.09	0.02	0.10	0.09	103.45
Concrete Truck				5.18	23.83	84.40	1.56	3.67	3.56	7,233.62
Subtotal (lbs):				**5**	**24**	**85**	**2**	**4**	**4**	**7,337**
Concrete Work Grand Total in Tons				**0.00**	**0.01**	**0.04**	**0.00**	**0.00**	**0.00**	
Concrete Work Grand Total in Metric Tons										**3**

Table 1.5 **Building Construction**

51,285 SF Foundation
256,425 SF Total

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Crane	1,282	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	1,282	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536
Diesel Generator	1,026	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536
Telehandler	2,564	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Scissors Lift	2,051	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Skid Steer Loader	1,282	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	691
Pile Driver	2,645	260	0.43	0.46	1.55	5.90	0.11	0.31	0.30	530
All Terrain Forklift	51	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
				Annual Emissions VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Crane				132.92	659.71	2,845.34	61.71	112.37	109.00	286,871
Concrete Truck				68.40	530.33	1,575.32	42.06	76.59	74.29	195,520
Diesel Generator				10.21	54.81	136.49	4.20	9.02	8.75	20,861
Telehandler				168.24	1,300.79	1,627.42	42.23	172.06	166.90	196,325
Scissors Lift				112.83	872.37	1,091.41	28.32	115.39	111.93	131,664
Skid Steer Loader				189.08	890.19	748.32	16.60	132.86	128.87	77,188
Pile Driver				302.52	1,011.69	3,847.70	74.27	204.62	198.48	345,289
All Terrain Forklift				2.84	21.95	27.47	0.71	2.90	2.82	3,313

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO2 lb/mile	PM lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Delivery Truck	6,154	265	45	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Delivery Truck				2,480.99	13,114.92	58,823.40	29.43	2,453.50	2,377.32	5,607,607
Subtotal (lbs):				**3,468**	**18,457**	**70,723**	**300**	**3,279**	**3,178**	**6,864,639**
Building Construction Grand Total in Tons				**1.73**	**9.23**	**35.36**	**0.15**	**1.64**	**1.59**	
Building Construction Grand Total in Metric Tons										**3,114**

Table 1.6 **Paving**

114,500 SF 2,827 CY

76,337 CF

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Grader	351	145	0.59	0.38	1.41	4.16	0.12	0.30	0.29	536
Roller	526	401	0.59	0.34	2.46	5.53	0.12	0.34	0.33	536
Paving Machine	701	164	0.59	0.38	1.44	4.25	0.12	0.30	0.29	536
Asphalt Curbing Machine	70	130	0.59	0.40	1.57	4.57	0.12	0.32	0.31	536

	VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Grader	24.92	93.48	275.48	7.63	19.57	18.99	35,463
Roller	93.65	675.69	1,518.54	31.62	92.92	90.13	147,000
Paving Machine	56.83	215.71	635.85	17.23	44.86	43.52	80,104
Asphalt Curbing Machine	4.68	18.59	54.04	1.36	3.78	3.66	6,340

On-road Equipment	Hours of Operation	Engine HP	Productivity based Speed	VOC lb/mile	CO lb/mile	NOx lb/mile	SO2 lb/mile	PM lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Dump Truck	564	230	0	0.001521	0.008042	0.036070	1.80E-05	0.001504	0.001458	3.438541
Water Truck	11	230	10	0.001521	0.008042	0.036070	1.80E-05	0.001504	0.001458	3.438541

	VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Dump Truck	197.35	1,043.20	4,679.01	2.34	195.16	189.10	446,048
Water Truck	3.85	20.35	91.26	0.05	3.81	3.69	8,700

Hot Mix Asphalt (HMA)	Volume of HMA (ft^3)	Weight of HMA (tons)	VOC lb/ton	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Standard Hot Mix Asphalt	76,337	5,534	0.04	221.36	-	-	-	-	-	-
			Subtotal (lbs):	**603**	**2,067**	**7,254**	**60**	**360**	**349**	**723,655**
			Paving Grand Total in Tons	**0.30**	**1.03**	**3.63**	**0.03**	**0.18**	**0.17**	
			Paving Grand Total in Metric Tons							**328**

Table 1.7. **Fugitive Dust Emissions**

Year	PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	PM2.5/ PM_{10} Ratio	$PM_{2.5}$ Total
Year 1	0.42	29.50	80	49.6	0.1	5.0
Year 2	0.42	9.83	80	16.5	0.1	1.7

Table 1.8 **Total Emissions**

Year	VOC Tons	CO Tons	NOx Tons	SO2 Tons	PM10 Tons	PM2.5 Tons	CO_2 Metric Tons
Year 1	1.06	5.31	19.95	0.10	50.50	5.87	1,770
Year 2	1.06	5.31	19.95	0.10	17.46	2.56	1,770

TAB C. **CONSTRUCTION EMISSIONS - WHITE HALL**

Basic Conversions

453.59	grams per pound
43,560	Conversion from Acre to SF
0.03704	Cubic feet to Cubic Yards
0.1111	Square Feet to Square Yards
1.4	tons/CY for Gravel
80,000	lbs/Truck Load for Delivery
1.66	CY for each CY of asphalt/concrete demo
0.3333333	asphalt thickness for demolition
0.3333333	asphalt thickness for pavement
2000	pounds per ton
145	lb/ft^3 density of Hot Mix Asphalt

Table 1.1 **Clearing** 29 acres

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Dozer	336	145	0.58	0.38	1.41	4.17	0.12	0.30	0.29	536
Loader/Backhoe	336	87	0.21	1.43	7.35	6.35	0.15	1.06	1.03	692
Small Backhoe	336	55	0.21	1.43	7.35	6.35	0.15	1.06	1.03	692
				VOC lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
			Dozer	23.46	88.11	260.00	7.18	18.44	17.89	33,372
			Loader w/ integral Backhoe	19.38	99.47	85.92	2.01	14.39	13.96	9,361
			Small backhoe	12.25	62.88	54.32	1.27	9.10	8.82	5,918

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Dump Truck	154	230	16	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb	**PM2.5** lb	**CO_2** lb
			Dump Truck	3.80	20.08	90.08	0.05	3.76	3.64	8,587
			Subtotal in lbs	59	271	490	11	46	44	57238
			Clearing Grand Total in Tons	**0.03**	**0.14**	**0.25**	**0.01**	**0.02**	**0.02**	
			Clearing Grand Total in Metric Tons							**26.0**

Table 1.2 **Site Prep**

Site Prep - Excavate/Fill (CY)	60,450	CY
Grading (SY)	252,648	SY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Excavator	202	243	0.59	0.34	1.21	4.03	0.12	0.22	0.22	536
Skid Steer Loader	242	160	0.23	0.38	1.47	4.34	0.12	0.31	0.30	536
Dozer (Rubber Tired)	219	145	0.59	0.38	1.41	4.17	0.12	0.30	0.29	536
Compactor	194	103	0.58	0.40	1.57	4.57	0.12	0.32	0.31	536
Grader	90	285	0.58	0.34	1.21	4.07	0.12	0.23	0.22	536
				VOC lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb	**PM2.5** lb	**CO_2** lb
			Excavator	21.96	77.21	257.28	7.36	14.23	13.80	34,209
			Skid Steer Loader	7.52	28.86	85.18	2.26	6.00	5.82	10,517
			Dozer (Rubber Tired)	15.56	58.42	172.39	4.76	12.23	11.86	22,127
			Compactor	10.10	40.12	116.66	2.94	8.15	7.91	13,686
			Grader	11.28	39.62	133.49	3.78	7.40	7.18	17,573

On-road Equipment	Hours	MPH	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Dump Truck (14 CY)	202	5	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb	**PM2.5** lb	**CO_2** lb
			Dump Truck (12 CY)	1.54	8.12	36.43	0.02	1.52	1.47	3,473
			Subtotal in lb:	**68**	**252**	**801**	**21**	**50**	**48**	**101,584**
			Site Prep Grand Total in Tons	**0.03**	**0.13**	**0.40**	**0.01**	**0.02**	**0.02**	
			Site Prep Grand Total in Metric Tons							**46**

Table 1.3 **Gravel Work** 4,265 CY

Off-road Equipment	Hours	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM_{10} g/hp-hr	$PM_{2.5}$ g/hp-hr	CO_2 g/hp-hr
Dozer	43	185	0.59	0.34	1.21	4.08	0.12	0.23	0.22	536
Wheel Loader for Spreading	53	87	0.59	0.35	1.25	4.23	0.12	0.24	0.23	536
Compactor	118	103	0.43	0.36	1.34	4.45	0.12	0.26	0.25	536
				VOC lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
			Dozer	3.56	12.49	42.22	1.19	2.34	2.27	5,544
			Wheel Loader for Spreading	2.09	7.49	25.39	0.69	1.43	1.39	3,213
			Compactor	4.14	15.42	51.29	1.33	2.96	2.87	6,173

On-road Equipment	Miles	Engine HP	VOC lb/mile	CO lb/mile	NOx lb/mile	SO_2 lb/mile	PM_{10} lb/mile	$PM_{2.5}$ lb/mile	CO_2 lb/mile
Dump Truck	8,530	230	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
			VOC lb	**CO** lb	**NOx** lb	**SO2** lb	**PM10** lb	**PM2.5** lb	**CO_2** lb
		Dump Truck	12.98	68.60	307.68	0.15	12.83	12.43	29,331
		Subtotal (lbs):	**23**	**104**	**427**	**3**	**20**	**19**	**44,261**
		Gravel Work Grand Total in Tons	**0.01**	**0.05**	**0.21**	**0.00**	**0.01**	**0.01**	
		Gravel Work Grand Total in Metric Tons							**20**

Table 1.4 **Concrete Work**

Foundation Work 950 CY
Sidewalks, etc. 63 CY
Total 1,013 CY

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors: VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Concrete Mixer	53	3.5	0.43	0.69	3.04	6.17	0.13	0.54	0.52	588
Concrete Truck	48	300	0.43	0.38	1.75	6.18	0.11	0.27	0.26	530
				Annual Emissions						
				VOC lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb	**PM2.5** lb	**CO_2** lb
			Concrete Mixer	0.12	0.54	1.09	0.02	0.10	0.09	103.45
			Concrete Truck	5.18	23.83	84.40	1.56	3.67	3.56	7,233.62
			Subtotal (lbs):	**5**	**24**	**85**	**2**	**4**	**4**	**7,337**
			Concrete Work Grand Total in Tons	**0.00**	**0.01**	**0.04**	**0.00**	**0.00**	**0.00**	
			Concrete Work Grand Total in Metric Tons							**3**

Table 1.5 **Building Construction**

51,285 SF Foundation
256,425 SF Total

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	Emission Factors: VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Crane	1,282	330	0.58	0.25	1.22	5.26	0.11	0.21	0.20	530
Concrete Truck	1,282	300	0.43	0.19	1.45	4.32	0.12	0.21	0.20	536
Diesel Generator	1,026	40	0.43	0.26	1.41	3.51	0.11	0.23	0.22	536
Telehandler	2,564	99	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Scissors Lift	2,051	83	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595
Skid Steer Loader	1,282	67	0.59	1.69	7.97	6.70	0.15	1.19	1.15	691
Pile Driver	2,645	260	0.43	0.46	1.55	5.90	0.11	0.31	0.30	530
All Terrain Forklift	51	84	0.59	0.51	3.94	4.93	0.13	0.52	0.51	595

	Annual Emissions						
	VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Crane	132.92	659.71	2,845.34	61.71	112.37	109.00	286,871
Concrete Truck	68.40	530.33	1,575.32	42.06	76.59	74.29	195,520
Diesel Generator	10.21	54.81	136.49	4.20	9.02	8.75	20,861
Telehandler	168.24	1,300.79	1,627.42	42.23	172.06	166.90	196,325
Scissors Lift	112.83	872.37	1,091.41	28.32	115.39	111.93	131,664
Skid Steer Loader	189.08	890.19	748.32	16.60	132.86	128.87	77,188
Pile Driver	302.52	1,011.69	3,847.70	74.27	204.62	198.48	345,289
All Terrain Forklift	2.84	21.95	27.47	0.71	2.90	2.82	3,313

On-road Equipment	Hours of Operation	Engine HP	Speed (mph)	VOC lb/mile	CO lb/mile	NOx lb/mile	SO2 lb/mile	PM lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Delivery Truck	6,154	265	45	0.0015	0.0080	0.0361	0.0000	0.0015	0.0015	3.4385
				VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Delivery Truck				2,480.99	13,114.92	58,823.40	29.43	2,453.50	2,377.32	5,607,607
Subtotal (lbs):				**3,468**	**18,457**	**70,723**	**300**	**3,279**	**3,178**	**6,864,639**
Building Construction Grand Total in Tons				**1.73**	**9.23**	**35.36**	**0.15**	**1.64**	**1.59**	
Building Construction Grand Total in Metric Tons										**3,114**

Table 1.6 **Paving**

179,000 SF 4,420 CY

119,339 CF

Off-road Equipment	Hours of Operation	Engine HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr
Grader	548	145	0.59	0.38	1.41	4.16	0.12	0.30	0.29	536
Roller	822	401	0.59	0.34	2.46	5.53	0.12	0.34	0.33	536
Paving Machine	1,096	164	0.59	0.38	1.44	4.25	0.12	0.30	0.29	536
Asphalt Curbing Machine	110	130	0.59	0.40	1.57	4.57	0.12	0.32	0.31	536
				VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Grader				38.90	145.95	430.10	11.91	30.56	29.64	55,367
Roller				146.36	1,055.92	2,373.08	49.42	145.21	140.86	229,723
Paving Machine				88.85	337.26	994.14	26.94	70.14	68.04	125,241
Asphalt Curbing Machine				7.35	29.21	84.93	2.14	5.94	5.76	9,963

On-road Equipment	Hours of Operation	Engine HP	Productivity based Speed	VOC lb/mile	CO lb/mile	NOx lb/mile	SO2 lb/mile	PM lb/mile	PM2.5 lb/mile	CO_2 lb/mile
Dump Truck	882	230	0	0.001521	0.008042	0.036070	1.80E-05	0.001504	0.001458	3.438541
Water Truck	28	230	10	0.001521	0.008042	0.036070	1.80E-05	0.001504	0.001458	3.438541
				VOC lb	CO lb	NOx lb	SO2 lb	PM lb	PM2.5 lb	CO_2 lb
Dump Truck				308.62	1,631.39	7,317.17	3.66	305.20	295.72	697,542
Water Truck				9.80	51.79	232.29	0.12	9.69	9.39	22,144

Hot Mix Asphalt (HMA)	Volume of HMA (ft^3)	Weight of HMA (tons)	VOC lb/ton	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb
Standard Hot Mix Asphalt	119,339	5,534	0.04	221.36	-	-	-	-	-	-
Subtotal (lbs):				**821**	**3,252**	**11,432**	**94**	**567**	**549**	**1,139,981**
Paving Grand Total in Tons				**0.41**	**1.63**	**5.72**	**0.05**	**0.28**	**0.27**	
Paving Grand Total in Metric Tons										**517**

Table 1.7. **Fugitive Dust Emissions**

Year	PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	PM2.5/ PM_{10} Ratio	$PM_{2.5}$ Total
Year 1	0.42	21.75	80	36.5	0.1	3.7
Year 2	0.42	7.25	80	12.2	0.1	1.2

Table 1.8 **Total Emissions**

Year	VOC Tons	CO Tons	NOx Tons	SO2 Tons	PM10 Tons	PM2.5 Tons	CO_2 Metric Tons
Year 1	1.11	5.59	20.99	0.11	37.53	4.61	1,863
Year 2	1.11	5.59	20.99	0.11	13.17	2.18	1,863

TAB D. CONSTRUCTION ASSUMPTIONS

Project Name	Cleared Acres (AC)	Grading (SY)	Site Prep - Excavate/Fill (CY)	Building Construction - Total Size (sm)	Building Construction - Total Size (sf)	Foundation footprint (sm)	Foundation footprint (sf)	# Stories	Paving (CY)	Gravel Work (CY)	Concrete Work - sidewalks, etc (CY)	Concrete Work - foundation (CY)
Documents Complex - both					256,425		51,285	5		950	63	950
Roads/Parking - Arcadia									2,827	2,120		
Fill/Excavate - Arcadia			58,061									
Grading - Arcadia		257,004										
Clearing - Arcadia	39.3											
Arcadia Total		257,004	58,061	0	256,425	0	51,285		2,827	3,070	63	950
Roads/Parking -White Hall									4,420	3,315		
Fill/Excavate - White Hall			60,450									
Grading - White Hall		252,648										
Clearing - White Hall	29											
White Hall Total		252,648	60,450	0		0			4,420	4,265	63	950

430 full-time staff

Alternative 1. Arcadia
59 acres
39.3 acres cleared
58,061 CY soil excavation

Paving Estimate Assume road width of 18 feet
114,500 sf total
4,241 CY exacavation for roads/parking

46,222 CY estimate for stormwater detention pond

Alternative 2 White Hall
58 acres
29 acres cleared
60,450 CY soil excavated

Paving Estimate Assume road width of 18 feet
179,000 sf total
6,630 CY exacavation for roads/parking

46,222 CY estimate for stormwater detention pond

APPENDIX C
TRAFFIC IMPACT ANALYSIS

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Traffic Impact Study

FBI Central Records Complex
Frederick County, Virginia

Prepared for:

General Services Administration
Mid-Atlantic Region

Prepared by:

Cardno

TRAFFIC IMPACT STUDY

DRAFT

FBI Central Records Complex
Frederick County, Virginia

Prepared For

General Services Administration
Mid-Atlantic Region

SEPTEMBER 2015

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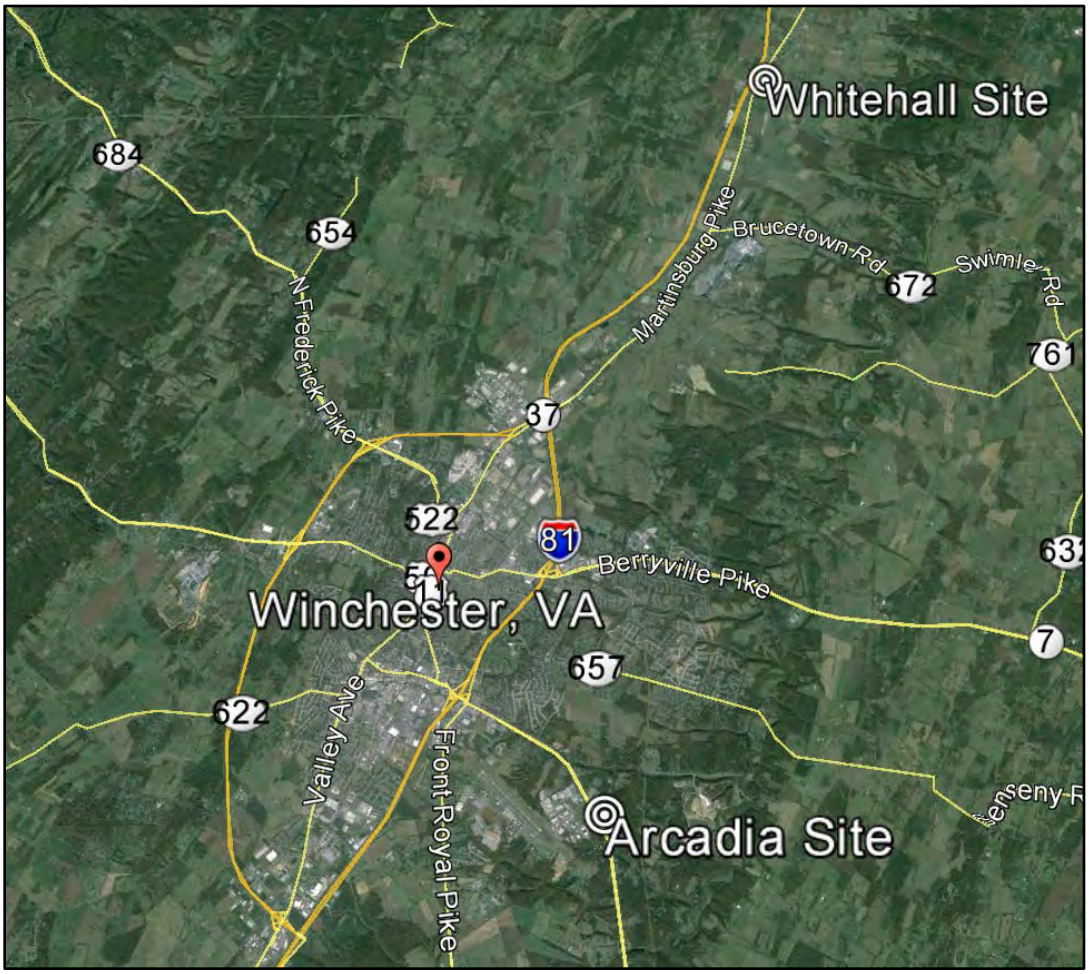
EXECUTIVE SUMMARY

The General Services Administration (GSA), on behalf of the Federal Bureau of Investigation (FBI), is proposing to construct a Central Records Complex of 256,425 square feet in Frederick County, Virginia. The project includes three buildings (1) an office building, (2) a records storage facility and (3) a data center. This Traffic Impact Analysis analyzes two potential sites and the traffic impacts of each site based on the square footage. The complex is planned to open in 2019.



The Arcadia site is located southeast of the Winchester City Limits. The site is located on the east side of US 17 (Millwood Pike) across from Independence Drive. The intersection of US 17 and Independence Drive is an unsignalized T-intersection with the project main driveway located across from Independence Drive creating a four-legged intersection. A secondary entrance is to be located approximately midway between Independence Drive and the off-ramp for the planned Interstate 37 interchange with US 17 (Millwood Pike); approximately 450 feet north of the ramp

and south of Independence Drive. This is proposed as a right-in, right-out only driveway. Based on the Virginia Department of Transportation (VDOT) minimum spacing standards for entrances near interchanges, a variance will be requested for the two driveway locations. The Frederick County 2030 Comprehensive Plan designates the adjacent roadway of US 17 (Millwood Pike) as a future urban six-lane divided roadway and Independence Drive as a future urban four-lane divided roadway. Independence Drive is to be extended to the northeast.

The Whitehall site is located east of the signalized intersection of US 11 (Martinsburg Pike) and Rest Church Road in Clear Brook, Frederick County, approximately 0.1 miles east of Interstate 81 (I-81) and 0.3 miles south of the West Virginia State Line. The preliminary site plan proposes the primary driveway connection to the existing dead end driveway located on the east side of US 11 (Martinsburg Pike). Another secondary entrance/exit is proposed to access Woodbine Road. The Rest Church Road extension is included in the 2030 Comprehensive Plan to be extended east as a four-lane urban divided roadway. The GSA understands that either site selected, Arcadia or Whitehall, the site plan for the Central Records Complex will need to accommodate the programmed improvements.

Based on the Methodology Meeting held on April 30, 2015 and subsequent email correspondence, the following conditions were used in the traffic impact analysis:

- **Study Intersections:**
  - Arcadia Site – (1) US 17 (Millwood Pike) at Victory Road and (2) US 17 (Millwood Pike) at Independence Drive. Both intersections are unsignalized.
  - Whitehall Site – (1) Rest Church Road at I-81 southbound ramp, (2) Rest Church Road at I-81 northbound ramp, (3) Rest Church Road at US 11 (Martinsburg Pike), all three signalized, and (4) US 11 (Martinsburg Pike) at Woodbine Road, unsignalized.

- **Trip Generation**: LUC 710, General Office Building, Projected AM peak hour project trips of 398 and PM peak hour trips of 366. The following table represents the project generated trips.

Trip Generation

General Office Building (Land Use Code #710) 256,000 Square Feet (Weekday)			
Time Period	**Total Trips**	**In**	**Out**
AM Peak Hour	398	350	48
PM Peak Hour	366	62	304

Based on the traffic analysis, the following impacts and recommendations were determined:

- **Impacts**
  - Arcadia Site – Currently there are excess delays (LOS F) for the eastbound approach at US 17/Victory Road and US 17/Independence Drive with delays exceeding two minutes per vehicle at Victory Road. The delays are expected to worsen with traffic growth and the project trips for the eastbound approaches and for the westbound Independence Drive proposed access..
  - Whitehall Site – Although the study intersections are expected to operate at LOS C or better in 2019 with the project, the short storage length (approximately 200 feet) on Rest Church Road between the signalized intersections of I-81 northbound off-ramp and US 11, results in intersection blockages with the addition of the proposed Mr. Fuel traffic and the proposed Central Records Complex project traffic.

- **Recommendations**:
  - Arcadia Site – Since the Central Records Complex traffic would be only adding to an existing operationally deficient condition at both the Victory Road and Independence Drive study intersections, a proportionate fair-share of the costs of the following signal and median improvements would be anticipated for GSA.
    - Restrict eastbound and westbound left-turn and through movements at the US 17/Victory Road unsignalized intersection. Modify the full access/median opening to a north-south directional opening to permit north-south movements and east-west right-turns. This will divert the eastbound restricted traffic to Independence Drive. The LOS at Victory Road improves to A and B for all movements.
    - Install a traffic signal at the US 17/Independence Drive intersection to serve the (1) existing eastbound traffic, (2) the diverted traffic from Victory Road, and (3) the proposed project traffic. Modify the eastbound Independence Drive approach lane use to accommodate the diverted trips. The LOS improves to C or better for all movements and A/B overall as a signalized intersection.
    - Modify the median noses on US 17 to accommodate the east-west through movements.
    - Install a 200- foot northbound right-turn lane at Independence Drive.
    - Lengthen the southbound left-turn lane at Independence Drive from 100 feet to 200 feet.

    - Install a northbound 180-foot right-turn taper at the secondary driveway to the site.
- Whitehall Site
    - To accommodate the additional eastbound project traffic at Rest Church Road/US 11 intersection, add an eastbound through lane by (1) shifting the left-turn lane north to the gore area, (2) modifying the left-turn lane to a through lane and (3) maintaining the right-turn lane.
    - Remove the existing striping on southbound Rest Church Road/US 11 intersection and install southbound left-turn lane striping.
    - Activate the existing traffic signals for the westbound approach at Rest Church Road/US 11 intersection.
    - Adjust the signal timings for coordinating the signals on Rest Church Road. All intersections are expected to operate at LOS C or better with the improvements.

TRAFFIC IMPACT STUDY FOR FBI CENTRAL RECORDS COMPLEX

BACKGROUND

The General Services Administration (GSA), on behalf of the Federal Bureau of Investigation (FBI), is proposing to construct a Central Records Complex of 256,425 square feet in Frederick County, Virginia. The project includes three buildings (1) an office building, (2) a records storage facility and (3) a data center. This Traffic Impact Analysis analyzes two potential sites and the traffic impacts of each site based on the square footage. The complex is planned to open in 2019.

METHODOLOGY

The analysis utilizes the Virginia DOT (VDOT) Traffic Impact Analysis Standards and the approved methodology as outlined from the Methodology Meeting held on April 30, 2015. The meeting minutes are included in Appendix A along with the signed VDOT scoping form. Based on the use of the Trip Generation 9th Edition for Land Use Code 710, General Office Building, the estimated peak hour trips are less than 500. Using the VDOT Traffic Impact Analysis Regulations, the study area for sites with less than 500 peak hour trips shall include roadways within 2,000 feet of the site and any roadway with 50 or more peak hour trips, not to exceed one mile from the site.

ALTERNATIVE SITES

The two sites analyzed are located in Frederick County and are (1) Arcadia, a 59-acre site and (2) Whitehall, a 50-acre site. The location maps in Figure 1-A (Appendix B) and Figure 1-W (Appendix C) show the general location of each site and the intersections analyzed for the study. Due to security reasons and the nature of the use of these potential sites, detailed scaled site plans are not included in this study.

Arcadia

The Arcadia site is located in Frederick County, outside the Winchester City Limits. The site is located on the east side of US 17 (Millwood Pike) across from Independence Drive. Figure 1-A (Appendix B) includes a site location map with the boundaries of the site. The intersection of US 17 and Independence Drive is an unsignalized T-intersection with the project main driveway located across from Independence Drive creating a four-legged intersection. A secondary entrance to the Central Records Complex is to be located approximately midway between Independence Drive and the future Interstate 37 Interchange off-ramp on US 17. This will be a

right-in, right-out only driveway. Based on the methodology meeting on April 30, 2015, the Arcadia site study area shall include the following two intersections which are shown in Figure 1-A (Appendix B):

- US 17 (Millwood Pike) at Independence Drive – unsignalized
- US 17 (Millwood Pike) at Victory Road (Route 728) – unsignalized

Whitehall

The Whitehall site is located east of the signalized intersection of US 11 and Rest Church Road in Clear Brook, Frederick County, approximately 0.1 miles east of Interstate 81 and 0.3 miles south of the West Virginia State Line. Figure 1-W (Appendix C) includes the site location map, site boundaries and study intersections. The site plan proposes the primary driveway connection to the existing dead end roadway located on the east side of US 11 (Martinsburg Pike). Another secondary entrance/exit is proposed to access Woodbine Road. For the purposes of this study, all proposed site traffic will be assigned to the primary driveway. The westbound approach currently has mast arm mounted traffic signals that are not in operation. Based on the methodology meeting held on April 30, 2015, the Whitehall site study shall utilize the traffic count data obtained in 2014 from the Mr. Fuel traffic study that was conducted in the same vicinity. The study area shall include the following intersections which are shown in Figure 1-W (Appendix C):

- US 11 (Martinsburg Pike) at Rest Church Road (Route 669) – signalized
- I-81 northbound ramp at Rest Church Road – signalized
- I-81 southbound ramp at Rest Church Road – signalized
- US 11(Martinsburg Pike) at Woodbine Road – unsignalized

EXISTING CONDITIONS

The Virginia DOT website, along with the data provided, were used to obtain the existing conditions of the roadways in the study area for each site including the 2014 average annual weekday traffic (AAWDT), speed limits, roadway classifications and truck traffic percentages. A Level of Service (LOS) analysis was conducted for the study area intersections for the AM and PM peak hours. The Synchro 9.0 software was used to analyze the signalized intersections and the Highway Capacity Software (HCS) was used to analyze the unsignalized intersections to determine the 2015 LOS and delay.

Arcadia

The existing conditions for the Arcadia site study area roadways are included in Table 1-A. The current zoning for the project site was obtained from the Frederick County GIS web site and is depicted in Figure 2-A (Appendix B).

Table 1-A
Arcadia Surrounding Roadway Conditions

Existing Roadway	From/To	Classification	Posted Speed	Lanes	AAWDT	Truck (%)
US 17 (Millwood Pike)	SR 655 to SR 723	Minor Arterial	55	4	17,000	4
SR 728 (Victory Rd)	Airport Rd to Millwood Pike	Major Collector	35	2	2,100	4
Independence Dr	SR 728 to Millwood Pike	Local Street	35	2	890	4

The Grove's Winchester Harley Davidson facility is located on the northwest quadrant of the US 17 and Independence Drive intersection and the Valley Cycle Center is located on the southwest quadrant. The Winchester Regional Airport is located west of Independence Drive and can be accessed via Airport Road to the south or via Victory Road. US 17 is a four-lane divided minor arterial and Independence Drive is a local two-lane undivided roadway. Independence Drive is a two-lane local collector roadway.

Independence Drive widens at the intersection with US 17 to include a median. The intersection geometry at Independence Drive is shown in Figure 3-A (Appendix B) and includes north-south left-turn lanes, a southbound right-turn lane and two unmarked eastbound approach lanes. The US 17 and Victory Road intersection is a four-legged intersection. Victory Road is a two-lane undivided roadway with single lane approaches eastbound and westbound. The US 17 north-south approaches include a left-turn lane and a right-turn lane. Figure 3-A (Appendix B) shows the geometry for the intersection of US 17 at Victory Road.

Traffic counts were conducted on May 5 and 6, 2015 by Cardno, Inc. at the intersections of US 17 and Independence Drive and US 17 and Victory Road. Both intersections are stop sign controlled on the side streets. The traffic count data is included in Appendix D. Figure 4-A (Appendix B) summarizes the AM and PM peak hour count data. Southbound U-turn movements occurred at Independence Drive for motorists to access the building supply company located to the north on the east side of US 17. The 2015 AM and PM peak hour delay and LOS analysis for the Arcadia site study area intersections is included in Table 2-A with the HCS printouts included in Appendix E. Figure 5-A (Appendix B) shows the 2015 AM and PM peak hour LOS.

Table 2-A
Arcadia Existing 2015 AM/PM Peak Hour LOS and Delay

Intersection	Approach	Lane Group	Delay* AM/PM	LOS AM/PM
US 17/Victory Road	EB	LTR	33.8/133.2	D/F
	WB	LTR	15.9/11.4	C/B
	NB	L	9.2/8.7	A/A
	SB	L	8.4/10.4	A/B
Intersection	**Approach**	**Lane Group**	**Delay* AM/PM**	**LOS AM/PM**
US 17/Independence Drive	EB	L	53.6/44.0	F/E
	EB	R	9.9/10.0	A/B
	NB	L	8.6/8.4	A/A
	SB	L	13.1/9.3	B/A

* Delay = seconds per vehicle

The results of the analysis indicate that the eastbound approach on Victory Road is operating at LOS F during the PM peak hour and the eastbound left-turn lane at Independence Drive is operating at LOS F and E during the AM and PM peak hours, respectively. The existing turn lane storage lengths and queueing analysis are included in Table 3-A and shown in Figure 6-A (Appendix B).

Table 3-A
Arcadia 2015 Queue Analysis

Intersection	Movement	95th Percentile Queue Length (ft.)		Storage Length Available (ft.)
		AM	PM	
US 17/Victory Road	Northbound Left	11	8	110
	Southbound Left	18	35	125
	Eastbound Left-through-right	80	127	--
	Westbound Left-through-right	37	24	60
US 17/Independence Drive	Northbound Left	29	10	230
	Southbound U-turn	6	6	120
	Eastbound Left	48	165	215
	Eastbound Right	27	50	--

Whitehall

The existing conditions for the study area of the Whitehall site are included in Table 1-W. The current zoning for the project site was obtained from the Frederick County GIS web site and is depicted in Figure 2-W (Appendix C).

Table 1-W
Whitehall Surrounding Roadway Conditions

Existing Roadway	From/To	Classification	Posted Speed	Lanes	AAWDT	Truck (%)
I-81	W. Virginia Line to Rest Church Rd	Interstate	70	4	46,000	25
I-81	Rest Church Rd to Hopewell Rd	Interstate	70	4	48,000	25
Rest Church Rd	SR 661 to I-81 Ramp	Local Collector	35	2	1,700	25
Rest Church Rd	I-81 Ramp to US 11	Local Collector	35	4	5,600	25
US 11	W. Virginia Line to Cedar Hill Rd	Rural Major Collector	45	3	4,800	7
Woodbine Rd	US 11 to Woodside Rd	Local Collector	NA	2	300	7

The Whitehall site has direct access to US 11, a three-lane major collector that extends north-south through Virginia and into West Virginia. Rest Church Road is a four-lane local collector from US 11 to I-81 that transitions to two-lanes west of the Interstate. Surrounding land uses include a strip shopping center located just north of the proposed site on the east side of US 11, a gas station on the southwest corner and a church on the northwest corner. A Flying J truck center is located on the southwest quadrant of the I-81 interchange. The northbound approach of US 11 is three lanes including a single northbound left-turn lane, a northbound through lane and a right-turn lane. The southbound approach includes a single through lane, right-turn lane and pavement for a left-turn lane currently striped out. The eastbound approach includes a left-turn lane and a shared through-right turn lane. The westbound approach, although a dead end, is striped for a westbound left-turn lane, a through lane and a right-turn lane. Figure 3-W (Appendix C) includes the intersection geometry for the Rest Church Road and Interstate 81 ramps, the US 11 and Rest Church Road intersection and the US 11 and Woodbine Road intersection.

VDOT provided 2014 traffic count data that was conducted for the Mr. Fuel traffic study. The Mr. Fuel Truck Center is proposed on the west side of US 11 between Rest Church Road and Woodbine Road. Three driveways are planned along US 11 with the main access/egress across from Woodbine Road. This added driveway will convert the existing T-intersection to a 4-legged intersection. Construction for Mr. Fuel is anticipated to be completed in 2017. The 2014 peak hour traffic counts from this study are included in Appendix D. The 2014 counts were escalated by 1.5 percent to reflect 2015 counts and are included in Figure 4-W (Appendix C).

Table 2-W shows the 2015 AM and PM peak hour LOS and delay for the Whitehall study area intersections based on the existing traffic control, signal timing, phasing and geometry. The Synchro 9.0 software was used to analyze the signalized intersections and HCS for the

unsignalized intersection at Woodbine Road. The percent heavy vehicles used was 25 percent for the I-81 ramp intersections, 7 percent for the US 11 and Rest Church Road intersection and 7 percent for the US 11 and Woodbine Road intersection. The percent's were based on VDOT's website for truck data and engineering judgment. Figure 5-W (Appendix C) displays the existing AM and PM peak hour LOS analysis for the Whitehall site study area intersections by lane group. Table 3-W and Figure 6-W (Appendix C) include the queuing analysis for the AM and PM peak hours for the Whitehall site along with the existing storage lengths. Appendix E includes the Synchro printouts.

Table 2-W
Whitehall Existing 2015 AM/PM Peak Hour LOS and Delay

Intersection	Approach	Lane Group	Delay* AM/PM	LOS AM/PM
I-81 SB Ramp/	EB	TR	10.1/11.5	B/B
Rest Church Road	WB	L	33.2/38.3	C/D
	WB	T	2.2/3.9	A/A
	SB	LT	22.5/22.4	C/C
	SB	R	7.0/6.6	A/A
	Intersection		16.0/12.1	B/B
Intersection	**Approach**	**Lane Group**	**Delay* AM/PM**	**LOS AM/PM**
I-81 NB Ramp/	EB	L	4.5/4.9	A/A
Rest Church Road	EB	T	3.5/3.4	A/A
	WB	TR	7.6/9.7	A/A
	NB	LT	26.1/26.6	C/C
	NB	R	1.1/6.3	A/A
	Intersection		7.9/10.3	A/B
Intersection	**Approach**	**Lane Group**	**Delay* AM/PM**	**LOS AM/PM**
US 11/	EB	L	33.3/29.1	C/C
Rest Church Road	EB	R	18.8/4.0	B/A
	NB	L	28.7/33.9	C/C
	NB	T	5.7/10.7	A/B
	SB	T	13.4/20.0	B/B
	SB	R	3.3/0.9	A/A
	Intersection		11.2/17.0	B/B
Intersection	**Approach**	**Lane Group**	**Delay* AM/PM**	**LOS AM/PM**
US 11/	WB	LR	10.4/10.9	B/B
Woodbine Road	SB	L	7,5/8.1	A/A

* Delay = seconds per vehicle

Table 3-W
Whitehall 2015 Queue Analysis

Intersection	Movement	95th Percentile Queue Length (ft)		Storage Length Available (ft.)
		AM	PM	
I-81 SB Ramp/ Rest Church Road	Westbound Left	243	122	375
	Westbound Through	38	84	375
	Southbound Left-through	70	93	500
	Southbound Right	84	96	500
I-81 NB Ramp/ Rest Church Road	Eastbound Left	90	111	375
	Eastbound Through	42	62	375
	Westbound Through	105	107	200
	Nortbound Left--through	94	171	500
	Northbound Right	66	156	500
US 11/ Rest Church Road	Eastbound Left	102	202	200
	Eastbound Right	53	106	200
	Northbound Left	78	97	270
	Northbound Through	56	114	--
	Southbound Right	105	75	225
	Southbound Through	87	116	--

PROGRAMMED ROADWAY IMPROVEMENTS

The Virginia DOT website and the Frederick County website were reviewed for planned roadway improvements from 2015 to opening year 2019 for both alternative sites. Additionally, the 2030 County Comprehensive Plan was reviewed for improvements in the vicinity of the two study sites. Appendix F includes the map of the Eastern Road Plan of the 2030 Comprehensive Plan roadway designations.

Arcadia

Although not funded, the planned Interstate 37 interchange at US 17 (Millwood Pike) is programmed and the alignment has been planned with anticipated right-of-way requirements. Based on this preliminary plan, Independence Drive will be located approximately 1,350 feet north of the centerline of Interstate 37 and 915 feet north of the westbound off-ramp. Since the VDOT minimum distance requirement between the Interstate 37/US 17 ramp and US 17/Independence Drive, or the first major intersection, is 1,320 feet, a variance is required.

The secondary driveway is planned approximately midway between Independence Drive and the off-ramp at approximately 450 feet. Based on VDOT's spacing standards for interchange ramps at multi-lane roadways, the minimum spacing for the right-in, right-out secondary driveway is 750 feet. Given the future interchange and ramp location are set, the minimum spacing requirements will not be met and a variance will be required as discussed at the methodology meeting on April 30, 2015. For the purposes of the traffic analysis, a worst-case scenario is analyzed which includes using the Independence Drive access/egress as the primary driveway with all trips entering and exiting here.

The Frederick County 2030 Comprehensive Plan designates US 17 (Millwood Pike) as a future urban six-lane divided roadway and Independence Drive as a future urban four-lane divided roadway to be extended to the northeast. The widening along the east side of US 17 will require a minimum of an additional 42 feet from the existing outside northbound travel lane to accommodate the six-laning, the planned bike lane, the sites proposed right-turn lane and the future curb and gutter. Per VDOT, an 88 foot right-of-way width is required for four-lane urban divided extensions, not including right-turn lanes and bicycle/pedestrian facilities. If the Arcadia site is selected for the Central Records Complex, the future widening will be accommodated in the site plan.

Whitehall

The Rest Church Road extension is included in the 2030 Comprehensive Plan as a four-lane urban divided roadway. The future four-lane Rest Church Road will require a minimum of 88 feet of right-of-way, not including right-turn lanes and bicycle lanes. If the Whitehall site is selected for the Central Records Complex, the future widening will be accommodated in the site plan.

Per discussions with VDOT, the Mr. Fuel traffic study projected trips and applicable improvements are to be included in the Whitehall traffic study. Mr. Fuel is planned for completion in 2017 and the Central Records Complex is scheduled for a 2019 completion. The following were included in the 2019 (without project) traffic scenario:

- Mr. Fuel truck access at Woodbine Road making it a 4-legged intersection
- A continuous southbound right-turn lane at US 11 and Truck Driveway/Woodbine Road that extends between Rest Church Road and Mr. Fuel Driveway/Woodbine
- Cycle length, signal phasing, and timings for the three Rest Church Road signals

PLANNED PEDESTRIAN/BICYCLE IMPROVEMENTS

Arcadia

Based on the Winchester/Frederick County MPO Bicycle and Pedestrian Master Plan, updated in 2014, the section of US 17 (Millwood Pike) along the frontage of the Arcadia site, a bicycle only facility is recommended. This is considered a medium term project in the Master Plan with a ranking of #167 of the 283 projects. If this site is selected for the Central Records Complex, the site plan will accommodate the planned bicycle facility.

Whitehall

The section of US 11 in proximity of the Whitehall site contains a long term bicycle only facility recommendation (US 11 Valley Pike, Heritage Route B) and is ranked #279 of the 283 projects. If this site is selected for the Central Records Complex, the site plan will accommodate the planned bicycle facility.

FUTURE CONDITIONS WITHOUT PROJECT

The two study sites were evaluated for the 2019 AM and PM peak hours by escalating the 2015 traffic volumes to the 2019 opening year.

Traffic Growth Factor

Based on the methodology meeting conducted on April 30, 2015, the five-year historical average daily traffic (ADT) was used to develop a growth rate for the 2019 opening year. Using the available VDOT historical traffic count data from 2009 to 2014 for traffic along I-81 in the vicinity of the two alternative sites, an annual 1.47 percent straight line growth rate (escalation) was calculated. For the purposes of this analysis, a 1.5 percent annual growth rate was used to forecast the future traffic volumes. Appendix G includes the back-up historical count data and calculations.

Arcadia

The Arcadia site's 2019 AM and PM peak hour turning movement volumes without project traffic are included in Figure 7-A (Appendix B). The 2019 AM and PM peak hour LOS analysis for each intersection by lane group is shown in Table 4-A and Figure 8-A (Appendix B). The analysis was conducted using HCS for the two intersections with the existing stop sign traffic control and no planned improvements. The complete HCS printouts are included in Appendix H.

Table 4-A
Arcadia 2019 Without Project AM/PM Peak Hour LOS and Delay

Intersection	Approach	Lane Group	Delay* AM/PM	LOS AM/PM
US 17/Victory Road	EB	LTR	35.3/121.5	E/F
	WB	LTR	16.0/11.8	C/B
	NB	L	9.3/8.8	A/A
	SB	L	8.5/10.7	A/B
Intersection	**Approach**	**Lane Group**	**Delay* AM/PM**	**LOS AM/PM**
US 17/Independence Drive	EB	L	19.6/58.7	C/F
	EB	R	9.9/10.1	A/B
	NB	L	8.7/8.5	A/A
	SB	L	8.2/9.6	A/A

* Delay = seconds per vehicle

During the AM peak hour the eastbound approach at Victory Road is expected to operate at LOS E with the remaining lane groups operating at LOS C or better. During the 2019 PM peak hour, the eastbound approach at Victory Road and the eastbound left-turn lane at Independence Drive are expected to operate at LOS F. The delays are expected to approach two minutes per vehicle for eastbound Victory Road during the PM peak hour.

Whitehall

The Whitehall site's 2019 AM and PM peak hour turning volumes without project traffic are included in Figure 7-W (Appendix C). The 2019 AM and PM peak hour LOS analysis for each intersection by lane group is shown in Table 4-W and Figure 8-W (Appendix C). The signal cycle length and phasing as identified in the Mr. Fuel traffic study were used in the analysis including the Mr. Fuel applicable improvements. The addition of Mr. Fuel required the heavy vehicle percent to be increased to 22 percent for the eastbound right-turn and the northbound left-turn at US 11/Rest Church Road besides the truck traffic added at the US 11/Woodbine Road intersection. The Synchro and HCS analysis are included in Appendix H.

Table 4-W
Whitehall 2019 Without Project AM/PM Peak Hour LOS and Delay

Intersection	Approach	Lane Group	Delay* AM/PM	LOS AM/PM
I-81 SB Ramp/	EB	TR	12.2/13.2	B/B
Rest Church Road	WB	L	26.6/38.4	C/D
	WB	T	1.1/3.0	A/A
	SB	LT	37.7/32.7	D/C
	SB	R	9.0/7.8	A/A
	Intersection		18.6/16.5	B/B
Intersection	**Approach**	**Lane Group**	**Delay* AM/PM**	**LOS AM/PM**
I-81 NB Ramp/	EB	L	3.1/6.0	A/A
Rest Church Road	EB	T	2.0/3.1	A/A
	WB	TR	7.8/12.7	A/B
	NB	LT	22.1/23.5	C/C
	NB	R	7.6/6.6	A/A
	Intersection		7.1/10.1	A/B
Intersection	**Approach**	**Lane Group**	**Delay* AM/PM**	**LOS AM/PM**
US 11/	EB	L	20.2/30.3	C/C
Rest Church Road	EB	R	9.9/10.0	A/B
	NB	L	11.1/29.2	B/C
	NB	T	6.9/22.3	A/C
	SB	T	22.2/41.8	C/D
	SB	R	1.7/2.6	A/A
	Intersection		10.3/23.0	B/C
Intersection	**Approach**	**Lane Group**	**Delay* AM/PM**	**LOS AM/PM**
US 11/	NB	L	9.1/8.7	A/A
Woodbine Road	EB	LTR	16.0/21.3	C/C
	WB	LTR	10.9/12.9	B/B
	SB	L	7.5/8.3	A/A

* Delay = seconds per vehicle

As shown in Table 4-W, the 2019 LOS for the overall intersections with Mr. Fuel and without the project traffic are expected to operate at LOS A and B during the peak hours in 2019.

TRIP GENERATION

At the April 30, 2015 Methodology Meeting, it was agreed that both Land Use Code 715 (Single Tenant Office Building) and 710 (General Office Building) would be reviewed for the Trip Generation rates. Based on subsequent correspondence with VDOT, since Land Use Code 710

includes significantly more study sites than LUC 715, Land Use Code 710 was used for this study. The trip generation was based on 1000 square feet of gross floor area and the equations found in the Institute of Transportation Engineers (ITE) *Trip Generation*, 9th Edition. Based on these trip rates it is calculated that 398 AM peak-hour trips (350 inbound, 48 outbound) and 366 PM peak-hour trips (62 inbound, 304 outbound) will be generated by the project. A summary of the AM and PM peak-hour trip generation is summarized in Table 5-A/5-W. The ITE Trip Generation information is provided in Appendix I.

Table 5-A/5-W
Arcadia/Whitehall Trip Generation

General Office Building (Land Use Code #710) By 1,000 SFGFLA on a Weekday			
AM Peak Hour		**PM Peak Hour**	
Fitted curve equation:LN(T)=0.80Ln(x) + 1.55		Fitted curve equation: T=1.12(x) + 78.81	
No. of 1000 sf =	256	No. of 1000 sf =	256
LN(T) =	5.9861	Calculated trips (T) =	366
Calculated trips (T) =	398		
In (%) Trips = (88)	350	In (%) Trips = (17)	62
Out (%) Trips = (12)	48	Out (%) Trips = (83)	304

TRIP DISTRIBUTION/PROJECT ASSIGNMENT

The trip distribution and project assignment utilized in the study were based on existing count data, discussions with VDOT and engineering judgment. Appendix A includes the back-up correspondence for the approved distributions.

Arcadia Site

Using the trip distribution characteristics of the May 2015 turning movement counts, the AM and PM peak hour trip distribution for the Arcadia site was calculated and is as follows:

AM Peak Hour TO:

- North US 17 – 38 percent
- South US 17 – 41 percent
- West Independence Drive – 21 percent

AM Peak Hour FROM:

- North US 17 – 58 percent

- South US 17 – 38 percent
- West Independence Drive – 4 percent

PM Peak Hour TO:

- North US 17 – 59 percent
- South US 17 – 31 percent
- West Independence Drive – 10 percent

PM Peak Hour FROM:

- North US 17 – 36 percent
- South US 17 – 49 percent
- West Independence Drive – 15 percent

Since Victory Road connects to Independence Drive near the study site, no trips were distributed to or from Victory Road. Although there are two driveways for the Arcadia site with the secondary driveway as a right-in, right-out only, the worst-case scenario of distributing all the trips to and from the main driveway via Independence Drive was used for purposes of this study. The Arcadia trip distribution percentages along the roadway network for the AM and PM peak hours are illustrated in Figure 9-A (Appendix B) with the project trips distributed as shown in Figure 10-A (Appendix B).

Whitehall Site

Using the available count data, engineering judgment and discussions with VDOT, the AM and PM peak hour trip distribution for the Whitehall site was determined and is as follows:

- To and from I-81 North – 35 percent
- To and from I-81 South – 35 percent
- To and from US 11 North – 15 percent
- To and from US 11 South – 10 percent
- To and from Rest Church Road West – 5 percent

The trip distribution percentages along the Whitehall roadway network are illustrated in Figure 9-W (Appendix C) with the project trips distributed as shown in Figure 10-W (Appendix C).

FUTURE CONDITIONS WITH PROJECT

The 2019 AM and PM peak hour future traffic was added to the AM and PM peak hour project trips at the study area intersections.

Arcadia

The Arcadia site 2019 AM and PM peak hour future traffic with project traffic volumes are shown in Figure 11-A (Appendix B). The LOS analysis was conducted for the intersections of US 17 at Victory Road and US 17 at Independence Drive/project driveway. The existing intersection traffic control, the existing geometry and the site plan driveway geometry were used in the analyses. A right-turn lane warrant analysis was conducted for the driveway entrances and is included in Appendix J. Based on the worst case scenario of all trips entering/exiting through the Independence Drive driveway, a full-width right turn lane and taper are required northbound. Based on the scenario of splitting the northbound right-turns into the site via the two driveways, the Independence Drive driveway and the secondary driveway access, both locations would require a taper into the site. A full-width lane for the main access and a taper for the secondary driveway are recommended.

The 2019 AM and PM peak hour LOS analysis for the with project conditions for each intersection and driveway by lane group are included in Table 6-A and Figure 12-A (Appendix B). Appendix K includes the printouts for the analysis with the project traffic. As shown in Table 6-A, the delay is expected to be significant for the PM peak hour for the eastbound Victory Road approach and the eastbound and westbound left-turns at Independence Drive under the existing traffic control and geometric conditions.

Table 6-A
Arcadia 2019 with Project AM/PM Peak Hour LOS and Delay

Intersection	Approach	Lane Group	Delay* AM/PM	LOS AM/PM
US 17/Victory Road	EB	LTR	65.4/208.4	F/F
	WB	LTR	19.0/12.9	C/B
	NB	L	10.3/8.8	B/A
	SB	L	8.5/12.0	A/B
Intersection	**Approach**	**Lane Group**	**Delay* AM/PM**	**LOS AM/PM**
US 17/Independence Drive	EB	L	80.4/589.1	F/F
	EB	TR	36.1/15.1	E/C
	WB	L	59.2/113.6	F/F
	WB	TR	25.2/27.7	D/D
	NB	L	8.7/8.5	A/A
	SB	L	9.1/9.7	A/A

* Delay = seconds per vehicle

Whitehall

The Whitehall site 2019 AM and PM peak hour future traffic with project traffic volumes is shown in Figure 11-W (Appendix C). The LOS analysis was conducted with the Mr. Fuel Travel Center traffic included as well as the Mr. Fuel recommended improvements.

The 2019 with project AM and PM peak hour LOS for each intersection by lane group is included in Table 6-W and Figure 12-W (Appendix C). Appendix K includes the printouts for the analysis with the project traffic.

Table 6-W
Whitehall 2019 With Project AM/PM Peak Hour LOS and Delay

Intersection	Approach	Lane Group	Delay* AM/PM	LOS AM/PM
I-81 SB Ramp/	EB	TR	16.0/16.0	B/B
Rest Church Road	WB	L	39.4/39.3	D/D
	WB	T	4.1/2.3	A/A
	SB	LT	46.3/34.4	D/C
	SB	R	7.4/7.7	A/A
	Intersection		26.8/19.5	C/B
Intersection	**Approach**	**Lane Group**	**Delay* AM/PM**	**LOS AM/PM**
I-81 NB Ramp/	EB	L	4.0/12.2	A/B
Rest Church Road	EB	T	2.8/2.9	A/A
	WB	TR	19.1/10.2	B/B
	NB	LT	19.5/20.3	B/C
	NB	R	5.4/6.2	A/A
	Intersection		11.5/9.3	B/A
Intersection	**Approach**	**Lane Group**	**Delay* AM/PM**	**LOS AM/PM**
US 11/	EB	L	9.0/33.7	A/C
Rest Church Road	EB	TR	17.7/7.0	B/A
	WB	L	22.8/25.1	C/C
	WB	T	23.1/41.6	C/D
	WB	R	0.0/0.4	A/A
	NB	L	34.3/52.1	C/D
	NB	T	16.2/21.2	B/C
	NB	R	0.2/0.0	A/A
	SB	L	32.3/24.8	C/C
	SB	T	45.7/38.9	D/D
	SB	R	4.4/3.8	A/A
	Intersection		20.4/27.3	C/C
Intersection	**Approach**	**Lane Group**	**Delay* AM/PM**	**LOS AM/PM**
US 11/	NB	L	9.1/9.0	A/A
Woodbine Road	EB	LTR	17.1/26.4	C/D
	WB	LTR	10.6/13.4	B/B
	SB	L	7.6/8.3	A/A

* Delay = seconds per vehicle

The intersections are expected to operate at LOS C or better with the project traffic. The queue analysis determined that the eastbound left-turn and the eastbound through movement at Rest Church Road/US 11 may extend beyond the limited storage due to the close proximity of the northbound off ramp signal at I-81. Table 7-W and Figure 13-W (Appendix C) depict the existing turn lane lengths and the Synchro/SimTraffic calculated queues with the project traffic in 2019.

Table 7-W
Whitehall 2019 Queue Analysis with Project Traffic

Intersection	Movement	95th Percentile Queue Length (ft)		Storage Length Available (ft.)
		AM	PM	
I-81 SB Ramp/ Rest Church Road	Westbound Left	390	261	375
	Westbound Through	73	86	375
	Southbound Left-through	237	157	500
	Southbound Right	84	102	500
I-81 NB Ramp/ Rest Church Road	Eastbound Left	83	113	375
	Eastbound Through	132	67	375
	Westbound Through	204	179	200
	Nortbound Left-through	75	172	500
	Northbound Right	209	182	500
US 11/ Rest Church Road	Eastbound Left	73	201	200
	Eastbound Through-right	238	168	200
	Westbound Left	17	114	360
	Westbound Through	47	220	500
	Westbound Right	18	80	500
	Northbound Left	200	210	270
	Northbound Through	72	189	--
	Northbound Right	35	17	225
	Southbound Left	70	25	300
	Southbound Through	184	145	--
	Southbound Right	141	78	225
US 11/Woodbine Road	Northbound Left	28	21	TWLTL
	Southbound Left	8	23	TWLTL

RECOMMENDED IMPROVEMENTS

Arcadia

To mitigate the excessive delays expected with the stop sign control at the two Arcadia study intersections, a traffic signal was considered at the US 17 and Independence Drive/project driveway intersection. The 12-hour turning movement counts collected in May 2015 were used for the warrant analysis along with the existing geometry and 55 MPH posted speed limit on US 17. To be conservative, only the eastbound left-turn volume was included in the analysis. The Synchro 9.1 Traffic Signal Warrant software was used to analyze Warrants 1, 2 and 3. Based on the existing volumes, Warrant 1, Eight Hour Vehicular Volume, Condition B was met for seven of the eight hours required. Warrant 2, Four-Hour Vehicular Volume was met for four hours and Warrant 3, Peak Hour, was met for three hours. The VDOT website was reviewed for crash data at the Independence Drive intersection and only one angle crash was identified, therefore Warrant 7, Crash Warrant was not investigated. The 2019 traffic with project trips was analyzed against the Warrant 3, Peak Hour Warrant, and was met. The printouts are also included in Appendix L.

The installation of a traffic signal at the US 17/Independence Drive intersection would be expected to divert eastbound left-turn traffic from Victory Road to Independence Drive. To minimize delays for the eastbound Victory Road approach, the analysis includes modification of the full median opening to a north-south directional opening to restrict the eastbound and westbound left-turn and through movements. The existing westbound left-turn and through movements at US 17/Victory Road would be required to U-turn at the median opening located 1,450 feet north at Lilac Lane. The eastbound diverted left-turn and through vehicles would access US 17 via the proposed signal at Independence Drive since Victory Road connects to Independence Drive to the southwest. The diverted trips for the 2019 with project conditions are included in Figure 13-A (Appendix C).

The Synchro/SimTraffic queue analysis indicates the existing southbound left-turn lane on US 17 at Independence Drive is inadequate for the expected queueing, 110 feet, under north-south permissive left-turn control. The existing 100-foot left-turn lane would need to be lengthened to 200 feet to meet the VDOT standards for roadways with a 50 MPH or higher design speed.

To improve the operation of the eastbound left-turn movement at the signalized US 17/Independence Drive intersection, the intersection phasing and lane use were modified. The east-west approaches were analyzed as split phase to accommodate the 2019 project plus diverted eastbound left-turn volume of 263 vehicles during the PM peak hour. The existing unmarked approach lane use is proposed to be modified to a left-turn lane plus shared left-

through-right lane eastbound (L, LTR). The LOS for each movement with the signal and split phase operation is shown in Table 7-A. The results of the LOS analysis for 2019 with (1) project traffic, (2) a signal at Independence Drive and a (3) right-in, right-out only for Victory Road are included in Figure 14-A (Appendix B).

Table 7-A
Arcadia 2019 with Project and Improvements
AM/PM Peak Hour LOS and Delay

Intersection	Approach	Lane Group	Delay* AM/PM	LOS AM/PM
US 17/Victory Road	EB	R	12.0/10.3	B/B
	WB	R	9.9/12.9	A/B
	NB	L	10.3/8.8	B/A
	SB	L	8.5/12.0	A/B
Intersection	**Approach**	**Lane Group**	**Delay* AM/PM**	**LOS AM/PM**
US 17/Independence Drive	EB	L	19.1/33.7	B/C
	EB	LTR	16.5/26.8	B/C
	WB	LT	18.7/32.6	B/C
	WB	R	0.4/17.2	A/B
	NB	L	9.0/14.7	A/B
	NB	T	7.4/16.2	A/B
	NB	R	2.9/0.1	A/A
	SB	L	13.7/16.3	B/B
	SB	T	7.6/14.0	A/B
	SB	R	2.7/4.0	A/A
	Intersection		8.3/18.0	A/B

* Delay = seconds per vehicle

As shown in Table 7-A, the delays are reduced significantly for the eastbound and westbound approaches at both study locations with the recommended improvements and the LOS is improved from F to B/C. The queue analysis using Synchro/SimTraffic for the (1) 2019 With Project compared to the (2) 2019 With Project and Proposed Signal and Geometry Improvements is included in Table 8-A. The proposed geometry and improvements, lane uses, and queue lengths are included in Figure 15-A (Appendix B). The LOS Analysis for the recommended improvements is included in Appendix M.

Table 8-A
Arcadia 2019 Queue Analysis with Project and with Signal/Improvements

Intersection	Movement	95th Percentile Queue Length (ft.)				Storage Length Available (ft.)
		With Project		With Signal and Split Phasing		
		AM	PM	AM	PM	
US 17/Victory Road	Northbound Left	14	12	10	12	110
	Southbound Left	22	43	10	29	125
	Eastbound LTR/Right*	77	212	33	26	--
	Westbound LTR/Right*	32	30	31	22	60
US 17/Independence Drive	Eastbound Left	64	281	34	125	215
	Eastbound TR/LTR*	47	539	92	207	--
	Westbound L/LT*	47	178	44	118	200*
	Westbound TR/R*	54	316	40	106	200*
	Northbound Left	23	17	36	16	230
	Northbound Through	**	**	51	141	--
	Northbound Right	**	**	9	0	200*
	Southbound Left	72	18	110	30	200*
	Southbound Through	**	**	51	107	--
	Southbound Right	**	**	19	32	180

* proposed storage

** unsignalized control

The mitigation measures for the additional project traffic at the Arcadia site are outlined as follows with the respective preliminary cost estimate of $677,000 including:

- Install a traffic signal at US 17/Independence Drive intersection (cost estimate $175,000).
- Modify the median noses on US 17 to accommodate the cross street through traffic (cost estimate $25,000).
- Modify the unmarked eastbound approach at US 17/Independence Drive to an exclusive left-turn lane plus shared left-through-right lane for split phase operation (cost estimate $2,000).
- Modify the full median opening at US 17/ Victory Road to a north-south directional crossover that restricts the east-west left-turn and through movements (cost estimate $75,000). The eastbound and westbound permitted movements are right-turns only.

- Install a 200-foot northbound right-turn lane at Independence Drive (cost estimate $175,000).
- Lengthen the southbound left-turn lane at Independence Drive from 100 feet to 200 feet (cost estimate $100,000).
- Install a 180-foot northbound right-turn taper at the secondary driveway to the site (cost estimate $125,000).

Whitehall

The Whitehall 2019 With Project traffic scenario was analyzed with the addition of an eastbound through lane at the Rest Church Road/US 11 intersection. This is to offset the additional queueing with the Central Records Complex eastbound through traffic. The through lane can be added within the existing right-of-way by shifting the eastbound lanes north into the existing painted gore area. The northbound left-turn truck turning radius was checked with the shift in the lane location and will accommodate the lane shift and is included in Appendix N. An eastbound right-turn overlap phase was also added to minimize delays. The signal system was optimized with the additional lane and signal coordination on Rest Church Road. The results of the LOS analysis is shown in Figure 14-W (Appendix C). Figure 15-W (Appendix C) includes the proposed improvements and the queue analysis with the recommendations. Table 8-W details the LOS and delay for each movement with the recommended eastbound through lane. Table 9-W includes the queue lengths with the recommended improvements.

The mitigation measures for the additional project traffic at the Whitehall site are outlined as follows with the respective preliminary cost estimate of $86,000 including:

- Add an eastbound through lane at Rest Church Road/US 11 signalized intersection to accommodate the new project trips eastbound into the project site (cost estimate $75,000).
- Remove existing striping southbound at US 11 and Rest Church Road intersection and install the southbound left-turn lane striping (cost estimate $5,000).
- Activate signals for westbound approach at US 11/ Rest Church Road and retime the signal for coordination on Rest Church Road ($6,000).

Table 8-W
Whitehall 2019 with Project and Improvements
AM/PM Peak Hour LOS and Delay

Intersection	Approach	Lane Group	Delay* AM/PM	LOS AM/PM
I-81 SB Ramp/	EB	TR	16.0/16.0	B/B
Rest Church Road	WB	L	38.0/38.3	D/D
	WB	TR	4.2/2.3	A/A
	SB	LT	50.8/34.4	D/C
	SB	R	7.6/7.7	A/A
	Intersection		27.3/19.3	C/B
Intersection	**Approach**	**Lane Group**	**Delay* AM/PM**	**LOS AM/PM**
I-81 NB Ramp/	EB	L	2.2/12.1	A/B
Rest Church Road	EB	T	1.6/3.2	A/A
	WB	TR	9.0/9.9	A/A
	NB	LT	30.9/20.3	C/C
	NB	R	11.3/6.2	B/A
	Intersection		8.2/9.3	A/A
Intersection	**Approach**	**Lane Group**	**Delay* AM/PM**	**LOS AM/PM**
US 11/	EB	L	12.3/25.0	B/C
Rest Church Road	EB	T	14.2/9.9	B/A
	EB	R	1.2/2.3	A/A
	WB	L	29.2/22.8	C/C
	WB	T	29.9/36.0	C/D
	WB	R	0.1/0.4	A/A
	NB	L	25.7/29.6	C/C
	NB	T	13.2/19.9	B/B
	NB	R	0.1/0.0	A/A
	SB	L	29.1/24.8	C/C
	SB	T	41.4/38.9	D/D
	SB	R	3.3/3.3	A/A
	Intersection		15.3/21.1	B/C
Intersection	**Approach**	**Lane Group**	**Delay* AM/PM**	**LOS AM/PM**
US 11/	NB	L	9.1/9.0	A/A
Woodbine Road	EB	LTR	17.1/26.4	C/D
	WB	LTR	10.6/13.4	B/B
	SB	L	7.6/8.3	A/A

* Delay = seconds per vehicle

Table 9-W
Whitehall 2019 Queue Analysis with Improvements

Intersection	Movement	95th Percentile Queue Length (ft)		Storage Length Available (ft.)
		AM	PM	
I-81 SB Ramp/ Rest Church Road	Westbound Left	305	247	375
	Westbound Through	50	86	375
	Southbound Left-through	252	166	500
	Southbound Right	95	94	500
I-81 NB Ramp/ Rest Church Road	Eastbound Left	83	120	375
	Eastbound Through	53	72	375
	Westbound Through	133	158	200
	Nortbound Left-through	98	173	500
	Northbound Right	127	172	500
US 11/ Rest Church Road	Eastbound Left	54	195	200
	Eastbound Through	142	49	200
	Eastbound Right	77	84	200
	Westbound Left	17	49	360
	Westbound Through	48	173	500
	Westbound Right	16	47	500
	Northbound Left	189	176	270
	Northbound Through	79	157	--
	Northbound Right	19	11	225
	Southbound Left	76	20	300
	Southbound Through	197	136	--
	Southbound Right	125	79	225
US 11/Woodbine Road	Northbound Left	26	28	TWLTL
	Southbound Left	15	18	TWLTL

CONCLUSIONS

Arcadia

The Arcadia site study intersections at (1) US 17/Independence Drive and (2) US 17/Victory Road are currently experiencing LOS F delays on the eastbound approaches and will worsen with growth and the 2019 project traffic. Additionally, the 2030 Frederick County Comprehensive Plan includes widening US 17 to six-lanes and Independence Drive to a future four-lane divided extension to the northeast. A signal warrant study was conducted for the intersection of US 17/Independence Drive and determined that seven of the eight hours for Warrant 1 are currently met. To mitigate for the additional project traffic, a signal is

recommended at the intersection of US 17/Independence Drive. In conjunction, the intersection of US 17/Victory Road would be modified from a full median opening to a north-south directional opening. The eastbound left and through movements on Victory Road that are currently experiencing delays during the peak hours will divert to the signal at US 17/Independence Drive. Since the Central Records Complex traffic would be only adding to an existing operationally deficient condition at both the Victory Road and Independence Drive study intersections, a proportionate fair-share of the costs of the signal and median improvements would be anticipated for the GSA. A northbound right-turn lane at Independence Drive is recommended along with a longer southbound left-turn lane. The secondary driveway will need to be located midway between Independence Drive and the planned Interstate 37 ramp. Interstate 17 and ramps are planned to extend through the Arcadia site and GSA will accommodate the planned roadway and bicycle improvements in the site plan accordingly if the Arcadia site is selected for the Central Records Complex. A northbound right-turn taper will be required for the secondary driveway.

Whitehall

The Whitehall site located on the east side of US 11 at Rest Church Road would modify the existing operational three-legged signalized intersection to a four-legged intersection. Although roadway capacity exists for the four study intersections, the close proximity of the three signalized intersections on Rest Church Road can contribute to intersection blockages with the added traffic from both the Mr. Fuel Truck Center and the Central Records Complex. To mitigate for this blockage, an eastbound through lane at US 11/Rest Church Road is recommended to accommodate the eastbound through traffic, especially in the AM peak hour. The lane can be added within the existing pavement by shifting the existing eastbound lanes north into the existing painted gore area. In conjunction with the added eastbound lane is the (1) restriping of the southbound approach for the left-turn lane, (2) activation of the existing westbound signals with (3) retiming of the Rest Church Road signals for optimized signal coordination on Rest Church Road. The GSA is aware of the planned four-lane extension of Rest Church Road to the east and will accommodate the planned roadway and bicycle improvements in the site plan in the event the Whitehall site is selected as the Central Records Complex.

APPENDIX A

APPROVED METHODOLOGY

GSA FBI CRC TRAFFIC IMPACT ANALYSIS
VDOT METHODOLOGY MEETING
MEETING SUMMARY

April 30, 2015
10:00 AM

The following summarizes the meeting discussions relative to the following questions concerning the requirements for the Traffic Impact Study for the FBI CRC project.

1) Are 7-day bi-directional counts required? Does the MPO, State, or County already have counts that can be used?

VDOT approved the use of average daily traffic (ADT) data available on VDOT's website. No 7-day bi-directional counts are needed.

2) What intersections, signalized or not, are to have turning movement counts collected?

The following locations were approved:

a. Arcadia Site Intersections
   i. US 17 (Millwood Pike) and Independence Drive
   ii. US 17 (Millwood Pike) and Victory Road

VDOT commented that the combination of proposed trips plus existing traffic at Independence Drive be reviewed against the MUTCD warrants to evaluate the need for a signal.

b. Whitehall Site Intersections
   i. US 11 (Valley Pike) and Rest Church Road (signalized)
   ii. Rest Church Road and I-81 Ramps (signalized)

VDOT approved the use of traffic count data available as public record for a recent study conducted for Mr. Fuel™ for the above referenced locations.

c. Blackburn Site Intersections
   i. Apple Valley Road and Middle Road (unsignalized)
   ii. Apple Valley Road and Shady Elm Road (unsignalized)
   iii. Apple Valley Road and US 11 (Valley Pike) (signalized)
   iv. Dawson Drive and Shady Elm

Counts for the Blackburn site intersections are included in a Traffic Impact Analysis that was recently completed. These numbers can be used for the Blackburn site. Trip Gen can be used for the Dawson Drive and Shady Elm intersection rather than a count.

3) Will the turning movement count data need to be seasonally adjusted? If so, can the County provide?

VDOT will require the traffic counts to be completed prior to the local schools summer break. No seasonal adjustments are required.

4) What methodology and/or software will be used to analyze the roadway level of service (LOS)? Does the County or State have standard LOS tables?

VDOT requires the use of Level of Service criteria available on VDOT's website.

5) What methodology and/or software will be used to analyze the intersection LOS? Available software includes HCM (unsignalized) or Synchro (signalized).

VDOT will allow the use of either HCM or Synchro for the signalized and unsignalized intersection analysis. If Synchro is used for the signalized analysis, Version 9 is required.

6) What Land Use definitions from the Institute of Transportation Engineers' *Trip Generation Manual*, 9th (latest) Edition will be applicable? We propose to use Land Use Code #715, Single Tenant Office Building (By Employee on a Weekday).

Single Tenant Office Building (Land Use Code #715)					
By Employees on a Weekday					
AM Peak Hour			PM Peak Hour		
Fitted curve equation: T=0.5(x) + 18.33			Fitted curve equation: T=0.44(x) + 34.31		
No. of employees =	430			No. of employees =	430
Calculated trips (T) =	233			Calculated trips (T) =	224
In (89%) =	207			In (15%) =	34
Out (11%) =	26			Out (85%) =	190

VDOT approved the use of Land Use Code 715, but also requested that Land Use Code 710, General Office Building, be used to compare trip generation. Charles Hearn revised the number of employees to 446.

a. How does VDOT want to decide the AM and PM peak hour site generation if it does not coincide with AM and PM peak hour of the adjacent street traffic?

Since the majority of the AM and PM site traffic will occur during the typical AM and PM peak periods, the AM and PM Peak Hour of Adjacent Street Traffic will be used for the trip generation.

7) What methodology and/or software will be used to escalate existing traffic volumes to future year (Build-Out year) conditions? Options include a simple straight line per-year growth factor or MPO Travel Demand Model. The facility is expected to be built out within 5 years.

VDOT will require the last 5 years of local ADT historical data to be analyzed to develop a growth rate. The minimum growth rate allowed will be 1% per year straight line. Since the project occupancy is scheduled for 2019, no additional future local project trip data will need to be added.

8) What methodology and/or software will be used to distribute the project traffic over the roadway facilities? Options include a gravity model based on existing travel patterns as exhibited by the turning movement counts or MPO's Travel Demand Model.

VDOT will not require use of the MPO's Travel Demand Model. Local traffic distribution trends will be used to distribute the site generated trips.

VDOT advised that their current Traffic Operations Analysis Guide be used to develop the traffic impact study.

Additional questions were posed to the county and VDOT regarding the proffer roads at both the Arcadia and Whitehall sites, as well as the proposed Route 37 extension associated with the Arcadia site.

9) Is there currently funding for the Route 37 extension?

The County indicated the project is in their Vision Plan; however there is currently no funding for the Route 37 extension.

10) The Route 37 interchange significantly affects the proposed FBI CRC at the Arcadia site. Is there the potential to adjust the interchange and exit ramp, which, according to current plans, would impact the southern portion of the Arcadia site?

The County indicated that the ramp is currently meeting the minimum requirements and there is not much flexibility with adjusting the ramp. Additionally, an access point to Route 50 from the FBI CRC would likely require a variance due to the distance between the proposed Route 37 ramp and Independence Drive. The access point would likely have to be right in, right out only.

There is the potential to have a median cut that could provide left hand turns out of the FBI CRC in the event of an emergency.

11) Previous coordination for the Whitehall site identified that large trucks would have to enter the facility from Woodbine Road due to potential queuing issues along Rest Church Road. Is this still the case?

VDOT and the County indicated that this would still be a requirement.

12) Is there flexibility with the location of the proffer road at the Whitehall site?

VDOT and the County agreed that there is flexibility with where the proffer road is located on the Whitehall site.

Cardno

FBI Records Complex Traffic Impact Analysis Methodology Meeting

April 30, 2003
10:00 AM

VDOT

NAME	ORGANIZATION	PHONE	EMAIL
MARK MODJESKI	CARDNO	727 423 8007	mark.modjeski@CARDNO.COM
CHARLES HEARN	GSA	215-446-4630	CHUCK.HEARN@GSA.GOV
James May	GSA	215-446-4535	james.may@gsa.gov
LLOYD INGRAM	VDOT	540-984-5611	LLOYD.INGRAM@VDOT.VIRGINIA.GOV
Terry R. Shutt Jr	VDOT	540.332.9057	terry.shutt@vdot.virginia.gov
MATT SMITH	VDOT	(540) 984-5615	MATTHEW.SMITH@VDOT.VIRGINIA.GOV
TIM RHODES	VDOT	540.984.5630	timothy.rhodes@vdot.virginia.gov
Jeff Lineberry	VDOT	540 332-2265	jeff.lineberry@VDOT.virginia.gov
ANITA AYERBE	FBI	202.271.2129	ana.ayerbe@ic.fbi.gov
Teresa Fitzgerald	FBI	202-324-5820	teresa.fitzgerald@ic.fbi.gov
Courtenay Hoernemann	GSA	215 280 5381	courtenay.hoernemann@gsa.gov
Deb Henson	Cardno	717 433 7550	deborah.henson@cardno-gs.com
John Bishop	Frederick Co.	540 665 5651	jbishop@fcva.us
Patrick Barker	FredCo. EDA	540 665.0973	pbarker@yesfrederickva.com
GARY OATES	Fred. Co. Planning Commission	540-667-2001	OATESGR@AOL.COM
CHUCK DEHAVEN	FREDCO BOS	540.336.2800	cdehaven@crosslink.net

From: Short, Terry (VDOT) <Terry.ShortJR@VDOT.Virginia.gov>
Sent: Wednesday, May 27, 2015 4:15 PM
To: Mark Modjeski
Cc: Smith, Matthew, P.E. (VDOT); Deborah Henson; courtenay.hoernemann@gsa.gov; Campbell, Adam (VDOT); chuck.hearn@gsa.gov; Susan Joel
Subject: RE: FBI Complex Trip Gen and Distribution

Mark-

Thanks for the email. We would recommend the use of General Office Building (LU#710) by 1000 sq.ft GFA. The sample size of this land use category is 5 times that of code #715.

Regarding the Arcadia site:
Yes, a similar distribution to field count data is fine.

Regarding the Whitehall site:
Agreed.

Also, please submit a completed Chapter 527 Scoping form for each site so that we can sign off on the study parameters prior to a submittal.

Thanks.

Terry

Terry R. Short, Jr. | District Planning Manager
VDOT - Staunton District
811 Commerce Road
Staunton, VA 24401-9029
voice: 540/332-9057
fax: 540/332-2262
cell: 540/447-6350
e-mail: terry.shortJR@vdot.virginia.gov
? Please consider the environment before printing this email

From: Mark Modjeski [mailto:Mark.Modjeski@cardno.com]
Sent: Wednesday, May 27, 2015 10:43 AM
To: Short, Terry (VDOT)
Cc: Smith, Matthew, P.E. (VDOT); Deborah Henson; courtenay.hoernemann@gsa.gov; Campbell, Adam (VDOT); chuck.hearn@gsa.gov; Susan Joel
Subject: FBI Complex Trip Gen and Distribution

Hi Terry,

Attached is the Trip Generation for the proposed FBI Records site. We propose to use Land Use Code 715 based on the number of employees. The LUC 710 was reviewed per your request at the methodology meeting on April 30. Those trips are slightly less than the LUC 715. Is our use of LUC #715 ok with you?

Also, have you been able to decide on the following:

At the Arcadia site we are planning to use the traffic distribution, both to and from, for the respective AM/PM peak hours, as obtained from the traffic counts recently conducted.

For the Whitehall site, based on a review of the traffic count data from the Mr. Fuel study, the distribution rates were as follows:

* 40% I-81 N
* 40% I-81 S
* 10% US 11 S
* 5% US 11 N
* 5% Rest Church Rd

We recommend adjusting the above distribution as follows. This is in consideration that Mr. Fuel creates on and off trips during the same peak hour at the Interstate and in consideration of a review of the directional traffic flow at the local intersections in the study area. Our proposed distribution for the Records Facility is:

* 35% I-81 N
* 35% I-81 S
* 15% US 11 N
* 10% US 11 S
* 5% Rest Church Rd

Please review and comment on the reasonableness of our proposed distribution.

Mark Modjeski, PE
DIRECTOR OF TRAFFIC OPERATIONS
CARDNO TBE

Phone (+1) 813-221-0048 Fax (+1) 813-386-1953
Address 12481 Telecom Drive, Tampa, FL. 33637
Email mark.modjeski@cardno.com Web www.cardno.com Web www.cardnotbe.com
This email and its attachments may contain confidential and/or privileged information for the sole use of the intended recipient(s). All
electronically supplied data must be checked against an applicable hardcopy version which shall be the only document which Cardno
warrants accuracy. If you are not the intended recipient, any use, distribution or copying of the information contained in this email and its
attachments is strictly prohibited. If you have received this email in error, please email the sender by replying to this message and
immediately delete and destroy any copies of this email and any attachments. The views or opinions expressed are the author’s own and
may not reflect the views or opinions of Cardno.

PRE-SCOPE OF WORK MEETING FORM

Information on the Project
Traffic Impact Analysis Base Assumptions

The applicant is responsible for entering the relevant information and submitting the form to VDOT and the locality no less than three (3) business days prior to the meeting. If a form is not received by this deadline, the scope of work meeting may be postponed.

Contact Information	
Consultant Name: Tele: E-mail:	Cardno 813-221-0048 or 727-423-8007 Mark.Modjeski@cardno.com
Developer/Owner Name: Tele: E-mail:	General Services Administration 215-446-4710 courtenay.hoernemann@gas.gov

Project Information				
Project Name:	FBI Central Records Complex		Locality/County:	Frederick
Project Location: (Attach regional and site specific location map)	Arcadia site attached			
Submission Type	Comp Plan ☐	Rezoning ☐	Site Plan ☒	Subd Plat ☐
Project Description: (Including details on the land use, acreage, phasing, access location, etc. Attach additional sheet if necessary)	256,425 total square footage data center including records storage building, support area, visitor screening facility, service entrance and guard booth.			
Proposed Use(s): (Check all that apply; attach additional pages as necessary)	Residential ☐	Commercial ☐	Mixed Use ☐	Other ☒
	Residential Uses(s) Number of Units: _____ ITE LU Code(s): _____ _____ _____ **Commercial Use(s)** ITE LU Code(s): _____ _____ _____ Square Ft or Other Variable:		**Other Use(s)** ITE LU Code(s): 710 Independent Variable(s): 256K SF	
Total Peak Hour Trip Projection:	Less than 100 ☐	100 – 499 ☒	500 – 999 ☐	1,000 or more ☐

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Traffic Impact Analysis Assumptions			
Study Period	Existing Year: 2015	Build-out Year: 2019	Design Year: 2019
Study Area Boundaries (Attach map)	North: Independence Drive	South: NA	
	East: NA	West: US 50	
External Factors That Could Affect Project (Planned road improvements, other nearby developments)	Future Route 37 Bypass and ramps.		
Consistency With Comprehensive Plan (Land use, transportation plan)	TBD		
Available Traffic Data (Historical, forecasts)	ADT		
Trip Distribution (Attach sketch)	Road Name: Attached	Road Name:	
	Road Name:	Road Name:	
Annual Vehicle Trip Growth Rate:	TBD	Peak Period for Study (check all that apply)	☒ AM ☒ PM ☐ SAT
		Peak Hour of the Generator	
Study Intersections and/or Road Segments (Attach additional sheets as necessary)	1.(US 17 and Independence Drive	6.	
	2.US 17 and Victory Road	7.	
	3.	8.	
	4.	9.	
	5.	10.	
Trip Adjustment Factors	Internal allowance: ☐ Yes ☒ No Reduction: 0% trips	Pass-by allowance: ☐ Yes ☒ No Reduction: 0% trips	
Software Methodology	☒ Synchro ☐ HCS (v.2000/+) ☐ aaSIDRA ☐ CORSIM ☐ Other _____		
Traffic Signal Proposed or Affected (Analysis software to be used, progression speed, cycle length)	None, Warrant 1 of a warrant analysis will be performed		

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Improvement(s) Assumed or to be Considered	Turn Bays and signal at Independence Drive
Background Traffic Studies Considered	None
Plan Submission	☐ Master Development Plan (MDP) ☐ Generalized Development Plan (GDP) ☒ Preliminary/Sketch Plan ☐ Other Plan type (Final Site, Subd. Plan)
Additional Issues to be Addressed	☐ Queuing analysis ☐ Actuation/Coordination ☐ Weaving analysis ☐ Merge analysis ☐ Bike/Ped Accommodations ☒ Intersection(s) ☐ TDM Measures ☐ Other _____

NOTES on ASSUMPTIONS: ____

SIGNED: Mark Modjeski DATE: 5/29/15
Applicant or Consultant

PRINT NAME: MARK MODJESKI
Applicant or Consultant

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Arcadia Generation and Distribution

General Office Building (Land Use Code #710)							
By 1000 SFGFLA on a Weekday							
AM Peak Hour				PM Peak Hour			
Fitted curve equation:LN(T)=0.80Ln(x) + 1.55				Fitted curve equation: T=1.12(x) + 78.81			
	No. of 1000 sf =	256			No. of 1000 sf =		256
	LN(T)	5.9861			Calculated trips (T) =		366
	Calculated trips (T) =	398					
In (%) =	88	350			In (%) =	17	62
Out (%) =	12	48			Out (%) =	83	304

The proposed distribution will be modeled using the directional distribution as calculated from the collected AM and PM turning movement counts and are indicated below:

% DISTRIBUTION			
AM	**TO**		
North	**South**	**East**	**West**
399	441	0	219
38%	**41%**	0%	**21%**
AM	**FROM**		
609	407		43
58%	**38%**		**4%**
PM	**TO**		
North	**South**	**East**	**West**
869	456	0	140
59%	**31%**	0%	**10%**
PM	**FROM**		
North	**South**	**East**	**West**
533	722		211
36%	**49%**		**15%**

PRE-SCOPE OF WORK MEETING FORM

Information on the Project
Traffic Impact Analysis Base Assumptions

The applicant is responsible for entering the relevant information and submitting the form to VDOT and the locality no less than three (3) business days prior to the meeting. If a form is not received by this deadline, the scope of work meeting may be postponed.

Contact Information	
Consultant Name: Tele: E-mail:	hCardno 813-221-0048 or 727-423-8007 Mark.Modjeski@cardno.com
Developer/Owner Name: Tele: E-mail:	General Services Administration 215-446-4710 courtenay.hoernemann@gas.gov

Project Information				
Project Name:	FBI Central Records Complex		Locality/County:	Frederick
Project Location: (Attach regional and site specific location map)	Rest Church Road and US 11			
Submission Type	Comp Plan ☐	Rezoning ☐	Site Plan ☒	Subd Plat ☐
Project Description: (Including details on the land use, acreage, phasing, access location, etc. Attach additional sheet if necessary)	256,425 total square footage data center including records storage building, support area, visitor screening facility, service entrance and guard booth.			
Proposed Use(s): (Check all that apply; attach additional pages as necessary)	Residential ☐	Commercial ☐	Mixed Use ☐	Other ☒
	Residential Uses(s) Number of Units: _____ ITE LU Code(s): _____ _____ _____ **Commercial Use(s)** ITE LU Code(s): _____ _____ _____ Square Ft or Other Variable:		**Other Use(s)** ITE LU Code(s): 710 Independent Variable(s): 256K SF	
Total Peak Hour Trip Projection:	Less than 100 ☐	100 – 499 ☒	500 – 999 ☐	1,000 or more ☐

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Traffic Impact Analysis Assumptions			
Study Period	Existing Year: 2015	Build-out Year: 2019	Design Year: 2019
Study Area Boundaries (Attach map)	North: West Virginia County Line	South: Woodbine Road	
	East: RXR	West: US 11	
External Factors That Could Affect Project (Planned road improvements, other nearby developments)	None		
Consistency With Comprehensive Plan (Land use, transportation plan)	TBD		
Available Traffic Data (Historical, forecasts)	Historical ADT and Mr. Fuel Study		
Trip Distribution (Attach sketch)	Road Name: Attached	Road Name:	
	Road Name:	Road Name:	
Annual Vehicle Trip Growth Rate:	1.5%	Peak Period for Study (check all that apply)	☒ AM ☒ PM ☐ SAT
		Peak Hour of the Generator	
Study Intersections and/or Road Segments (Attach additional sheets as necessary)	1.Rest Church Rd., and I-81 west side ramp	6.	
	2.Rest Church Rd. and I-81 east side ramp	7.	
	3.Rest Church Rd. and US 11	8.	
	4.	9.	
	5.	10.	
Trip Adjustment Factors	Internal allowance: ☐ Yes ☒ No Reduction: 0% trips	Pass-by allowance: ☐ Yes ☒ No Reduction: 0% trips	
Software Methodology	☒ Synchro ☐ HCS (v.2000/+) ☐ aaSIDRA ☐ CORSIM ☐ Other _____		
Traffic Signal Proposed or Affected (Analysis software to be used, progression speed, cycle length)	All three intersection identified above with existing cycle length		

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Improvement(s) Assumed or to be Considered	Possible Turn Bays
Background Traffic Studies Considered	Mr. Fuel Study
Plan Submission	☐ Master Development Plan (MDP) ☐ Generalized Development Plan (GDP) ☒ Preliminary/Sketch Plan ☐ Other Plan type (Final Site, Subd. Plan)
Additional Issues to be Addressed	☐ Queuing analysis ☐ Actuation/Coordination ☐ Weaving analysis ☐ Merge analysis ☐ Bike/Ped Accommodations ☒ Intersection(s) ☐ TDM Measures ☐ Other _____

NOTES on ASSUMPTIONS: ____

SIGNED: Mark Modjeski DATE: 5/29/15
Applicant or Consultant

PRINT NAME: MARK MODJESKI
Applicant or Consultant

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

Whitehall Generation and Distribution

General Office Building (Land Use Code #710)							
By 1000 SFGFLA on a Weekday							
AM Peak Hour				PM Peak Hour			
Fitted curve equation:LN(T)=0.80Ln(x) + 1.55				Fitted curve equation: T=1.12(x) + 78.81			
	No. of 1000 sf =	256			No. of 1000 sf =		256
	LN(T)	5.9861			Calculated trips (T) =		366
	Calculated trips (T) =	398					
In (%) =	88	350			In (%) =	17	62
Out (%) =	12	48			Out (%) =	83	304

For the ***Whitehall*** site, based on a review of the traffic count data from the Mr. Fuel study, the distribution rates were as follows:

- 40% I-81 N
- 40% I-81 S
- 10% US 11 S
- 5% US 11 N
- 5% Rest Church Rd

We propose adjusting the above distribution as follows. This is in consideration that Mr. Fuel creates on and off trips during the same peak hour at the Interstate and in consideration of a review of the directional traffic flow at the local intersections in the study area. Our proposed distribution for the Records Facility is:

- 35% I-81 N
- 35% I-81 S
- 15% US 11 N
- 10% US 11 S
- 5% Rest Church Rd

APPENDIX B

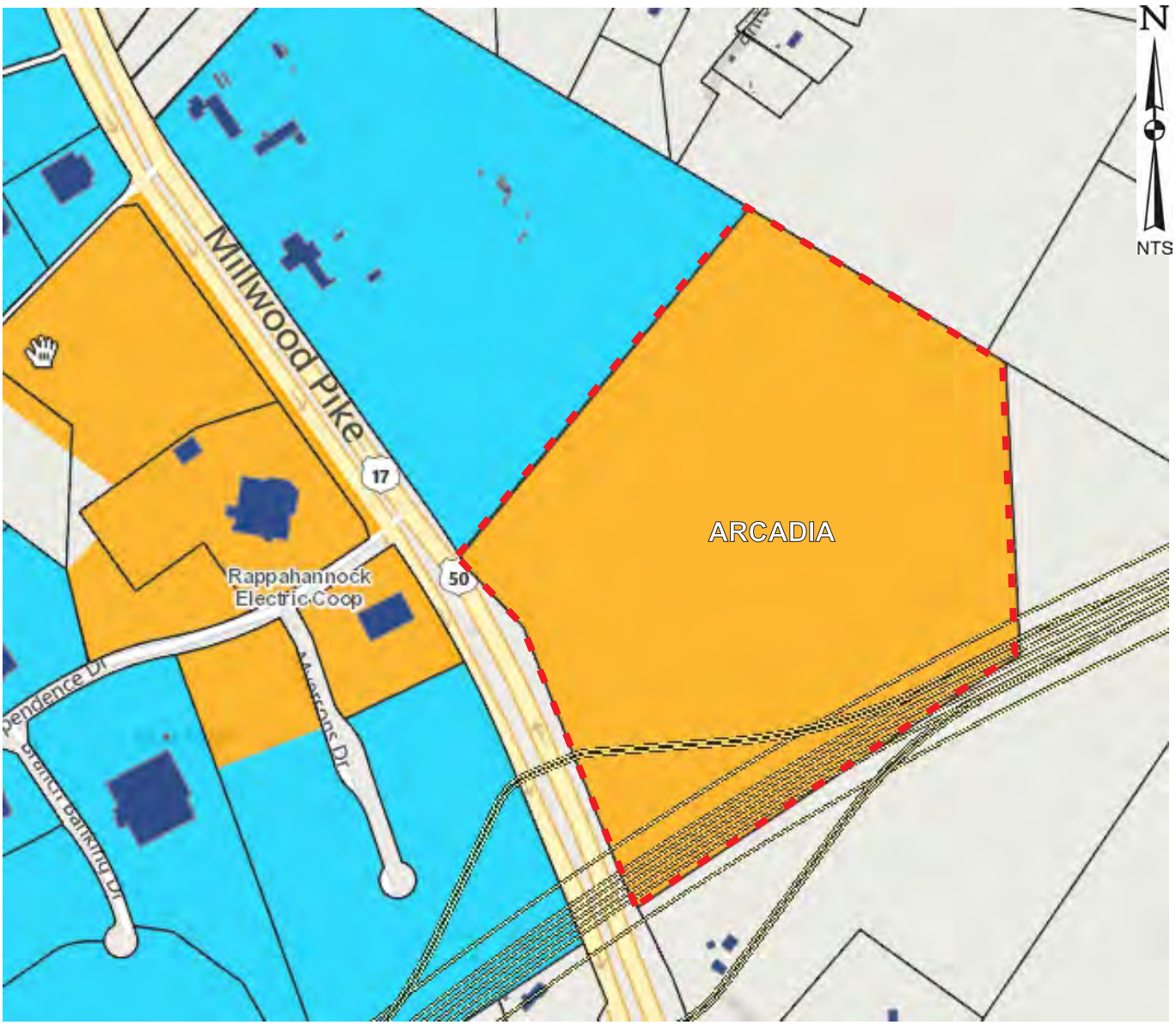
ARCADIA SITE FIGURES

Legend

- Study Intersections
- Site Boundary
- Proposed I-37 Interchange

Cardno

Figure 1-A
ARCADIA SITE
LOCATION

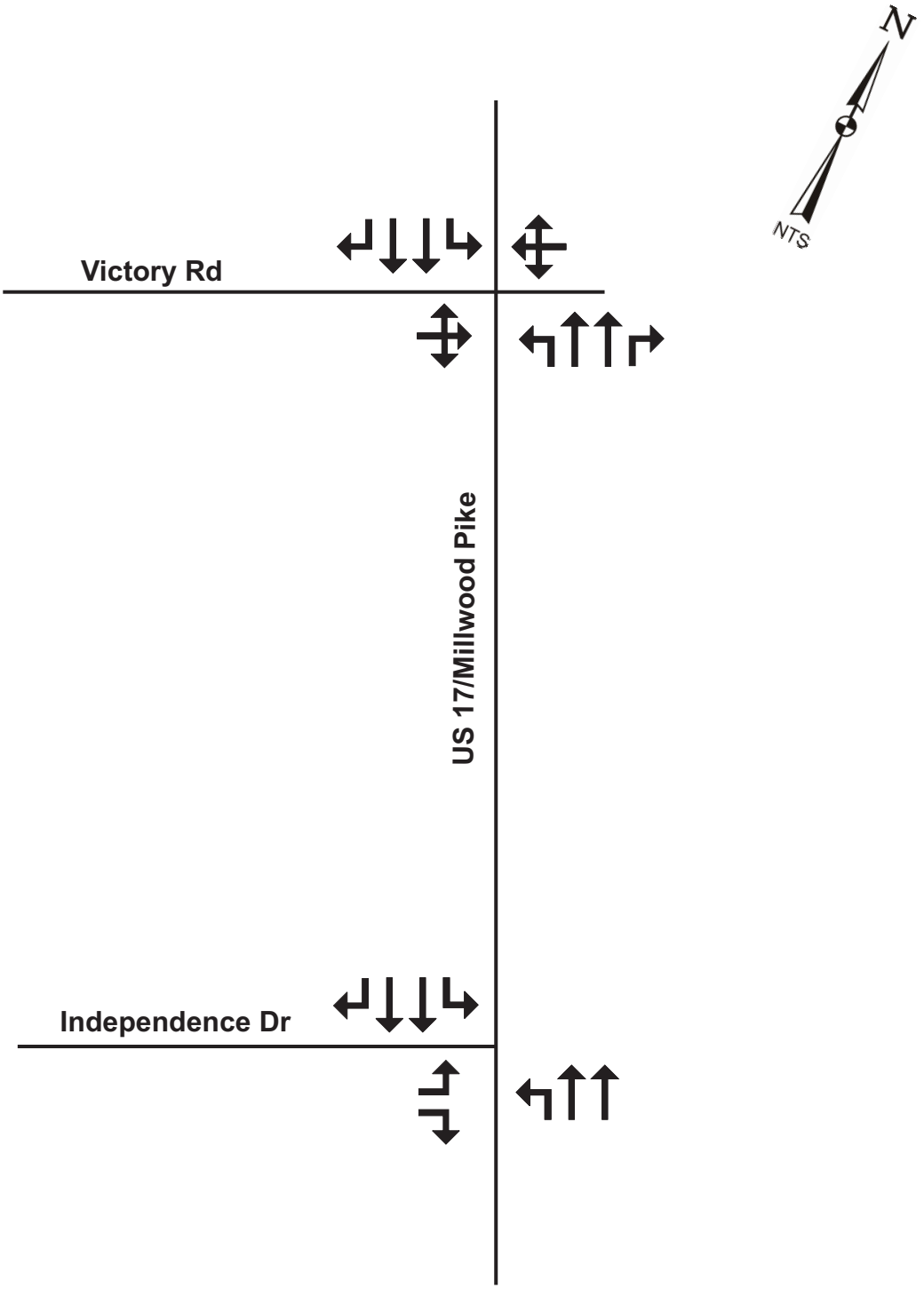


Legend

- B2 (Business, General District)
- M1 (Industrial, Light District)
- RA (Rural Area District)
- Property Boundary

Cardno

Figure 2-A
ARCADIA SITE
CURRENT ZONING MAP

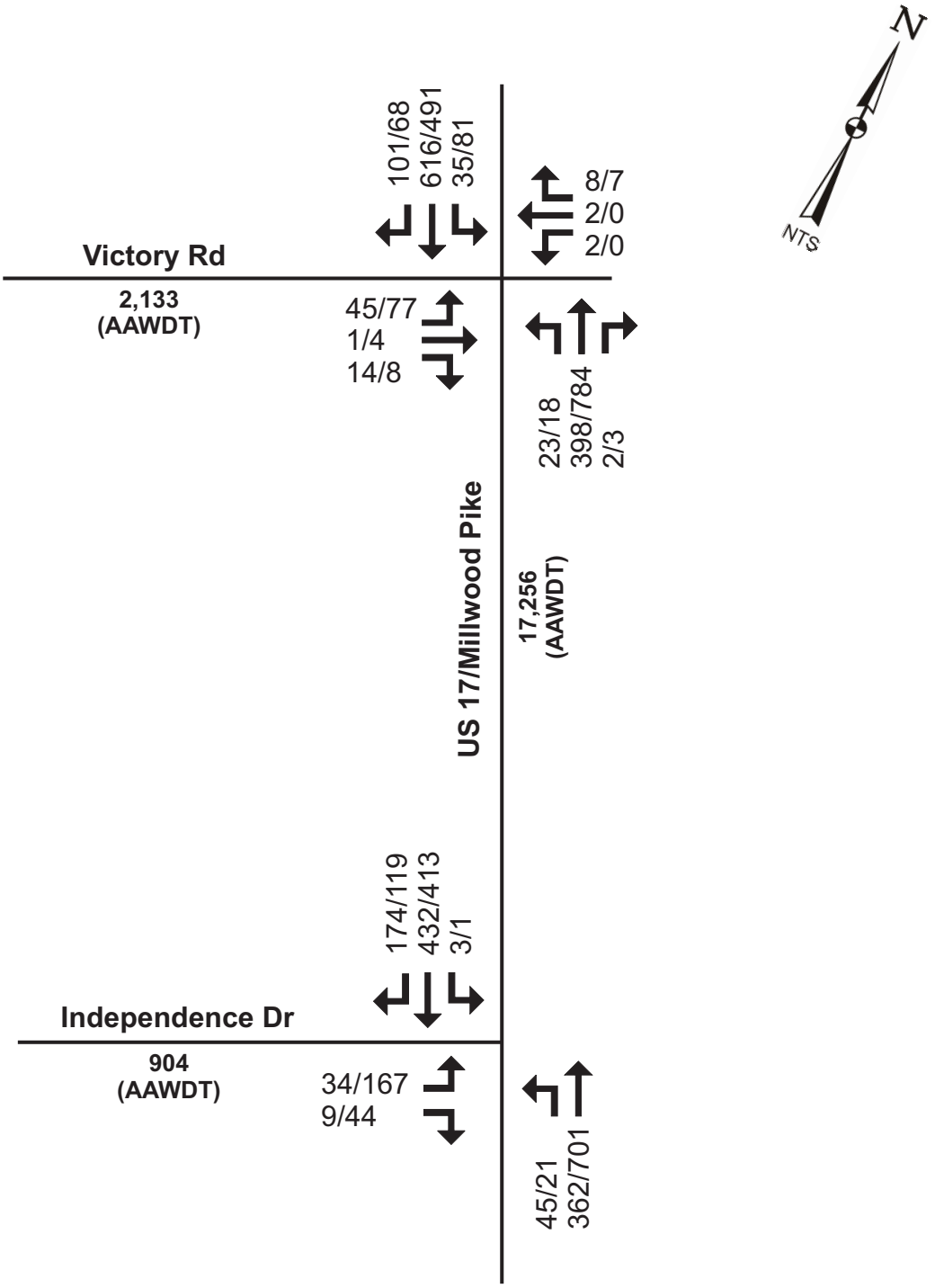


Legend

Lane Configuration

Cardno

Figure 3-A
ARCADIA SITE
EXISTING LANE GEOMETRY



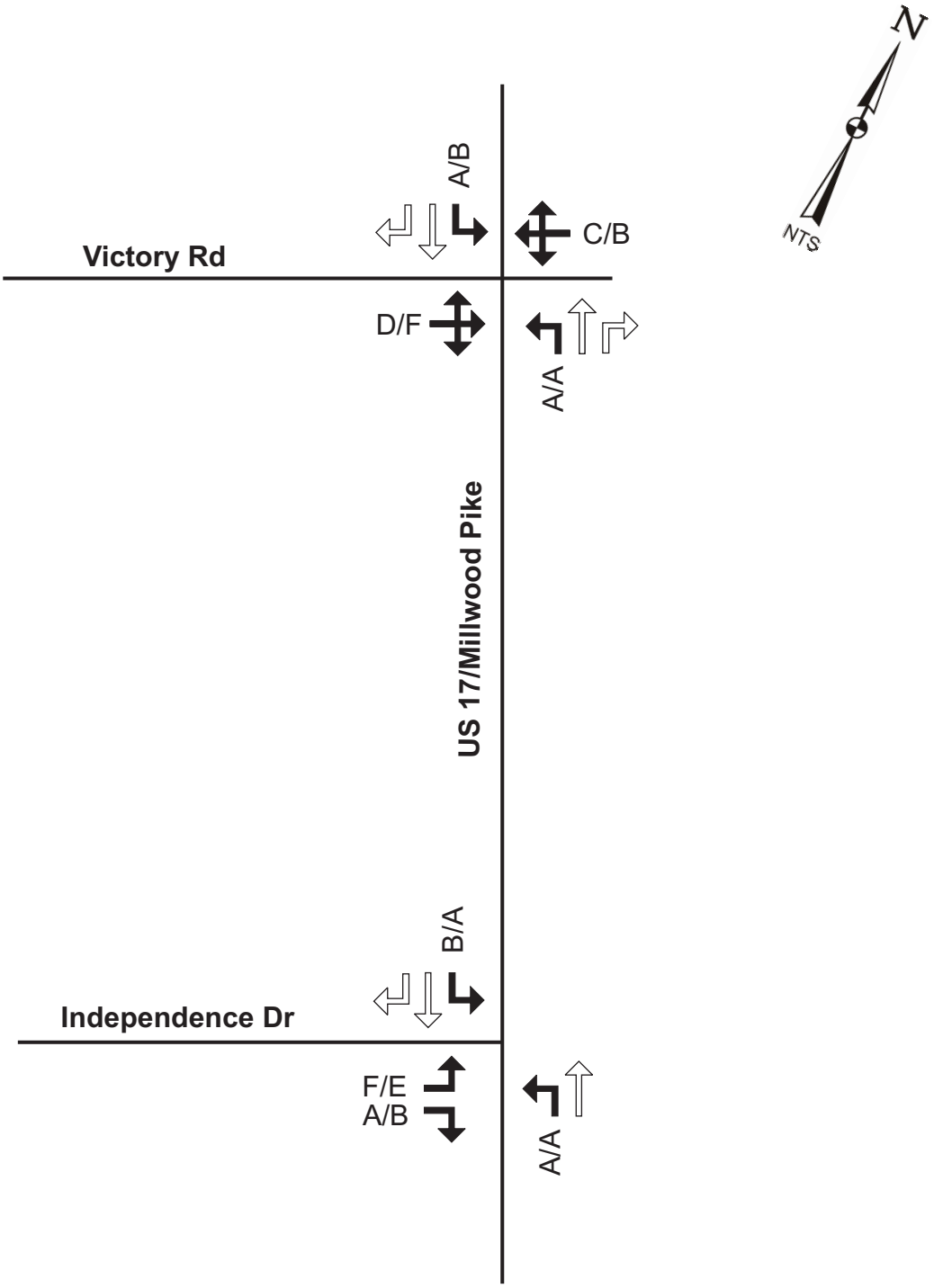
Legend

← XX/XX AM Peak Hour/PM Peak Hour Traffic Volume and Movement

(AAWDT) Annual Average Weekday Traffic

Figure 4-A
ARCADIA SITE
EXISTING 2015 TURNING
MOVEMENT COUNTS

Cardno

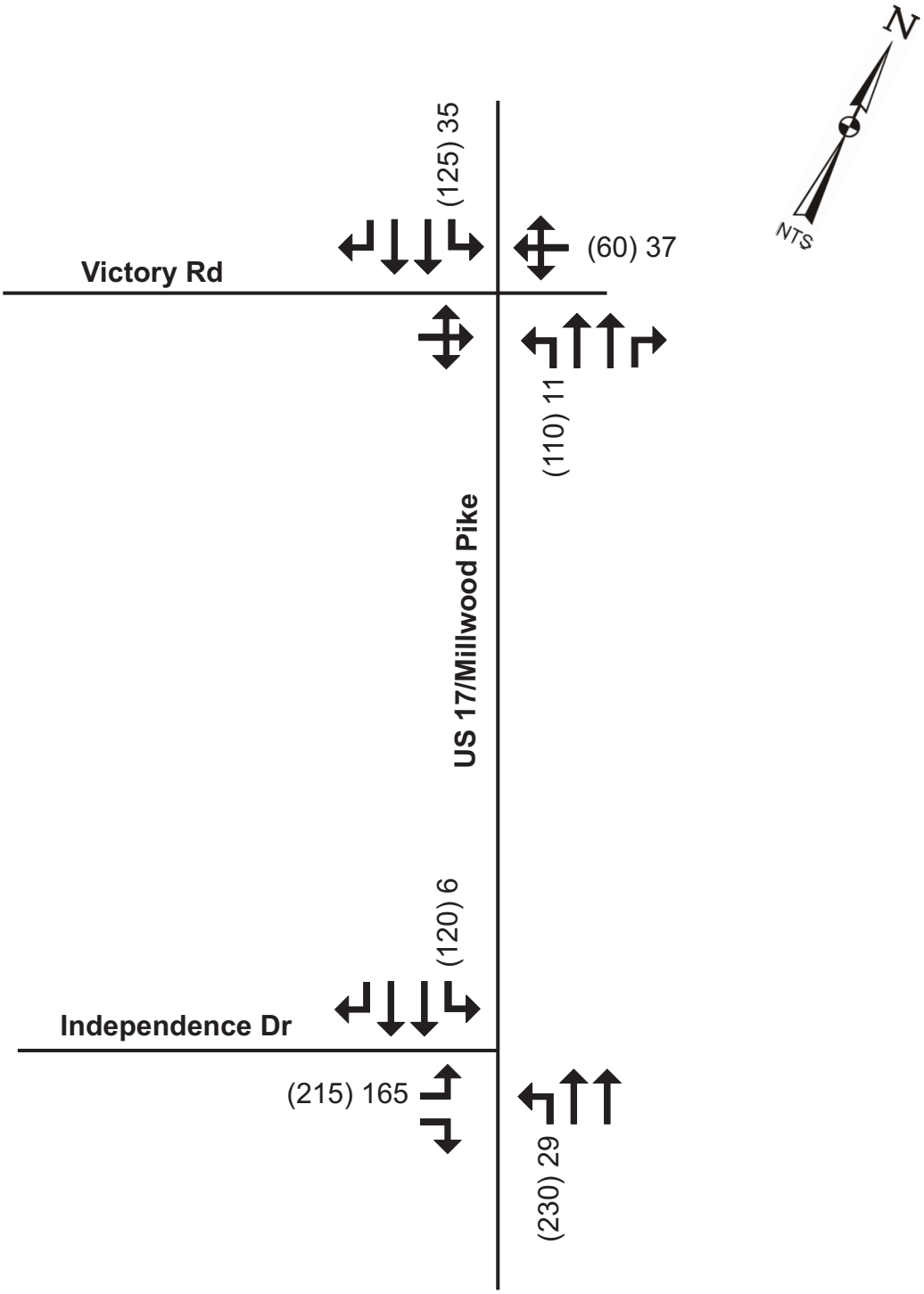


Legend

X/X AM Peak Hour/PM Peak Hour Level of Service by Lane Group

Cardno

Figure 5-A
ARCADIA SITE
EXISTING 2015 LEVEL OF SERVICE



Legend

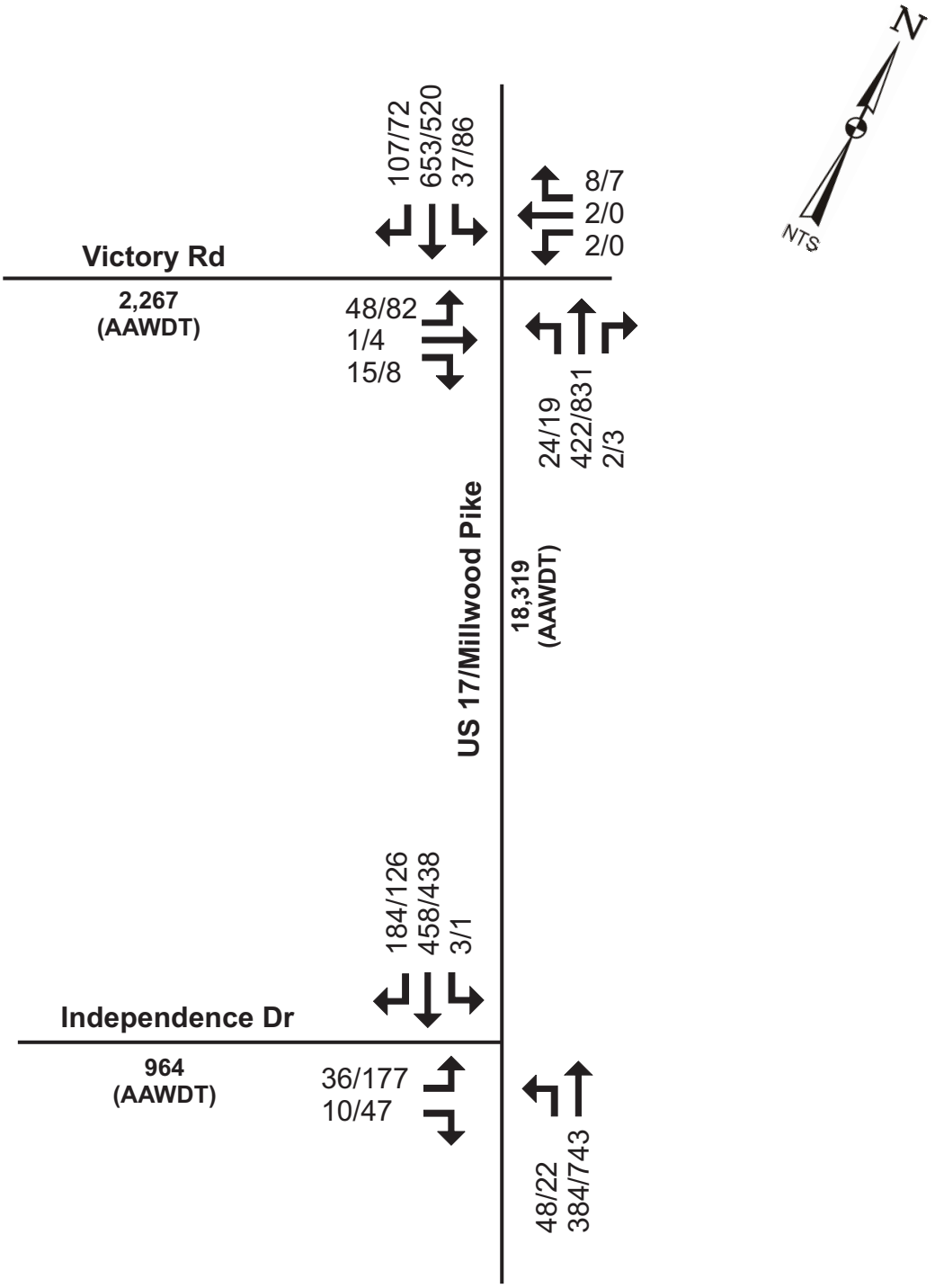
Lane Configuration

(XX) Existing Storage Length (ft.)

XX Peak Hour Queue Length (ft.)

Cardno

Figure 6-A
ARCADIA SITE
EXISTING 2015 QUEUE ANALYSIS



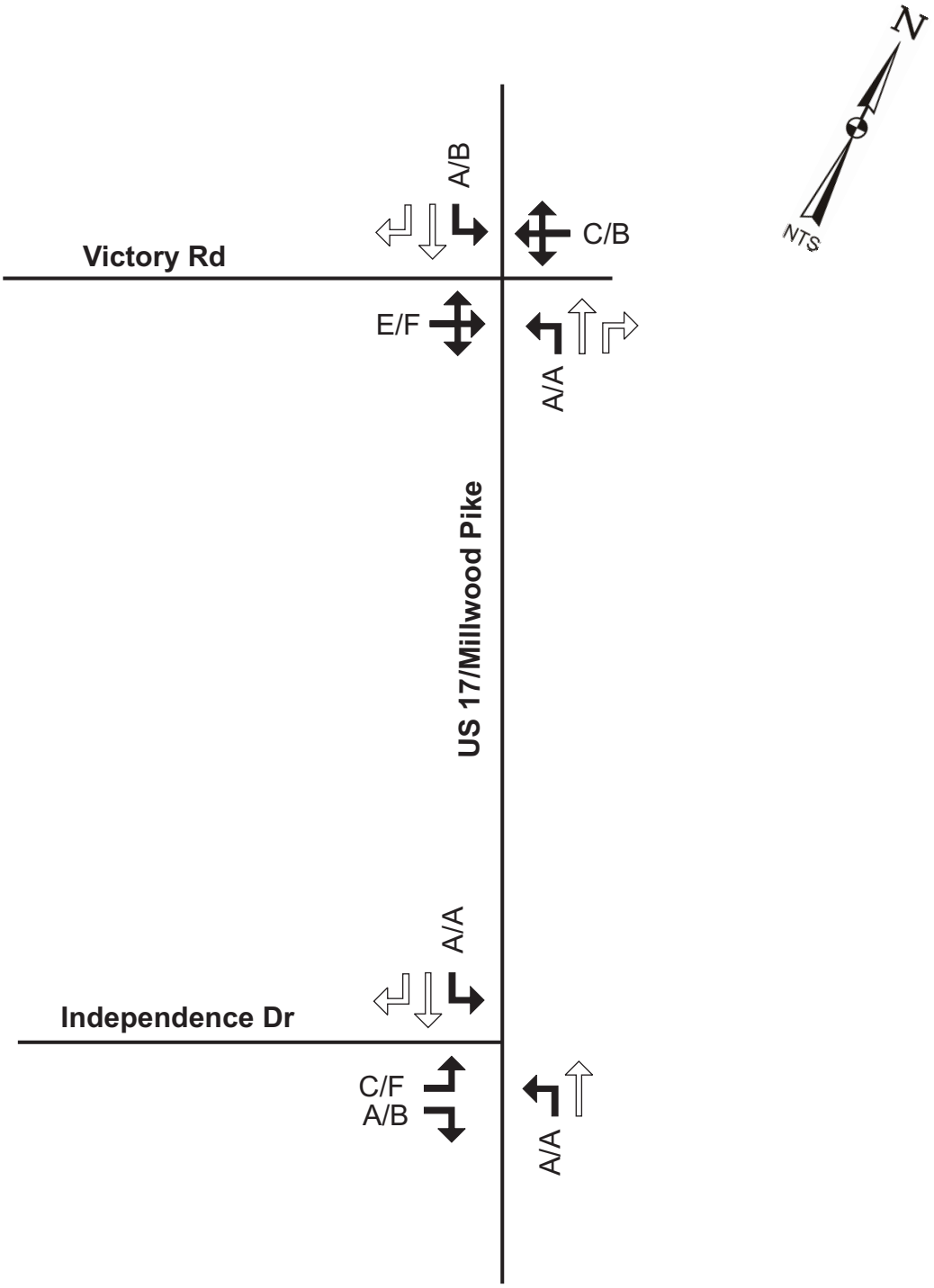
Legend

XX/XX — AM Peak Hour/PM Peak Hour Traffic Volume and Movement

(AAWDT) — Annual Average Weekday Traffic

Figure 7-A
ARCADIA SITE
PROPOSED 2019 TURNING
MOVEMENT COUNTS WITHOUT PROJECT

Cardno



Legend

← X/X AM Peak Hour/PM Peak Hour Level of Service by Lane Group

Figure 8-A
ARCADIA SITE
PROPOSED 2019 LEVEL
OF SERVICE WITHOUT PROJECT

Cardno

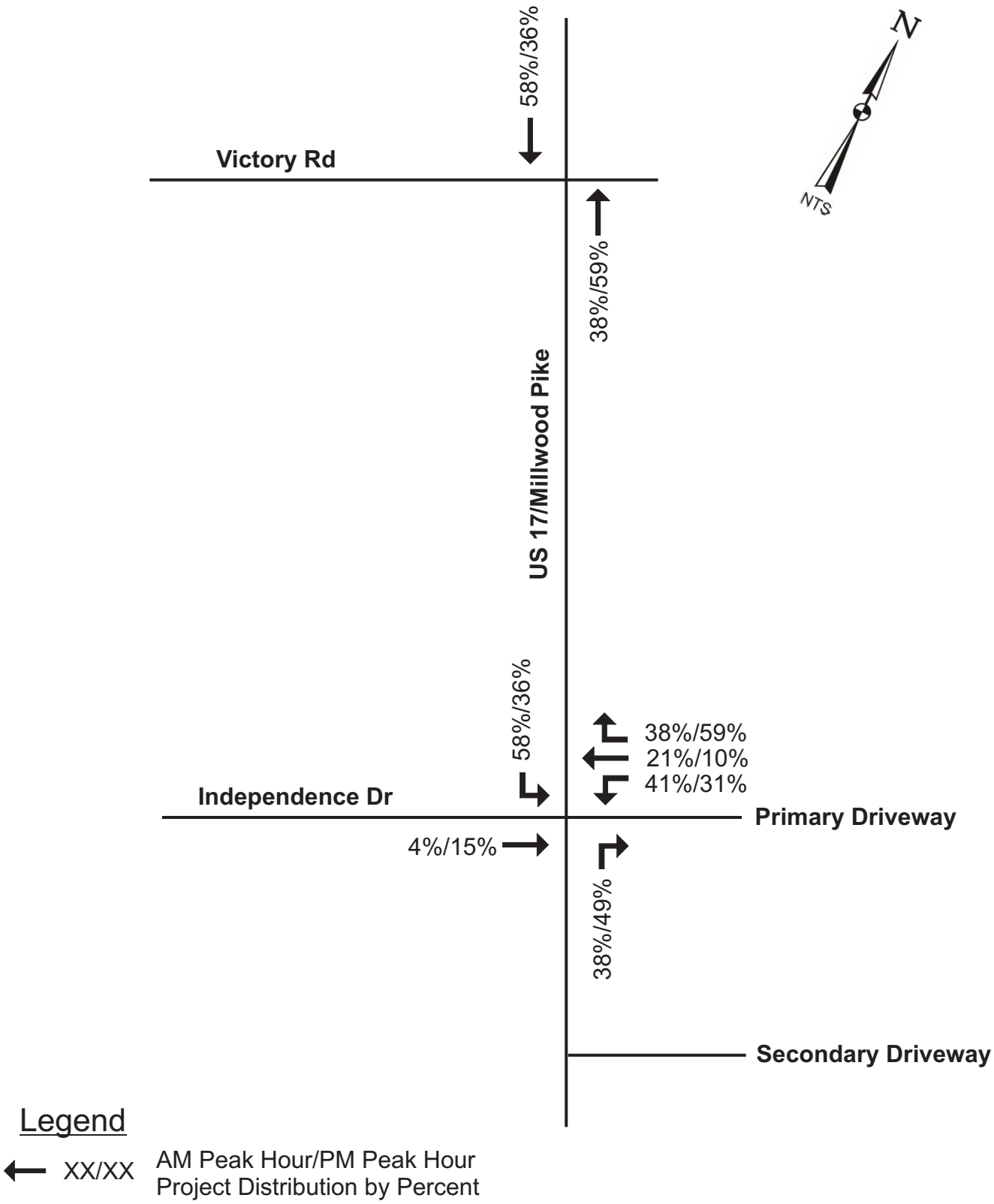


Figure 9-A
ARCADIA SITE
PROPOSED TRIP DISTRIBUTION

Cardno

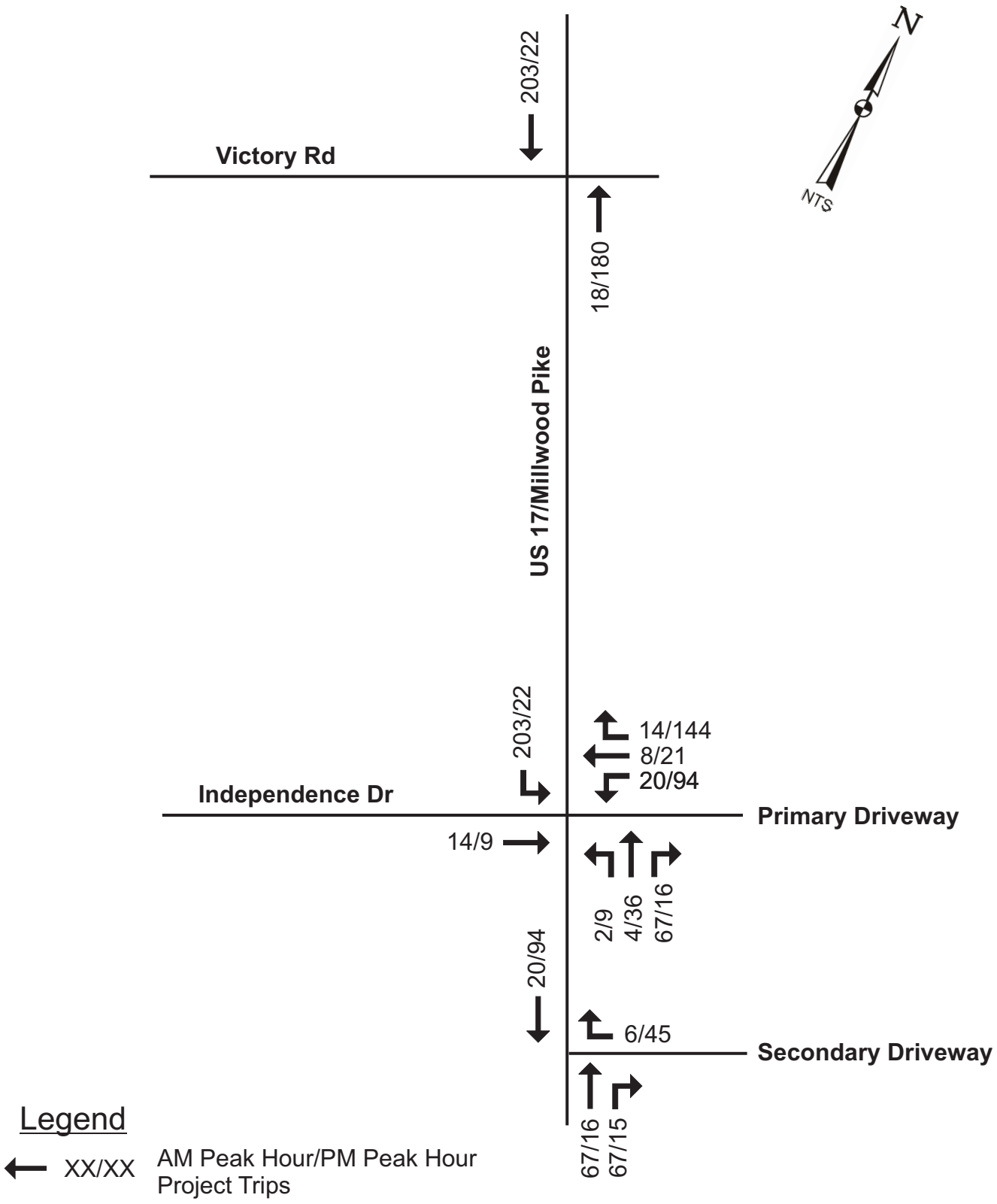


Figure 10-A
ARCADIA SITE
PROPOSED PROJECT TRIPS

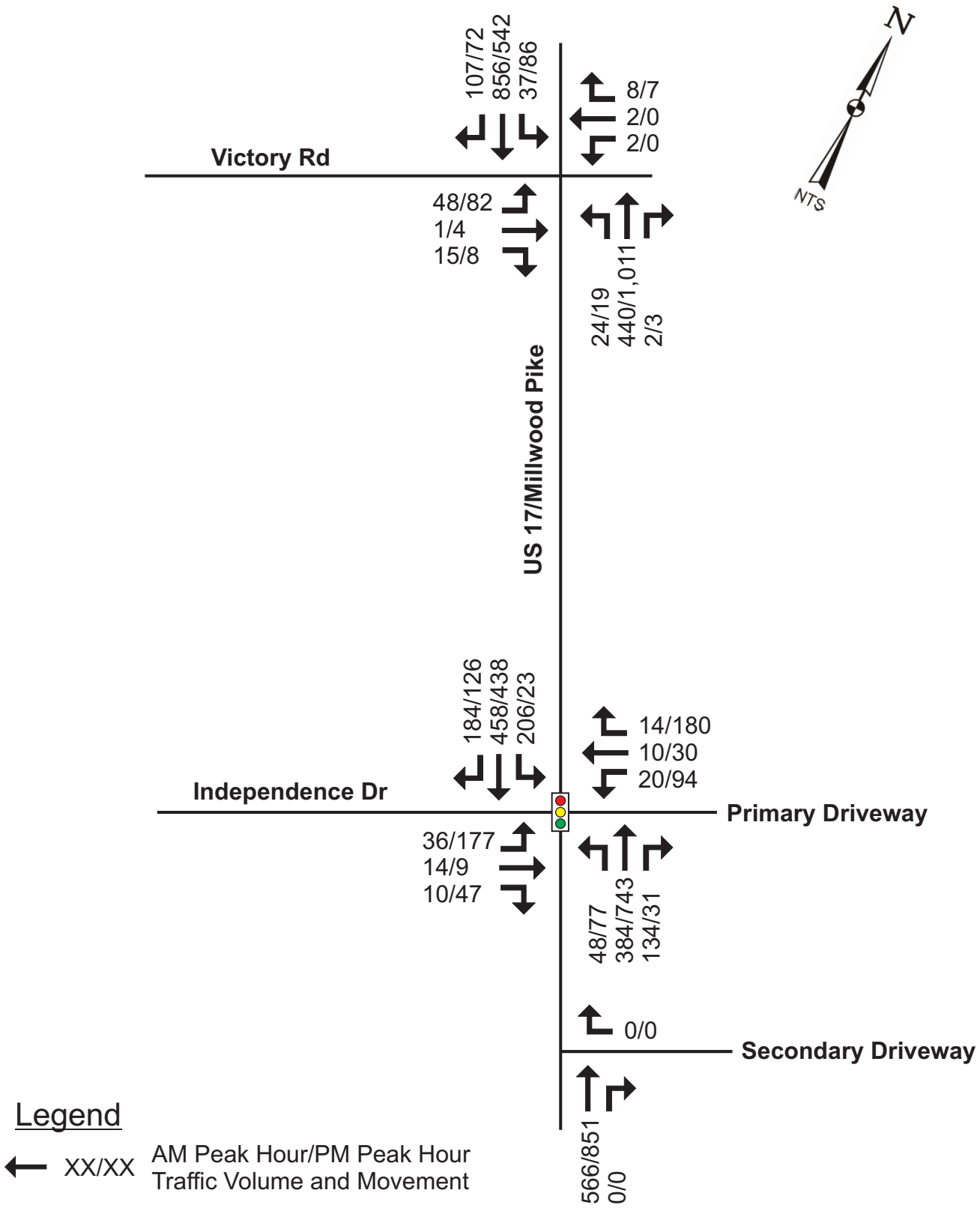
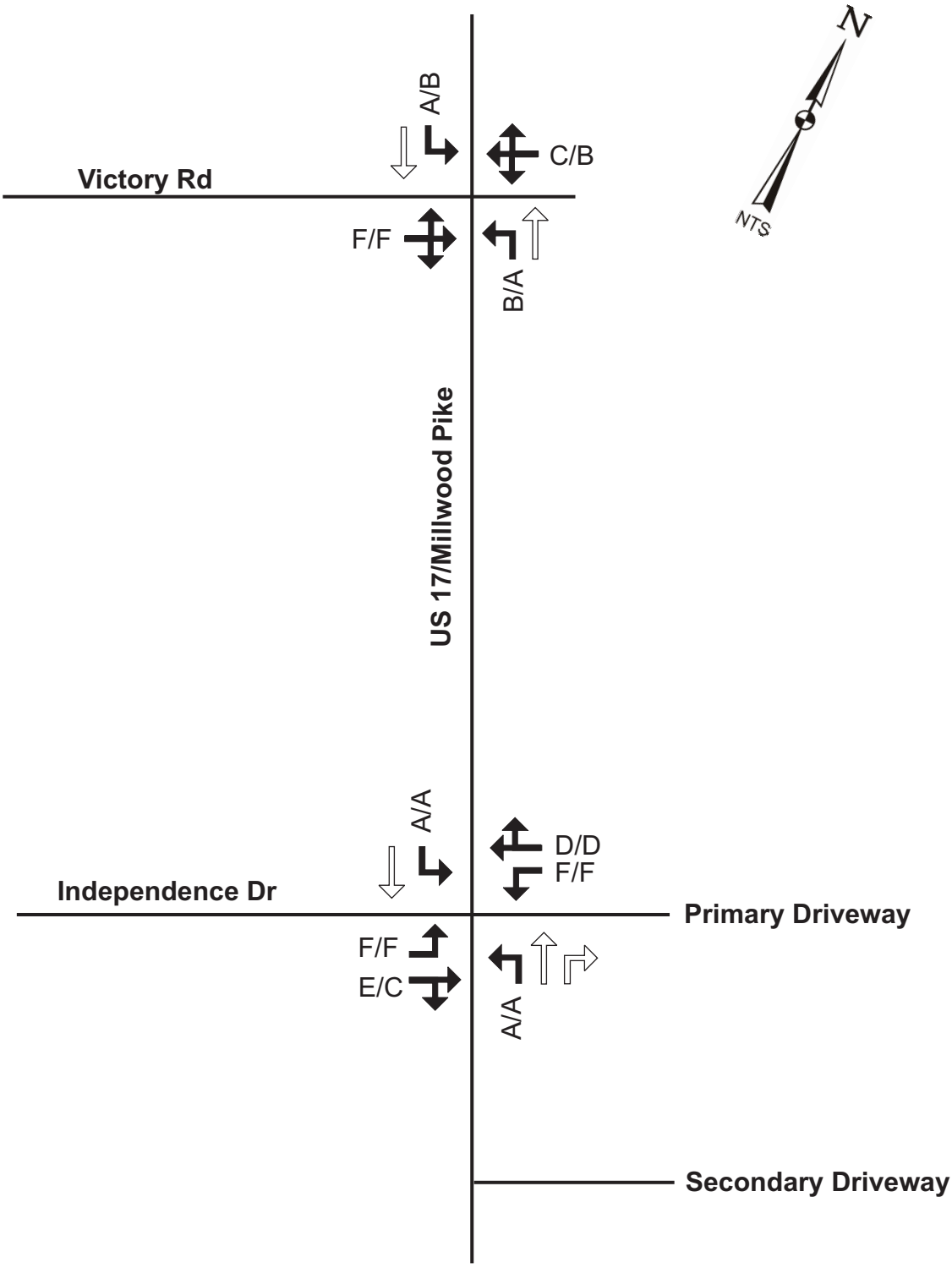


Figure 11-A
ARCADIA SITE
PROPOSED 2019 TURNING
MOVEMENT COUNTS WITH PROJECT

Cardno

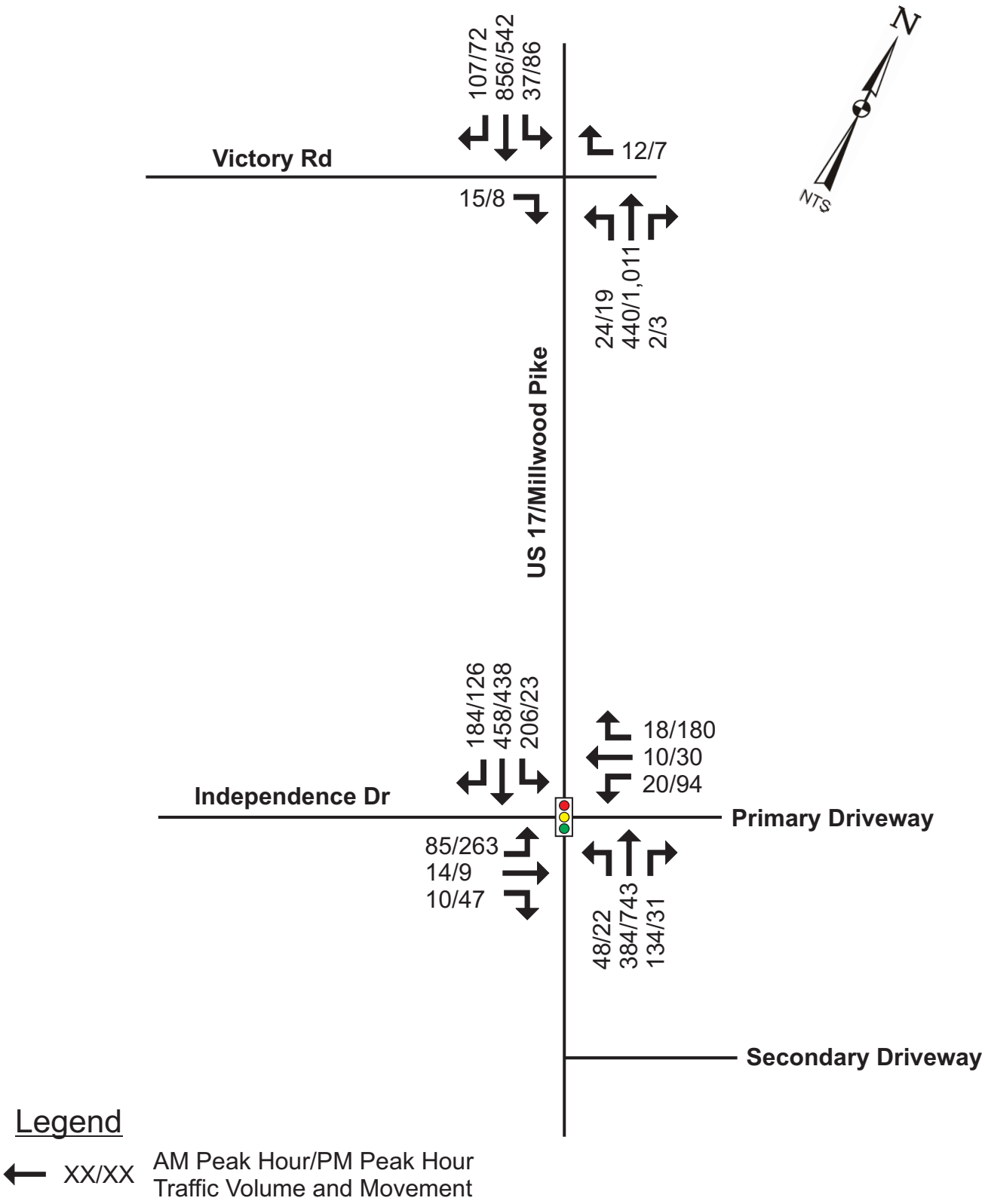


Legend

← X/X AM Peak Hour/PM Peak Hour Level of Service by Lane Group

Figure 12-A
ARCADIA SITE
PROPOSED 2019 LEVEL
OF SERVICE WITH PROJECT

Cardno

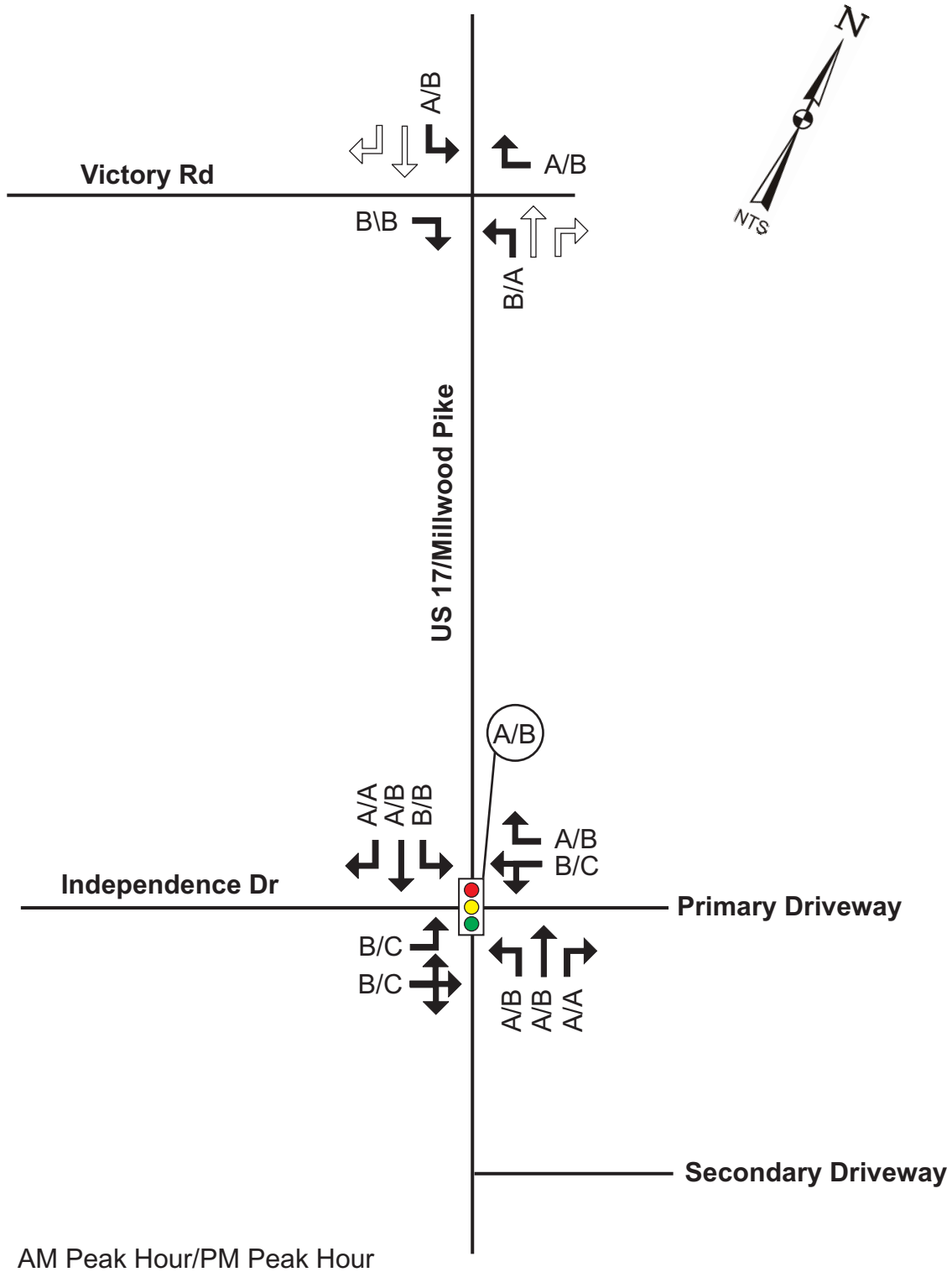


Legend

XX/XX AM Peak Hour/PM Peak Hour Traffic Volume and Movement

Figure 13-A
ARCADIA SITE
PROPOSED 2019 TURNING
MOVEMENT COUNTS WITH PROJECT
AND DIVERTED TRIPS

Cardno



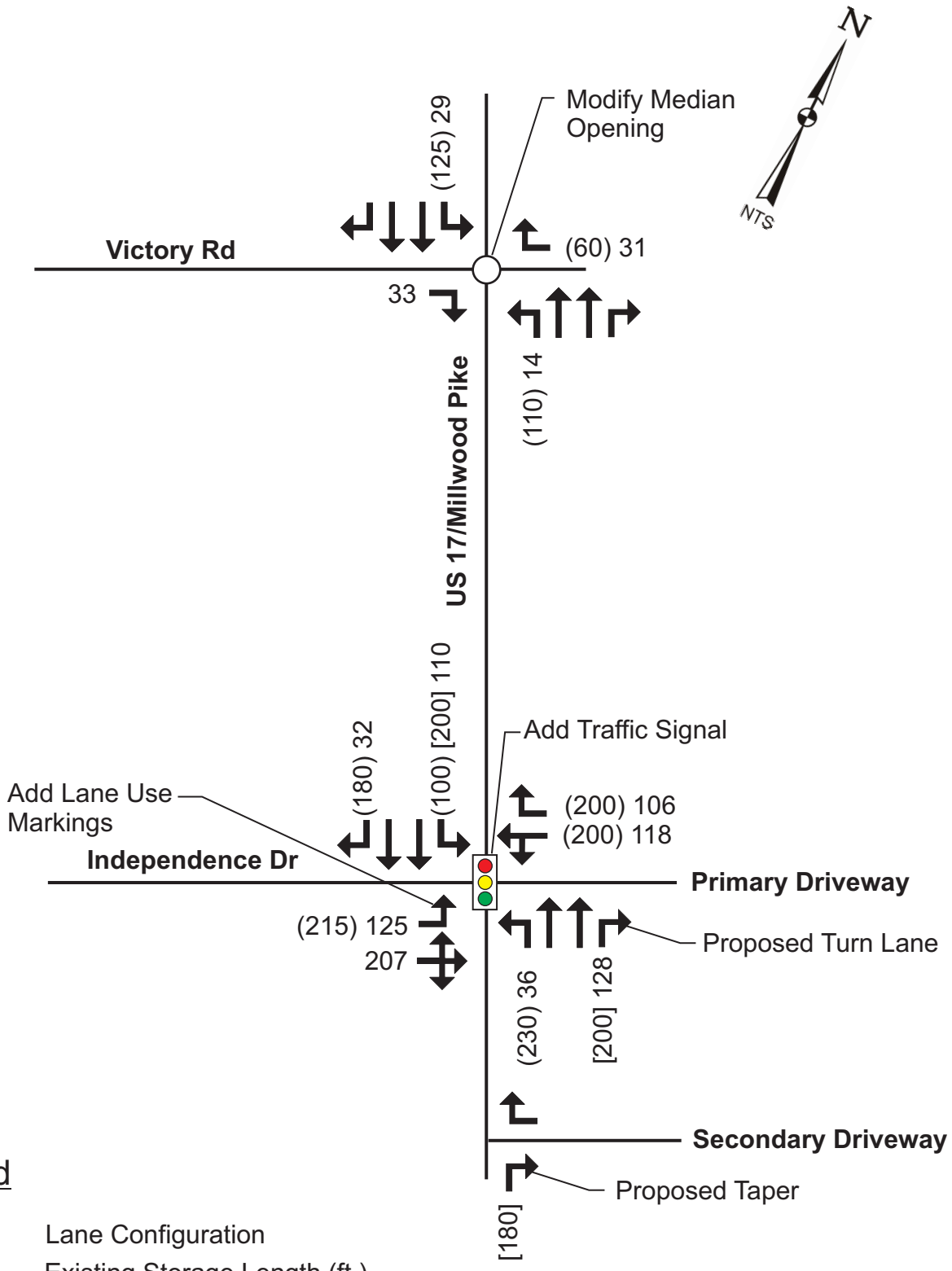
Legend

X/X — AM Peak Hour/PM Peak Hour Level of Service by Lane Group

(X/X) — AM Peak Hour/PM Peak Hour Level of Service Overall Intersection

Figure 14-A
ARCADIA SITE
PROPOSED 2019 LEVEL
OF SERVICE WITH PROJECT
AND IMPROVEMENTS

Cardno



Legend

←	Lane Configuration
(XX)	Existing Storage Length (ft.)
[XX]	Proposed Storage Length (ft.)
XX	Peak Hour Queue Length (ft.)

Figure 15-A
ARCADIA SITE
PROPOSED 2019 WITH
IMPROVEMENTS QUEUE ANALYSIS

Cardno

APPENDIX C

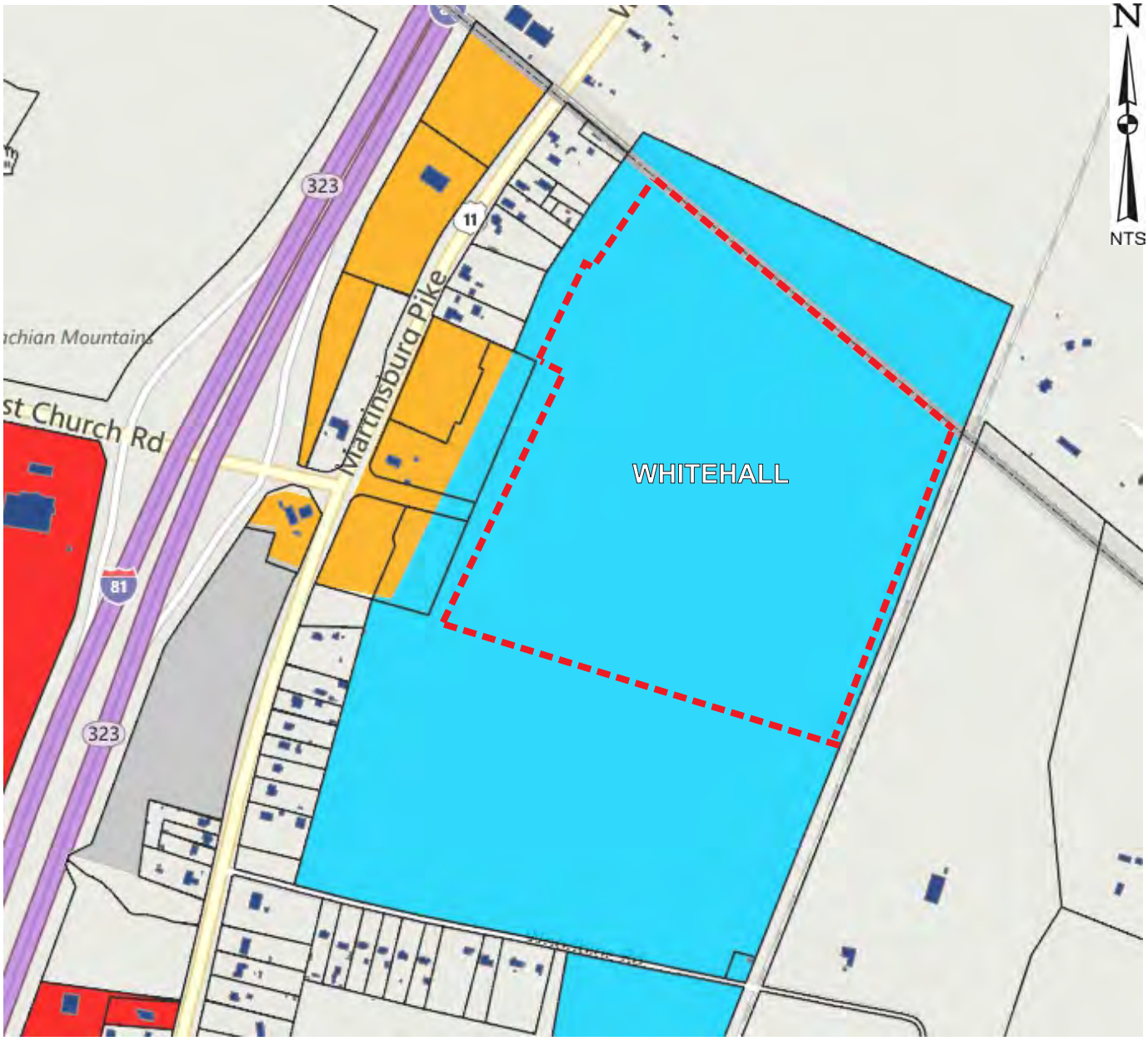
WHITEHALL SITE FIGURES

Legend

- Study Intersections
- Site Boundary

Cardno

Figure 1-W
WHITEHALL SITE
LOCATION

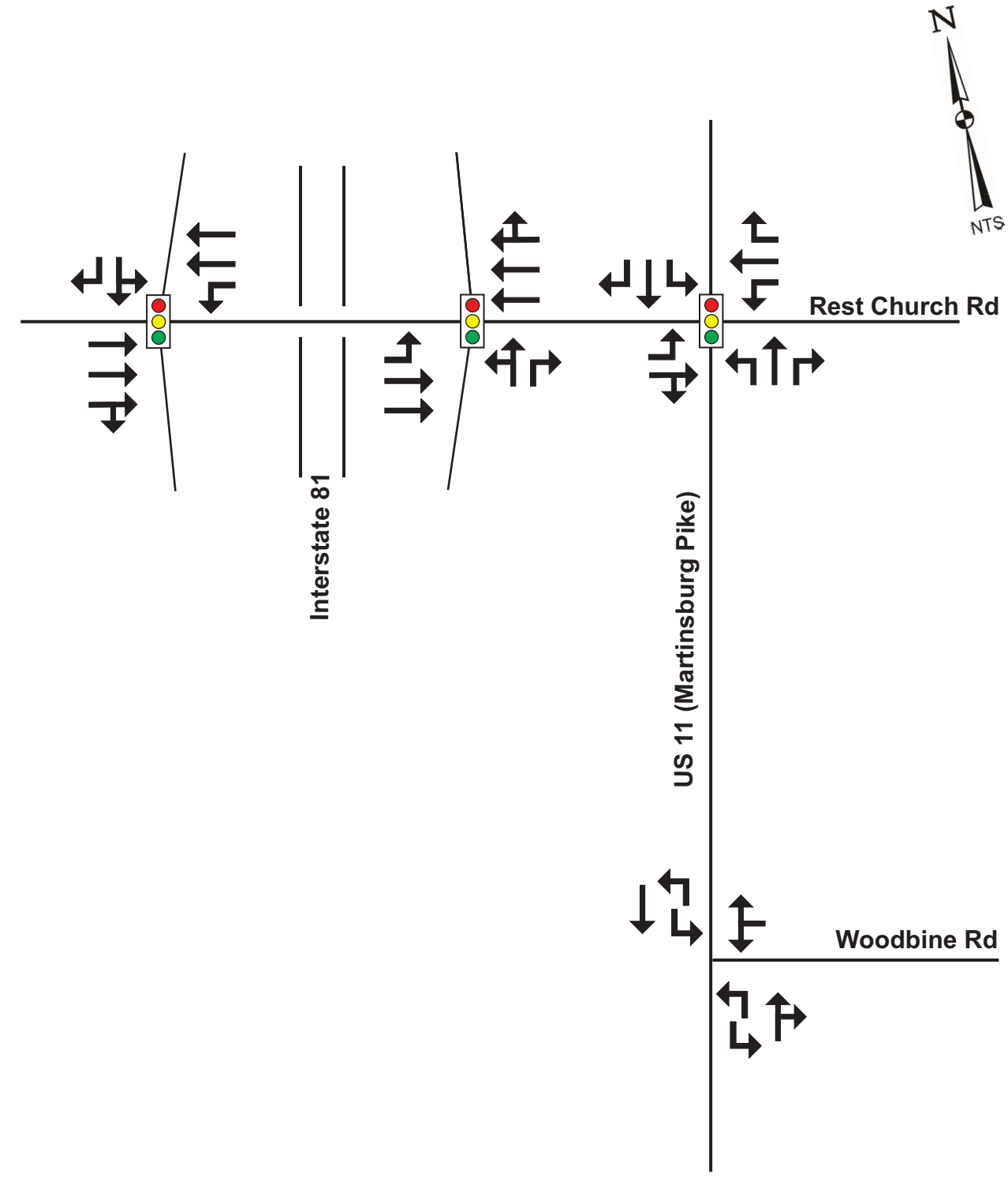


Legend

- B2 (Business, General District)
- B3 (Business, Industrial Transition District)
- M1 (Industrial, Light District)
- M2 (Industrial, General District)
- RA (Rural Area District)
- Property Boundary

Cardno

Figure 2-W
WHITEHALL SITE
CURRENT ZONING MAP



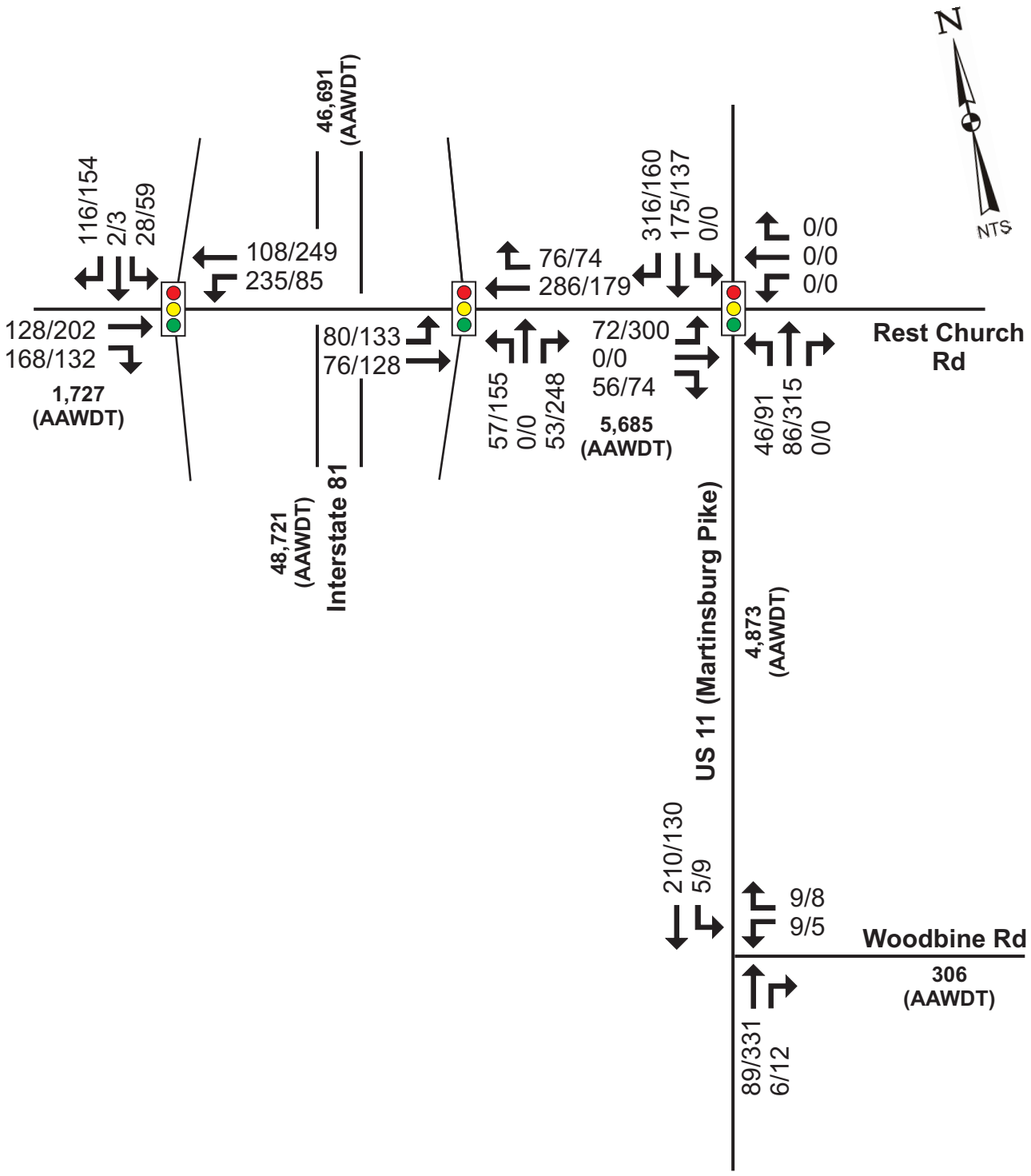
Legend

Existing Traffic Signal

Lane Configuration

Cardno

Figure 3-W
WHITEHALL SITE
EXISTING LANE GEOMETRY



Legend

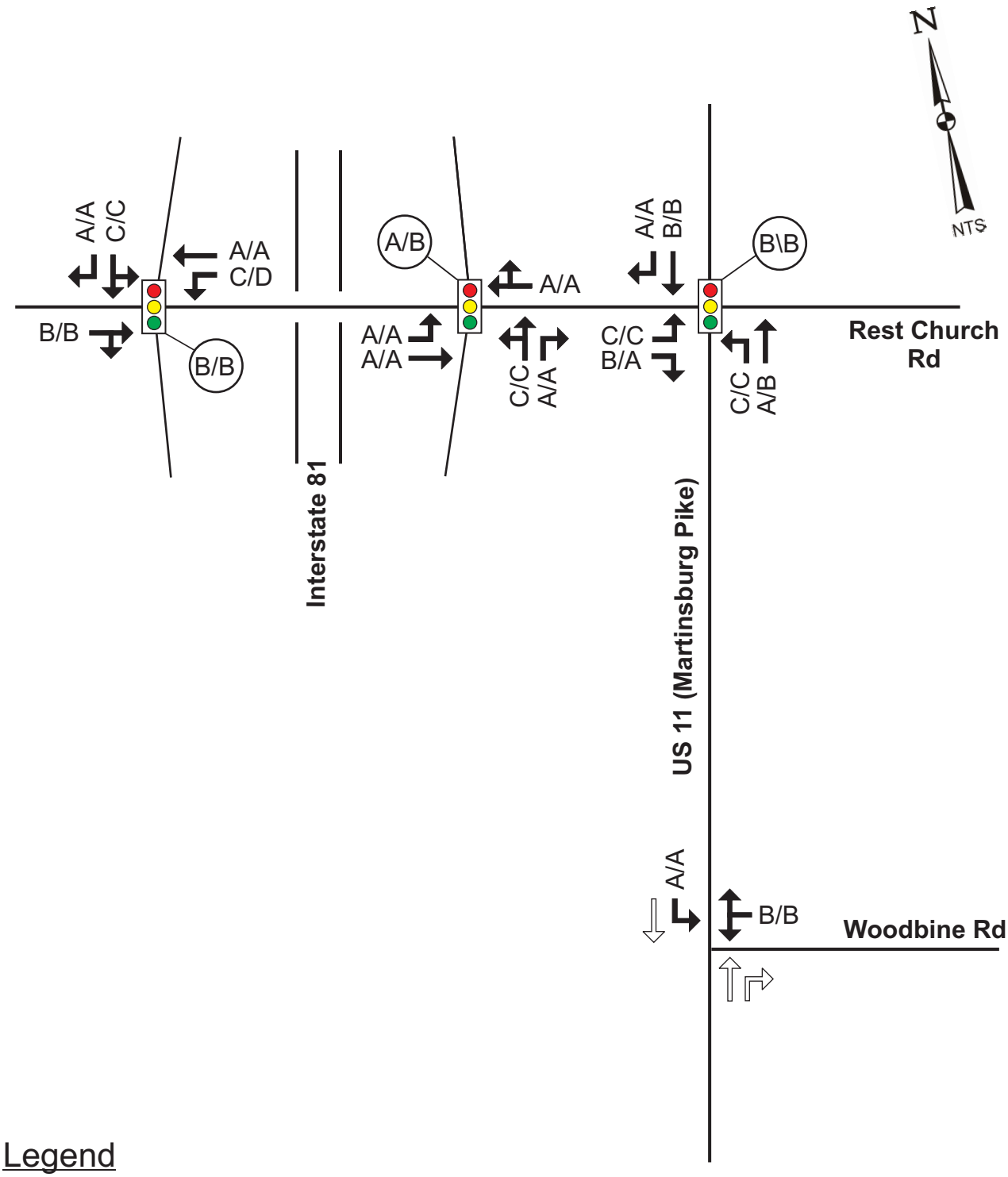
Existing Traffic Signal

XX/XX — AM Peak Hour/PM Peak Hour Traffic Volume and Movement

(AAWDT) — Annual Average Weekday Traffic

Figure 4-W
WHITEHALL SITE
EXISTING 2015 TURNING
MOVEMENT COUNTS

Cardno



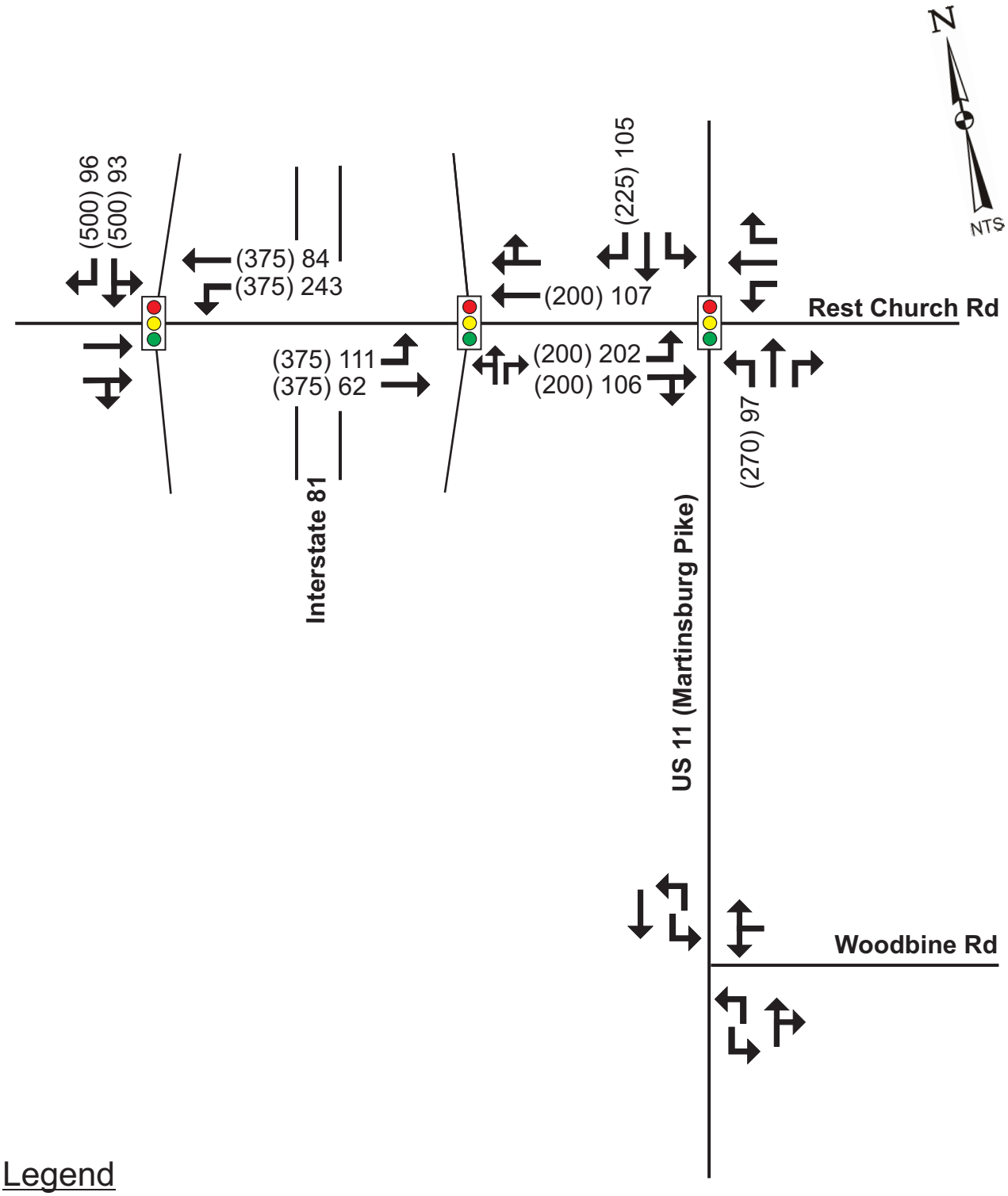
Legend

X/X — AM Peak Hour/PM Peak Hour Level of Service by Lane Group

(X/X) — AM Peak Hour/PM Peak Hour Level of Service Overall Intersection

Cardno

Figure 5-W
WHITEHALL SITE
EXISTING 2015 LEVEL OF SERVICE

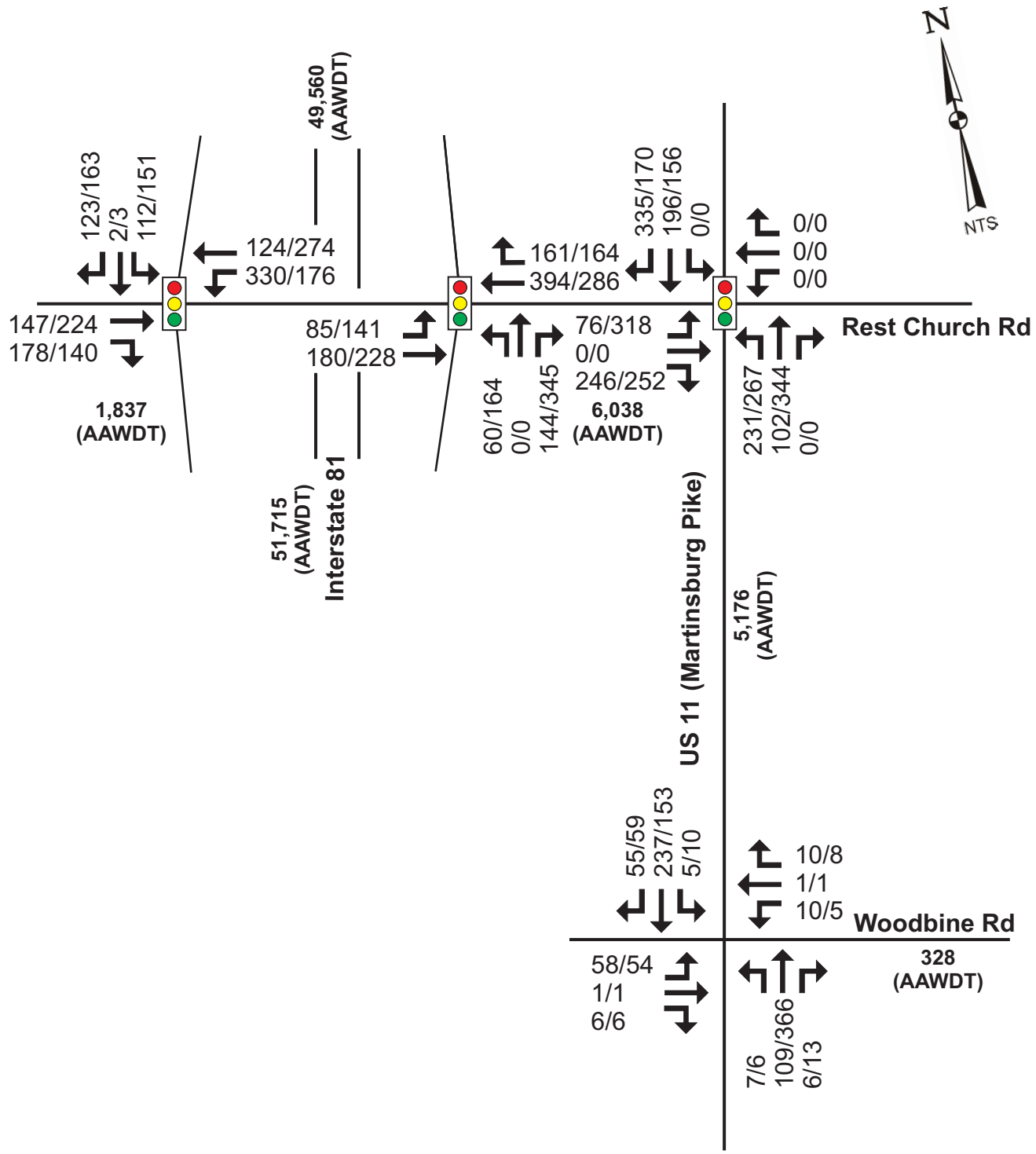


Legend

	Existing Traffic Signal
	Lane Configuration
(XX)	Existing Storage Length (ft.)
XX	Peak Hour Queue Length (ft.)

Cardno

Figure 6-W
WHITEHALL SITE
EXISTING 2015 QUEUE ANALYSIS



Legend

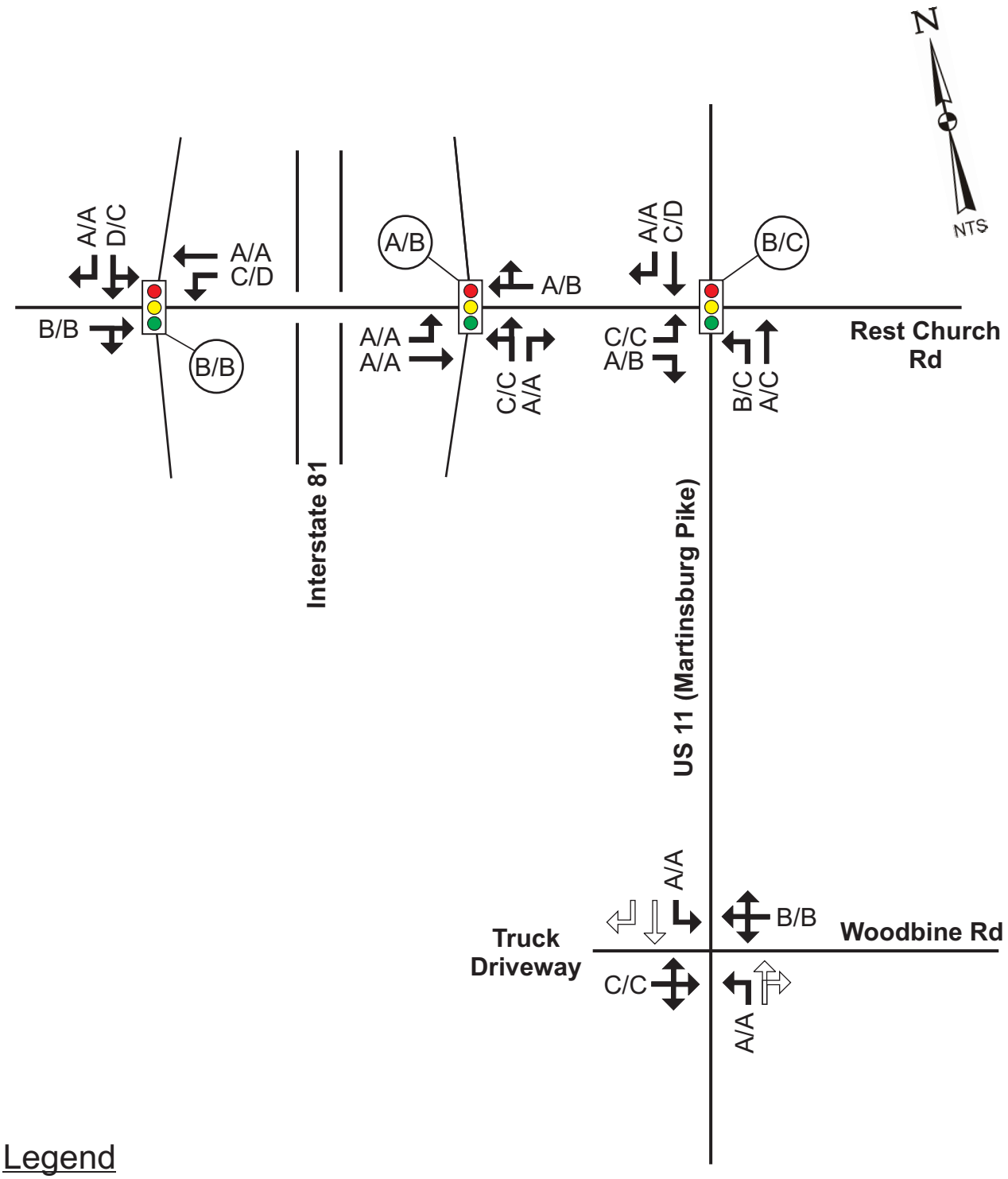
Existing Traffic Signal

XX/XX — AM Peak Hour/PM Peak Hour Traffic Volume and Movement

(AAWDT) — Annual Average Weekday Traffic

Figure 7-W
WHITEHALL SITE
PROPOSED 2019 TURNING
MOVEMENT COUNTS WITHOUT PROJECT

Cardno



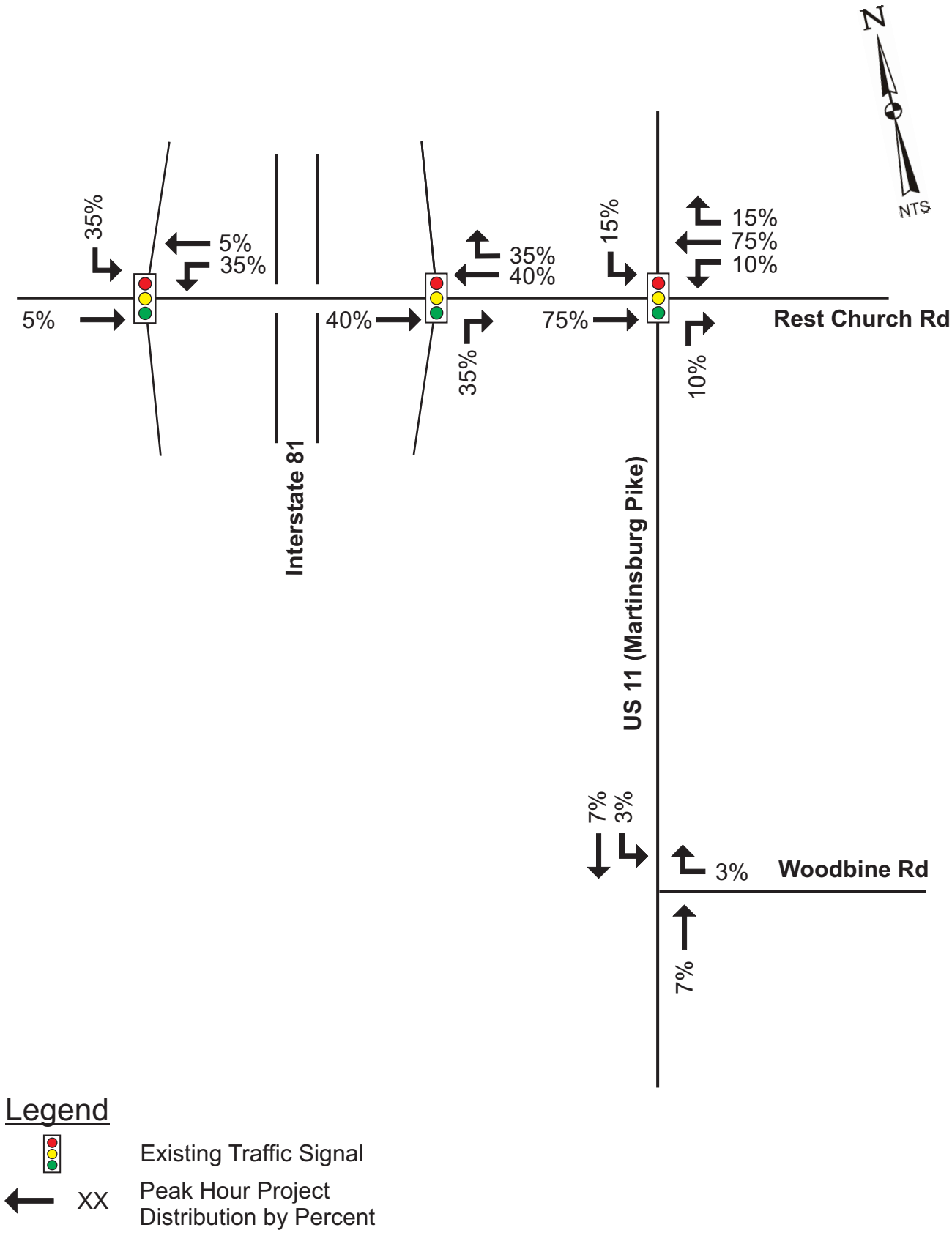
Legend

X/X — AM Peak Hour/PM Peak Hour Level of Service by Lane Group

(X/X) — AM Peak Hour/PM Peak Hour Level of Service Overall Intersection

Figure 8-W
WHITEHALL SITE
PROPOSED 2019 LEVEL
OF SERVICE WITHOUT PROJECT

Cardno



Legend

Existing Traffic Signal

XX Peak Hour Project Distribution by Percent

Cardno

Figure 9-W
WHITEHALL SITE
PROPOSED TRIP DISTRIBUTION

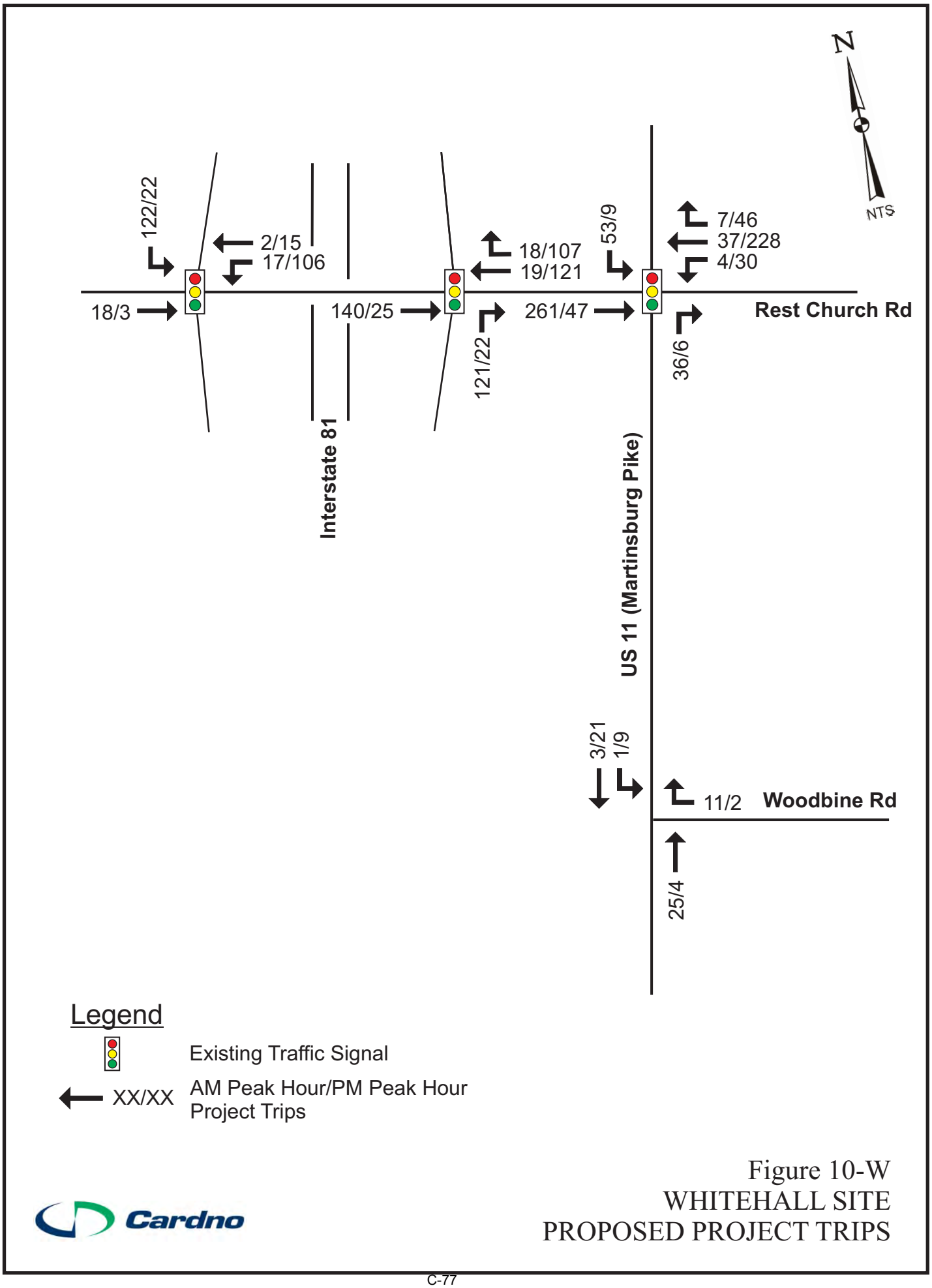
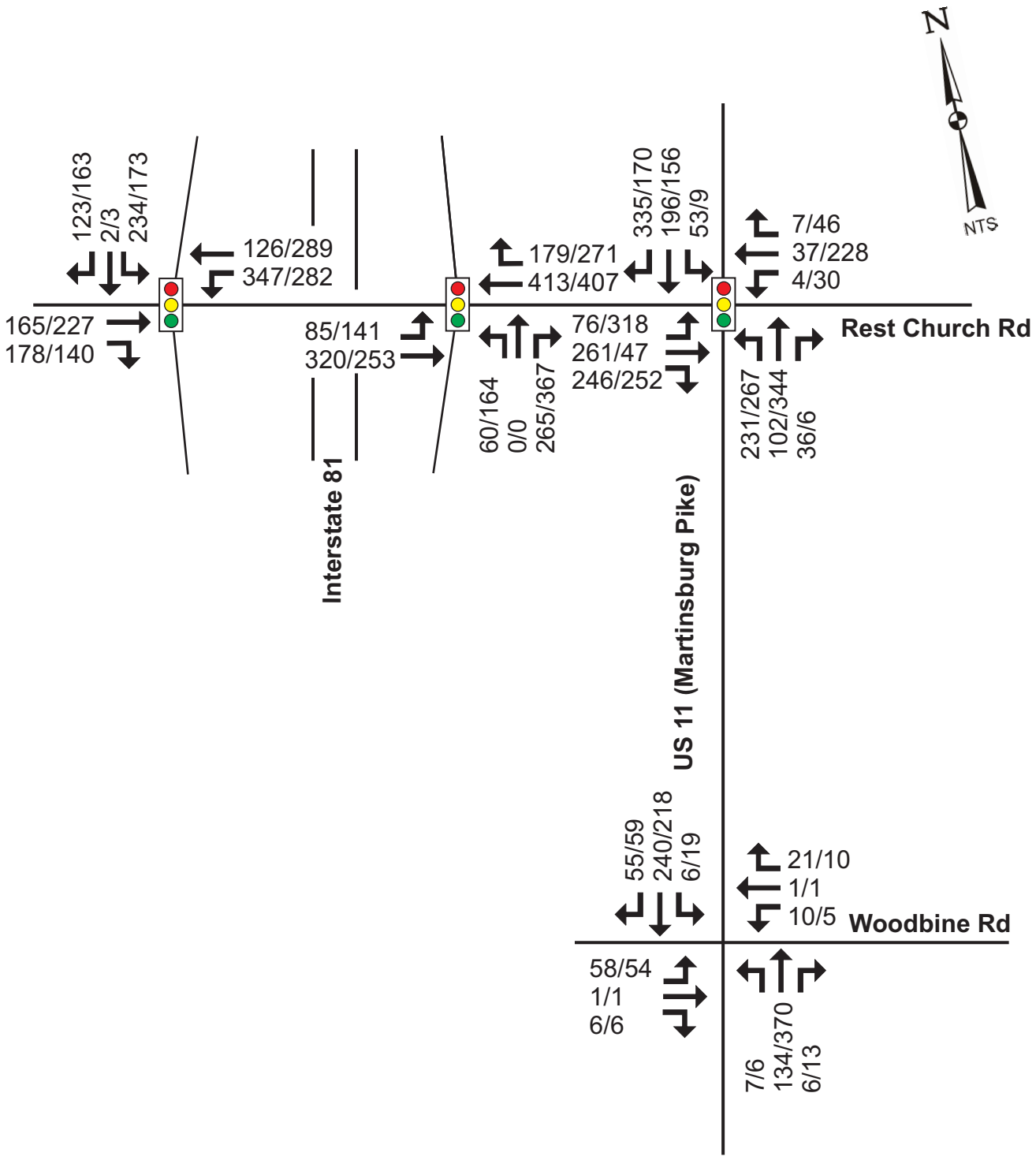


Figure 10-W
WHITEHALL SITE
PROPOSED PROJECT TRIPS



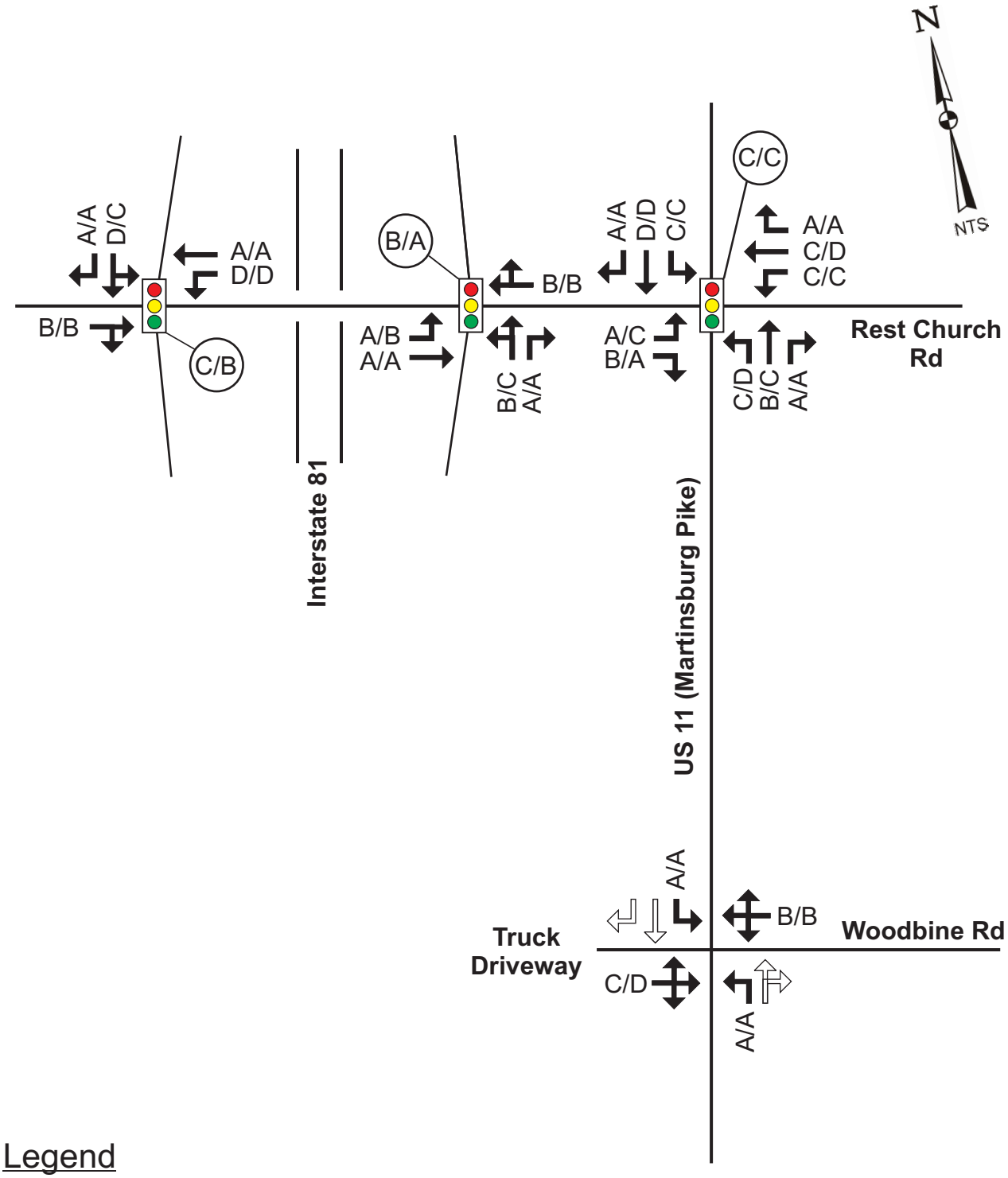
Legend

Existing Traffic Signal

XX/XX AM Peak Hour/PM Peak Hour Traffic Volume and Movement

Figure 11-W
WHITEHALL SITE
PROPOSED 2019 TURNING
MOVEMENT COUNTS WITH PROJECT

Cardno



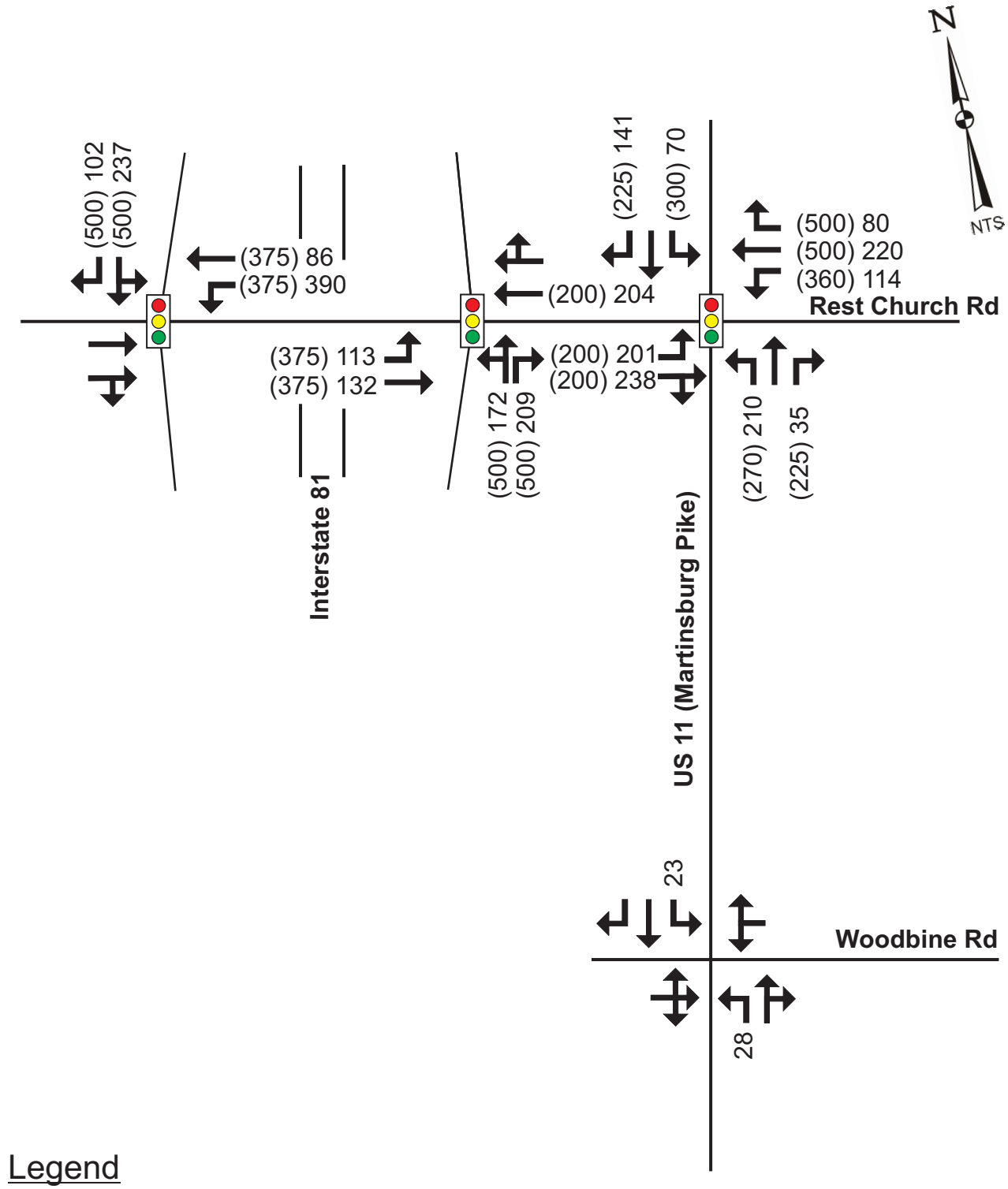
Legend

X/X — AM Peak Hour/PM Peak Hour Level of Service by Lane Group

(X/X) — AM Peak Hour/PM Peak Hour Level of Service Overall Intersection

Figure 12-W
WHITEHALL SITE
PROPOSED 2019 LEVEL
OF SERVICE WITH PROJECT

Cardno

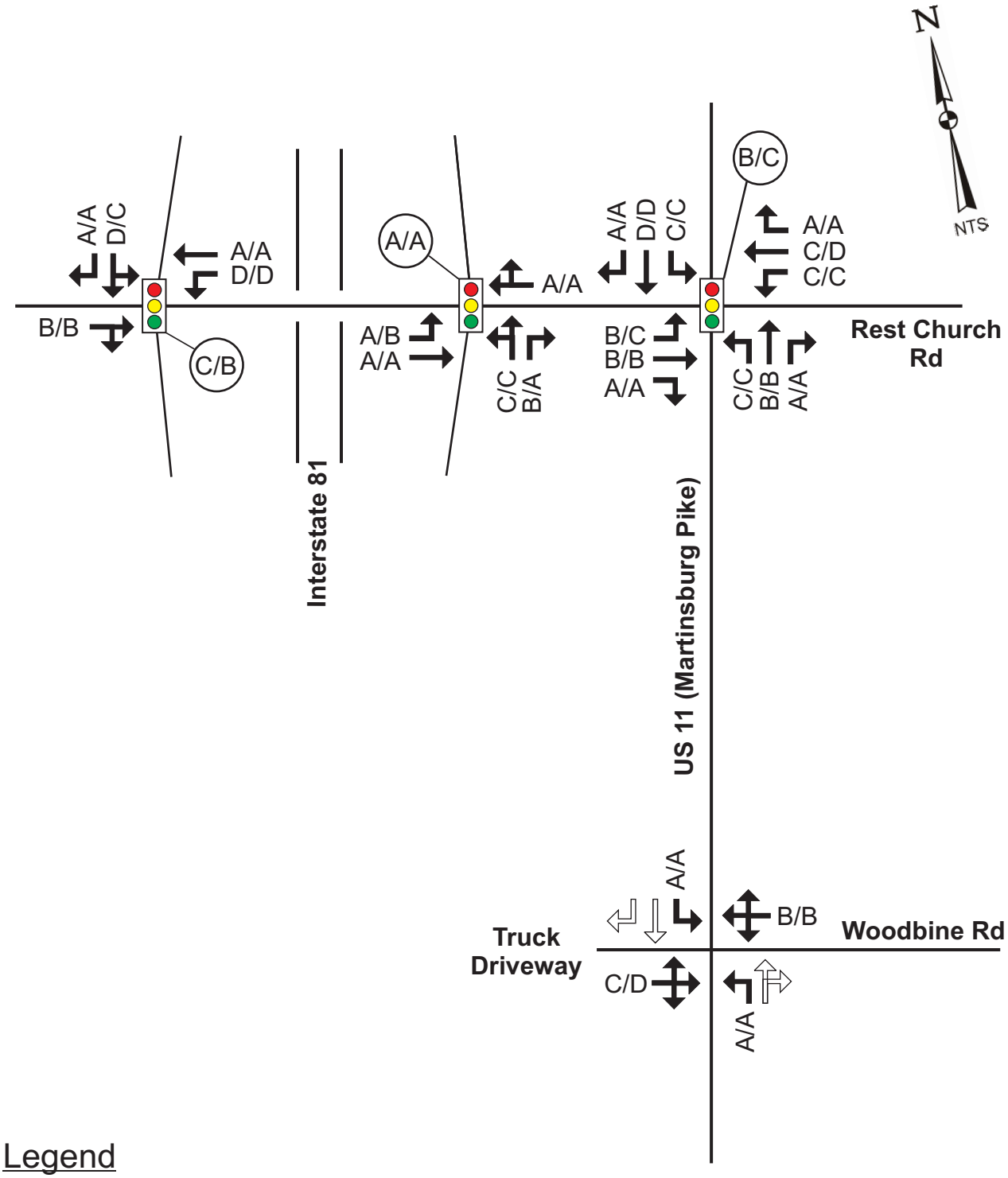


Legend

	Existing Traffic Signal
	Lane Configuration
(XX)	Existing Storage Length (ft.)
XX	Peak Hour Queue Length (ft.)

Figure 13-W
WHITEHALL SITE
PROPOSED 2019 WITH
PROJECT QUEUE ANALYSIS

Cardno



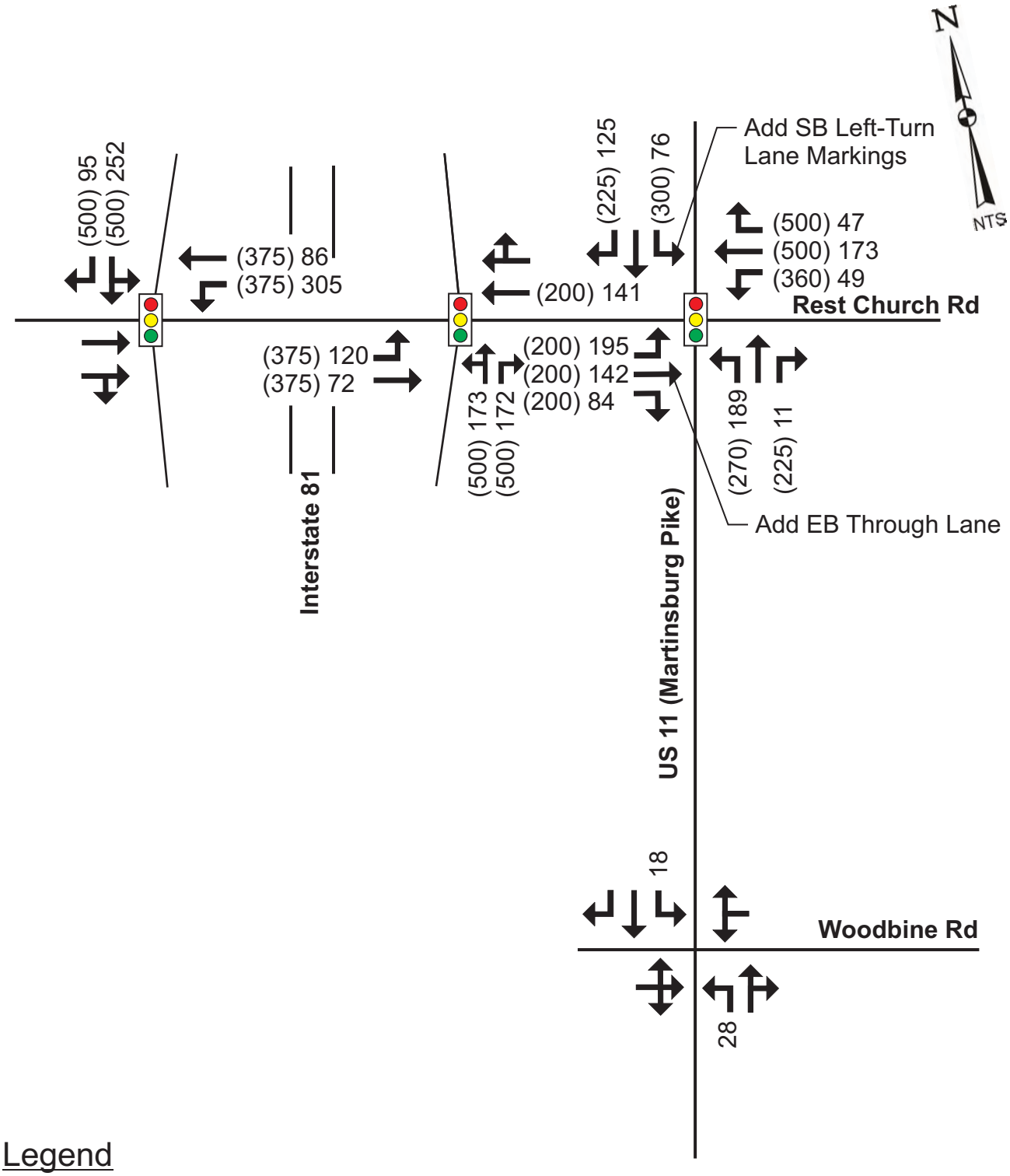
Legend

X/X — AM Peak Hour/PM Peak Hour Level of Service by Lane Group

(X/X) — AM Peak Hour/PM Peak Hour Level of Service Overall Intersection

Figure 14-W
WHITEHALL SITE
PROPOSED 2019 LEVEL
OF SERVICE WITH PROJECT
AND IMPROVEMENTS

Cardno



Legend

	Existing Traffic Signal
	Lane Configuration
(XX)	Existing Storage Length (ft.)
XX	Peak Hour Queue Length (ft.)

Figure 15-W
WHITEHALL SITE
PROPOSED 2019 WITH
IMPROVEMENTS QUEUE ANALYSIS

Cardno

APPENDIX D

TRAFFIC COUNT DATA

File Name: US 17 at Victory
Start Date: 5/6/2015
Start Time: 7:00:00 AM

	From East				From South				From West				From North			
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds
07:00 AM	2	0	1	0	0	63	4	0	1	0	9	0	13	134	9	0
07:15 AM	5	0	0	0	0	75	5	0	3	0	15	0	20	159	11	0
07:30 AM	3	1	0	0	0	78	3	0	1	0	9	0	21	161	7	0
07:45 AM	**0**	**1**	**0**	**0**	**0**	**106**	**6**	**0**	**7**	**1**	**14**	**0**	**32**	**169**	**7**	**0**
08:00 AM	**1**	**0**	**1**	**0**	**2**	**85**	**6**	**0**	**3**	**0**	**10**	**0**	**29**	**177**	**13**	**0**
08:15 AM	**4**	**0**	**1**	**0**	**0**	**104**	**6**	**0**	**3**	**0**	**12**	**0**	**13**	**140**	**8**	**0**
08:30 AM	**3**	**1**	**0**	**0**	**0**	**103**	**5**	**0**	**1**	**0**	**9**	**0**	**27**	**130**	**7**	**1**
08:45 AM	4	0	0	0	0	92	7	0	3	0	14	0	17	131	5	0
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	**3**	**0**	**0**	**0**	**0**	**181**	**6**	**0**	**3**	**1**	**22**	**0**	**22**	**108**	**19**	**1**
04:15 PM	**1**	**0**	**0**	**0**	**2**	**195**	**4**	**0**	**2**	**1**	**16**	**0**	**15**	**139**	**13**	**0**
04:30 PM	**0**	**0**	**0**	**0**	**1**	**209**	**5**	**0**	**1**	**1**	**15**	**0**	**13**	**111**	**30**	**0**
04:45 PM	**3**	**0**	**0**	**0**	**0**	**199**	**3**	**0**	**2**	**1**	**24**	**0**	**18**	**133**	**19**	**0**
05:00 PM	4	0	1	0	0	99	6	0	3	0	25	0	13	115	27	0
05:15 PM	2	0	0	0	0	119	5	0	9	0	18	0	18	119	12	0
05:30 PM	4	2	0	0	0	198	8	0	5	0	18	0	19	88	11	0
05:45 PM	0	0	0	0	0	109	4	0	2	0	11	0	24	83	6	0

File Name: US 17 at Independence Drive
Start Date: 5/5/2015
Start Time: 6:00:00 AM
Site Code: 00001111
Company Cardno
Counter Howard H.
Comment 3:
Comment 4:

	From EAST				From SOUTH					From WEST					From NORTH				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds		Right	Thru	Left	Peds		Right	Thru	Left	Peds	
06:00 AM	0	0	0	0	0	31	3	0		2	0	2	0		11	110	0	0	
06:15 AM	0	0	0	0	0	45	3	0		0	0	2	0		6	152	2	0	
06:30 AM	0	0	0	0	0	54	3	0		1	0	5	0		15	140	2	0	
06:45 AM	0	0	0	0	0	52	7	0		1	0	2	0		42	124	2	0	
						182	**16**	**0**	**198**	**4**	**0**	**11**	**0**	**15**	**74**	**526**	**6**	**0**	**606**
07:00 AM	0	0	0	0	0	70	3	0		2	0	3	0		26	107	0	0	
07:15 AM	0	0	0	0	0	93	10	0		3	0	4	0		26	113	1	0	
07:30 AM	0	0	0	0	0	92	6	0		0	0	11	0		36	105	0	0	
07:45 AM	0	0	0	0	**0**	**98**	**13**	0		3	0	15	0		**62**	**114**	**0**	0	
						353	**32**	**0**	**385**	**8**	**0**	**33**	**0**	**41**	**150**	**439**	**1**	0	**590**
08:00 AM	0	0	0	0	**0**	**83**	**10**	0		1	0	8	0		**32**	**125**	**1**	0	
08:15 AM	0	0	0	0	**0**	**85**	**11**	0		2	0	4	0		**36**	**98**	**2**	0	
08:30 AM	0	0	0	0	**0**	**96**	**11**	0		3	0	7	0		**44**	**95**	**0**	0	
08:45 AM	0	0	0	0	0	69	5	0		6	0	2	0		52	94	0	0	
						333	**37**	**0**	**370**	**12**	**0**	**21**	**0**	**33**	**164**	**412**	**3**	0	**579**
09:00 AM	0	0	0	0	0	99	4	0		3	0	6	0		17	93	0	0	
09:15 AM	0	0	0	0	0	76	5	0		2	0	7	0		26	70	0	0	
09:30 AM	0	0	0	0	0	86	3	0		0	0	5	0		25	60	0	0	
09:45 AM	0	0	0	0	0	87	6	0		3	0	2	0		24	48	2	0	
						348	**18**	**0**	**366**	**8**	**0**	**20**	**0**	**28**	**92**	**271**	**2**	0	**365**
10:00 AM	0	0	0	0	0	63	3	0		0	0	3	0		20	63	0	0	
10:15 AM	0	0	0	0	0	78	3	0		4	0	11	0		13	71	0	0	
10:30 AM	0	0	0	0	0	76	3	0		5	0	8	0		17	58	1	0	
10:45 AM	0	0	0	0	0	81	2	0		5	0	8	0		19	46	1	0	
						298	**11**	**0**	**309**	**14**	**0**	**30**	**0**	**44**	**69**	**238**	**2**	0	**309**
11:00 AM	0	0	0	0	0	79	5	1		5	0	13	0		15	63	1	0	
11:15 AM	0	0	0	0	0	72	7	0		7	0	9	0		16	89	0	0	
11:30 AM	0	0	0	0	0	85	8	0		4	0	13	0		16	57	2	0	
11:45 AM	0	0	0	0	0	71	6	0		4	0	14	0		27	92	1	0	
						307	**26**	**1**	**333**	**20**	**0**	**49**	**0**	**69**	**74**	**301**	**4**	0	**379**

12:00 PM	0	0	0	0	0	85	4	0		9	0	23	0		28	82	0	0	
12:15 PM	0	0	0	0	0	78	2	0		4	0	11	0		18	81	0	0	
12:30 PM	0	0	0	0	0	75	6	0		3	0	23	0		25	69	0	0	
12:45 PM	0	0	0	0	0	85	7	0		5	0	16	0		28	50	0	0	
						323	**19**	**0**	**342**	**21**	**0**	**73**	**0**	**94**	**99**	**282**	**0**	0	**381**
01:00 PM	0	0	0	0	0	77	2	0		5	0	20	0		18	71	0	0	
01:15 PM	0	0	0	0	0	104	3	0		3	0	16	0		14	89	2	0	
01:30 PM	0	0	0	0	0	91	5	0		6	0	15	0		30	68	0	1	
01:45 PM	0	0	0	0	0	57	9	0		5	0	14	0		24	46	2	0	
						329	**19**	**0**	**348**	**19**	**0**	**65**	**0**	**84**	**86**	**274**	**4**	1	**364**
02:00 PM	0	0	0	0	0	81	3	0		7	0	18	0		16	64	2	0	
02:15 PM	0	0	0	0	0	74	4	0		2	0	13	0		14	67	0	0	
02:30 PM	0	0	0	0	0	90	9	0		7	0	25	1		23	81	0	0	
02:45 PM	0	0	0	0	0	104	4	0		8	0	25	0		16	88	1	0	
						349	**20**	**0**	**369**	**24**	**0**	**81**	**1**	**105**	**69**	**300**	**3**	0	**372**
03:00 PM	0	0	0	0	0	116	9	0		5	0	29	0		8	96	0	0	
03:15 PM	0	0	0	0	0	112	5	0		4	0	20	0		22	96	0	0	
03:30 PM	0	0	0	0	0	126	3	0		10	0	34	0		13	75	1	0	
03:45 PM	0	0	0	0	0	160	4	0		6	0	26	0		31	103	0	0	
						514	**21**	**0**	**535**	**25**	**0**	**109**	**0**	**134**	**74**	**370**	**1**	0	**445**
04:00 PM	0	0	0	0	0	146	8	0		11	0	36	0		18	90	0	0	
04:15 PM	0	0	0	0	0	168	6	0		7	0	17	0		28	105	0	0	
04:30 PM	0	0	0	0	0	168	3	0		14	0	50	0		17	87	0	0	
04:45 PM	0	0	0	0	0	**177**	**4**	**0**		**10**	**1**	**44**	**0**		**40**	**107**	0	0	
						659	**21**	**0**	**680**	**42**	**1**	**147**	**0**	**190**	**103**	**389**	**0**	0	**492**
05:00 PM	0	0	0	0	0	**173**	**4**	**0**		**14**	**0**	**46**	**0**		**36**	**104**	1	0	
05:15 PM	0	0	0	0	0	**163**	**10**	**0**		**3**	**0**	**31**	**0**		**26**	**106**	0	0	
05:30 PM	0	0	0	0	0	**188**	**3**	**0**		**16**	**0**	**46**	**0**		**17**	**96**	0	0	
05:45 PM	0	0	2	0	0	171	5	0		7	0	36	0		9	72	1	0	
						695	**22**	**0**	**717**	**40**	**0**	**159**	**0**	**199**	**88**	**378**	**2**	0	**468**

Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

Date Counted: 11/6/14

Location/Intersection: I-81 SB Ramps & Rest Ch

CARS

	EBT	EBR	WBL	WBT	SBL	SBT	SBR	Total	
7:00 AM	25	21	57	17	1	1	11	133	
7:15 AM	13	24	54	18	8	0	23	140	
7:30 AM	16	42	69	20	7	0	27	181	
7:45 AM	25	28	48	10	9	0	15	135	**589**
8:00 AM	17	18	39	23	6	0	22	125	**581**
8:15 AM	24	25	37	12	12	0	21	131	**572**
8:30 AM	28	24	37	26	14	0	18	147	**538**
8:45 AM	20	18	29	15	12	0	16	110	**513**
Total	168	307	370	141	69	1	153	1102	
%									

	EBT	EBR	WBL	WBT	SBL	SBT	SBR	Total	
4:00 PM	46	21	23	36	14	0	22	162	
4:15 PM	33	24	22	30	13	0	18	140	
4:30 PM	30	42	24	32	10	0	30	168	
4:45 PM	31	28	20	43	14	0	29	165	**635**
5:00 PM	38	18	20	40	13	1	23	153	**626**
5:15 PM	39	25	16	47	13	0	22	162	**648**
5:30 PM	41	24	25	37	17	0	26	170	**650**
5:45 PM	27	18	25	36	10	0	14	130	**615**
Total	285	200	175	301	104	1	184	1250	
%									

HEAVY VEHICLES

	EBT	EBR	WBL	WBT	SBL	SBT	SBR	Total	
7:00 AM	12	13	1	8	1	1	11	47	
7:15 AM	11	10	0	12	0	0	11	44	
7:30 AM	14	13	0	8	0	0	8	43	
7:45 AM	7	15	0	10	2	0	8	42	**176**
8:00 AM	11	11	1	12	0	0	12	47	**176**
8:15 AM	14	14	0	12	2	0	13	55	**187**
8:30 AM	8	16	3	7	1	0	8	43	**187**
8:45 AM	12	15	0	19	2	0	12	60	**205**
Total	89	0	5	88	8	1	83	381	
%									

	EBT	EBR	WBL	WBT	SBL	SBT	SBR	Total	
4:00 PM	14	10	2	16	0	0	11	53	
4:15 PM	9	11	0	18	0	1	12	51	
4:30 PM	15	15	0	11	0	0	15	56	
4:45 PM	10	15	0	22	0	2	12	61	**221**
5:00 PM	13	16	0	21	0	0	11	61	**229**
5:15 PM	12	15	0	11	0	0	8	46	**224**
5:30 PM	15	11	0	14	1	0	21	62	**230**
5:45 PM	8	10	0	11	0	1	12	42	**211**
Total	96	103	2	124	1	4	102	432	
%									

Total

Date Counted: 11/6/14
Location/Intersection: I-81 NB Ramps & Rest

Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

7409 SW Tech Center Dr
Tigard, OR 97224
Ph: 971-223-0003

CARS

	EBT	EBL	WBT	WBR	NBL	NBT	NBR	Total	
7:00 AM	17	10	66	19	4	0	6	122	
7:15 AM	16	7	73	18	5	0	15	134	
7:30 AM	15	10	82	27	8	0	11	153	
7:45 AM	22	13	59	10	2	0	9	115	524
8:00 AM	18	7	50	17	11	0	13	116	518
8:15 AM	19	16	47	11	6	0	10	109	493
8:30 AM	26	16	55	12	12	0	10	131	471
8:45 AM	19	12	33	5	9	0	12	90	446
Total	152	91	465	119	57	0	86	970	

	EBT	EBL	WBT	WBR	NBL	NBT	NBR	Total	
4:00 PM	40	26	44	24	20	0	47	201	
4:15 PM	23	23	37	12	19	0	51	165	
4:30 PM	26	15	39	14	15	0	54	163	
4:45 PM	29	18	48	12	23	0	73	203	732
5:00 PM	34	17	42	10	18	0	44	165	696
5:15 PM	25	24	35	20	24	0	71	199	730
5:30 PM	34	24	50	22	19	0	43	192	759
5:45 PM	22	15	25	11	26	0	60	159	715
Total	233	162	320	125	164	0	443	1447	

HEAVY VEHICLES

	EBT	EBL	WBT	WBR	NBL	NBT	NBR	Total	
7:00 AM	2	11	2	1	8	0	0	24	
7:15 AM	1	8	0	0	12	0	0	21	
7:30 AM	1	12	0	0	9	0	1	23	
7:45 AM	1	8	0	0	8	0	0	17	85
8:00 AM	0	11	0	2	13	0	1	27	88
8:15 AM	3	12	1	2	10	0	0	28	95
8:30 AM	1	8	0	0	6	0	0	15	87
8:45 AM	1	12	3	1	17	0	0	34	104
Total	10	82	6	6	83	0	2	189	

	EBT	EBL	WBT	WBR	NBL	NBT	NBR	Total	
4:00 PM	1	13	1	0	14	0	3	32	
4:15 PM	1	9	2	0	16	0	2	30	
4:30 PM	1	14	0	0	10	0	0	25	
4:45 PM	0	9	0	0	27	0	1	37	124
5:00 PM	1	14	0	1	17	1	0	34	126
5:15 PM	0	11	1	0	10	0	1	23	119
5:30 PM	3	13	0	1	15	1	1	34	128
5:45 PM	0	9	4	0	11	0	1	25	116
Total	7	92	8	2	120	2	9	240	

Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

7409 SW Tech Center Dr
Tigard, OR 97224
Ph: 971-223-0003

Date Counted: 11/6/14
Location/Intersection: Martinsburg Pike & Rest Church Rc

CARS

	EBL	EBR	NBL	NBT	SBT	SBR	Total	
7:00 AM	11	12	12	9	34	75	153	
7:15 AM	16	15	10	23	47	80	191	
7:30 AM	13	13	9	24	47	103	209	
7:45 AM	18	13	7	13	37	62	150	703
8:00 AM	21	11	13	19	37	53	154	704
8:15 AM	13	12	10	21	36	48	140	653
8:30 AM	23	15	13	18	43	54	166	610
8:45 AM	20	12	7	20	50	32	141	601
Total	135	103	81	147	331	507	1304	

	EBL	EBR	NBL	NBT	SBT	SBR	Total	
4:00 PM	66	19	19	76	32	44	256	
4:15 PM	65	12	12	68	35	38	230	
4:30 PM	66	16	17	52	26	37	214	
4:45 PM	86	17	27	68	30	33	261	961
5:00 PM	62	18	17	83	36	35	251	956
5:15 PM	78	18	19	87	33	37	272	998
5:30 PM	64	18	25	70	33	50	260	1044
5:45 PM	64	14	15	62	25	25	205	988
Total	551	132	151	566	250	299	1949	

HEAVY VEHICLES

	EBL	EBR	NBL	NBT	SBT	SBR	Total	
7:00 AM	0	2	3	0	3	1	9	
7:15 AM	0	1	0	2	1	1	5	
7:30 AM	1	2	0	2	0	0	5	
7:45 AM	1	0	0	0	0	0	1	20
8:00 AM	1	0	2	1	3	3	10	21
8:15 AM	1	2	2	1	1	1	8	24
8:30 AM	1	2	0	0	2	0	5	24
8:45 AM	0	1	4	1	0	0	6	29
Total	5	10	11	7	10	6	49	

	EBL	EBR	NBL	NBT	SBT	SBR	Total	
4:00 PM	3	0	0	1	1	2	7	
4:15 PM	1	2	2	1	2	1	9	
4:30 PM	0	1	0	0	0	0	1	
4:45 PM	2	0	0	1	0	0	3	20
5:00 PM	0	1	0	0	0	2	3	16
5:15 PM	1	0	1	0	3	0	5	12
5:30 PM	2	1	1	1	0	1	6	17
5:45 PM	1	0	0	0	1	0	2	16
Total	10	5	4	4	7	6	36	

Quality Counts
TRANSPORTATION DATA
COLLECTION SERVICES

7409 SW Tech Center Dr
Tigard, OR 97224
Ph: 971-223-003

Date Counted: 11/6/14

Location/Intersection: Martinsburg Pike & Woodbine Rd

CARS

	WBL	WBR	NBT	NBR	SBL	SBT	Total	
7:00 AM	2	2	10	0	2	42	58	
7:15 AM	2	1	27	2	1	50	83	
7:30 AM	2	1	22	1	1	52	79	
7:45 AM	1	1	13	1	2	48	66	286
8:00 AM	1	5	19	0	1	45	71	299
8:15 AM	0	1	22	1	2	29	55	271
8:30 AM	3	0	17	2	2	51	75	267
8:45 AM	0	0	16	2	0	44	62	263
9:00 AM	0	0	22	2	0	27	51	
9:15 AM	2	0	21	0	0	22	45	
9:30 AM	0	0	23	3	0	27	53	
9:45 AM	0	0	30	0	1	31	62	
10:00 AM	3	2	21	2	1	19	48	
10:15 AM	1	1	24	0	3	28	57	
10:30 AM	1	1	26	0	1	35	64	
10:45 AM	0	2	32	2	2	28	66	
11:00 AM	1	1	45	1	1	36	85	
11:15 AM	1	1	30	2	0	30	64	
11:30 AM	0	0	30	1	1	23	55	
11:45 AM	0	2	36	0	0	30	68	
12:00 PM	1	0	46	1	1	40	89	
12:15 PM	1	1	36	1	0	25	64	
12:30 PM	1	0	41	2	4	36	84	
12:45 PM	0	1	41	0	3	32	77	
1:00 PM	0	0	30	0	1	31	62	
1:15 PM	2	1	29	1	2	33	68	
1:30 PM	3	1	36	0	4	27	71	
1:45 PM	1	1	32	3	1	34	72	
2:00 PM	9	1	37	1	0	27	75	
2:15 PM	1	1	36	2	2	40	82	
2:30 PM	3	1	48	0	1	32	85	
2:45 PM	1	2	41	1	0	20	65	
3:00 PM	2	1	45	1	2	28	79	
3:15 PM	2	2	33	2	5	34	78	
3:30 PM	1	6	67	1	1	34	110	
3:45 PM	2	0	61	3	1	31	98	
4:00 PM	1	2	66	3	0	33	105	
4:15 PM	4	1	70	1	1	28	105	
4:30 PM	5	0	56	1	2	28	92	
4:45 PM	1	3	70	2	2	28	106	408
5:00 PM	1	2	86	3	1	35	128	431
5:15 PM	2	2	86	4	2	29	125	451
5:30 PM	1	1	81	2	4	33	122	481
5:45 PM	0	2	53	0	2	24	81	456
6:00 PM	0	1	53	2	0	30	86	
6:15 PM	0	0	49	1	1	21	72	
6:30 PM	2	1	33	4	1	18	59	
6:45 PM	1	0	32	2	0	19	54	
7:00 PM	0	3	30	1	1	19	54	
7:15 PM	0	0	24	2	1	17	44	
7:30 PM	0	0	34	0	1	19	54	
7:45 PM	0	0	29	1	2	9	41	
Total	72	59	2025	76	78	1771	4081	

Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

409 SW Tech Center D
Tigard, OR 97224
Ph: 971-223-003

Date Counted: 11/6/14
Location/Intersection: Martinsburg Pike & Woodbine Rd

HEAVY VEHICLES

	WBL	WBR	NBT	NBR	SBL	SBT	Total	
7:00 AM	0	0	2	0	0	0	2	
7:15 AM	1	0	1	0	0	5	7	
7:30 AM	1	0	1	0	0	3	5	
7:45 AM	1	0	3	1	0	1	6	20
8:00 AM	0	1	2	1	0	3	7	25
8:15 AM	0	2	2	0	1	3	8	26
8:30 AM	3	0	0	0	1	4	8	29
8:45 AM	1	0	6	0	0	0	7	30
9:00 AM	0	0	4	0	1	1	6	
9:15 AM	2	0	3	1	0	6	12	
9:30 AM	0	0	2	2	0	2	6	
9:45 AM	1	0	3	0	2	4	10	
10:00 AM	1	0	5	0	0	2	8	
10:15 AM	0	0	2	1	0	1	4	
10:30 AM	4	0	3	2	1	4	14	
10:45 AM	2	0	0	0	1	2	5	
11:00 AM	1	0	3	0	0	3	7	
11:15 AM	0	0	5	2	0	0	7	
11:30 AM	1	1	1	0	0	2	5	
11:45 AM	0	0	3	0	0	0	3	
12:00 PM	1	0	1	0	0	3	5	
12:15 PM	0	0	0	3	0	0	3	
12:30 PM	1	0	0	0	0	4	5	
12:45 PM	1	0	3	0	1	2	7	
1:00 PM	4	0	2	2	1	1	10	
1:15 PM	0	0	1	1	1	0	3	
1:30 PM	0	0	5	0	1	2	8	
1:45 PM	1	0	2	1	0	1	5	
2:00 PM	1	0	4	0	0	1	6	
2:15 PM	0	0	3	0	0	2	5	
2:30 PM	1	1	2	2	0	1	7	
2:45 PM	0	0	1	0	0	1	2	
3:00 PM	0	0	1	2	0	3	6	
3:15 PM	2	1	0	1	0	2	6	
3:30 PM	0	0	1	0	0	2	3	
3:45 PM	0	0	6	0	0	2	8	
4:00 PM	0	0	1	0	0	2	3	
4:15 PM	0	0	4	0	1	2	7	
4:30 PM	1	1	2	0	0	2	6	
4:45 PM	0	0	2	0	0	0	2	18
5:00 PM	0	0	0	1	0	0	1	16
5:15 PM	0	0	0	0	0	3	3	12
5:30 PM	0	0	1	0	0	0	1	7
5:45 PM	0	0	0	0	0	1	1	6
6:00 PM	0	0	1	0	0	1	2	
6:15 PM	0	0	0	0	0	0	0	
6:30 PM	0	0	0	0	0	1	1	
6:45 PM	0	0	1	0	0	0	1	
7:00 PM	0	0	0	0	0	0	0	
7:15 PM	0	0	0	0	0	0	0	
7:30 PM	0	0	0	0	0	0	0	
7:45 PM	0	0	0	0	0	1	1	
Total	34	7	100	24	14	89	268	

APPENDIX E

EXISTING CONDITIONS - LEVEL OF SERVICE ANALYSIS

Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations												
Traffic Volume (vph)	2	2	8	23	398	2	35	616	101	45	1	14
Future Volume (vph)	2	2	8	23	398	2	35	616	101	45	1	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0	110		105	125		390	0	0	
Storage Lanes		1	0	1		1	1		1	1	0	
Taper Length (ft)		25		25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt		0.910				0.850			0.850	0.951		
Flt Protected		0.984		0.950			0.950			0.969		
Satd. Flow (prot)	0	1636	0	1736	3471	1553	1736	3471	1553	1684	0	0
Flt Permitted		0.984		0.950			0.950			0.969		
Satd. Flow (perm)	0	1636	0	1736	3471	1553	1736	3471	1553	1684	0	0
Link Speed (mph)		30			55			55		35		
Link Distance (ft)		250			1472			2574		540		
Travel Time (s)		5.7			18.2			31.9		10.5		
Peak Hour Factor	0.50	0.50	0.50	0.96	0.94	0.25	0.67	0.87	0.79	0.80	0.25	0.50
Adj. Flow (vph)	4	4	16	24	423	8	52	708	128	56	4	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	24	0	24	423	8	52	708	128	88	0	0

Intersection Summary	
Area Type:	Other

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	0	9	0	0	0	45	362	0	3	432	174
Future Volume (vph)	34	0	9	0	0	0	45	362	0	3	432	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	215		0	0		0	230		0	120		180
Storage Lanes	1		0	0		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.850										0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1736	1553	0	0	0	0	1736	3471	1827	1736	3471	1553
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	1736	1553	0	0	0	0	1736	3471	1827	1736	3471	1553
Link Speed (mph)		35			30			55			55	
Link Distance (ft)		489			55			2313			1472	
Travel Time (s)		9.5			1.3			28.7			18.2	
Peak Hour Factor	0.57	0.92	0.75	0.25	0.25	0.25	0.87	0.25	0.92	0.38	0.86	0.70
Adj. Flow (vph)	60	0	12	0	0	0	52	1448	0	8	502	249
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	12	0	0	0	0	52	1448	0	8	502	249

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Traffic Vol, veh/h	2	8	23	398	2	35	616	101	45	1
Future Vol, veh/h	2	8	23	398	2	35	616	101	45	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	-	None	-	-
Storage Length	0	-	110	-	105	125	-	390	0	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	50	50	96	94	25	67	87	79	80	25
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	4	16	24	423	8	52	708	128	56	4

Major/Minor	Minor1		Major1			Major2			Minor2	
Conflicting Flow All	932	212	708	0	0	423	0	0	1075	354
Stage 1	471	-	-	-	-	-	-	-	813	-
Stage 2	461	-	-	-	-	-	-	-	262	-
Critical Hdwy	7.58	6.98	4.18	-	-	4.18	-	-	7.58	6.98
Critical Hdwy Stg 1	6.58	-	-	-	-	-	-	-	6.58	-
Critical Hdwy Stg 2	6.58	-	-	-	-	-	-	-	6.58	-
Follow-up Hdwy	3.54	3.34	2.24	-	-	2.24	-	-	3.54	3.34
Pot Cap-1 Maneuver	218	787	873	-	-	1119	-	-	171	637
Stage 1	537	-	-	-	-	-	-	-	334	-
Stage 2	545	-	-	-	-	-	-	-	715	-
Platoon blocked, %				-	-		-	-		
Mov Cap-1 Maneuver	193	787	873	-	-	1119	-	-	155	637
Mov Cap-2 Maneuver	193	-	-	-	-	-	-	-	155	-
Stage 1	522	-	-	-	-	-	-	-	325	-
Stage 2	491	-	-	-	-	-	-	-	676	-

Approach	WB	NB	SB	NE
HCM Control Delay, s	15.9	0.5	0.5	33.8
HCM LOS	C			D

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	207	873	-	-	353	1119	-	-
HCM Lane V/C Ratio	0.407	0.027	-	-	0.068	0.047	-	-
HCM Control Delay (s)	33.8	9.2	-	-	15.9	8.4	-	-
HCM Lane LOS	D	A	-	-	C	A	-	-
HCM 95th %tile Q(veh)	1.8	0.1	-	-	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	34	0	9	0	0	0	45	362	0	3	432	174
Future Vol, veh/h	34	0	9	0	0	0	45	362	0	3	432	174
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	215	-	-	-	-	-	230	-	0	120	-	180
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	57	92	75	25	25	25	87	25	92	38	86	70
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	60	0	12	0	0	0	52	1448	0	8	502	249

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1345	2069	251	502	0	0	1448	0	0
Stage 1	518	518	-	-	-	-	-	-	-
Stage 2	827	1551	-	-	-	-	-	-	-
Critical Hdwy	6.88	6.58	6.98	4.18	-	-	4.18	-	-
Critical Hdwy Stg 1	5.88	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.88	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.54	4.04	3.34	2.24	-	-	2.24	-	-
Pot Cap-1 Maneuver	140	52	743	1045	-	-	454	-	-
Stage 1	557	526	-	-	-	-	-	-	-
Stage 2	385	170	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	131	0	743	1045	-	-	454	-	-
Mov Cap-2 Maneuver	131	0	-	-	-	-	-	-	-
Stage 1	547	0	-	-	-	-	-	-	-
Stage 2	366	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	46.3	0.3	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	SBL	SBT	SBR
Capacity (veh/h)	1045	-	-	131	743	454	-	-
HCM Lane V/C Ratio	0.049	-	-	0.455	0.016	0.017	-	-
HCM Control Delay (s)	8.6	-	-	53.6	9.9	13.1	-	-
HCM Lane LOS	A	-	-	F	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	2	0	0.1	-	-

Intersection: 1: Victory

Movement	WB	NB	SB	NE
Directions Served	<LR	L	L	ULR>
Maximum Queue (ft)	32	9	14	69
Average Queue (ft)	12	3	6	41
95th Queue (ft)	37	11	18	80
Link Distance (ft)	186			474
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		110	125	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Independence

Movement	EB	EB	NB	SB	SB
Directions Served	L	TR	L	L	R
Maximum Queue (ft)	43	19	26	2	6
Average Queue (ft)	22	7	9	0	1
95th Queue (ft)	48	27	29	6	10
Link Distance (ft)		420			
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	215		230	120	180
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 0

Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations											
Traffic Volume (vph)	0	7	18	784	3	81	491	68	77	4	8
Future Volume (vph)	0	7	18	784	3	81	491	68	77	4	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	110		105	125		390	0	0	
Storage Lanes	1	0	1		1	1		1	1	0	
Taper Length (ft)	25		25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt	0.865				0.850			0.850	0.981		
Flt Protected			0.950			0.950			0.959		
Satd. Flow (prot)	1580	0	1736	3471	1553	1736	3471	1553	1719	0	0
Flt Permitted			0.950			0.950			0.959		
Satd. Flow (perm)	1580	0	1736	3471	1553	1736	3471	1553	1719	0	0
Link Speed (mph)	30			55			55		35		
Link Distance (ft)	250			1447			2600		500		
Travel Time (s)	5.7			17.9			32.2		9.7		
Peak Hour Factor	0.92	0.58	0.75	0.94	0.38	0.68	0.88	0.77	0.80	1.00	0.67
Adj. Flow (vph)	0	12	24	834	8	119	558	88	96	4	12
Shared Lane Traffic (%)											
Lane Group Flow (vph)	12	0	24	834	8	119	558	88	112	0	0

Intersection Summary	
Area Type:	Other

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	167	0	44	0	0	0	21	701	0	1	413	119
Future Volume (vph)	167	0	44	0	0	0	21	701	0	1	413	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	215		0	0		0	230		0	120		180
Storage Lanes	1		0	0		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.850										0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1736	1553	0	0	0	0	1736	3471	1827	1736	3471	1553
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	1736	1553	0	0	0	0	1736	3471	1827	1736	3471	1553
Link Speed (mph)		35			30			55			55	
Link Distance (ft)		500			55			2300			1447	
Travel Time (s)		9.7			1.3			28.5			17.9	
Peak Hour Factor	0.91	0.92	0.67	0.92	0.92	0.92	0.53	0.93	0.92	0.25	0.96	0.74
Adj. Flow (vph)	184	0	66	0	0	0	40	754	0	4	430	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	66	0	0	0	0	40	754	0	4	430	161

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	9.4

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Traffic Vol, veh/h	0	7	18	784	3	81	491	68	77	4
Future Vol, veh/h	0	7	18	784	3	81	491	68	77	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	-	None	-	-
Storage Length	0	-	110	-	105	125	-	390	0	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	92	58	75	94	38	68	88	77	80	100
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	12	24	834	8	119	558	88	96	4

Major/Minor	Minor1		Major1			Major2			Minor2	
Conflicting Flow All	1401	417	558	0	0	834	0	0	1261	279
Stage 1	882	-	-	-	-	-	-	-	796	-
Stage 2	519	-	-	-	-	-	-	-	465	-
Critical Hdwy	7.58	6.98	4.18	-	-	4.18	-	-	7.58	6.98
Critical Hdwy Stg 1	6.58	-	-	-	-	-	-	-	6.58	-
Critical Hdwy Stg 2	6.58	-	-	-	-	-	-	-	6.58	-
Follow-up Hdwy	3.54	3.34	2.24	-	-	2.24	-	-	3.54	3.34
Pot Cap-1 Maneuver	98	579	995	-	-	782	-	-	125	712
Stage 1	303	-	-	-	-	-	-	-	342	-
Stage 2	503	-	-	-	-	-	-	-	542	-
Platoon blocked, %				-	-		-	-		
Mov Cap-1 Maneuver	80	579	995	-	-	782	-	-	106	712
Mov Cap-2 Maneuver	80	-	-	-	-	-	-	-	106	-
Stage 1	296	-	-	-	-	-	-	-	334	-
Stage 2	414	-	-	-	-	-	-	-	518	-

Approach	WB	NB	SB	NE
HCM Control Delay, s	11.4	0.2	1.6	133.2
HCM LOS	B			F

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	117	995	-	-	579	782	-	-
HCM Lane V/C Ratio	0.925	0.024	-	-	0.021	0.152	-	-
HCM Control Delay (s)	133.2	8.7	-	-	11.4	10.4	-	-
HCM Lane LOS	F	A	-	-	B	B	-	-
HCM 95th %tile Q(veh)	5.8	0.1	-	-	0.1	0.5	-	-

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	167	0	44	0	0	0	21	701	0	1	413	119
Future Vol, veh/h	167	0	44	0	0	0	21	701	0	1	413	119
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	215	-	-	-	-	-	230	-	0	120	-	180
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	92	67	92	92	92	53	93	92	25	96	74
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	184	0	66	0	0	0	40	754	0	4	430	161

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	894	1271	215	430	0	0	754	0	0
Stage 1	438	438	-	-	-	-	-	-	-
Stage 2	456	833	-	-	-	-	-	-	-
Critical Hdwy	6.88	6.58	6.98	4.18	-	-	4.18	-	-
Critical Hdwy Stg 1	5.88	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.88	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.54	4.04	3.34	2.24	-	-	2.24	-	-
Pot Cap-1 Maneuver	277	164	784	1112	-	-	839	-	-
Stage 1	612	572	-	-	-	-	-	-	-
Stage 2	599	377	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	266	0	784	1112	-	-	839	-	-
Mov Cap-2 Maneuver	266	0	-	-	-	-	-	-	-
Stage 1	609	0	-	-	-	-	-	-	-
Stage 2	577	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	35	0.4	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	SBL	SBT	SBR
Capacity (veh/h)	1112	-	-	266	784	839	-	-
HCM Lane V/C Ratio	0.036	-	-	0.69	0.084	0.005	-	-
HCM Control Delay (s)	8.4	-	-	44	10	9.3	-	-
HCM Lane LOS	A	-	-	E	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	4.6	0.3	0	-	-

Intersection: 1: Victory

Movement	WB	NB	SB	NE
Directions Served	<LR	L	L	ULR>
Maximum Queue (ft)	20	6	26	107
Average Queue (ft)	5	2	15	67
95th Queue (ft)	24	8	35	127
Link Distance (ft)	186			434
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		110	125	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Independence

Movement	EB	EB	NB	SB	SB
Directions Served	L	TR	L	L	R
Maximum Queue (ft)	133	41	9	2	2
Average Queue (ft)	92	23	3	0	0
95th Queue (ft)	165	50	10	6	6
Link Distance (ft)		431			
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	215		230	120	180
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	72	56	46	86	175	316
Future Volume (vph)	72	56	46	86	175	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	270			225
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1687	1509	1687	1776	1776	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1687	1509	1687	1776	1776	1509
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		65				421
Link Speed (mph)	35			45	45	
Link Distance (ft)	300			1511	376	
Travel Time (s)	5.8			22.9	5.7	
Peak Hour Factor	0.81	0.86	0.75	0.81	0.90	0.75
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	89	65	61	106	194	421
Shared Lane Traffic (%)						
Lane Group Flow (vph)	89	65	61	106	194	421
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	7		5	2	6	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4				6
Detector Phase	7	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	14.0	8.0	15.0	15.0	15.0
Minimum Split (s)	9.5	20.0	14.0	21.0	21.0	21.0
Total Split (s)	20.0	20.0	14.0	45.0	31.0	31.0
Total Split (%)	30.8%	30.8%	21.5%	69.2%	47.7%	47.7%
Maximum Green (s)	15.5	14.0	8.0	39.0	25.0	25.0
Yellow Time (s)	3.5	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	4.0	4.0	5.0	5.0	5.0
Recall Mode	None	None	None	C-Min	C-Min	C-Min
Act Effct Green (s)	13.5	14.0	8.6	44.2	35.2	35.2
Actuated g/C Ratio	0.21	0.22	0.13	0.68	0.54	0.54
v/c Ratio	0.25	0.17	0.27	0.09	0.20	0.42
Control Delay	33.3	18.1	28.7	5.7	13.4	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.3	18.1	28.7	5.7	13.4	3.3
LOS	C	B	C	A	B	A
Approach Delay	26.9			14.1	6.5	
Approach LOS	C			B	A	
90th %ile Green (s)	15.5	14.0	8.7	39.0	24.3	24.3
90th %ile Term Code	Hold	Min	Max	Coord	Coord	Coord
70th %ile Green (s)	15.5	14.0	9.8	39.0	23.2	23.2
70th %ile Term Code	Hold	Min	Gap	Coord	Coord	Coord
50th %ile Green (s)	15.5	14.0	8.7	39.0	24.3	24.3
50th %ile Term Code	Hold	Min	Gap	Coord	Coord	Coord
30th %ile Green (s)	15.5	14.0	0.0	39.0	39.0	39.0
30th %ile Term Code	Hold	Hold	Skip	Coord	Coord	Coord
10th %ile Green (s)	0.0	0.0	0.0	59.0	59.0	59.0
10th %ile Term Code	Skip	Skip	Skip	Coord	Coord	Coord
Stops (vph)	66	28	41	32	106	33
Fuel Used(gal)	1	1	1	1	2	1
CO Emissions (g/hr)	80	38	86	94	155	97
NOx Emissions (g/hr)	16	7	17	18	30	19
VOC Emissions (g/hr)	18	9	20	22	36	23
Dilemma Vehicles (#)	0	0	0	6	13	0
Queue Length 50th (ft)	36	0	22	16	53	0
Queue Length 95th (ft)	67	36	44	29	97	21
Internal Link Dist (ft)	220			1431	296	
Turn Bay Length (ft)			270			225
Base Capacity (vph)	402	376	224	1207	978	1020
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Reduced v/c Ratio	0.22	0.17	0.27	0.09	0.20	0.41

Intersection Summary	
Area Type: Other	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.42	
Intersection Signal Delay: 11.2	Intersection LOS: B
Intersection Capacity Utilization 37.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: US 11

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	76	0	0	286	76	57	0	53	0	0	0
Future Volume (vph)	80	76	0	0	286	76	57	0	53	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		500	0		0
Storage Lanes	1		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.963				0.850			
Flt Protected	0.950							0.950				
Satd. Flow (prot)	1444	2888	0	0	3996	0	0	1444	1292	0	0	0
Flt Permitted	0.405							0.950				
Satd. Flow (perm)	616	2888	0	0	3996	0	0	1444	1292	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					110				151			
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		560			300			1068			184	
Travel Time (s)		10.9			5.8			24.3			4.2	
Peak Hour Factor	0.90	0.82	0.90	0.90	0.86	0.69	0.82	1.00	0.87	0.90	0.90	0.90
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	89	93	0	0	333	110	70	0	61	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	89	93	0	0	443	0	0	70	61	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2		1	2	1			
Detector Template	Left	Thru			Thru		Left	Thru	Right			
Leading Detector (ft)	20	100			100		20	100	20			
Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft)	20	6			6		20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			4				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2						4		4			
Detector Phase	5	2			6		4	4	4			
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0	10.0			
Minimum Split (s)	16.0	16.0			16.0		16.0	16.0	16.0			
Total Split (s)	20.0	45.0			25.0		20.0	20.0	20.0			
Total Split (%)	30.8%	69.2%			38.5%		30.8%	30.8%	30.8%			
Maximum Green (s)	14.0	39.0			19.0		14.0	14.0	14.0			
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0	2.0			
Lost Time Adjust (s)	0.0	0.0			0.0			0.0	0.0			
Total Lost Time (s)	6.0	6.0			6.0			6.0	6.0			
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	5.0			5.0		5.0	5.0	5.0			
Recall Mode	None	C-Min			C-Min		None	None	None			
Act Effct Green (s)	45.0	46.2			33.4			11.2	11.2			
Actuated g/C Ratio	0.69	0.71			0.51			0.17	0.17			
v/c Ratio	0.16	0.05			0.21			0.28	0.18			
Control Delay	4.5	3.5			7.6			26.1	1.1			
Queue Delay	0.0	0.0			0.0			0.0	0.0			
Total Delay	4.5	3.5			7.6			26.1	1.1			
LOS	A	A			A			C	A			
Approach Delay		4.0			7.6			14.5				
Approach LOS		A			A			B				
90th %ile Green (s)	10.1	39.3			23.2		13.7	13.7	13.7			
90th %ile Term Code	Gap	Coord			Coord		Gap	Gap	Gap			
70th %ile Green (s)	10.0	41.3			25.3		11.7	11.7	11.7			
70th %ile Term Code	Min	Coord			Coord		Gap	Gap	Gap			
50th %ile Green (s)	10.0	42.6			26.6		10.4	10.4	10.4			
50th %ile Term Code	Min	Coord			Coord		Gap	Gap	Gap			
30th %ile Green (s)	10.0	43.0			27.0		10.0	10.0	10.0			
30th %ile Term Code	Min	Coord			Coord		Min	Min	Min			
10th %ile Green (s)	0.0	59.0			59.0		0.0	0.0	0.0			
10th %ile Term Code	Skip	Coord			Coord		Skip	Skip	Skip			
Stops (vph)	33	28			146			49	0			
Fuel Used(gal)	1	1			2			1	0			
CO Emissions (g/hr)	45	40			171			73	32			
NOx Emissions (g/hr)	9	8			33			14	6			
VOC Emissions (g/hr)	10	9			40			17	7			
Dilemma Vehicles (#)	0	2			22			0	0			
Queue Length 50th (ft)	5	2			26			25	0			
Queue Length 95th (ft)	44	16			30			55	0			
Internal Link Dist (ft)		480			220			988			104	
Turn Bay Length (ft)									500			
Base Capacity (vph)	605	2054			2108			311	396			
Starvation Cap Reductn	0	0			0			0	0			
Spillback Cap Reductn	0	0			0			0	0			
Storage Cap Reductn	0	0			0			0	0			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.15	0.05			0.21			0.23	0.15			

Intersection Summary

Area Type: Other	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.28	
Intersection Signal Delay: 7.9	Intersection LOS: A
Intersection Capacity Utilization 49.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: NB I-81

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	128	168	235	108	0	0	0	0	28	2	116
Future Volume (vph)	0	128	168	235	108	0	0	0	0	28	2	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-2%			0%			2%	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.910										0.850
Flt Protected				0.950							0.959	
Satd. Flow (prot)	0	2589	0	1458	2917	0	0	0	0	0	1443	1279
Flt Permitted				0.950							0.959	
Satd. Flow (perm)	0	2589	0	1458	2917	0	0	0	0	0	1443	1279
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		224										151
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			560			215			1058	
Travel Time (s)		9.7			10.9			4.9			24.0	
Peak Hour Factor	0.90	0.85	0.75	0.84	0.88	0.90	0.90	0.90	0.90	0.64	0.25	0.81
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	0	151	224	280	123	0	0	0	0	44	8	143
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	375	0	280	123	0	0	0	0	0	52	143
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	0.99	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.01
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (ft)		100		20	100					20	100	20
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases										4		4
Detector Phase		2		1	6					4	4	4

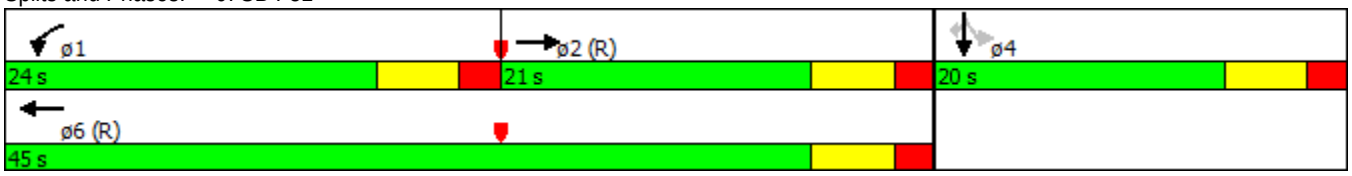
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		15.0		10.0	14.0					14.0	14.0	14.0
Minimum Split (s)		21.0		16.0	20.0					20.0	20.0	20.0
Total Split (s)		21.0		24.0	45.0					20.0	20.0	20.0
Total Split (%)		32.3%		36.9%	69.2%					30.8%	30.8%	30.8%
Maximum Green (s)		15.0		18.0	39.0					14.0	14.0	14.0
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0						6.0	6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		5.0		4.0	4.0					4.0	4.0	4.0
Recall Mode		C-Min		None	C-Min					None	None	None
Act Effct Green (s)		20.6		16.4	44.2						14.0	14.0
Actuated g/C Ratio		0.32		0.25	0.68						0.22	0.22
v/c Ratio		0.39		0.77	0.06						0.17	0.36
Control Delay		10.1		33.2	2.2						22.5	7.0
Queue Delay		0.0		0.0	0.0						0.0	0.0
Total Delay		10.1		33.2	2.2						22.5	7.0
LOS		B		C	A						C	A
Approach Delay		10.1			23.8						11.1	
Approach LOS		B			C						B	
90th %ile Green (s)		15.0		18.0	39.0					14.0	14.0	14.0
90th %ile Term Code		Coord		Max	Coord					Max	Max	Max
70th %ile Green (s)		15.0		18.0	39.0					14.0	14.0	14.0
70th %ile Term Code		Coord		Max	Coord					Max	Max	Max
50th %ile Green (s)		15.0		18.0	39.0					14.0	14.0	14.0
50th %ile Term Code		Coord		Max	Coord					Max	Max	Max
30th %ile Green (s)		17.1		15.9	39.0					14.0	14.0	14.0
30th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
10th %ile Green (s)		41.1		11.9	59.0					0.0	0.0	0.0
10th %ile Term Code		Coord		Gap	Coord					Skip	Skip	Skip
Stops (vph)		105		194	15						26	19
Fuel Used(gal)		2		4	1						1	1
CO Emissions (g/hr)		173		280	42						37	86
NOx Emissions (g/hr)		34		54	8						7	17
VOC Emissions (g/hr)		40		65	10						9	20
Dilemma Vehicles (#)		23		0	8						0	0
Queue Length 50th (ft)		25		108	2						17	0
Queue Length 95th (ft)		53		#101	8						11	28
Internal Link Dist (ft)		420			480			135			978	
Turn Bay Length (ft)												
Base Capacity (vph)		974		403	1983						310	393
Starvation Cap Reductn		0		0	0						0	0
Spillback Cap Reductn		0		0	0						0	0
Storage Cap Reductn		0		0	0						0	0
Reduced v/c Ratio		0.39		0.69	0.06						0.17	0.36

Intersection Summary

Area Type: Other	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 22 (34%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 16.0	Intersection LOS: B
Intersection Capacity Utilization 49.0%	ICU Level of Service A
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: SB I-81



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	9	9	89	6	5	210
Future Volume (vph)	9	9	89	6	5	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.955		0.991			
Flt Protected	0.968				0.950	
Satd. Flow (prot)	1642	0	1760	0	1687	1776
Flt Permitted	0.968				0.950	
Satd. Flow (perm)	1642	0	1760	0	1687	1776
Link Speed (mph)	30		45			45
Link Distance (ft)	190		1001			1511
Travel Time (s)	4.3		15.2			22.9
Peak Hour Factor	0.38	0.75	0.79	0.75	0.63	0.74
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	24	12	113	8	8	284
Shared Lane Traffic (%)						
Lane Group Flow (vph)	36	0	121	0	8	284
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		24			24
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 21.1%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	9	9	89	6	5	210
Future Vol, veh/h	9	9	89	6	5	210
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	38	75	79	75	63	74
Heavy Vehicles, %	7	7	7	7	7	7
Mvmt Flow	24	12	113	8	8	284

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	417	117	0	0	121	0
Stage 1	117	-	-	-	-	-
Stage 2	300	-	-	-	-	-
Critical Hdwy	6.47	6.27	-	-	4.17	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.363	-	-	2.263	-
Pot Cap-1 Maneuver	583	922	-	-	1436	-
Stage 1	896	-	-	-	-	-
Stage 2	740	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	580	922	-	-	1436	-
Mov Cap-2 Maneuver	625	-	-	-	-	-
Stage 1	896	-	-	-	-	-
Stage 2	736	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	701	1436	-
HCM Lane V/C Ratio	-	-	0.051	0.006	-
HCM Control Delay (s)	-	-	10.4	7.5	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

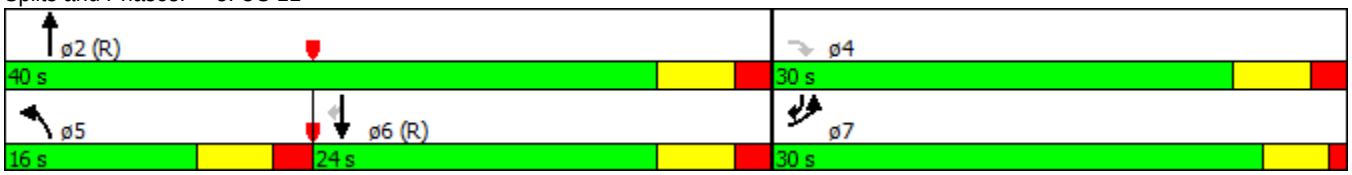
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	300	74	91	315	137	160
Future Volume (vph)	300	74	91	315	137	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	270			225
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1687	1509	1687	1776	1776	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1687	1509	1687	1776	1776	1509
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		86				208
Link Speed (mph)	35			45	45	
Link Distance (ft)	300			1511	376	
Travel Time (s)	5.8			22.9	5.7	
Peak Hour Factor	0.84	0.86	0.80	0.89	0.94	0.77
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	357	86	114	354	146	208
Shared Lane Traffic (%)						
Lane Group Flow (vph)	357	86	114	354	146	208
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Prot	NA	NA	pm+ov
Protected Phases	7		5	2	6	7

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4				6
Detector Phase	7	4	5	2	6	7
Switch Phase						
Minimum Initial (s)	5.0	14.0	8.0	15.0	15.0	5.0
Minimum Split (s)	9.5	20.0	14.0	21.0	21.0	9.5
Total Split (s)	30.0	30.0	16.0	40.0	24.0	30.0
Total Split (%)	42.9%	42.9%	22.9%	57.1%	34.3%	42.9%
Maximum Green (s)	25.5	24.0	10.0	34.0	18.0	25.5
Yellow Time (s)	3.5	4.0	4.0	4.0	4.0	3.5
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	6.0	6.0	4.5
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	4.0	4.0	5.0	5.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	None
Act Effct Green (s)	20.2	18.7	10.1	39.3	26.0	53.1
Actuated g/C Ratio	0.29	0.27	0.14	0.56	0.37	0.76
v/c Ratio	0.73	0.18	0.47	0.36	0.22	0.17
Control Delay	28.4	4.0	33.9	10.7	20.0	0.9
Queue Delay	0.7	0.0	0.0	0.0	0.0	0.0
Total Delay	29.1	4.0	33.9	10.7	20.0	0.9
LOS	C	A	C	B	B	A
Approach Delay	24.2			16.3	8.8	
Approach LOS	C			B	A	
90th %ile Green (s)	25.5	24.0	10.0	34.0	18.0	25.5
90th %ile Term Code	Max	Hold	Max	Coord	Coord	Max
70th %ile Green (s)	22.8	21.3	12.5	36.7	18.2	22.8
70th %ile Term Code	Gap	Hold	Gap	Coord	Coord	Gap
50th %ile Green (s)	20.1	18.6	10.9	39.4	22.5	20.1
50th %ile Term Code	Gap	Hold	Gap	Coord	Coord	Gap
30th %ile Green (s)	17.1	15.6	9.3	42.4	27.1	17.1
30th %ile Term Code	Gap	Hold	Gap	Coord	Coord	Gap
10th %ile Green (s)	15.5	14.0	0.0	44.0	44.0	15.5
10th %ile Term Code	Hold	Hold	Skip	Coord	Coord	Hold
Stops (vph)	224	13	81	170	99	8
Fuel Used(gal)	4	0	3	6	2	1
CO Emissions (g/hr)	284	22	177	412	148	36
NOx Emissions (g/hr)	55	4	34	80	29	7
VOC Emissions (g/hr)	66	5	41	95	34	8
Dilemma Vehicles (#)	0	0	0	22	10	0
Queue Length 50th (ft)	114	0	45	76	46	0
Queue Length 95th (ft)	158	22	81	151	97	9
Internal Link Dist (ft)	220			1431	296	
Turn Bay Length (ft)			270			225
Base Capacity (vph)	614	573	257	997	658	1255
Starvation Cap Reductn	71	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Reduced v/c Ratio	0.66	0.15	0.44	0.36	0.22	0.17

Intersection Summary	
Area Type: Other	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 17.0	Intersection LOS: B
Intersection Capacity Utilization 49.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: US 11



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	128	0	0	179	74	155	0	248	0	0	0
Future Volume (vph)	133	128	0	0	179	74	155	0	248	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		500	0		0
Storage Lanes	1		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.953				0.850			
Flt Protected	0.950							0.950				
Satd. Flow (prot)	1444	2888	0	0	3955	0	0	1444	1292	0	0	0
Flt Permitted	0.454							0.950				
Satd. Flow (perm)	690	2888	0	0	3955	0	0	1444	1292	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					94				302			
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		560			300			1068			184	
Travel Time (s)		10.9			5.8			24.3			4.2	
Peak Hour Factor	0.89	0.85	0.90	0.90	0.88	0.79	0.77	0.90	0.82	0.90	0.90	0.90
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	149	151	0	0	203	94	201	0	302	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	149	151	0	0	297	0	0	201	302	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2		1	2	1			
Detector Template	Left	Thru			Thru		Left	Thru	Right			
Leading Detector (ft)	20	100			100		20	100	20			
Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft)	20	6			6		20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			4				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2						4		4			
Detector Phase	5	2			6		4	4	4			
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0	10.0			
Minimum Split (s)	16.0	16.0			16.0		16.0	16.0	16.0			
Total Split (s)	19.0	39.0			20.0		31.0	31.0	31.0			
Total Split (%)	27.1%	55.7%			28.6%		44.3%	44.3%	44.3%			
Maximum Green (s)	13.0	33.0			14.0		25.0	25.0	25.0			
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0	2.0			
Lost Time Adjust (s)	0.0	0.0			0.0			0.0	0.0			
Total Lost Time (s)	6.0	6.0			6.0			6.0	6.0			
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	5.0			5.0		5.0	5.0	5.0			
Recall Mode	None	C-Max			C-Max		None	None	None			
Act Effct Green (s)	39.9	39.9			26.1			18.1	18.1			
Actuated g/C Ratio	0.57	0.57			0.37			0.26	0.26			
v/c Ratio	0.29	0.09			0.19			0.54	0.54			
Control Delay	4.9	3.4			9.7			26.6	6.3			
Queue Delay	0.0	0.0			0.0			0.0	0.0			
Total Delay	4.9	3.4			9.7			26.6	6.3			
LOS	A	A			A			C	A			
Approach Delay		4.2			9.7			14.4				
Approach LOS		A			A			B				
90th %ile Green (s)	13.0	33.0			14.0		25.0	25.0	25.0			
90th %ile Term Code	Max	Coord			Coord		Max	Max	Max			
70th %ile Green (s)	11.7	36.5			18.8		21.5	21.5	21.5			
70th %ile Term Code	Gap	Coord			Coord		Gap	Gap	Gap			
50th %ile Green (s)	10.0	39.6			23.6		18.4	18.4	18.4			
50th %ile Term Code	Min	Coord			Coord		Gap	Gap	Gap			
30th %ile Green (s)	10.0	42.9			26.9		15.1	15.1	15.1			
30th %ile Term Code	Min	Coord			Coord		Gap	Gap	Gap			
10th %ile Green (s)	0.0	47.3			47.3		10.7	10.7	10.7			
10th %ile Term Code	Skip	Coord			Coord		Gap	Gap	Gap			
Stops (vph)	29	22			76			124	30			
Fuel Used(gal)	1	1			2			3	3			
CO Emissions (g/hr)	62	54			113			197	178			
NOx Emissions (g/hr)	12	11			22			38	35			
VOC Emissions (g/hr)	14	13			26			46	41			
Dilemma Vehicles (#)	0	6			26			0	0			
Queue Length 50th (ft)	11	5			10			74	0			
Queue Length 95th (ft)	18	8			37			116	34			
Internal Link Dist (ft)		480			220			988			104	
Turn Bay Length (ft)									500			
Base Capacity (vph)	532	1644			1534			515	655			
Starvation Cap Reductn	0	0			0			0	0			
Spillback Cap Reductn	0	8			0			0	0			
Storage Cap Reductn	0	0			0			0	0			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.28	0.09			0.19			0.39	0.46			

Intersection Summary	
Area Type: Other	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 52 (74%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.54	
Intersection Signal Delay: 10.3	Intersection LOS: B
Intersection Capacity Utilization 40.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: NB I-81

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	202	132	85	249	0	0	0	0	59	3	154
Future Volume (vph)	0	202	132	85	249	0	0	0	0	59	3	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.935										0.850
Flt Protected				0.950							0.957	
Satd. Flow (prot)	0	2700	0	1444	2888	0	0	0	0	0	1455	1292
Flt Permitted				0.950							0.957	
Satd. Flow (perm)	0	2700	0	1444	2888	0	0	0	0	0	1455	1292
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		174										190
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			560			215			1058	
Travel Time (s)		9.7			10.9			4.9			24.0	
Peak Hour Factor	0.90	0.89	0.76	0.84	0.94	0.90	0.90	0.90	0.90	0.81	0.38	0.81
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	0	227	174	101	265	0	0	0	0	73	8	190
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	401	0	101	265	0	0	0	0	0	81	190
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (ft)		100		20	100					20	100	20
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases										4		4
Detector Phase		2		1	6					4	4	4
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		5.0		5.0	5.0					5.0	5.0	5.0
Minimum Split (s)		11.0		11.0	11.0					11.0	11.0	11.0
Total Split (s)		26.0		20.0	46.0					24.0	24.0	24.0
Total Split (%)		37.1%		28.6%	65.7%					34.3%	34.3%	34.3%
Maximum Green (s)		20.0		14.0	40.0					18.0	18.0	18.0
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0						6.0	6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		5.0		4.0	4.0					4.0	4.0	4.0
Recall Mode		C-Max		None	C-Max					Max	Max	Max
Act Effct Green (s)		25.8		10.8	40.0						18.0	18.0
Actuated g/C Ratio		0.37		0.15	0.57						0.26	0.26
v/c Ratio		0.36		0.45	0.16						0.22	0.40
Control Delay		11.5		38.3	3.9						22.4	6.6
Queue Delay		0.0		0.0	0.0						0.0	0.0
Total Delay		11.5		38.3	3.9						22.4	6.6
LOS		B		D	A						C	A
Approach Delay		11.5			13.4						11.3	
Approach LOS		B			B						B	
90th %ile Green (s)		20.0		14.0	40.0					18.0	18.0	18.0
90th %ile Term Code		Coord		Max	Coord					MaxR	MaxR	MaxR
70th %ile Green (s)		21.2		12.8	40.0					18.0	18.0	18.0
70th %ile Term Code		Coord		Gap	Coord					MaxR	MaxR	MaxR
50th %ile Green (s)		22.9		11.1	40.0					18.0	18.0	18.0
50th %ile Term Code		Coord		Gap	Coord					MaxR	MaxR	MaxR
30th %ile Green (s)		24.7		9.3	40.0					18.0	18.0	18.0
30th %ile Term Code		Coord		Gap	Coord					MaxR	MaxR	MaxR
10th %ile Green (s)		40.0		0.0	40.0					18.0	18.0	18.0
10th %ile Term Code		Coord		Skip	Coord					MaxR	MaxR	MaxR
Stops (vph)		142		78	85						48	24
Fuel Used(gal)		3		2	2						1	2
CO Emissions (g/hr)		214		111	129						74	112
NOx Emissions (g/hr)		42		22	25						14	22
VOC Emissions (g/hr)		50		26	30						17	26
Dilemma Vehicles (#)		24		0	3						0	0
Queue Length 50th (ft)		37		46	16						27	0
Queue Length 95th (ft)		75		73	31						24	33
Internal Link Dist (ft)		420			480			135			978	
Turn Bay Length (ft)												
Base Capacity (vph)		1103		288	1650						374	473
Starvation Cap Reductn		0		0	0						0	0
Spillback Cap Reductn		0		0	0						0	0
Storage Cap Reductn		0		0	0						0	0
Reduced v/c Ratio		0.36		0.35	0.16						0.22	0.40

Intersection Summary

Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 21 (30%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.45	
Intersection Signal Delay: 12.1	Intersection LOS: B
Intersection Capacity Utilization 40.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: SB I-81

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	8	331	12	9	130
Future Volume (vph)	5	8	331	12	9	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.919		0.994			
Flt Protected	0.980				0.950	
Satd. Flow (prot)	1599	0	1765	0	1687	1776
Flt Permitted	0.980				0.950	
Satd. Flow (perm)	1599	0	1765	0	1687	1776
Link Speed (mph)	30		45			45
Link Distance (ft)	190		1001			1511
Travel Time (s)	4.3		15.2			22.9
Peak Hour Factor	0.63	0.67	0.95	0.75	0.56	0.89
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	8	12	348	16	16	146
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	0	364	0	16	146
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		24			24
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 28.1%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	8	331	12	9	130
Future Volume (vph)	5	8	331	12	9	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.919		0.994			
Flt Protected	0.980				0.950	
Satd. Flow (prot)	1599	0	1765	0	1687	1776
Flt Permitted	0.980				0.950	
Satd. Flow (perm)	1599	0	1765	0	1687	1776
Link Speed (mph)	30		45			45
Link Distance (ft)	190		1001			1511
Travel Time (s)	4.3		15.2			22.9
Peak Hour Factor	0.63	0.67	0.95	0.75	0.56	0.89
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%
Adj. Flow (vph)	8	12	348	16	16	146
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	0	364	0	16	146
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		24			24
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 28.1%	ICU Level of Service A
Analysis Period (min) 15	

Intersection: 3: US 11

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	103	48	70	58	84	100
Average Queue (ft)	52	26	38	19	36	54
95th Queue (ft)	102	53	78	56	87	105
Link Distance (ft)	213	213		1451	321	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			270			225
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: NB I-81

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	TR	LT	R
Maximum Queue (ft)	90	38	30	104	51	64	92	59
Average Queue (ft)	37	8	4	41	11	25	44	31
95th Queue (ft)	90	42	27	105	50	72	94	66
Link Distance (ft)	520	520	520	213	213	213	1020	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)								500
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 9: SB I-81

Movement	EB	EB	WB	WB	WB	SB	SB
Directions Served	T	TR	L	T	T	LT	R
Maximum Queue (ft)	90	164	232	36	31	63	79
Average Queue (ft)	31	76	136	9	7	29	46
95th Queue (ft)	92	157	243	38	35	70	84
Link Distance (ft)	462	462	520	520	520	1010	1010
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 12: Woodbine

Movement	WB
Directions Served	LR
Maximum Queue (ft)	47
Average Queue (ft)	16
95th Queue (ft)	49
Link Distance (ft)	150
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

Intersection: 3: US 11

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	192	85	90	109	106	65
Average Queue (ft)	127	36	55	62	61	30
95th Queue (ft)	202	106	97	114	116	75
Link Distance (ft)	213	213		1451	321	
Upstream Blk Time (%)	1	0				
Queuing Penalty (veh)	2	0				
Storage Bay Dist (ft)			270			225
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: NB I-81

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	TR	LT	R
Maximum Queue (ft)	108	59	33	64	57	106	170	135
Average Queue (ft)	55	20	7	19	16	48	101	72
95th Queue (ft)	111	62	41	68	58	107	171	156
Link Distance (ft)	520	520	520	213	213	213	1020	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)								500
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 9: SB I-81

Movement	EB	EB	WB	WB	WB	SB	SB
Directions Served	T	TR	L	T	T	LT	R
Maximum Queue (ft)	100	141	122	64	81	87	85
Average Queue (ft)	49	83	65	28	37	45	52
95th Queue (ft)	102	162	122	73	84	93	96
Link Distance (ft)	462	462	520	520	520	1010	1010
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 12: Woodbine

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	48	13
Average Queue (ft)	13	2
95th Queue (ft)	47	15
Link Distance (ft)	150	1451
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

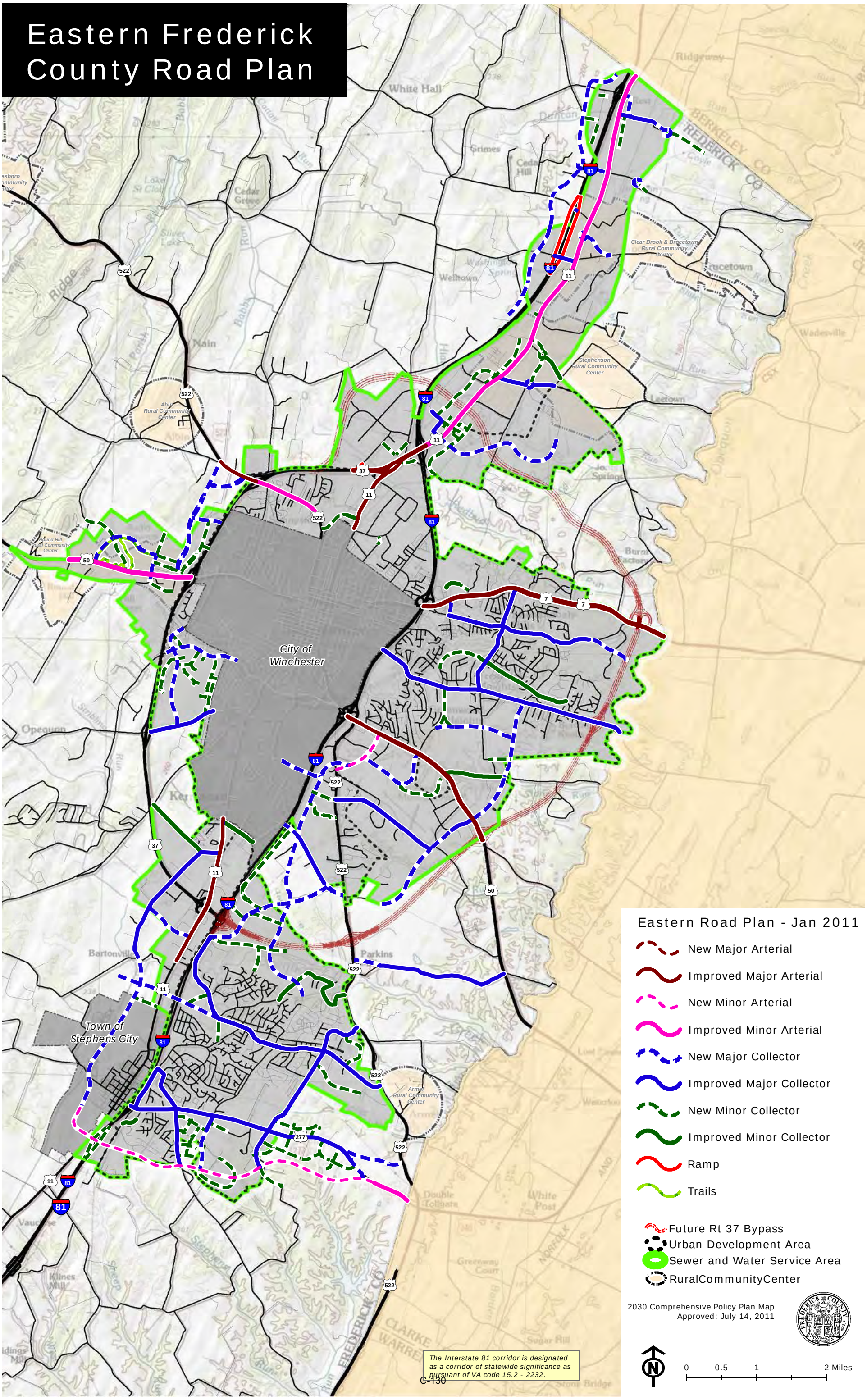
Network Summary

Network wide Queuing Penalty: 2

APPENDIX F

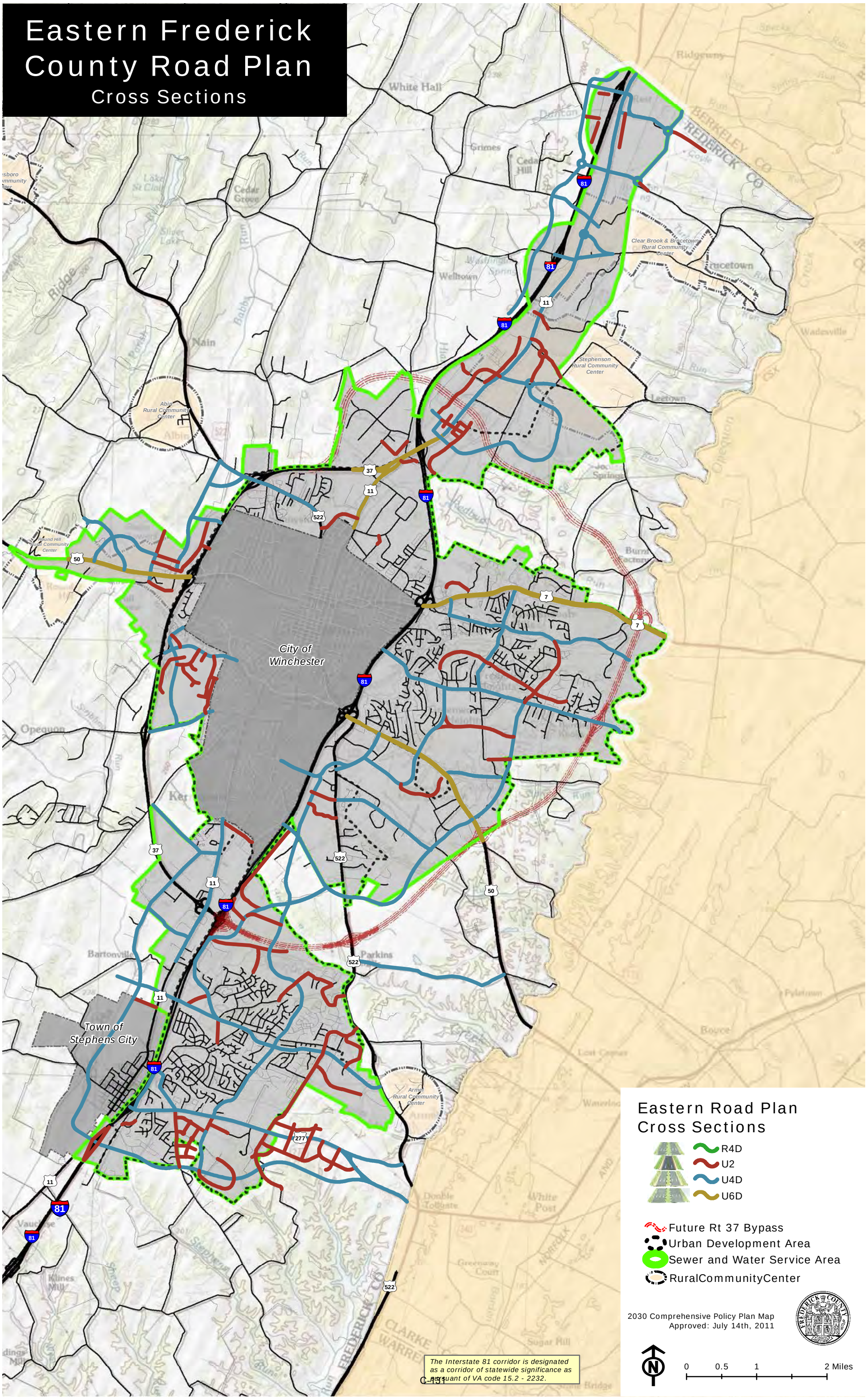
2030 COMPREHENSIVE PLAN
EASTERN ROADWAY MAP

Eastern Frederick County Road Plan



Eastern Frederick County Road Plan

Cross Sections



APPENDIX G

TRAFFIC GROWTH FACTOR

VDOT Annual AAWDT to Determine Growth Rates

ARCADIA	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**Over 5 Years**	**Annual %**
I-81 - N of US 17	59000	61000	60000	62000	62000	63000	0.07	1.36
I81 S of US 17	46000	47000	44000	43000	47000	49000	0.07	1.30
WHITEHALL								
I-81 - S of WVA Line	42000	45000	43000	44000	44000	46000	0.10	1.90
I-81 S of Rest Church Rd	45000	46000	46000	46000	47000	48000	0.07	1.33
								1.47
								1.50%
US 17 - Millwood Pike to Winchester	40000	40000	41000	41000	42000	44000	0.10	2.00
SR 522 from Papermill to US 50	15000	15000	15000	15000	15000	15000	0	0

APPENDIX H

2019 LEVEL OF SERVICE ANALYSIS – WITHOUT PROJECT

Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations												
Traffic Volume (vph)	2	2	8	24	422	2	37	653	107	48	1	15
Future Volume (vph)	2	2	8	24	422	2	37	653	107	48	1	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0	110		105	125		390	0	0	
Storage Lanes		1	0	1		1	1		1	1	0	
Taper Length (ft)		25		25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt		0.907				0.850			0.850	0.966		
Flt Protected		0.985		0.950			0.950			0.964		
Satd. Flow (prot)	0	1632	0	1736	3471	1553	1736	3471	1553	1701	0	0
Flt Permitted		0.985		0.950			0.950			0.964		
Satd. Flow (perm)	0	1632	0	1736	3471	1553	1736	3471	1553	1701	0	0
Link Speed (mph)		30			55			55		35		
Link Distance (ft)		250			1447			2600		500		
Travel Time (s)		5.7			17.9			32.2		9.7		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2	2	9	27	469	2	41	726	119	53	1	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	13	0	27	469	2	41	726	119	71	0	0

Intersection Summary	
Area Type:	Other

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	0	10	0	0	0	48	384	0	3	458	184
Future Volume (vph)	36	0	10	0	0	0	48	384	0	3	458	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	215		0	0		0	230		0	120		180
Storage Lanes	1		0	0		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.850										0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1736	1553	0	0	0	0	1736	3471	1827	1736	3471	1553
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	1736	1553	0	0	0	0	1736	3471	1827	1736	3471	1553
Link Speed (mph)		35			30			55			55	
Link Distance (ft)		500			55			2300			1447	
Travel Time (s)		9.7			1.3			28.5			17.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	40	0	11	0	0	0	53	427	0	3	509	204
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	11	0	0	0	0	53	427	0	3	509	204

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Traffic Vol, veh/h	2	8	24	422	2	37	653	107	48	1
Future Vol, veh/h	2	8	24	422	2	37	653	107	48	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	-	None	-	-
Storage Length	0	-	110	-	105	125	-	390	0	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	2	9	27	469	2	41	726	119	53	1

Major/Minor	Minor1		Major1			Major2			Minor2	
Conflicting Flow All	968	234	726	0	0	469	0	0	1097	363
Stage 1	522	-	-	-	-	-	-	-	808	-
Stage 2	446	-	-	-	-	-	-	-	289	-
Critical Hdwy	7.58	6.98	4.18	-	-	4.18	-	-	7.58	6.98
Critical Hdwy Stg 1	6.58	-	-	-	-	-	-	-	6.58	-
Critical Hdwy Stg 2	6.58	-	-	-	-	-	-	-	6.58	-
Follow-up Hdwy	3.54	3.34	2.24	-	-	2.24	-	-	3.54	3.34
Pot Cap-1 Maneuver	205	762	860	-	-	1075	-	-	165	628
Stage 1	501	-	-	-	-	-	-	-	337	-
Stage 2	556	-	-	-	-	-	-	-	689	-
Platoon blocked, %				-	-		-	-		
Mov Cap-1 Maneuver	188	762	860	-	-	1075	-	-	153	628
Mov Cap-2 Maneuver	188	-	-	-	-	-	-	-	153	-
Stage 1	485	-	-	-	-	-	-	-	326	-
Stage 2	519	-	-	-	-	-	-	-	657	-

Approach	WB	NB	SB	NE
HCM Control Delay, s	16	0.5	0.4	35.3
HCM LOS	C			E

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	187	860	-	-	340	1075	-	-
HCM Lane V/C Ratio	0.374	0.031	-	-	0.039	0.038	-	-
HCM Control Delay (s)	35.3	9.3	-	-	16	8.5	-	-
HCM Lane LOS	E	A	-	-	C	A	-	-
HCM 95th %tile Q(veh)	1.6	0.1	-	-	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	36	0	10	0	0	0	48	384	0	3	458	184
Future Vol, veh/h	36	0	10	0	0	0	48	384	0	3	458	184
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	215	-	-	-	-	-	230	-	0	120	-	180
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	40	0	11	0	0	0	53	427	0	3	509	204

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	836	1049	254	509	0	0	427	0	0
Stage 1	516	516	-	-	-	-	-	-	-
Stage 2	320	533	-	-	-	-	-	-	-
Critical Hdwy	6.88	6.58	6.98	4.18	-	-	4.18	-	-
Critical Hdwy Stg 1	5.88	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.88	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.54	4.04	3.34	2.24	-	-	2.24	-	-
Pot Cap-1 Maneuver	302	223	739	1038	-	-	1115	-	-
Stage 1	558	528	-	-	-	-	-	-	-
Stage 2	703	518	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	286	0	739	1038	-	-	1115	-	-
Mov Cap-2 Maneuver	286	0	-	-	-	-	-	-	-
Stage 1	556	0	-	-	-	-	-	-	-
Stage 2	667	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.5	1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	SBL	SBT	SBR
Capacity (veh/h)	1038	-	-	286	739	1115	-	-
HCM Lane V/C Ratio	0.051	-	-	0.14	0.015	0.003	-	-
HCM Control Delay (s)	8.7	-	-	19.6	9.9	8.2	-	-
HCM Lane LOS	A	-	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.5	0	0	-	-

Intersection: 1: Victory

Movement	WB	NB	SB	NE
Directions Served	<LR	L	L	ULR>
Maximum Queue (ft)	23	14	13	76
Average Queue (ft)	9	4	4	45
95th Queue (ft)	30	18	16	87
Link Distance (ft)	186			434
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		110	125	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Independence

Movement	EB	EB	NB	SB	SB
Directions Served	L	TR	L	L	R
Maximum Queue (ft)	42	19	22	2	8
Average Queue (ft)	22	7	9	0	2
95th Queue (ft)	49	26	25	6	13
Link Distance (ft)		431			
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	215		230	120	180
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 0

Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations											
Traffic Volume (vph)	0	7	19	831	3	86	520	72	82	4	8
Future Volume (vph)	0	7	19	831	3	86	520	72	82	4	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	110		105	125		390	0	0	
Storage Lanes	1	0	1		1	1		1	1	0	
Taper Length (ft)	25		25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt	0.865				0.850			0.850	0.983		
Flt Protected			0.950			0.950			0.958		
Satd. Flow (prot)	1580	0	1736	3471	1553	1736	3471	1553	1720	0	0
Flt Permitted			0.950			0.950			0.958		
Satd. Flow (perm)	1580	0	1736	3471	1553	1736	3471	1553	1720	0	0
Link Speed (mph)	30			55			55		35		
Link Distance (ft)	250			1447			2600		500		
Travel Time (s)	5.7			17.9			32.2		9.7		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	8	21	923	3	96	578	80	91	4	9
Shared Lane Traffic (%)											
Lane Group Flow (vph)	8	0	21	923	3	96	578	80	104	0	0

Intersection Summary	
Area Type:	Other

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	0	47	0	0	0	22	743	0	1	438	126
Future Volume (vph)	177	0	47	0	0	0	22	743	0	1	438	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	215		0	0		0	230		0	120		180
Storage Lanes	1		0	0		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.850										0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1736	1553	0	0	0	0	1736	3471	1827	1736	3471	1553
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	1736	1553	0	0	0	0	1736	3471	1827	1736	3471	1553
Link Speed (mph)		35			30			55			55	
Link Distance (ft)		500			55			2300			1447	
Travel Time (s)		9.7			1.3			28.5			17.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	197	0	52	0	0	0	24	826	0	1	487	140
Shared Lane Traffic (%)												
Lane Group Flow (vph)	197	52	0	0	0	0	24	826	0	1	487	140

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	7.7

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Traffic Vol, veh/h	0	7	19	831	3	86	520	72	82	4
Future Vol, veh/h	0	7	19	831	3	86	520	72	82	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	-	None	-	-
Storage Length	0	-	110	-	105	125	-	390	0	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	8	21	923	3	96	578	80	91	4

Major/Minor	Minor1		Major1			Major2			Minor2	
Conflicting Flow All	1448	462	578	0	0	923	0	0	1273	289
Stage 1	966	-	-	-	-	-	-	-	769	-
Stage 2	482	-	-	-	-	-	-	-	504	-
Critical Hdwy	7.58	6.98	4.18	-	-	4.18	-	-	7.58	6.98
Critical Hdwy Stg 1	6.58	-	-	-	-	-	-	-	6.58	-
Critical Hdwy Stg 2	6.58	-	-	-	-	-	-	-	6.58	-
Follow-up Hdwy	3.54	3.34	2.24	-	-	2.24	-	-	3.54	3.34
Pot Cap-1 Maneuver	90	541	978	-	-	723	-	-	122	702
Stage 1	269	-	-	-	-	-	-	-	355	-
Stage 2	529	-	-	-	-	-	-	-	513	-
Platoon blocked, %				-	-		-	-		
Mov Cap-1 Maneuver	75	541	978	-	-	723	-	-	106	702
Mov Cap-2 Maneuver	75	-	-	-	-	-	-	-	106	-
Stage 1	263	-	-	-	-	-	-	-	347	-
Stage 2	447	-	-	-	-	-	-	-	495	-

Approach	WB	NB	SB	NE
HCM Control Delay, s	11.8	0.2	1.4	121.5
HCM LOS	B			F

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	115	978	-	-	541	723	-	-
HCM Lane V/C Ratio	0.87	0.022	-	-	0.014	0.132	-	-
HCM Control Delay (s)	121.5	8.8	-	-	11.8	10.7	-	-
HCM Lane LOS	F	A	-	-	B	B	-	-
HCM 95th %tile Q(veh)	5.3	0.1	-	-	0	0.5	-	-

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	177	0	47	0	0	0	22	743	0	1	438	126
Future Vol, veh/h	177	0	47	0	0	0	22	743	0	1	438	126
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	215	-	-	-	-	-	230	-	0	120	-	180
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	197	0	52	0	0	0	24	826	0	1	487	140

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	951	1363	243	487	0	0	826	0	0
Stage 1	489	489	-	-	-	-	-	-	-
Stage 2	462	874	-	-	-	-	-	-	-
Critical Hdwy	6.88	6.58	6.98	4.18	-	-	4.18	-	-
Critical Hdwy Stg 1	5.88	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.88	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.54	4.04	3.34	2.24	-	-	2.24	-	-
Pot Cap-1 Maneuver	254	144	752	1058	-	-	788	-	-
Stage 1	576	543	-	-	-	-	-	-	-
Stage 2	595	361	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	248	0	752	1058	-	-	788	-	-
Mov Cap-2 Maneuver	248	0	-	-	-	-	-	-	-
Stage 1	575	0	-	-	-	-	-	-	-
Stage 2	582	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	48.5	0.2	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	SBL	SBT	SBR
Capacity (veh/h)	1058	-	-	248	752	788	-	-
HCM Lane V/C Ratio	0.023	-	-	0.793	0.069	0.001	-	-
HCM Control Delay (s)	8.5	-	-	58.7	10.1	9.6	-	-
HCM Lane LOS	A	-	-	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	6	0.2	0	-	-

Intersection: 1: Victory

Movement	WB	NB	SB	NE
Directions Served	<LR	L	L	ULR>
Maximum Queue (ft)	6	5	43	154
Average Queue (ft)	2	2	19	96
95th Queue (ft)	15	8	51	213
Link Distance (ft)	186			434
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		110	125	
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Intersection: 2: Independence

Movement	EB	EB	NB
Directions Served	L	TR	L
Maximum Queue (ft)	198	175	15
Average Queue (ft)	135	75	5
95th Queue (ft)	248	274	18
Link Distance (ft)		431	
Upstream Blk Time (%)		2	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)	215		230
Storage Blk Time (%)	14	0	
Queuing Penalty (veh)	6	1	

Network Summary

Network wide Queuing Penalty: 7

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Lane Configurations							
Traffic Volume (vph)	76	246	231	102	196	335	
Future Volume (vph)	76	246	231	102	196	335	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	270			225	
Storage Lanes	1	1	1			1	
Taper Length (ft)	25		25				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850				0.850	
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1687	1324	1480	1776	1776	1509	
Flt Permitted	0.950		0.604				
Satd. Flow (perm)	1687	1324	941	1776	1776	1509	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		280				381	
Link Speed (mph)	35			45	45		
Link Distance (ft)	300			1511	376		
Travel Time (s)	5.8			22.9	5.7		
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	
Heavy Vehicles (%)	7%	22%	22%	7%	7%	7%	
Adj. Flow (vph)	86	280	263	116	223	381	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	86	280	263	116	223	381	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			12	12		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane				Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1	1	1	2	2	1	
Detector Template	Left	Right	Left	Thru	Thru	Right	
Leading Detector (ft)	20	20	20	100	100	20	
Trailing Detector (ft)	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	
Detector 1 Size(ft)	20	20	20	6	6	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	pm+pt	Perm	D.P+P	NA	NA	pm+ov	
Protected Phases	7		5	2	6	7	4

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Permitted Phases	4	7	6			6	
Detector Phase	7	7	5	2	6	7	
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	20.0	20.0	20.0	20.0	21.0	20.0	21.0
Total Split (s)	22.0	22.0	20.0	43.0	23.0	22.0	22.0
Total Split (%)	33.8%	33.8%	30.8%	66.2%	35.4%	33.8%	34%
Maximum Green (s)	16.0	16.0	14.0	37.0	17.0	16.0	16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag			Lead		Lag		
Lead-Lag Optimize?			Yes				
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	None	Max
Act Effct Green (s)	16.0	16.0	31.0	37.0	19.2	41.2	
Actuated g/C Ratio	0.25	0.25	0.48	0.57	0.30	0.63	
v/c Ratio	0.21	0.52	0.48	0.11	0.43	0.35	
Control Delay	20.2	9.8	11.1	6.9	22.2	1.7	
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	
Total Delay	20.2	9.9	11.1	6.9	22.2	1.7	
LOS	C	A	B	A	C	A	
Approach Delay	12.4			9.8	9.3		
Approach LOS	B			A	A		
90th %ile Green (s)	16.0	16.0	14.0	37.0	17.0	16.0	16.0
90th %ile Term Code	Max	Max	Max	Coord	Coord	Max	MaxR
70th %ile Green (s)	16.0	16.0	13.4	37.0	17.6	16.0	16.0
70th %ile Term Code	Hold	Hold	Gap	Coord	Coord	Hold	MaxR
50th %ile Green (s)	16.0	16.0	11.5	37.0	19.5	16.0	16.0
50th %ile Term Code	Hold	Hold	Gap	Coord	Coord	Hold	MaxR
30th %ile Green (s)	16.0	16.0	10.0	37.0	21.0	16.0	16.0
30th %ile Term Code	Hold	Hold	Min	Coord	Coord	Hold	MaxR
10th %ile Green (s)	16.0	16.0	10.0	37.0	21.0	16.0	16.0
10th %ile Term Code	Hold	Hold	Min	Coord	Coord	Hold	MaxR
Stops (vph)	63	99	128	43	156	20	
Fuel Used(gal)	1	2	4	2	3	1	
CO Emissions (g/hr)	67	124	306	117	231	83	
NOx Emissions (g/hr)	13	24	60	23	45	16	
VOC Emissions (g/hr)	15	29	71	27	54	19	
Dilemma Vehicles (#)	0	0	0	8	15	0	
Queue Length 50th (ft)	33	0	49	19	70	0	
Queue Length 95th (ft)	61	70	86	38	130	26	
Internal Link Dist (ft)	220			1431	296		
Turn Bay Length (ft)			270			225	
Base Capacity (vph)	415	536	596	1010	524	1096	
Starvation Cap Reductn	0	17	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Reduced v/c Ratio	0.21	0.54	0.44	0.11	0.43	0.35	

Intersection Summary	
Area Type: Other	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 13 (20%), Referenced to phase 2:NBT and 6:NBSB, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 10.3	Intersection LOS: B
Intersection Capacity Utilization 46.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: US 11

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	180	0	0	394	161	60	0	144	0	0	0
Future Volume (vph)	85	180	0	0	394	161	60	0	144	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		500	0		0
Storage Lanes	1		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.956				0.850			
Flt Protected	0.950							0.950				
Satd. Flow (prot)	1444	2888	0	0	3967	0	0	1444	1292	0	0	0
Flt Permitted	0.325							0.950				
Satd. Flow (perm)	494	2888	0	0	3967	0	0	1444	1292	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					164				164			
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		560			300			1068			184	
Travel Time (s)		10.9			5.8			24.3			4.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	97	205	0	0	448	183	68	0	164	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	205	0	0	631	0	0	68	164	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2		1	2	1			
Detector Template	Left	Thru			Thru		Left	Thru	Right			
Leading Detector (ft)	20	100			100		20	100	20			
Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft)	20	6			6		20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2						8		8			
Detector Phase	5	2			6		8	8	8			
Switch Phase												
Minimum Initial (s)	7.0	10.0			10.0		10.0	10.0	10.0			
Minimum Split (s)	16.0	16.0			16.0		16.0	16.0	16.0			
Total Split (s)	18.0	44.0			26.0		21.0	21.0	21.0			
Total Split (%)	27.7%	67.7%			40.0%		32.3%	32.3%	32.3%			
Maximum Green (s)	12.0	38.0			20.0		15.0	15.0	15.0			
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0	2.0			
Lost Time Adjust (s)	0.0	0.0			0.0			0.0	0.0			
Total Lost Time (s)	6.0	6.0			6.0			6.0	6.0			
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Recall Mode	None	C-Max			C-Max		Max	Max	Max			
Act Effct Green (s)	38.0	38.0			26.8			15.0	15.0			
Actuated g/C Ratio	0.58	0.58			0.41			0.23	0.23			
v/c Ratio	0.24	0.12			0.36			0.20	0.39			
Control Delay	3.1	2.0			7.8			22.1	7.1			
Queue Delay	0.0	0.0			0.0			0.0	0.0			
Total Delay	3.1	2.0			7.8			22.1	7.1			
LOS	A	A			A			C	A			
Approach Delay		2.3			7.8			11.5				
Approach LOS		A			A			B				
90th %ile Green (s)	9.6	38.0			22.4		15.0	15.0	15.0			
90th %ile Term Code	Gap	Coord			Coord		MaxR	MaxR	MaxR			
70th %ile Green (s)	8.2	38.0			23.8		15.0	15.0	15.0			
70th %ile Term Code	Gap	Coord			Coord		MaxR	MaxR	MaxR			
50th %ile Green (s)	7.4	38.0			24.6		15.0	15.0	15.0			
50th %ile Term Code	Gap	Coord			Coord		MaxR	MaxR	MaxR			
30th %ile Green (s)	7.0	38.0			25.0		15.0	15.0	15.0			
30th %ile Term Code	Min	Coord			Coord		MaxR	MaxR	MaxR			
10th %ile Green (s)	0.0	38.0			38.0		15.0	15.0	15.0			
10th %ile Term Code	Skip	Coord			Coord		MaxR	MaxR	MaxR			
Stops (vph)	12	24			242			49	25			
Fuel Used(gal)	0	1			4			1	2			
CO Emissions (g/hr)	34	69			273			73	108			
NOx Emissions (g/hr)	7	13			53			14	21			
VOC Emissions (g/hr)	8	16			63			17	25			
Dilemma Vehicles (#)	0	4			39			0	0			
Queue Length 50th (ft)	5	5			46			22	0			
Queue Length 95th (ft)	m6	6			65			51	40			
Internal Link Dist (ft)		480			220			988			104	
Turn Bay Length (ft)									500			
Base Capacity (vph)	464	1688			1729			333	424			
Starvation Cap Reductn	0	0			0			0	0			
Spillback Cap Reductn	0	0			0			0	0			
Storage Cap Reductn	0	0			0			0	0			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.21	0.12			0.36			0.20	0.39			

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 65
Offset: 14 (22%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.39
Intersection Signal Delay: 7.1 Intersection LOS: A
Intersection Capacity Utilization 49.2% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: NB I-81

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	147	178	330	124	0	0	0	0	112	2	123
Future Volume (vph)	0	147	178	330	124	0	0	0	0	112	2	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.918										0.850
Flt Protected				0.950							0.953	
Satd. Flow (prot)	0	2651	0	1444	2888	0	0	0	0	0	1449	1292
Flt Permitted				0.950							0.953	
Satd. Flow (perm)	0	2651	0	1444	2888	0	0	0	0	0	1449	1292
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		202										151
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			560			215			1058	
Travel Time (s)		9.7			10.9			4.9			24.0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	0	167	202	375	141	0	0	0	0	127	2	140
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	369	0	375	141	0	0	0	0	0	129	140
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (ft)		100		20	100					20	100	20
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases										4		4
Detector Phase		2		1	6					4	4	4
Switch Phase												

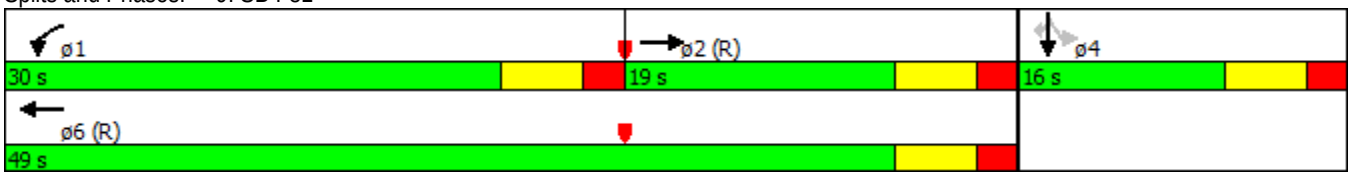
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		10.0		7.0	10.0					10.0	10.0	10.0
Minimum Split (s)		16.0		13.0	16.0					16.0	16.0	16.0
Total Split (s)		19.0		30.0	49.0					16.0	16.0	16.0
Total Split (%)		29.2%		46.2%	75.4%					24.6%	24.6%	24.6%
Maximum Green (s)		13.0		24.0	43.0					10.0	10.0	10.0
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0						6.0	6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max					Max	Max	Max
Act Effct Green (s)		16.4		20.6	43.0						10.0	10.0
Actuated g/C Ratio		0.25		0.32	0.66						0.15	0.15
v/c Ratio		0.45		0.82	0.07						0.58	0.43
Control Delay		12.2		28.6	1.1						37.7	9.0
Queue Delay		0.0		0.0	0.0						0.0	0.0
Total Delay		12.2		28.6	1.1						37.7	9.0
LOS		B		C	A						D	A
Approach Delay		12.2			21.1						22.8	
Approach LOS		B			C						C	
90th %ile Green (s)		13.0		24.0	43.0					10.0	10.0	10.0
90th %ile Term Code		Coord		Max	Coord					MaxR	MaxR	MaxR
70th %ile Green (s)		13.0		24.0	43.0					10.0	10.0	10.0
70th %ile Term Code		Coord		Max	Coord					MaxR	MaxR	MaxR
50th %ile Green (s)		14.9		22.1	43.0					10.0	10.0	10.0
50th %ile Term Code		Coord		Gap	Coord					MaxR	MaxR	MaxR
30th %ile Green (s)		18.0		19.0	43.0					10.0	10.0	10.0
30th %ile Term Code		Coord		Gap	Coord					MaxR	MaxR	MaxR
10th %ile Green (s)		22.9		14.1	43.0					10.0	10.0	10.0
10th %ile Term Code		Coord		Gap	Coord					MaxR	MaxR	MaxR
Stops (vph)		129		286	13						101	22
Fuel Used(gal)		3		5	1						2	1
CO Emissions (g/hr)		206		378	44						166	95
NOx Emissions (g/hr)		40		74	9						32	19
VOC Emissions (g/hr)		48		88	10						38	22
Dilemma Vehicles (#)		25		0	3						0	0
Queue Length 50th (ft)		28		137	2						48	0
Queue Length 95th (ft)		63		#225	2						#106	37
Internal Link Dist (ft)		420			480			135			978	
Turn Bay Length (ft)												
Base Capacity (vph)		818		533	1910						222	326
Starvation Cap Reductn		0		0	0						0	0
Spillback Cap Reductn		0		0	0						0	0
Storage Cap Reductn		0		0	0						0	0
Reduced v/c Ratio		0.45		0.70	0.07						0.58	0.43

Intersection Summary

Area Type:	Other
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 52 (80%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 18.6	Intersection LOS: B
Intersection Capacity Utilization 49.2%	ICU Level of Service A
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: SB I-81



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	1	6	10	1	10	7	109	6	5	237	55
Future Volume (vph)	58	1	6	10	1	10	7	109	6	5	237	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	0		0
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.935			0.992				0.850
Flt Protected		0.957			0.977		0.950			0.950		
Satd. Flow (prot)	0	897	0	0	1563	0	902	1761	0	1687	1776	808
Flt Permitted		0.957			0.977		0.950			0.950		
Satd. Flow (perm)	0	897	0	0	1563	0	902	1761	0	1687	1776	808
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		302			190			1001			1511	
Travel Time (s)		6.9			4.3			15.2			22.9	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	100%	100%	100%	7%	100%	7%	100%	7%	7%	7%	7%	100%
Adj. Flow (vph)	66	1	7	11	1	11	8	124	7	6	269	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	0	0	23	0	8	131	0	6	269	63
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	58	1	6	10	1	10	7	109	6	5	237	55
Future Vol, veh/h	58	1	6	10	1	10	7	109	6	5	237	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	100	100	100	7	100	7	100	7	7	7	7	100
Mvmt Flow	66	1	7	11	1	11	8	124	7	6	269	63

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	430	428	269	428	424	127	269	0	0	131	0	0
Stage 1	281	281	-	143	143	-	-	-	-	-	-	-
Stage 2	149	147	-	285	281	-	-	-	-	-	-	-
Critical Hdwy	8.1	7.5	7.2	7.17	7.5	6.27	5.1	-	-	4.17	-	-
Critical Hdwy Stg 1	7.1	6.5	-	6.17	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.1	6.5	-	6.17	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	4.4	4.9	4.2	3.563	4.9	3.363	3.1	-	-	2.263	-	-
Pot Cap-1 Maneuver	400	397	583	528	400	910	889	-	-	1424	-	-
Stage 1	555	532	-	848	625	-	-	-	-	-	-	-
Stage 2	667	622	-	711	532	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	390	392	583	515	395	910	889	-	-	1424	-	-
Mov Cap-2 Maneuver	390	392	-	515	395	-	-	-	-	-	-	-
Stage 1	550	530	-	840	619	-	-	-	-	-	-	-
Stage 2	652	616	-	698	530	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16	10.9	0.5	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	889	-	-	402	638	1424	-	-
HCM Lane V/C Ratio	0.009	-	-	0.184	0.037	0.004	-	-
HCM Control Delay (s)	9.1	-	-	16	10.9	7.5	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.7	0.1	0	-	-

Intersection: 3: US 11

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	68	97	130	66	109	94
Average Queue (ft)	40	62	82	26	72	55
95th Queue (ft)	83	101	150	75	132	106
Link Distance (ft)	200	200		1444	321	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			270			225
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: NB I-81

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	TR	LT	R
Maximum Queue (ft)	74	11	54	113	72	68	52	76
Average Queue (ft)	40	2	21	74	29	41	34	54
95th Queue (ft)	88	17	64	131	78	79	68	86
Link Distance (ft)	520	520	520	200	200	200	1020	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)								500
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 9: SB I-81

Movement	EB	EB	WB	WB	WB	SB	SB
Directions Served	T	TR	L	T	T	LT	R
Maximum Queue (ft)	88	185	203	56	43	118	57
Average Queue (ft)	38	104	130	24	12	75	43
95th Queue (ft)	104	212	228	62	46	134	64
Link Distance (ft)	462	462	520	520	520	1010	1010
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 12: Woodbine

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	L	L	T
Maximum Queue (ft)	93	40	30	3	2
Average Queue (ft)	58	16	7	1	0
95th Queue (ft)	108	47	39	7	5
Link Distance (ft)	249	150		1444	1444
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			150		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Lane Configurations							
Traffic Volume (vph)	318	252	267	344	156	170	
Future Volume (vph)	318	252	267	344	156	170	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	270			225	
Storage Lanes	1	1	1			1	
Taper Length (ft)	25		25				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850				0.850	
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1687	1324	1480	1776	1776	1509	
Flt Permitted	0.950		0.556				
Satd. Flow (perm)	1687	1324	866	1776	1776	1509	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		286				193	
Link Speed (mph)	35			45	45		
Link Distance (ft)	300			1511	376		
Travel Time (s)	5.8			22.9	5.7		
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	
Heavy Vehicles (%)	7%	22%	22%	7%	7%	7%	
Adj. Flow (vph)	361	286	303	391	177	193	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	361	286	303	391	177	193	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			12	12		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane				Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1	1	1	2	2	1	
Detector Template	Left	Right	Left	Thru	Thru	Right	
Leading Detector (ft)	20	20	20	100	100	20	
Trailing Detector (ft)	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	
Detector 1 Size(ft)	20	20	20	6	6	20	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	custom	Perm	D.P+P	NA	NA	pm+ov	
Protected Phases	7		5	2	6	7	4

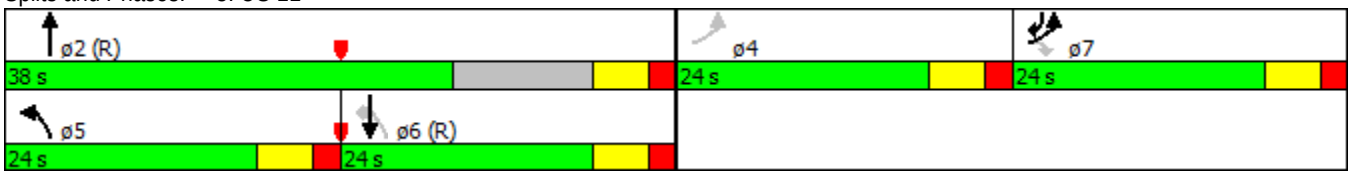
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Permitted Phases	4	7	6			6	
Detector Phase	7	7	5	2	6	7	
Switch Phase							
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	24.0	24.0	24.0	38.0	24.0	24.0	24.0
Total Split (%)	25.0%	25.0%	25.0%	39.6%	25.0%	25.0%	25%
Maximum Green (s)	18.0	18.0	18.0	32.0	18.0	18.0	18.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	
Lead/Lag			Lead		Lag		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	C-Max	C-Max	Max	Max
Act Effct Green (s)	42.0	18.0	36.0	42.0	18.0	36.0	
Actuated g/C Ratio	0.44	0.19	0.38	0.44	0.19	0.38	
v/c Ratio	0.49	0.60	0.69	0.50	0.53	0.28	
Control Delay	22.2	10.0	29.2	22.3	41.8	2.6	
Queue Delay	8.2	0.0	0.0	0.0	0.0	0.0	
Total Delay	30.3	10.0	29.2	22.3	41.8	2.6	
LOS	C	B	C	C	D	A	
Approach Delay	21.3			25.3	21.4		
Approach LOS	C			C	C		
90th %ile Green (s)	18.0	18.0	18.0	42.0	18.0	18.0	18.0
90th %ile Term Code	MaxR	MaxR	MaxR	Coord	Coord	MaxR	MaxR
70th %ile Green (s)	18.0	18.0	18.0	42.0	18.0	18.0	18.0
70th %ile Term Code	MaxR	MaxR	MaxR	Coord	Coord	MaxR	MaxR
50th %ile Green (s)	18.0	18.0	18.0	42.0	18.0	18.0	18.0
50th %ile Term Code	MaxR	MaxR	MaxR	Coord	Coord	MaxR	MaxR
30th %ile Green (s)	18.0	18.0	18.0	42.0	18.0	18.0	18.0
30th %ile Term Code	MaxR	MaxR	MaxR	Coord	Coord	MaxR	MaxR
10th %ile Green (s)	18.0	18.0	18.0	42.0	18.0	18.0	18.0
10th %ile Term Code	MaxR	MaxR	MaxR	Coord	Coord	MaxR	MaxR
Stops (vph)	222	34	204	241	138	17	
Fuel Used(gal)	4	1	7	8	3	1	
CO Emissions (g/hr)	265	92	471	555	239	50	
NOx Emissions (g/hr)	52	18	92	108	47	10	
VOC Emissions (g/hr)	61	21	109	129	55	12	
Dilemma Vehicles (#)	0	0	0	18	8	0	
Queue Length 50th (ft)	153	0	127	167	98	0	
Queue Length 95th (ft)	228	66	196	245	162	18	
Internal Link Dist (ft)	220			1431	296		
Turn Bay Length (ft)			270			225	
Base Capacity (vph)	738	480	439	777	333	686	
Starvation Cap Reductn	331	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Reduced v/c Ratio	0.89	0.60	0.69	0.50	0.53	0.28	

Intersection Summary

Area Type: Other	
Cycle Length: 96	
Actuated Cycle Length: 96	
Offset: 69 (72%), Referenced to phase 2:NBT and 6:NBSB, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 23.0	Intersection LOS: C
Intersection Capacity Utilization 55.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: US 11



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	228	0	0	286	164	164	0	345	0	0	0
Future Volume (vph)	141	228	0	0	286	164	164	0	345	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		500	0		0
Storage Lanes	1		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.945				0.850			
Flt Protected	0.950							0.950				
Satd. Flow (prot)	1444	2888	0	0	3921	0	0	1444	1292	0	0	0
Flt Permitted	0.356							0.950				
Satd. Flow (perm)	541	2888	0	0	3921	0	0	1444	1292	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					186				392			
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		560			300			1068			184	
Travel Time (s)		10.9			5.8			24.3			4.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	160	259	0	0	325	186	186	0	392	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	160	259	0	0	511	0	0	186	392	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2		1	2	1			
Detector Template	Left	Thru			Thru		Left	Thru	Right			
Leading Detector (ft)	20	100			100		20	100	20			
Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft)	20	6			6		20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			4				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2						4		4			
Detector Phase	5	2			6		4	4	4			
Switch Phase												
Minimum Initial (s)	7.0	10.0			10.0		10.0	10.0	10.0			
Minimum Split (s)	13.0	24.0			24.0		24.0	24.0	24.0			
Total Split (s)	16.0	43.0			27.0		27.0	27.0	27.0			
Total Split (%)	22.9%	61.4%			38.6%		38.6%	38.6%	38.6%			
Maximum Green (s)	10.0	37.0			21.0		21.0	21.0	21.0			
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0	2.0			
Lost Time Adjust (s)	0.0	0.0			0.0			0.0	0.0			
Total Lost Time (s)	6.0	6.0			6.0			6.0	6.0			
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Recall Mode	None	C-Max			C-Max		Max	Max	Max			
Act Effct Green (s)	37.0	37.0			22.0			21.0	21.0			
Actuated g/C Ratio	0.53	0.53			0.31			0.30	0.30			
v/c Ratio	0.40	0.17			0.38			0.43	0.59			
Control Delay	6.0	3.1			12.7			23.5	6.6			
Queue Delay	0.0	0.0			0.0			0.0	0.0			
Total Delay	6.0	3.1			12.7			23.5	6.6			
LOS	A	A			B			C	A			
Approach Delay		4.2			12.7			12.0				
Approach LOS		A			B			B				
90th %ile Green (s)	10.0	37.0			21.0		21.0	21.0	21.0			
90th %ile Term Code	Max	Coord			Coord		MaxR	MaxR	MaxR			
70th %ile Green (s)	10.0	37.0			21.0		21.0	21.0	21.0			
70th %ile Term Code	Max	Coord			Coord		MaxR	MaxR	MaxR			
50th %ile Green (s)	9.6	37.0			21.4		21.0	21.0	21.0			
50th %ile Term Code	Gap	Coord			Coord		MaxR	MaxR	MaxR			
30th %ile Green (s)	8.2	37.0			22.8		21.0	21.0	21.0			
30th %ile Term Code	Gap	Coord			Coord		MaxR	MaxR	MaxR			
10th %ile Green (s)	7.0	37.0			24.0		21.0	21.0	21.0			
10th %ile Term Code	Min	Coord			Coord		MaxR	MaxR	MaxR			
Stops (vph)	47	62			212			128	45			
Fuel Used(gal)	1	2			4			3	4			
CO Emissions (g/hr)	77	107			261			200	250			
NOx Emissions (g/hr)	15	21			51			39	49			
VOC Emissions (g/hr)	18	25			60			46	58			
Dilemma Vehicles (#)	0	8			32			0	0			
Queue Length 50th (ft)	15	11			38			64	0			
Queue Length 95th (ft)	9	6			63			116	55			
Internal Link Dist (ft)		480			220			988			104	
Turn Bay Length (ft)									500			
Base Capacity (vph)	414	1526			1361			433	662			
Starvation Cap Reductn	0	0			0			0	0			
Spillback Cap Reductn	0	0			0			0	0			
Storage Cap Reductn	0	0			0			0	0			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.39	0.17			0.38			0.43	0.59			

Intersection Summary	
Area Type: Other	
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 1 (1%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 10.1	Intersection LOS: B
Intersection Capacity Utilization 44.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6: NB I-81

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	224	140	176	274	0	0	0	0	151	3	163
Future Volume (vph)	0	224	140	176	274	0	0	0	0	151	3	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.942										0.850
Flt Protected				0.950							0.953	
Satd. Flow (prot)	0	2720	0	1444	2888	0	0	0	0	0	1449	1292
Flt Permitted				0.950							0.953	
Satd. Flow (perm)	0	2720	0	1444	2888	0	0	0	0	0	1449	1292
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		159										185
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			560			215			1058	
Travel Time (s)		9.7			10.9			4.9			24.0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	0	255	159	200	311	0	0	0	0	172	3	185
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	414	0	200	311	0	0	0	0	0	175	185
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (ft)		100		20	100					20	100	20
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases										4		4
Detector Phase		2		1	6					4	4	4
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		10.0		7.0	10.0					10.0	10.0	10.0
Minimum Split (s)		25.0		16.0	24.0					20.0	20.0	20.0
Total Split (s)		26.0		23.0	49.0					21.0	21.0	21.0
Total Split (%)		37.1%		32.9%	70.0%					30.0%	30.0%	30.0%
Maximum Green (s)		20.0		17.0	43.0					15.0	15.0	15.0
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0						6.0	6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max					Max	Max	Max
Act Effct Green (s)		23.0		14.0	43.0						15.0	15.0
Actuated g/C Ratio		0.33		0.20	0.61						0.21	0.21
v/c Ratio		0.41		0.70	0.18						0.56	0.44
Control Delay		13.2		38.4	3.0						32.7	7.8
Queue Delay		0.0		0.0	0.0						0.0	0.0
Total Delay		13.2		38.4	3.0						32.7	7.8
LOS		B		D	A						C	A
Approach Delay		13.2			16.9						19.9	
Approach LOS		B			B						B	
90th %ile Green (s)		20.0		17.0	43.0					15.0	15.0	15.0
90th %ile Term Code		Coord		Max	Coord					MaxR	MaxR	MaxR
70th %ile Green (s)		20.0		17.0	43.0					15.0	15.0	15.0
70th %ile Term Code		Coord		Max	Coord					MaxR	MaxR	MaxR
50th %ile Green (s)		22.2		14.8	43.0					15.0	15.0	15.0
50th %ile Term Code		Coord		Gap	Coord					MaxR	MaxR	MaxR
30th %ile Green (s)		24.7		12.3	43.0					15.0	15.0	15.0
30th %ile Term Code		Coord		Gap	Coord					MaxR	MaxR	MaxR
10th %ile Green (s)		28.3		8.7	43.0					15.0	15.0	15.0
10th %ile Term Code		Coord		Gap	Coord					MaxR	MaxR	MaxR
Stops (vph)		173		167	96						136	27
Fuel Used(gal)		4		3	2						3	2
CO Emissions (g/hr)		251		234	140						213	123
NOx Emissions (g/hr)		49		45	27						41	24
VOC Emissions (g/hr)		58		54	32						49	28
Dilemma Vehicles (#)		26		0	7						0	0
Queue Length 50th (ft)		43		86	6						68	0
Queue Length 95th (ft)		80		146	5						124	45
Internal Link Dist (ft)		420			480			135			978	
Turn Bay Length (ft)												
Base Capacity (vph)		1001		350	1774						310	422
Starvation Cap Reductn		0		0	0						0	0
Spillback Cap Reductn		0		0	0						0	0
Storage Cap Reductn		0		0	0						0	0
Reduced v/c Ratio		0.41		0.57	0.18						0.56	0.44

Intersection Summary

Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 40 (57%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 16.5	Intersection LOS: B
Intersection Capacity Utilization 44.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: SB I-81

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	1	6	5	1	8	6	366	13	9	153	59
Future Volume (vph)	54	1	6	5	1	8	6	366	13	9	153	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986			0.924			0.995				0.850
Flt Protected		0.958			0.982		0.950			0.950		
Satd. Flow (prot)	0	897	0	0	1528	0	902	1767	0	1687	1776	808
Flt Permitted		0.958			0.982		0.950			0.950		
Satd. Flow (perm)	0	897	0	0	1528	0	902	1767	0	1687	1776	808
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		302			190			1001			1511	
Travel Time (s)		6.9			4.3			15.2			22.9	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	100%	100%	100%	7%	100%	7%	100%	7%	7%	7%	7%	100%
Adj. Flow (vph)	61	1	7	6	1	9	7	416	15	10	174	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	69	0	0	16	0	7	431	0	10	174	67
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.1%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	54	1	6	5	1	8	6	366	13	9	153	59
Future Vol, veh/h	54	1	6	5	1	8	6	366	13	9	153	59
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	0	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	100	100	100	7	100	7	100	7	7	7	7	100
Mvmt Flow	61	1	7	6	1	9	7	416	15	10	174	67

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	636	638	174	635	631	423	174	0	0	431	0	0
Stage 1	194	194	-	437	437	-	-	-	-	-	-	-
Stage 2	442	444	-	198	194	-	-	-	-	-	-	-
Critical Hdwy	8.1	7.5	7.2	7.17	7.5	6.27	5.1	-	-	4.17	-	-
Critical Hdwy Stg 1	7.1	6.5	-	6.17	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.1	6.5	-	6.17	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	4.4	4.9	4.2	3.563	4.9	3.363	3.1	-	-	2.263	-	-
Pot Cap-1 Maneuver	281	291	669	384	294	620	977	-	-	1102	-	-
Stage 1	627	589	-	589	443	-	-	-	-	-	-	-
Stage 2	443	439	-	792	589	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	273	286	669	374	289	620	977	-	-	1102	-	-
Mov Cap-2 Maneuver	273	286	-	374	289	-	-	-	-	-	-	-
Stage 1	623	584	-	585	440	-	-	-	-	-	-	-
Stage 2	432	436	-	775	584	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.3	12.9	0.1	0.3
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	977	-	-	290	471	1102	-	-
HCM Lane V/C Ratio	0.007	-	-	0.239	0.034	0.009	-	-
HCM Control Delay (s)	8.7	-	-	21.3	12.9	8.3	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.9	0.1	0	-	-

Intersection: 3: US 11

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	185	101	227	194	168	92
Average Queue (ft)	134	70	152	118	105	48
95th Queue (ft)	209	109	250	213	185	106
Link Distance (ft)	200	200		1444	321	
Upstream Blk Time (%)	2					
Queuing Penalty (veh)	5					
Storage Bay Dist (ft)			270			225
Storage Blk Time (%)			0	0	0	
Queuing Penalty (veh)			1	1	0	

Intersection: 6: NB I-81

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	TR	LT	R
Maximum Queue (ft)	122	71	75	82	98	134	163	143
Average Queue (ft)	72	29	27	47	55	85	105	90
95th Queue (ft)	140	77	80	93	105	147	191	162
Link Distance (ft)	520	520	520	200	200	200	1020	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)								500
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 9: SB I-81

Movement	EB	EB	WB	WB	WB	SB	SB
Directions Served	T	TR	L	T	T	LT	R
Maximum Queue (ft)	88	174	154	67	69	135	82
Average Queue (ft)	39	107	103	32	29	92	55
95th Queue (ft)	99	195	171	80	81	153	99
Link Distance (ft)	462	462	520	520	520	1010	1010
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 12: Woodbine

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	L	L	T
Maximum Queue (ft)	87	35	10	14	2
Average Queue (ft)	51	13	3	3	0
95th Queue (ft)	106	42	22	22	5
Link Distance (ft)	248	150	972	1444	1444
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 7

APPENDIX I

ITE TRIP GENERATION

General Office Building (Land Use Code #710)
By Employees on a Weekday

AM Peak Hour		**PM Peak Hour**	
Fitted curve equation:LN(T)=0.86Ln(x) + 0.24		Fitted curve equation: T=0.37(x) + 60.08	
No. of employees =	446	No. of employees =	446
LN(T)	5.4863	Calculated trips (T) =	225
Calculated trips (T) =	241		
In (89%) =	214	In (15%) =	34
Out (11%) =	27	Out (85%) =	191

General Office Building (Land Use Code #710)
By 1000 SFGFLA on a Weekday

AM Peak Hour			**PM Peak Hour**		
Fitted curve equation:LN(T)=0.80Ln(x) + 1.55			Fitted curve equation: T=1.12(x) + 78.81		
No. of 1000 sf =		256	No. of 1000 sf =		256
LN(T)		5.9861	Calculated trips (T) =		366
Calculated trips (T) =		398			
In (%) =	88	350	In (%) =	17	62
Out (%) =	12	48	Out (%) =	83	304

General Office Building (Land Use Code #710)
By 1000 SFGFLA on a Weekday
DAILY

Fitted curve equation:LN(T)=0.77Ln(x) + 3.65

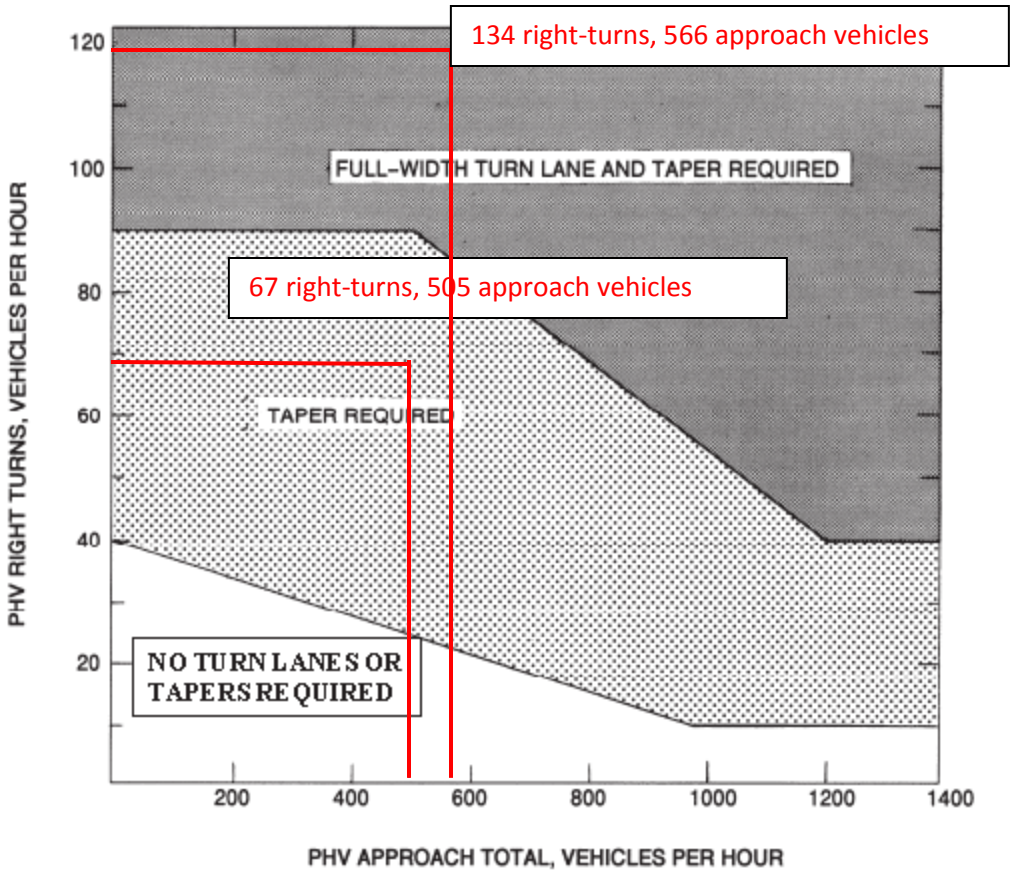
No. of SFGFLA =	256	
LN(T)	7.9198	1
Calculated trips (T) =	2751	
In (50%) =	1376	
Out (50%) =	1375	

APPENDIX J

ARCADIA - RIGHT TURN LANE WARRANT ANALYSIS

US 17/Millwood Pike at Independence Drive
Northbound Right-Turn Lane

G-63



Appropriate Radius required at all Intersections and Entrances (Commercial or Private).

LEGEND

PHV- - Peak Hour Volume (also Design Hourly Volume equivalent)

Adjustment for Right Turns

If PHV is not known use formula: PHV = ADT x K x D

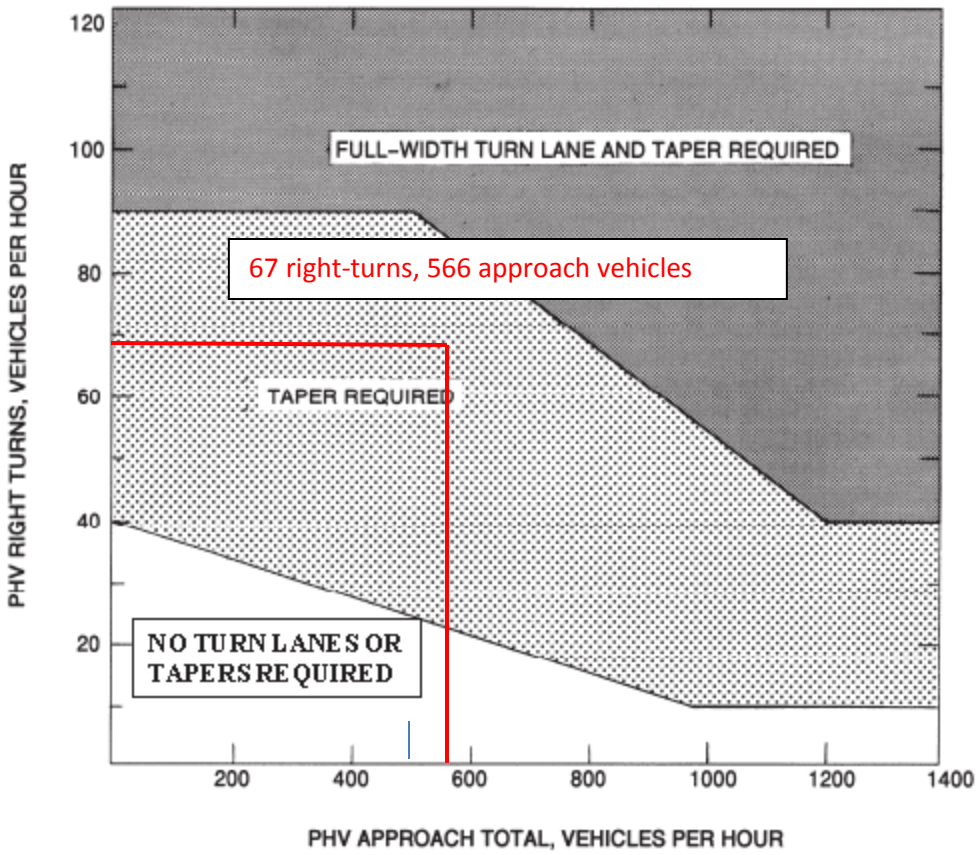
K = the percent of AADT occurring in the peak hour
D = the percent of traffic in the peak direction of flow

Note: An average of 11% for K x D will suffice.

FIGURE 3-24 GUIDELINES FOR RIGHT TURN TREATMENT (4-LANE HIGHWAY)

US 17/Millwood Pike at Secondary Driveway
Northbound Right-Turn Lane

G-63



Appropriate Radius required at all Intersections and Entrances (Commercial or Private).

LEGEND

PHV- - Peak Hour Volume (also Design Hourly Volume equivalent)

Adjustment for Right Turns

If PHV is not known use formula: PHV = ADT x K x D

K = the percent of AADT occurring in the peak hour
D = the percent of traffic in the peak direction of flow

Note: An average of 11% for K x D will suffice.

FIGURE 3-24 GUIDELINES FOR RIGHT TURN TREATMENT (4-LANE HIGHWAY)

APPENDIX K

2019 LEVEL OF SERVICE ANALYSIS - WITH PROJECT

Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations												
Traffic Volume (vph)	2	2	8	24	440	2	37	856	107	48	1	15
Future Volume (vph)	2	2	8	24	440	2	37	856	107	48	1	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0	110		105	125		390	0	0	
Storage Lanes		1	0	1		1	1		1	1	0	
Taper Length (ft)		25		25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt		0.907				0.850			0.850	0.966		
Flt Protected		0.985		0.950			0.950			0.964		
Satd. Flow (prot)	0	1632	0	1736	3471	1553	1736	3471	1553	1701	0	0
Flt Permitted		0.985		0.950			0.950			0.964		
Satd. Flow (perm)	0	1632	0	1736	3471	1553	1736	3471	1553	1701	0	0
Link Speed (mph)		30			55			55		35		
Link Distance (ft)		250			1447			2600		500		
Travel Time (s)		5.7			17.9			32.2		9.7		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2	2	9	27	489	2	41	951	119	53	1	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	13	0	27	489	2	41	951	119	71	0	0

Intersection Summary	
Area Type:	Other

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	14	10	20	10	18	48	384	134	206	458	184
Future Volume (vph)	36	14	10	20	10	18	48	384	134	206	458	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	215		0	125		0	230		0	120		180
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.939			0.903				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1715	0	1736	1650	0	1736	3471	1553	1736	3471	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1736	1715	0	1736	1650	0	1736	3471	1553	1736	3471	1553
Link Speed (mph)		35			30			55			55	
Link Distance (ft)		500			331			2300			1447	
Travel Time (s)		9.7			7.5			28.5			17.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	40	16	11	22	11	20	53	427	149	229	509	204
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	27	0	22	31	0	53	427	149	229	509	204

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Traffic Vol, veh/h	2	8	24	440	2	37	856	107	48	1
Future Vol, veh/h	2	8	24	440	2	37	856	107	48	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	-	None	-	-
Storage Length	0	-	110	-	105	125	-	390	0	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	2	9	27	489	2	41	951	119	53	1

Major/Minor	Minor1		Major1			Major2			Minor2	
Conflicting Flow All	1100	244	951	0	0	489	0	0	1332	476
Stage 1	542	-	-	-	-	-	-	-	1033	-
Stage 2	558	-	-	-	-	-	-	-	299	-
Critical Hdwy	7.58	6.98	4.18	-	-	4.18	-	-	7.58	6.98
Critical Hdwy Stg 1	6.58	-	-	-	-	-	-	-	6.58	-
Critical Hdwy Stg 2	6.58	-	-	-	-	-	-	-	6.58	-
Follow-up Hdwy	3.54	3.34	2.24	-	-	2.24	-	-	3.54	3.34
Pot Cap-1 Maneuver	164	750	706	-	-	1056	-	-	110	530
Stage 1	487	-	-	-	-	-	-	-	245	-
Stage 2	477	-	-	-	-	-	-	-	680	-
Platoon blocked, %				-	-		-	-		
Mov Cap-1 Maneuver	148	750	706	-	-	1056	-	-	101	530
Mov Cap-2 Maneuver	148	-	-	-	-	-	-	-	101	-
Stage 1	468	-	-	-	-	-	-	-	236	-
Stage 2	442	-	-	-	-	-	-	-	643	-

Approach	WB	NB	SB	NE
HCM Control Delay, s	19	0.5	0.3	65.4
HCM LOS	C			F

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	125	706	-	-	270	1056	-	-
HCM Lane V/C Ratio	0.56	0.038	-	-	0.049	0.039	-	-
HCM Control Delay (s)	65.4	10.3	-	-	19	8.5	-	-
HCM Lane LOS	F	B	-	-	C	A	-	-
HCM 95th %tile Q(veh)	2.7	0.1	-	-	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	36	14	10	20	10	18	48	384	134	206	458	184
Future Vol, veh/h	36	14	10	20	10	18	48	384	134	206	458	184
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	215	-	-	125	-	-	230	-	0	120	-	180
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	40	16	11	22	11	20	53	427	149	229	509	204

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1293	1500	254	1253	1500	213	509	0	0	427	0	0
Stage 1	967	967	-	533	533	-	-	-	-	-	-	-
Stage 2	326	533	-	720	967	-	-	-	-	-	-	-
Critical Hdwy	7.58	6.58	6.98	7.58	6.58	6.98	4.18	-	-	4.18	-	-
Critical Hdwy Stg 1	6.58	5.58	-	6.58	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.58	5.58	-	6.58	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.54	4.04	3.34	3.54	4.04	3.34	2.24	-	-	2.24	-	-
Pot Cap-1 Maneuver	118	119	739	126	119	786	1038	-	-	1115	-	-
Stage 1	269	326	-	493	518	-	-	-	-	-	-	-
Stage 2	655	518	-	381	326	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	85	90	739	88	90	786	1038	-	-	1115	-	-
Mov Cap-2 Maneuver	85	90	-	88	90	-	-	-	-	-	-	-
Stage 1	255	259	-	468	492	-	-	-	-	-	-	-
Stage 2	592	492	-	280	259	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	62.7	39.4	0.7	2.2
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1038	-	-	85	142	88	209	1115	-	-
HCM Lane V/C Ratio	0.051	-	-	0.471	0.188	0.253	0.149	0.205	-	-
HCM Control Delay (s)	8.7	-	-	80.4	36.1	59.2	25.2	9.1	-	-
HCM Lane LOS	A	-	-	F	E	F	D	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	2	0.7	0.9	0.5	0.8	-	-

Intersection: 1: Victory

Movement	WB	NB	SB	NE
Directions Served	<LR	L	L	ULR>
Maximum Queue (ft)	30	10	18	67
Average Queue (ft)	9	5	7	43
95th Queue (ft)	32	14	22	77
Link Distance (ft)	186			434
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		110	125	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Independence

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	L	L
Maximum Queue (ft)	53	37	41	44	18	64
Average Queue (ft)	28	20	17	22	6	37
95th Queue (ft)	64	47	47	54	23	72
Link Distance (ft)		431		268		
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	215		125		230	120
Storage Blk Time (%)						0
Queuing Penalty (veh)						0

Network Summary

Network wide Queuing Penalty: 0

Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations											
Traffic Volume (vph)	0	7	19	1011	3	86	542	72	82	4	8
Future Volume (vph)	0	7	19	1011	3	86	542	72	82	4	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	110		105	125		390	0	0	
Storage Lanes	1	0	1		1	1		1	1	0	
Taper Length (ft)	25		25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt	0.865				0.850			0.850	0.983		
Flt Protected			0.950			0.950			0.958		
Satd. Flow (prot)	1580	0	1736	3471	1553	1736	3471	1553	1720	0	0
Flt Permitted			0.950			0.950			0.958		
Satd. Flow (perm)	1580	0	1736	3471	1553	1736	3471	1553	1720	0	0
Link Speed (mph)	30			55			55		35		
Link Distance (ft)	250			1447			2600		500		
Travel Time (s)	5.7			17.9			32.2		9.7		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	8	21	1123	3	96	602	80	91	4	9
Shared Lane Traffic (%)											
Lane Group Flow (vph)	8	0	21	1123	3	96	602	80	104	0	0

Intersection Summary	
Area Type:	Other

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	9	47	94	30	180	22	743	31	23	438	126
Future Volume (vph)	177	9	47	94	30	180	22	743	31	23	438	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	215		0	125		0	230		0	120		180
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.874			0.871				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1597	0	1736	1591	0	1736	3471	1553	1736	3471	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1736	1597	0	1736	1591	0	1736	3471	1553	1736	3471	1553
Link Speed (mph)		35			30			55			55	
Link Distance (ft)		500			331			2300			1447	
Travel Time (s)		9.7			7.5			28.5			17.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	197	10	52	104	33	200	24	826	34	26	487	140
Shared Lane Traffic (%)												
Lane Group Flow (vph)	197	62	0	104	233	0	24	826	34	26	487	140

Intersection Summary	
Area Type:	Other

Intersection	
Int Delay, s/veh	11.4

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Traffic Vol, veh/h	0	7	19	1011	3	86	542	72	82	4
Future Vol, veh/h	0	7	19	1011	3	86	542	72	82	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	-	None	-	-
Storage Length	0	-	110	-	105	125	-	390	0	-
Veh in Median Storage, #	0	-	-	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	8	21	1123	3	96	602	80	91	4

Major/Minor	Minor1		Major1			Major2			Minor2	
Conflicting Flow All	1660	562	602	0	0	1123	0	0	1397	301
Stage 1	1166	-	-	-	-	-	-	-	793	-
Stage 2	494	-	-	-	-	-	-	-	604	-
Critical Hdwy	7.58	6.98	4.18	-	-	4.18	-	-	7.58	6.98
Critical Hdwy Stg 1	6.58	-	-	-	-	-	-	-	6.58	-
Critical Hdwy Stg 2	6.58	-	-	-	-	-	-	-	6.58	-
Follow-up Hdwy	3.54	3.34	2.24	-	-	2.24	-	-	3.54	3.34
Pot Cap-1 Maneuver	63	465	958	-	-	606	-	-	99	689
Stage 1	203	-	-	-	-	-	-	-	344	-
Stage 2	520	-	-	-	-	-	-	-	447	-
Platoon blocked, %				-	-		-	-		
Mov Cap-1 Maneuver	50	465	958	-	-	606	-	-	~ 84	689
Mov Cap-2 Maneuver	50	-	-	-	-	-	-	-	~ 84	-
Stage 1	199	-	-	-	-	-	-	-	336	-
Stage 2	426	-	-	-	-	-	-	-	430	-

Approach	WB	NB	SB	NE
HCM Control Delay, s	12.9	0.2	1.5	208.4
HCM LOS	B			F

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	91	958	-	-	465	606	-	-
HCM Lane V/C Ratio	1.099	0.022	-	-	0.017	0.158	-	-
HCM Control Delay (s)	208.4	8.8	-	-	12.9	12	-	-
HCM Lane LOS	F	A	-	-	B	B	-	-
HCM 95th %tile Q(veh)	6.7	0.1	-	-	0.1	0.6	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	63.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	177	9	47	94	30	180	22	743	31	23	438	126
Future Vol, veh/h	177	9	47	94	30	180	22	743	31	23	438	126
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	215	-	-	125	-	-	230	-	0	120	-	180
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	197	10	52	104	33	200	24	826	34	26	487	140

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1016	1412	243	1173	1412	413	487	0	0	826	0	0
Stage 1	538	538	-	874	874	-	-	-	-	-	-	-
Stage 2	478	874	-	299	538	-	-	-	-	-	-	-
Critical Hdwy	7.58	6.58	6.98	7.58	6.58	6.98	4.18	-	-	4.18	-	-
Critical Hdwy Stg 1	6.58	5.58	-	6.58	5.58	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.58	5.58	-	6.58	5.58	-	-	-	-	-	-	-
Follow-up Hdwy	3.54	4.04	3.34	3.54	4.04	3.34	2.24	-	-	2.24	-	-
Pot Cap-1 Maneuver	~ 189	134	752	145	134	583	1058	-	-	788	-	-
Stage 1	490	516	-	307	361	-	-	-	-	-	-	-
Stage 2	532	361	-	680	516	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 95	127	752	122	127	583	1058	-	-	788	-	-
Mov Cap-2 Maneuver	~ 95	127	-	122	127	-	-	-	-	-	-	-
Stage 1	479	499	-	300	353	-	-	-	-	-	-	-
Stage 2	309	353	-	600	499	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 451.1	54.3	0.2	0.4
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1058	-	-	95	420	122	385	788	-	-
HCM Lane V/C Ratio	0.023	-	-	2.07	0.148	0.856	0.606	0.032	-	-
HCM Control Delay (s)	8.5	-	-	$ 589.1	15.1	113.6	27.7	9.7	-	-
HCM Lane LOS	A	-	-	F	C	F	D	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	17	0.5	5.3	3.8	0.1	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection: 1: Victory

Movement	WB	NB	SB	NE
Directions Served	<LR	L	L	ULR>
Maximum Queue (ft)	26	8	32	131
Average Queue (ft)	9	3	18	91
95th Queue (ft)	30	12	43	212
Link Distance (ft)	186			434
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		110	125	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Independence

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	L	L	T
Maximum Queue (ft)	239	421	145	228	14	14	0
Average Queue (ft)	221	262	106	163	4	4	0
95th Queue (ft)	281	539	178	316	17	18	1
Link Distance (ft)		431		268			1352
Upstream Blk Time (%)		13		15			
Queuing Penalty (veh)		0		0			
Storage Bay Dist (ft)	215		125		230	120	
Storage Blk Time (%)	63	0	12	29			
Queuing Penalty (veh)	35	0	26	27			

Network Summary

Network wide Queuing Penalty: 89

Intersection: 1: Victory

Movement	WB	NB	SB	NE
Directions Served	R	L	L	>
Maximum Queue (ft)	17	5	28	24
Average Queue (ft)	5	1	12	10
95th Queue (ft)	23	5	33	30
Link Distance (ft)	183			427
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		110	125	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Independence

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LTR	LT	R	L	T	T	L	T	T	R
Maximum Queue (ft)	122	191	95	102	14	136	116	24	64	75	29
Average Queue (ft)	39	132	64	67	5	90	62	9	43	44	7
95th Queue (ft)	142	210	111	115	17	149	135	28	77	85	32
Link Distance (ft)		431	265	265		2240	2240		1325	1325	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	215				230			175			180
Storage Blk Time (%)	0	1									
Queuing Penalty (veh)	0	1									

Network Summary

Network wide Queuing Penalty: 1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	261	246	4	37	7	231	102	36	53	196	335
Future Volume (vph)	76	261	246	4	37	7	231	102	36	53	196	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	270		225	0		225
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.927				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1577	0	1770	1863	1583	1480	1776	1583	1770	1776	1509
Flt Permitted	0.572			0.436			0.473			0.682		
Satd. Flow (perm)	1016	1577	0	812	1863	1583	737	1776	1583	1270	1776	1509
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		77				205			123			381
Link Speed (mph)		35			30			45			45	
Link Distance (ft)		300			289			1511			376	
Travel Time (s)		5.8			6.6			22.9			5.7	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	7%	2%	22%	2%	2%	2%	22%	7%	2%	2%	7%	7%
Adj. Flow (vph)	86	297	280	5	42	8	263	116	41	60	223	381
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	577	0	5	42	8	263	116	41	60	223	381
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	D.P+P	NA	Perm	Perm	NA	pm+ov
Protected Phases	5	2			6		3	8			4	5

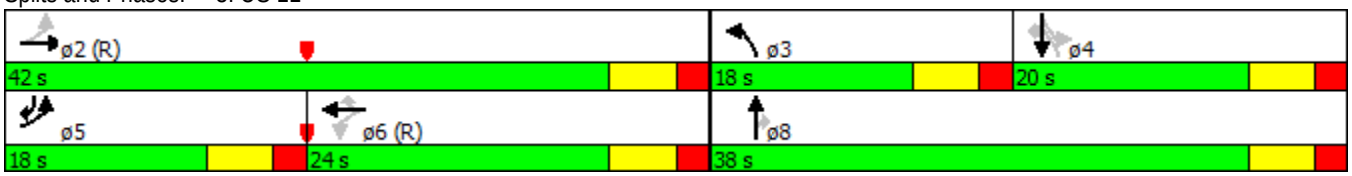
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6		6	4		8	4		4
Detector Phase	5	2		6	6	6	3	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0	10.0	7.0	10.0	10.0	10.0	10.0	7.0
Minimum Split (s)	13.0	16.0		16.0	16.0	16.0	13.0	16.0	16.0	16.0	16.0	13.0
Total Split (s)	18.0	42.0		24.0	24.0	24.0	18.0	38.0	38.0	20.0	20.0	18.0
Total Split (%)	22.5%	52.5%		30.0%	30.0%	30.0%	22.5%	47.5%	47.5%	25.0%	25.0%	22.5%
Maximum Green (s)	12.0	36.0		18.0	18.0	18.0	12.0	32.0	32.0	14.0	14.0	12.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead			Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	4.0		4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	3.0
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	Max	Max	Max	Max	None
Act Effct Green (s)	36.0	36.0		21.8	21.8	21.8	26.0	32.0	32.0	14.1	14.1	28.3
Actuated g/C Ratio	0.45	0.45		0.27	0.27	0.27	0.32	0.40	0.40	0.18	0.18	0.35
v/c Ratio	0.16	0.77		0.02	0.08	0.01	0.75	0.16	0.06	0.27	0.71	0.49
Control Delay	9.0	16.7		22.8	23.1	0.0	34.3	16.2	0.2	32.3	45.7	4.4
Queue Delay	0.0	1.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	17.7		22.8	23.1	0.0	34.3	16.2	0.2	32.3	45.7	4.4
LOS	A	B		C	C	A	C	B	A	C	D	A
Approach Delay		16.6			19.7			26.0			20.8	
Approach LOS		B			B			C			C	
90th %ile Green (s)	10.3	36.0		19.7	19.7	19.7	12.0	32.0	32.0	14.0	14.0	10.3
90th %ile Term Code	Gap	Coord		Coord	Coord	Coord	Max	MaxR	MaxR	MaxR	MaxR	Gap
70th %ile Green (s)	8.8	36.0		21.2	21.2	21.2	12.0	32.0	32.0	14.0	14.0	8.8
70th %ile Term Code	Gap	Coord		Coord	Coord	Coord	Max	MaxR	MaxR	MaxR	MaxR	Gap
50th %ile Green (s)	7.8	36.0		22.2	22.2	22.2	12.0	32.0	32.0	14.0	14.0	7.8
50th %ile Term Code	Gap	Coord		Coord	Coord	Coord	Max	MaxR	MaxR	MaxR	MaxR	Gap
30th %ile Green (s)	7.0	36.0		23.0	23.0	23.0	12.0	32.0	32.0	14.0	14.0	7.0
30th %ile Term Code	Min	Coord		Coord	Coord	Coord	Max	MaxR	MaxR	MaxR	MaxR	Min
10th %ile Green (s)	7.0	36.0		23.0	23.0	23.0	11.6	32.0	32.0	14.4	14.4	7.0
10th %ile Term Code	Min	Coord		Coord	Coord	Coord	Gap	MaxR	MaxR	MaxR	MaxR	Min
Stops (vph)	33	272		6	29	0	175	63	0	46	175	32
Fuel Used(gal)	1	5		0	0	0	6	2	0	1	4	2
CO Emissions (g/hr)	39	341		4	29	1	423	148	25	73	313	106
NOx Emissions (g/hr)	8	66		1	6	0	82	29	5	14	61	21
VOC Emissions (g/hr)	9	79		1	7	0	98	34	6	17	73	25
Dilemma Vehicles (#)	0	13		0	0	0	0	6	0	0	12	0
Queue Length 50th (ft)	14	124		2	15	0	93	36	0	26	106	0
Queue Length 95th (ft)	39	213		10	40	0	#155	68	0	59	#196	48
Internal Link Dist (ft)		220			209			1431			296	
Turn Bay Length (ft)				200			270		225			225
Base Capacity (vph)	557	752		221	507	581	351	710	707	223	312	833
Starvation Cap Reductn	0	47		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.15	0.82		0.02	0.08	0.01	0.75	0.16	0.06	0.27	0.71	0.46

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 43 (54%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 20.4 Intersection LOS: C
Intersection Capacity Utilization 66.9% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: US 11



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	320	0	0	413	179	60	0	265	0	0	0
Future Volume (vph)	85	320	0	0	413	179	60	0	265	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		500	0		0
Storage Lanes	1		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.955				0.850			
Flt Protected	0.950							0.950				
Satd. Flow (prot)	1444	2888	0	0	3963	0	0	1444	1292	0	0	0
Flt Permitted	0.291							0.950				
Satd. Flow (perm)	442	2888	0	0	3963	0	0	1444	1292	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					138				301			
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		560			300			1068			184	
Travel Time (s)		10.9			5.8			24.3			4.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	97	364	0	0	469	203	68	0	301	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	364	0	0	672	0	0	68	301	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2		1	2	1			
Detector Template	Left	Thru			Thru		Left	Thru	Right			
Leading Detector (ft)	20	100			100		20	100	20			
Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft)	20	6			6		20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				

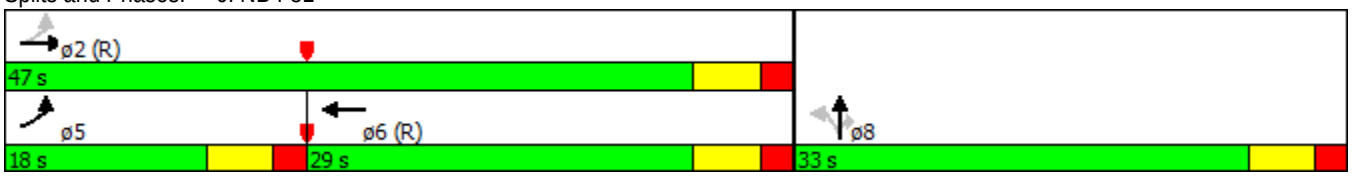
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2						8		8			
Detector Phase	5	2			6		8	8	8			
Switch Phase												
Minimum Initial (s)	7.0	10.0			10.0		10.0	10.0	10.0			
Minimum Split (s)	16.0	16.0			16.0		16.0	16.0	16.0			
Total Split (s)	18.0	47.0			29.0		33.0	33.0	33.0			
Total Split (%)	22.5%	58.8%			36.3%		41.3%	41.3%	41.3%			
Maximum Green (s)	12.0	41.0			23.0		27.0	27.0	27.0			
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0	2.0			
Lost Time Adjust (s)	0.0	0.0			0.0			0.0	0.0			
Total Lost Time (s)	6.0	6.0			6.0			6.0	6.0			
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Recall Mode	None	C-Max			C-Max		Max	Max	Max			
Act Effct Green (s)	41.0	41.0			29.0			27.0	27.0			
Actuated g/C Ratio	0.51	0.51			0.36			0.34	0.34			
v/c Ratio	0.29	0.25			0.44			0.14	0.47			
Control Delay	4.0	2.8			19.1			19.5	5.3			
Queue Delay	0.0	0.0			0.0			0.0	0.0			
Total Delay	4.0	2.8			19.1			19.5	5.4			
LOS	A	A			B			B	A			
Approach Delay		3.1			19.1			8.0				
Approach LOS		A			B			A				
90th %ile Green (s)	11.1	41.0			23.9		27.0	27.0	27.0			
90th %ile Term Code	Gap	Coord			Coord		MaxR	MaxR	MaxR			
70th %ile Green (s)	9.4	41.0			25.6		27.0	27.0	27.0			
70th %ile Term Code	Gap	Coord			Coord		MaxR	MaxR	MaxR			
50th %ile Green (s)	8.3	41.0			26.7		27.0	27.0	27.0			
50th %ile Term Code	Gap	Coord			Coord		MaxR	MaxR	MaxR			
30th %ile Green (s)	7.2	41.0			27.8		27.0	27.0	27.0			
30th %ile Term Code	Gap	Coord			Coord		MaxR	MaxR	MaxR			
10th %ile Green (s)	0.0	41.0			41.0		27.0	27.0	27.0			
10th %ile Term Code	Skip	Coord			Coord		MaxR	MaxR	MaxR			
Stops (vph)	13	51			404			41	30			
Fuel Used(gal)	1	2			7			1	3			
CO Emissions (g/hr)	36	130			463			67	186			
NOx Emissions (g/hr)	7	25			90			13	36			
VOC Emissions (g/hr)	8	30			107			16	43			
Dilemma Vehicles (#)	0	4			21			0	0			
Queue Length 50th (ft)	5	10			88			23	0			
Queue Length 95th (ft)	m6	m9			128			51	48			
Internal Link Dist (ft)		480			220			988			104	
Turn Bay Length (ft)									500			
Base Capacity (vph)	376	1480			1524			487	635			
Starvation Cap Reductn	0	0			0			0	0			
Spillback Cap Reductn	0	92			0			0	9			
Storage Cap Reductn	0	0			0			0	0			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.26	0.26			0.44			0.14	0.48			

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 31 (39%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.47
Intersection Signal Delay: 11.5 Intersection LOS: B
Intersection Capacity Utilization 53.7% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: NB I-81



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	165	178	347	126	0	0	0	0	234	2	123
Future Volume (vph)	0	165	178	347	126	0	0	0	0	234	2	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.922										0.850
Flt Protected				0.950							0.953	
Satd. Flow (prot)	0	2663	0	1444	2888	0	0	0	0	0	1449	1292
Flt Permitted				0.950							0.953	
Satd. Flow (perm)	0	2663	0	1444	2888	0	0	0	0	0	1449	1292
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		202										140
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			560			215			1058	
Travel Time (s)		9.7			10.9			4.9			24.0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	0	188	202	394	143	0	0	0	0	266	2	140
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	390	0	394	143	0	0	0	0	0	268	140
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (ft)		100		20	100					20	100	20
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases										4		4
Detector Phase		2		1	6					4	4	4
Switch Phase												

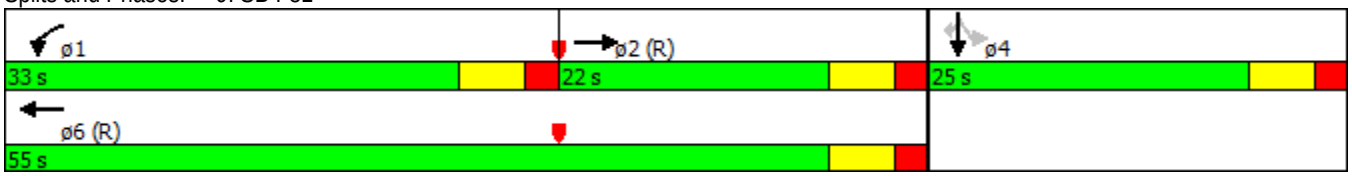
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		10.0		7.0	10.0					10.0	10.0	10.0
Minimum Split (s)		21.0		16.0	24.0					20.0	20.0	20.0
Total Split (s)		22.0		33.0	55.0					25.0	25.0	25.0
Total Split (%)		27.5%		41.3%	68.8%					31.3%	31.3%	31.3%
Maximum Green (s)		16.0		27.0	49.0					19.0	19.0	19.0
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0						6.0	6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max					Max	Max	Max
Act Effct Green (s)		18.2		24.8	49.0						19.0	19.0
Actuated g/C Ratio		0.23		0.31	0.61						0.24	0.24
v/c Ratio		0.51		0.88	0.08						0.78	0.34
Control Delay		16.0		39.4	4.1						46.3	7.4
Queue Delay		0.0		0.0	0.0						0.0	0.0
Total Delay		16.0		39.4	4.1						46.3	7.4
LOS		B		D	A						D	A
Approach Delay		16.0			30.0						33.0	
Approach LOS		B			C						C	
90th %ile Green (s)		16.0		27.0	49.0					19.0	19.0	19.0
90th %ile Term Code		Coord		Max	Coord					MaxR	MaxR	MaxR
70th %ile Green (s)		16.0		27.0	49.0					19.0	19.0	19.0
70th %ile Term Code		Coord		Max	Coord					MaxR	MaxR	MaxR
50th %ile Green (s)		16.0		27.0	49.0					19.0	19.0	19.0
50th %ile Term Code		Coord		Max	Coord					MaxR	MaxR	MaxR
30th %ile Green (s)		18.9		24.1	49.0					19.0	19.0	19.0
30th %ile Term Code		Coord		Gap	Coord					MaxR	MaxR	MaxR
10th %ile Green (s)		24.3		18.7	49.0					19.0	19.0	19.0
10th %ile Term Code		Coord		Gap	Coord					MaxR	MaxR	MaxR
Stops (vph)		146		312	57						205	20
Fuel Used(gal)		3		7	1						5	1
CO Emissions (g/hr)		242		457	73						371	92
NOx Emissions (g/hr)		47		89	14						72	18
VOC Emissions (g/hr)		56		106	17						86	21
Dilemma Vehicles (#)		21		0	2						0	0
Queue Length 50th (ft)		42		188	13						126	0
Queue Length 95th (ft)		83		#311	5						#235	41
Internal Link Dist (ft)		420			480			135			978	
Turn Bay Length (ft)												
Base Capacity (vph)		763		487	1768						344	413
Starvation Cap Reductn		0		0	0						0	0
Spillback Cap Reductn		0		0	0						0	0
Storage Cap Reductn		0		0	0						0	0
Reduced v/c Ratio		0.51		0.81	0.08						0.78	0.34

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 26.8	Intersection LOS: C
Intersection Capacity Utilization 53.7%	ICU Level of Service A
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: SB I-81



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	1	6	10	1	21	7	134	6	6	240	55
Future Volume (vph)	58	1	6	10	1	21	7	134	6	6	240	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	0		0
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.910			0.993				0.850
Flt Protected		0.957			0.985		0.950			0.950		
Satd. Flow (prot)	0	897	0	0	1554	0	902	1763	0	1687	1776	808
Flt Permitted		0.957			0.985		0.950			0.950		
Satd. Flow (perm)	0	897	0	0	1554	0	902	1763	0	1687	1776	808
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		302			190			1001			1511	
Travel Time (s)		6.9			4.3			15.2			22.9	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	100%	100%	100%	7%	100%	7%	100%	7%	7%	7%	7%	100%
Adj. Flow (vph)	66	1	7	11	1	24	8	152	7	7	273	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	0	0	36	0	8	159	0	7	273	63
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	58	1	6	10	1	21	7	134	6	6	240	55
Future Vol, veh/h	58	1	6	10	1	21	7	134	6	6	240	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	100	100	100	7	100	7	100	7	7	7	7	100
Mvmt Flow	66	1	7	11	1	24	8	152	7	7	273	63

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	470	461	273	462	458	156	273	0	0	159	0	0
Stage 1	286	286	-	172	172	-	-	-	-	-	-	-
Stage 2	184	175	-	290	286	-	-	-	-	-	-	-
Critical Hdwy	8.1	7.5	7.2	7.17	7.5	6.27	5.1	-	-	4.17	-	-
Critical Hdwy Stg 1	7.1	6.5	-	6.17	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.1	6.5	-	6.17	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	4.4	4.9	4.2	3.563	4.9	3.363	3.1	-	-	2.263	-	-
Pot Cap-1 Maneuver	374	379	580	502	380	877	885	-	-	1390	-	-
Stage 1	552	529	-	818	604	-	-	-	-	-	-	-
Stage 2	636	602	-	707	529	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	359	374	580	490	375	877	885	-	-	1390	-	-
Mov Cap-2 Maneuver	359	374	-	490	375	-	-	-	-	-	-	-
Stage 1	547	526	-	811	599	-	-	-	-	-	-	-
Stage 2	612	597	-	694	526	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.1	10.6	0.4	0.2
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	885	-	-	372	681	1390	-	-
HCM Lane V/C Ratio	0.009	-	-	0.199	0.053	0.005	-	-
HCM Control Delay (s)	9.1	-	-	17.1	10.6	7.6	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.7	0.2	0	-	-

Intersection: 3: US 11

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	66	205	11	44	18	194	68	33	69	170	125
Average Queue (ft)	30	150	3	18	4	115	30	13	34	104	74
95th Queue (ft)	73	238	17	47	18	200	72	35	70	184	141
Link Distance (ft)	200	200		244	244		1444		320	320	
Upstream Blk Time (%)		5								0	
Queuing Penalty (veh)		14								0	
Storage Bay Dist (ft)			200			270		225			225
Storage Blk Time (%)										0	
Queuing Penalty (veh)										2	

Intersection: 6: NB I-81

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	TR	LT	R
Maximum Queue (ft)	80	64	126	186	127	154	70	200
Average Queue (ft)	41	17	53	119	58	78	36	104
95th Queue (ft)	83	58	132	204	130	151	75	209
Link Distance (ft)	520	520	520	200	200	200	1020	
Upstream Blk Time (%)				1	0	0		
Queuing Penalty (veh)				1	0	1		
Storage Bay Dist (ft)								500
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 9: SB I-81

Movement	EB	EB	WB	WB	WB	SB	SB
Directions Served	T	TR	L	T	T	LT	R
Maximum Queue (ft)	162	260	358	72	66	230	78
Average Queue (ft)	62	169	210	33	33	139	44
95th Queue (ft)	233	328	390	72	73	237	84
Link Distance (ft)	462	462	520	520	520	1010	1010
Upstream Blk Time (%)	0	1	0				
Queuing Penalty (veh)	0	0	0				
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 12: Mr. Fuel Driveway/Woodbine

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	106	42	19	5
Average Queue (ft)	59	22	4	1
95th Queue (ft)	111	51	28	8
Link Distance (ft)	249	150		1444
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			150	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 18

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	318	47	252	30	228	46	267	344	6	9	156	170
Future Volume (vph)	318	47	252	30	228	46	267	344	6	9	156	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	270		225	0		225
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.873				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1395	0	1770	1863	1583	1480	1776	1583	1770	1776	1509
Flt Permitted	0.303			0.557			0.646			0.531		
Satd. Flow (perm)	538	1395	0	1038	1863	1583	1006	1776	1583	989	1776	1509
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		286				252			151			179
Link Speed (mph)		35			30			45			45	
Link Distance (ft)		300			289			1511			376	
Travel Time (s)		5.8			6.6			22.9			5.7	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	7%	2%	22%	2%	2%	2%	22%	7%	2%	2%	7%	7%
Adj. Flow (vph)	361	53	286	34	259	52	303	391	7	10	177	193
Shared Lane Traffic (%)												
Lane Group Flow (vph)	361	339	0	34	259	52	303	391	7	10	177	193
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA	Perm	D.P+P	NA	Perm	Perm	NA	pm+ov
Protected Phases	5	2			6		3	8			4	5

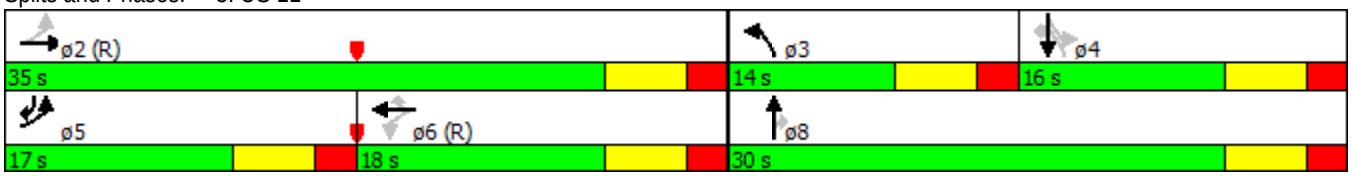
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6		6	4		8	4		4
Detector Phase	5	2		6	6	6	3	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0		10.0	10.0	10.0	7.0	10.0	10.0	10.0	10.0	7.0
Minimum Split (s)	13.0	16.0		16.0	16.0	16.0	13.0	16.0	16.0	16.0	16.0	13.0
Total Split (s)	17.0	35.0		18.0	18.0	18.0	14.0	30.0	30.0	16.0	16.0	17.0
Total Split (%)	26.2%	53.8%		27.7%	27.7%	27.7%	21.5%	46.2%	46.2%	24.6%	24.6%	26.2%
Maximum Green (s)	11.0	29.0		12.0	12.0	12.0	8.0	24.0	24.0	10.0	10.0	11.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag	Lead			Lag	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		C-Max	C-Max	C-Max	None	Max	Max	Max	Max	None
Act Effct Green (s)	29.0	29.0		12.0	12.0	12.0	18.0	24.0	24.0	10.0	10.0	27.0
Actuated g/C Ratio	0.45	0.45		0.18	0.18	0.18	0.28	0.37	0.37	0.15	0.15	0.42
v/c Ratio	0.83	0.43		0.18	0.76	0.10	0.90	0.60	0.01	0.07	0.65	0.26
Control Delay	33.7	6.7		25.1	41.6	0.4	52.1	21.2	0.0	24.8	38.9	3.8
Queue Delay	0.0	0.3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.7	7.0		25.1	41.6	0.4	52.1	21.2	0.0	24.8	38.9	3.8
LOS	C	A		C	D	A	D	C	A	C	D	A
Approach Delay		20.7			33.8			34.4			20.7	
Approach LOS		C			C			C			C	
90th %ile Green (s)	11.0	29.0		12.0	12.0	12.0	8.0	24.0	24.0	10.0	10.0	11.0
90th %ile Term Code	Max	Coord		Coord	Coord	Coord	Max	MaxR	MaxR	MaxR	MaxR	Max
70th %ile Green (s)	11.0	29.0		12.0	12.0	12.0	8.0	24.0	24.0	10.0	10.0	11.0
70th %ile Term Code	Max	Coord		Coord	Coord	Coord	Max	MaxR	MaxR	MaxR	MaxR	Max
50th %ile Green (s)	11.0	29.0		12.0	12.0	12.0	8.0	24.0	24.0	10.0	10.0	11.0
50th %ile Term Code	Max	Coord		Coord	Coord	Coord	Max	MaxR	MaxR	MaxR	MaxR	Max
30th %ile Green (s)	11.0	29.0		12.0	12.0	12.0	8.0	24.0	24.0	10.0	10.0	11.0
30th %ile Term Code	Max	Coord		Coord	Coord	Coord	Max	MaxR	MaxR	MaxR	MaxR	Max
10th %ile Green (s)	11.0	29.0		12.0	12.0	12.0	8.0	24.0	24.0	10.0	10.0	11.0
10th %ile Term Code	Max	Coord		Coord	Coord	Coord	Max	MaxR	MaxR	MaxR	MaxR	Max
Stops (vph)	240	124		27	198	0	219	270	0	12	137	26
Fuel Used(gal)	5	2		0	4	0	8	8	0	0	3	1
CO Emissions (g/hr)	327	139		26	247	8	571	574	4	15	232	61
NOx Emissions (g/hr)	64	27		5	48	1	111	112	1	3	45	12
VOC Emissions (g/hr)	76	32		6	57	2	132	133	1	4	54	14
Dilemma Vehicles (#)	0	13		0	0	0	0	27	0	0	12	0
Queue Length 50th (ft)	127	40		12	98	0	93	122	0	3	67	3
Queue Length 95th (ft)	#203	64		33	#194	0	#173	198	0	15	#138	34
Internal Link Dist (ft)		220			209			1431			296	
Turn Bay Length (ft)				200			270		225			225
Base Capacity (vph)	434	780		191	343	497	336	655	679	152	273	731
Starvation Cap Reductn	0	106		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.83	0.50		0.18	0.76	0.10	0.90	0.60	0.01	0.07	0.65	0.26

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 65
Offset: 32 (49%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 27.3 Intersection LOS: C
Intersection Capacity Utilization 76.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: US 11



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	253	0	0	407	271	164	0	367	0	0	0
Future Volume (vph)	141	253	0	0	407	271	164	0	367	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		500	0		0
Storage Lanes	1		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.940				0.850			
Flt Protected	0.950							0.950				
Satd. Flow (prot)	1444	2888	0	0	3901	0	0	1444	1292	0	0	0
Flt Permitted	0.224							0.950				
Satd. Flow (perm)	340	2888	0	0	3901	0	0	1444	1292	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					246				417			
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		560			300			1068			184	
Travel Time (s)		10.9			5.8			24.3			4.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	160	288	0	0	463	308	186	0	417	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	160	288	0	0	771	0	0	186	417	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2		1	2	1			
Detector Template	Left	Thru			Thru		Left	Thru	Right			
Leading Detector (ft)	20	100			100		20	100	20			
Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft)	20	6			6		20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				

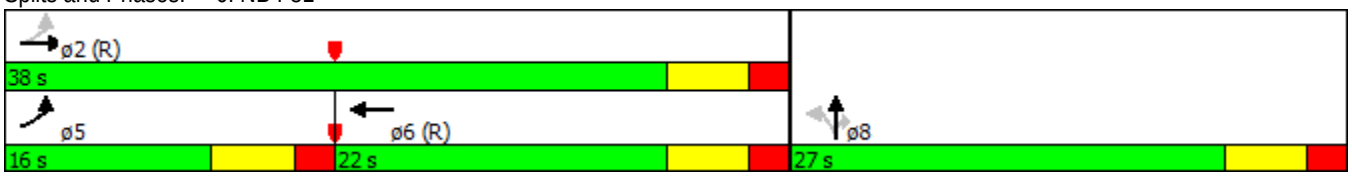
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2						8		8			
Detector Phase	5	2			6		8	8	8			
Switch Phase												
Minimum Initial (s)	7.0	10.0			10.0		10.0	10.0	10.0			
Minimum Split (s)	16.0	16.0			16.0		16.0	16.0	16.0			
Total Split (s)	16.0	38.0			22.0		27.0	27.0	27.0			
Total Split (%)	24.6%	58.5%			33.8%		41.5%	41.5%	41.5%			
Maximum Green (s)	10.0	32.0			16.0		21.0	21.0	21.0			
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0	2.0			
Lost Time Adjust (s)	0.0	0.0			0.0			0.0	0.0			
Total Lost Time (s)	6.0	6.0			6.0			6.0	6.0			
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Recall Mode	None	C-Max			C-Max		Max	Max	Max			
Act Effct Green (s)	32.0	32.0			19.6			21.0	21.0			
Actuated g/C Ratio	0.49	0.49			0.30			0.32	0.32			
v/c Ratio	0.50	0.20			0.57			0.40	0.60			
Control Delay	12.2	2.9			10.2			20.3	6.2			
Queue Delay	0.0	0.0			0.0			0.0	0.0			
Total Delay	12.2	2.9			10.2			20.3	6.2			
LOS	B	A			B			C	A			
Approach Delay		6.2			10.2			10.5				
Approach LOS		A			B			B				
90th %ile Green (s)	10.0	32.0			16.0		21.0	21.0	21.0			
90th %ile Term Code	Max	Coord			Coord		MaxR	MaxR	MaxR			
70th %ile Green (s)	10.0	32.0			16.0		21.0	21.0	21.0			
70th %ile Term Code	Max	Coord			Coord		MaxR	MaxR	MaxR			
50th %ile Green (s)	9.6	32.0			16.4		21.0	21.0	21.0			
50th %ile Term Code	Gap	Coord			Coord		MaxR	MaxR	MaxR			
30th %ile Green (s)	8.2	32.0			17.8		21.0	21.0	21.0			
30th %ile Term Code	Gap	Coord			Coord		MaxR	MaxR	MaxR			
10th %ile Green (s)	0.0	32.0			32.0		21.0	21.0	21.0			
10th %ile Term Code	Skip	Coord			Coord		MaxR	MaxR	MaxR			
Stops (vph)	82	66			543			123	47			
Fuel Used(gal)	2	2			7			3	4			
CO Emissions (g/hr)	107	117			486			190	264			
NOx Emissions (g/hr)	21	23			95			37	51			
VOC Emissions (g/hr)	25	27			113			44	61			
Dilemma Vehicles (#)	0	7			29			0	0			
Queue Length 50th (ft)	7	6			70			56	0			
Queue Length 95th (ft)	m36	6			m78			105	52			
Internal Link Dist (ft)		480			220			988			104	
Turn Bay Length (ft)									500			
Base Capacity (vph)	337	1421			1350			466	699			
Starvation Cap Reductn	0	0			0			0	0			
Spillback Cap Reductn	0	0			0			0	0			
Storage Cap Reductn	0	0			0			0	0			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.47	0.20			0.57			0.40	0.60			

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 65
Offset: 64 (98%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 9.3 Intersection LOS: A
Intersection Capacity Utilization 51.1% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: NB I-81



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	227	140	282	289	0	0	0	0	173	3	163
Future Volume (vph)	0	227	140	282	289	0	0	0	0	173	3	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.943										0.850
Flt Protected				0.950							0.953	
Satd. Flow (prot)	0	2723	0	1444	2888	0	0	0	0	0	1449	1292
Flt Permitted				0.950							0.953	
Satd. Flow (perm)	0	2723	0	1444	2888	0	0	0	0	0	1449	1292
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		159										185
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			560			215			1058	
Travel Time (s)		9.7			10.9			4.9			24.0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	0	258	159	320	328	0	0	0	0	197	3	185
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	417	0	320	328	0	0	0	0	0	200	185
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (ft)		100		20	100					20	100	20
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases										4		4
Detector Phase		2		1	6					4	4	4
Switch Phase												

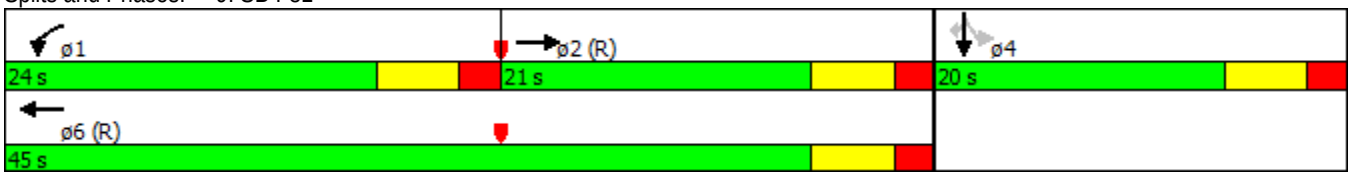
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		10.0		7.0	10.0					10.0	10.0	10.0
Minimum Split (s)		21.0		16.0	24.0					20.0	20.0	20.0
Total Split (s)		21.0		24.0	45.0					20.0	20.0	20.0
Total Split (%)		32.3%		36.9%	69.2%					30.8%	30.8%	30.8%
Maximum Green (s)		15.0		18.0	39.0					14.0	14.0	14.0
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0						6.0	6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max					Max	Max	Max
Act Effct Green (s)		16.1		16.9	39.0						14.0	14.0
Actuated g/C Ratio		0.25		0.26	0.60						0.22	0.22
v/c Ratio		0.53		0.85	0.19						0.64	0.44
Control Delay		16.0		39.3	2.3						34.4	7.7
Queue Delay		0.0		0.0	0.0						0.0	0.0
Total Delay		16.0		39.3	2.3						34.4	7.7
LOS		B		D	A						C	A
Approach Delay		16.0			20.6						21.6	
Approach LOS		B			C						C	
90th %ile Green (s)		15.0		18.0	39.0					14.0	14.0	14.0
90th %ile Term Code		Coord		Max	Coord					MaxR	MaxR	MaxR
70th %ile Green (s)		15.0		18.0	39.0					14.0	14.0	14.0
70th %ile Term Code		Coord		Max	Coord					MaxR	MaxR	MaxR
50th %ile Green (s)		15.0		18.0	39.0					14.0	14.0	14.0
50th %ile Term Code		Coord		Max	Coord					MaxR	MaxR	MaxR
30th %ile Green (s)		15.5		17.5	39.0					14.0	14.0	14.0
30th %ile Term Code		Coord		Gap	Coord					MaxR	MaxR	MaxR
10th %ile Green (s)		19.8		13.2	39.0					14.0	14.0	14.0
10th %ile Term Code		Coord		Gap	Coord					MaxR	MaxR	MaxR
Stops (vph)		195		238	41						153	27
Fuel Used(gal)		4		5	2						4	2
CO Emissions (g/hr)		279		362	113						247	122
NOx Emissions (g/hr)		54		71	22						48	24
VOC Emissions (g/hr)		65		84	26						57	28
Dilemma Vehicles (#)		28		0	11						0	0
Queue Length 50th (ft)		45		64	7						73	0
Queue Length 95th (ft)		83		#240	8						#146	43
Internal Link Dist (ft)		420			480			135			978	
Turn Bay Length (ft)												
Base Capacity (vph)		792		399	1732						312	423
Starvation Cap Reductn		0		0	0						0	0
Spillback Cap Reductn		0		0	0						0	0
Storage Cap Reductn		0		0	0						0	0
Reduced v/c Ratio		0.53		0.80	0.19						0.64	0.44

Intersection Summary

Area Type:	Other
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 33 (51%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 19.5	Intersection LOS: B
Intersection Capacity Utilization 51.1%	ICU Level of Service A
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: SB I-81



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	1	6	5	1	10	6	370	13	19	218	59
Future Volume (vph)	58	1	6	5	1	10	6	370	13	19	218	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	0		0
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.917			0.995				0.850
Flt Protected		0.957			0.984		0.950			0.950		
Satd. Flow (prot)	0	897	0	0	1528	0	902	1767	0	1687	1776	808
Flt Permitted		0.957			0.984		0.950			0.950		
Satd. Flow (perm)	0	897	0	0	1528	0	902	1767	0	1687	1776	808
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		302			190			1001			1511	
Travel Time (s)		6.9			4.3			15.2			22.9	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	100%	100%	100%	7%	100%	7%	100%	7%	7%	7%	7%	100%
Adj. Flow (vph)	66	1	7	6	1	11	7	420	15	22	248	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	0	0	18	0	7	435	0	22	248	67
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	58	1	6	5	1	10	6	370	13	19	218	59
Future Vol, veh/h	58	1	6	5	1	10	6	370	13	19	218	59
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	100	100	100	7	100	7	100	7	7	7	7	100
Mvmt Flow	66	1	7	6	1	11	7	420	15	22	248	67

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	739	740	248	736	732	428	248	0	0	435	0	0
Stage 1	291	291	-	441	441	-	-	-	-	-	-	-
Stage 2	448	449	-	295	291	-	-	-	-	-	-	-
Critical Hdwy	8.1	7.5	7.2	7.17	7.5	6.27	5.1	-	-	4.17	-	-
Critical Hdwy Stg 1	7.1	6.5	-	6.17	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.1	6.5	-	6.17	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	4.4	4.9	4.2	3.563	4.9	3.363	3.1	-	-	2.263	-	-
Pot Cap-1 Maneuver	236	250	601	328	253	616	908	-	-	1099	-	-
Stage 1	548	526	-	586	441	-	-	-	-	-	-	-
Stage 2	439	437	-	703	526	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	226	243	601	316	246	616	908	-	-	1099	-	-
Mov Cap-2 Maneuver	226	243	-	316	246	-	-	-	-	-	-	-
Stage 1	544	515	-	581	438	-	-	-	-	-	-	-
Stage 2	426	434	-	680	515	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.5	13.5	0.1	0.5
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	908	-	-	240	443	1099	-	-
HCM Lane V/C Ratio	0.008	-	-	0.308	0.041	0.02	-	-
HCM Control Delay (s)	9	-	-	26.5	13.5	8.3	-	-
HCM Lane LOS	A	-	-	D	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.3	0.1	0.1	-	-

Intersection: 3: US 11

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	185	152	98	189	78	192	184	15	24	142	79
Average Queue (ft)	127	93	30	125	28	124	109	3	6	84	45
95th Queue (ft)	201	168	114	220	80	210	189	17	25	145	78
Link Distance (ft)	200	200		244	244		1444		320	320	
Upstream Blk Time (%)	1	0	0	3	0						
Queuing Penalty (veh)	3	1	0	0	0						
Storage Bay Dist (ft)			200			270		225			225
Storage Blk Time (%)				4		0	0				
Queuing Penalty (veh)				1		1	1				

Intersection: 6: NB I-81

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	TR	LT	R
Maximum Queue (ft)	111	65	60	144	125	184	167	187
Average Queue (ft)	66	20	25	66	62	101	95	98
95th Queue (ft)	113	62	67	134	130	179	172	182
Link Distance (ft)	520	520	520	200	200	200	1020	
Upstream Blk Time (%)				0	0	1		
Queuing Penalty (veh)				0	0	1		
Storage Bay Dist (ft)								500
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 9: SB I-81

Movement	EB	EB	WB	WB	WB	SB	SB
Directions Served	T	TR	L	T	T	LT	R
Maximum Queue (ft)	105	209	244	84	71	147	87
Average Queue (ft)	47	118	154	36	26	96	58
95th Queue (ft)	109	209	261	86	70	157	102
Link Distance (ft)	462	462	520	520	520	1010	1010
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 12: Woodbine

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	L	L	R
Maximum Queue (ft)	90	38	21	22	4
Average Queue (ft)	50	15	2	5	1
95th Queue (ft)	99	47	21	23	9
Link Distance (ft)	249	150		1444	1444
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			150		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 7

APPENDIX L

SIGNAL WARRANT ANALYSIS
US 17 AT INDEPENDENCE DRIVE

Warrants Summary Report

2: Independence

Intersection Information

	Major Street	Minor Street
Street Name	US 17	Independence
Direction	NB/SB	EB
Number of Lanes	2	1
Approch Speed	55	35

Warrant	Met?	Notes
Warrant 1, Eight-Hour Vehicular Volume		
	No	
Condition A or B Met?	No	7 Hours met (8 required)
Condition A and B Met?	No	4 Hours met (8 required)
Warrant 2, Four-Hour Vehicular Volume		
	Yes	4 Hours met (4 required)
Warrant 3, Peak Hour		
	Yes	
Condition A Met?	No	0 Hours met (1 required)
Condition B Met?	Yes	3 Hours met (1 required)

Raw Volumes

2: Independence

Time	NBL	NBT	NBR	SBL	SBT	SBR	EBL
6:00	3	31	0	0	110	11	2
6:15	3	45	0	0	152	6	2
6:30	3	54	0	0	140	15	5
6:45	7	52	0	0	124	42	2
7:00	3	70	0	0	107	26	3
7:15	10	93	0	0	113	26	4
7:30	6	92	0	0	105	36	11
7:45	13	98	0	0	114	62	15
8:00	10	83	0	0	125	32	8
8:15	11	85	0	0	98	36	4
8:30	11	96	0	0	95	44	7
8:45	5	69	0	0	94	52	2
9:00	4	99	0	0	93	17	6
9:15	5	76	0	0	70	26	7
9:30	3	86	0	0	60	25	5
9:45	6	87	0	0	48	24	2
10:00	3	63	0	0	63	20	3
10:15	3	78	0	0	71	13	11
10:30	3	76	0	0	58	17	8
10:45	2	81	0	0	46	19	8
11:00	5	79	0	0	63	15	13
11:15	7	72	0	0	89	16	9
11:30	8	85	0	0	57	16	13
11:45	6	71	0	0	92	27	14
12:00	4	85	0	0	82	28	23
12:15	2	78	0	0	81	18	11

12:30	6	75	0	0	69	25	23	
12:45	7	85	0	0	50	28	16	
13:00	2	77	0	0	71	18	20	
13:15	3	104	0	0	89	14	16	
13:30	5	91	0	0	68	30	15	
13:45	9	57	0	0	46	24	14	
14:00	3	81	0	0	64	16	18	
14:15	4	74	0	0	67	14	13	
14:30	9	90	0	0	81	23	25	
14:45	4	104	0	0	88	16	25	
15:00	9	116	0	0	96	8	29	
15:15	5	112	0	0	96	22	20	
15:30	3	126	0	0	75	13	34	
15:45	4	160	0	0	103	31	36	
16:00	8	146	0	0	90	18	36	
16:15	6	168	0	0	105	28	17	
16:30	3	168	0	0	87	17	50	
16:45	4	177	0	0	107	40	44	
17:00	4	173	0	0	104	36	46	
17:15	10	163	0	0	106	26	31	
17:30	3	188	0	0	96	17	46	
17:45	5	171	0	0	72	9	36	

Warrant 1: Eight-hour Vehicular Volume

2: Independence

Intersection Information

Major Street Name:	-
Major Street Direction:	NB/SB
Minor Street Direction:	EB

WARRANT 1 MET? **No**

Details:

Condition A Met?	No	7 Hours met (8 required)
Condition B Met?	No	4 Hours met (8 required)

Hour	Major Street Vehicles (Total of Both Approaches)		High Volume Minor Approach Vehicles		70% Standard Met? Cond. A OR Cond. B		56% Standard Met? Cond. A AND Cond. B	
					Condition A 70% Column	Condition B 70% Column	Condition A 56% Column	Condition B 56% Column
06:00 to 07:00	**798**		**11**		No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No				
06:15 to 07:15	**849**		**12**		No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No				
06:30 to 07:30	**885**		**14**		No	No	No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No				

Warrant 1: Eight-hour Vehicular Volume

2: Independence

06:45 to 07:45	**912**		**20**		No	No		No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No					
07:00 to 08:00	**974**		**33**		No	No		No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No					
07:15 to 08:15	**1,018**		**38**		No	No		No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No					
07:30 to 08:30	**1,006**		**38**		No	No		No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No					
07:45 to 08:45	**1,013**		**34**		No	No		No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No					

Warrant 1: Eight-hour Vehicular Volume

2: Independence

08:00 to 09:00	**946**		**21**		No	No		No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No					
08:15 to 09:15	**909**		**19**		No	No		No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No					
08:30 to 09:30	**856**		**22**		No	No		No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No					
08:45 to 09:45	**784**		**20**		No	No		No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No					
09:00 to 10:00	**729**		**20**		No	No		No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No					

Warrant 1: Eight-hour Vehicular Volume

2: Independence

09:15 to 10:15	**665**		**17**		No	No		No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No					
09:30 to 10:30	**653**		**21**		No	No		No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No					
09:45 to 10:45	**633**		**24**		No	No		No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No					
10:00 to 11:00	**616**		**30**		No	No		No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	No	**Volume >= 70% column (53)?**	No					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No					
10:15 to 11:15	**629**		**40**		No	No		No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	No	**Volume >= 70% column (53)?**	No					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No					

Warrant 1: Eight-hour Vehicular Volume

2: Independence

10:30 to 11:30	**648**		**38**		No	No		No	No
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	No					
10:45 to 11:45	**660**		**43**		No	No		No	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes					
11:00 to 12:00	**708**		**49**		No	No		No	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	No					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes					
11:15 to 12:15	**745**		**59**		No	Yes*		No	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes					
11:30 to 12:30	**740**		**61**		No	Yes		No	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No					
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No					
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes					
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes					

Warrant 1: Eight-hour Vehicular Volume

2: Independence

11:45 to 12:45	749		71		No	Yes	No	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				

12:00 to 13:00	723		73		No	Yes	No	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				

12:15 to 13:15	692		70		No	Yes*	No	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				

12:30 to 13:30	723		75		No	Yes	No	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				

12:45 to 13:45	742		67		No	Yes	No	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				

Warrant 1: Eight-hour Vehicular Volume

2: Independence

13:00 to 14:00	708		65		No	Yes	No	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				

13:15 to 14:15	704		63		No	Yes*	No	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				

13:30 to 14:30	653		60		No	Yes	No	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				

13:45 to 14:45	662		70		No	Yes	No	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				

14:00 to 15:00	738		81		No	Yes	No	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				

Warrant 1: Eight-hour Vehicular Volume

2: Independence

14:15 to 15:15	**803**		**92**		No	Yes*	Yes*	Yes*
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	Yes				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				
14:30 to 15:30	**879**		**99**		No	Yes	Yes	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	Yes				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				
14:45 to 15:45	**893**		**108**		Yes*	Yes	Yes	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	Yes				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	Yes				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				
15:00 to 16:00	**979**		**119**		Yes	Yes	Yes	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	Yes				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	Yes				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				
15:15 to 16:15	**1,012**		**126**		Yes	Yes*	Yes*	Yes*
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	Yes				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	Yes				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				

Warrant 1: Eight-hour Vehicular Volume

2: Independence

15:30 to 16:30	**1,084**		**123**		Yes	Yes	Yes	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	Yes				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	Yes				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				
15:45 to 16:45	**1,142**		**139**		Yes*	Yes	Yes	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	Yes				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	Yes				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				
16:00 to 17:00	**1,172**		**147**		Yes	Yes	Yes	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	Yes				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	Yes				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				
16:15 to 17:15	**1,227**		**157**		Yes	Yes*	Yes*	Yes*
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	Yes				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	Yes				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				
16:30 to 17:30	**1,225**		**171**		Yes	Yes	Yes	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	Yes				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	Yes				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				

Warrant 1: Eight-hour Vehicular Volume

2: Independence

16:45 to 17:45	**1,254**		**167**		Yes*	Yes	Yes	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	Yes				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	Yes				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				
17:00 to 18:00	**1,183**		**159**		Yes	Yes	Yes	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	Yes				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	Yes				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				
17:15 to 18:15	**866**		**113**		Yes	Yes*	Yes*	Yes*
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	Yes				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	Yes				
Condition B	**Volume >= 70% column (630)?**	Yes	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				
17:30 to 18:30	**561**		**82**		No	No	No	Yes
Condition A	Volume >= 70% column (420)?	Yes	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	Yes	Volume >= 56% column (504)?	No				
Condition B	**Volume >= 70% column (630)?**	No	**Volume >= 70% column (53)?**	Yes				
	Volume >= 56% column (504)?	Yes	**Volume >= 56% column (42)?**	Yes				
17:45 to 18:45	**257**		**36**		No	No	No	No
Condition A	Volume >= 70% column (420)?	No	Volume >= 70% column (630)?	No				
	Volume >= 56% column (336)?	No	Volume >= 56% column (504)?	No				
Condition B	**Volume >= 70% column (630)?**	No	**Volume >= 70% column (53)?**	No				
	Volume >= 56% column (504)?	No	**Volume >= 56% column (42)?**	No				

Warrant 2: Four-hour Vehicular Volume

2: Independence

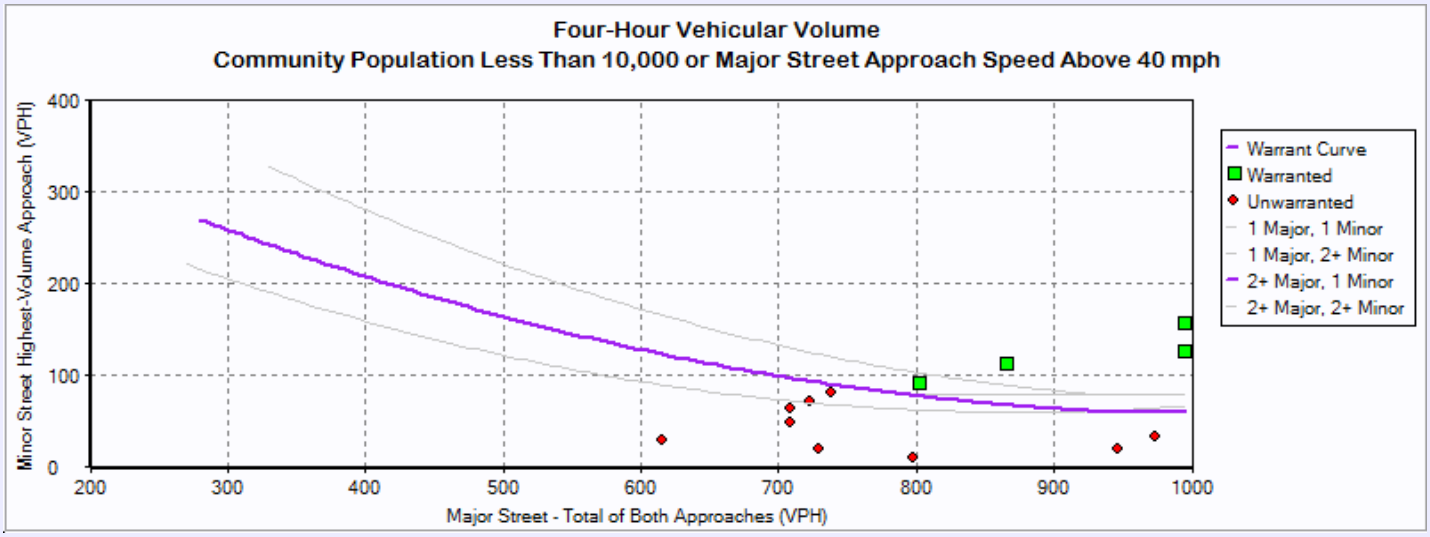
Intersection Information

	Major Street	Minor Street
Street Name	US 17	Independence
Direction	NB/SB	EB
Number of Lanes	2	1
Approch Speed	55	35

Warrant 2 Met? **Yes**

Details:

Notes	4 Hours met (4 required)
Low population	Yes



Hourly Volumes

Hour	Major Street Total All Approaches (vph)	Minor Street Highest Volume Approach (vph)
00:00:00 - 01:00:00	0	0
01:00:00 - 02:00:00	0	0
02:00:00 - 03:00:00	0	0
03:00:00 - 04:00:00	0	0
04:00:00 - 05:00:00	0	0
05:00:00 - 06:00:00	0	0
06:00:00 - 07:00:00	798	11
07:00:00 - 08:00:00	974	33
08:00:00 - 09:00:00	946	21
09:00:00 - 10:00:00	729	20
10:00:00 - 11:00:00	616	30
11:00:00 - 12:00:00	708	49
12:00:00 - 13:00:00	723	73
13:00:00 - 14:00:00	708	65
14:00:00 - 15:00:00	738	81
15:00:00 - 16:00:00	979	119
16:00:00 - 17:00:00	1,172	147
17:00:00 - 18:00:00	1,183	159
18:00:00 - 19:00:00	0	0
19:00:00 - 20:00:00	0	0
20:00:00 - 21:00:00	0	0
21:00:00 - 22:00:00	0	0
22:00:00 - 23:00:00	0	0

23:00:00 - 00:00:00	0	0

Warranted Hours

Hour	Major Street Total All Approaches (vph)	Minor Street Highest Volume Approach (vph)
14:15:00 - 15:15:00	803.00	92.00
15:15:00 - 16:15:00	1,012.00	126.00
16:15:00 - 17:15:00	1,227.00	157.00
17:15:00 - 18:15:00	866.00	113.00

Note: Only data of hours warranted is represented in the above table.

Warrant 3: Peak Hour

2: Independence

Intersection Information

	Major Street	Minor Street
Street Name	US 17	Independence
Direction	NB/SB	EB
Number of Lanes	2	1
Approch Speed	55	35

Warrant 3 Met? **Yes**

Details

Low Population? Yes

Condition A Met? No

Notes 0 Hours met (1 required)

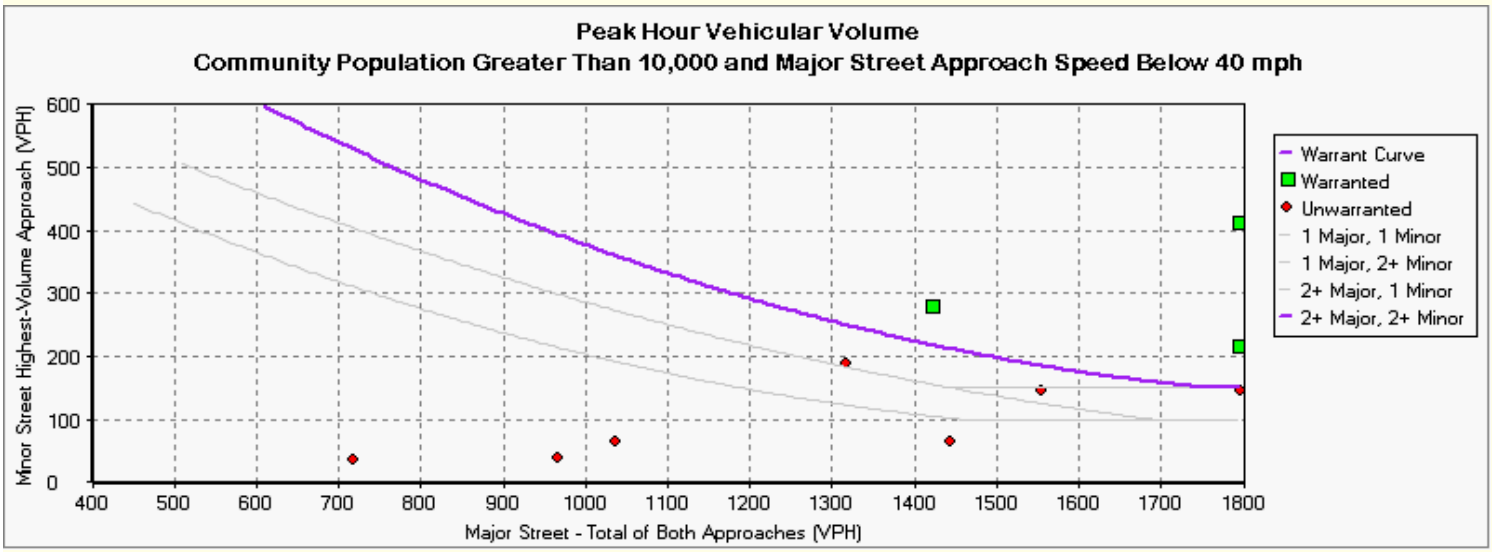
Condition B Met? Yes

Notes 3 Hours met (1 required)

Minor Approach Time Delay Condition Met? Not Met

Minor Approach Volume Condition Met? Met

Total Entering Intersection Volume Condition Met? Not Met



Warrant 3: Peak Hour

2: Independence

Hour	Major Street Total All Approaches (vph)	Minor Street Highest Volume Approach (vph)
6:00	798	11
7:00	974	33
8:00	946	21
9:00	729	20
10:00	616	30
11:00	708	49
12:00	723	73
13:00	708	65
14:00	738	81
15:00	979	119
16:00	1,172	147
17:00	1,183	159

APPENDIX M

LEVEL OF SERVICE ANALYSIS
ARCADIA SITE WITH IMPROVEMENTS

Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations											
Traffic Volume (vph)	0	12	24	440	2	37	856	107	0	0	15
Future Volume (vph)	0	12	24	440	2	37	856	107	0	0	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	110		105	125		390	0	0	
Storage Lanes	0	1	1		1	1		1	0	1	
Taper Length (ft)	25		25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt		0.865			0.850			0.850			0.865
Flt Protected			0.950			0.950					
Satd. Flow (prot)	0	1580	1736	3471	1553	1736	3471	1553	0	0	1580
Flt Permitted			0.950			0.950					
Satd. Flow (perm)	0	1580	1736	3471	1553	1736	3471	1553	0	0	1580
Link Speed (mph)	30			55			55		35		
Link Distance (ft)	250			1447			2600		500		
Travel Time (s)	5.7			17.9			32.2		9.7		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	13	27	489	2	41	951	119	0	0	17
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	13	27	489	2	41	951	119	0	0	17
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(ft)	0			20			20		0		
Link Offset(ft)	0			0			0		0		
Crosswalk Width(ft)	16			16			16		16		
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15		9	15		9	15	9	9
Sign Control	Stop			Free			Free		Stop		

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 33.7%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	14	10	20	10	18	48	384	134	206	458	184
Future Volume (vph)	85	14	10	20	10	18	48	384	134	206	458	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	215		0	125		0	230		0	175		180
Storage Lanes	1		0	0		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.972				0.850			0.850			0.850
Flt Protected	0.950	0.973			0.968		0.950			0.950		
Satd. Flow (prot)	1649	1641	0	0	1768	1553	1736	3471	1553	1736	3471	1553
Flt Permitted	0.950	0.973			0.968		0.465			0.503		
Satd. Flow (perm)	1649	1641	0	0	1768	1553	850	3471	1553	919	3471	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				95			149			204
Link Speed (mph)		35			30			55			55	
Link Distance (ft)		500			331			2300			1447	
Travel Time (s)		9.7			7.5			28.5			17.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	94	16	11	22	11	20	53	427	149	229	509	204
Shared Lane Traffic (%)	35%											
Lane Group Flow (vph)	61	60	0	0	33	20	53	427	149	229	509	204
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			0			20			20	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA		Split	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases						8	2		2	6		6

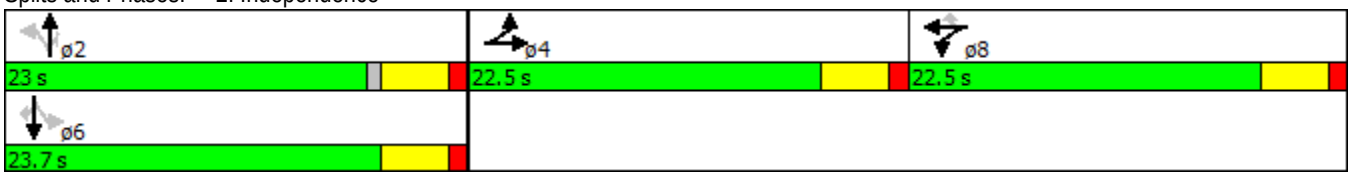
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5		22.5	22.5	22.5	23.0	23.0	23.0	23.7	23.7	23.7
Total Split (%)	32.8%	32.8%		32.8%	32.8%	32.8%	33.5%	33.5%	33.5%	34.5%	34.5%	34.5%
Maximum Green (s)	18.0	18.0		18.0	18.0	18.0	18.5	18.5	18.5	19.2	19.2	19.2
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effct Green (s)	7.2	7.2			6.5	6.5	27.3	27.3	27.3	27.3	27.3	27.3
Actuated g/C Ratio	0.16	0.16			0.15	0.15	0.61	0.61	0.61	0.61	0.61	0.61
v/c Ratio	0.23	0.22			0.13	0.07	0.10	0.20	0.15	0.41	0.24	0.20
Control Delay	19.1	16.5			18.7	0.4	9.0	7.4	2.9	13.7	7.6	2.7
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.1	16.5			18.7	0.4	9.0	7.4	2.9	13.7	7.6	2.7
LOS	B	B			B	A	A	A	A	B	A	A
Approach Delay		17.8			11.8			6.5			8.0	
Approach LOS		B			B			A			A	
90th %ile Green (s)	9.3	9.3		7.8	7.8	7.8	19.2	19.2	19.2	19.2	19.2	19.2
90th %ile Term Code	Gap	Gap		Gap	Gap	Gap	Hold	Hold	Hold	MaxR	MaxR	MaxR
70th %ile Green (s)	7.9	7.9		6.9	6.9	6.9	19.2	19.2	19.2	19.2	19.2	19.2
70th %ile Term Code	Gap	Gap		Gap	Gap	Gap	Hold	Hold	Hold	MaxR	MaxR	MaxR
50th %ile Green (s)	7.1	7.1		0.0	0.0	0.0	22.0	22.0	22.0	22.0	22.0	22.0
50th %ile Term Code	Gap	Gap		Skip	Skip	Skip	Dwell	Dwell	Dwell	Dwell	Dwell	Dwell
30th %ile Green (s)	6.3	6.3		0.0	0.0	0.0	34.2	34.2	34.2	34.2	34.2	34.2
30th %ile Term Code	Gap	Gap		Skip	Skip	Skip	Dwell	Dwell	Dwell	Dwell	Dwell	Dwell
10th %ile Green (s)	0.0	0.0		0.0	0.0	0.0	34.2	34.2	34.2	34.2	34.2	34.2
10th %ile Term Code	Skip	Skip		Skip	Skip	Skip	Dwell	Dwell	Dwell	Dwell	Dwell	Dwell
Stops (vph)	48	41			29	0	29	185	21	129	225	24
Fuel Used(gal)	1	1			0	0	1	10	2	5	9	2
CO Emissions (g/hr)	54	48			25	3	93	672	169	340	635	156
NOx Emissions (g/hr)	11	9			5	1	18	131	33	66	124	30
VOC Emissions (g/hr)	13	11			6	1	21	156	39	79	147	36
Dilemma Vehicles (#)	0	4			0	0	0	35	0	0	45	0
Queue Length 50th (ft)	11	9			6	0	4	17	0	22	22	0
Queue Length 95th (ft)	42	38			27	0	29	71	26	#140	85	31
Internal Link Dist (ft)		420			251			2220			1367	
Turn Bay Length (ft)	215						230			175		180
Base Capacity (vph)	673	676			721	690	519	2123	1007	562	2123	1029
Starvation Cap Reductn	0	0			0	0	0	0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0			0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0			0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.09			0.05	0.03	0.10	0.20	0.15	0.41	0.24	0.20

Intersection Summary

Area Type: Other
Cycle Length: 68.7
Actuated Cycle Length: 44.7
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 8.3 Intersection LOS: A
Intersection Capacity Utilization 43.0% ICU Level of Service A
Analysis Period (min) 15
90th %ile Actuated Cycle: 49.8
70th %ile Actuated Cycle: 47.5
50th %ile Actuated Cycle: 38.1
30th %ile Actuated Cycle: 49.5
10th %ile Actuated Cycle: 38.7
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Independence



Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Traffic Vol, veh/h	0	12	24	440	2	37	856	107	0	0
Future Vol, veh/h	0	12	24	440	2	37	856	107	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	-	None	-	-
Storage Length	-	0	110	-	105	125	-	390	-	0
Veh in Median Storage, #	0	-	-	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	13	27	489	2	41	951	119	0	0

Major/Minor	Minor1		Major1			Major2			Minor2	
Conflicting Flow All	1100	244	951	0	0	489	0	0	1331	476
Stage 1	542	-	-	-	-	-	-	-	1033	-
Stage 2	558	-	-	-	-	-	-	-	298	-
Critical Hdwy	7.58	6.98	4.18	-	-	4.18	-	-	7.58	6.98
Critical Hdwy Stg 1	6.58	-	-	-	-	-	-	-	6.58	-
Critical Hdwy Stg 2	6.58	-	-	-	-	-	-	-	6.58	-
Follow-up Hdwy	3.54	3.34	2.24	-	-	2.24	-	-	3.54	3.34
Pot Cap-1 Maneuver	164	750	706	-	-	1056	-	-	111	530
Stage 1	487	-	-	-	-	-	-	-	245	-
Stage 2	477	-	-	-	-	-	-	-	680	-
Platoon blocked, %				-	-		-	-		
Mov Cap-1 Maneuver	150	750	706	-	-	1056	-	-	103	530
Mov Cap-2 Maneuver	150	-	-	-	-	-	-	-	103	-
Stage 1	468	-	-	-	-	-	-	-	236	-
Stage 2	444	-	-	-	-	-	-	-	642	-

Approach	WB	NB	SB	NE
HCM Control Delay, s	9.9	0.5	0.3	12
HCM LOS	A			B

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	530	706	-	-	750	1056	-	-
HCM Lane V/C Ratio	0.031	0.038	-	-	0.018	0.039	-	-
HCM Control Delay (s)	12	10.3	-	-	9.9	8.5	-	-
HCM Lane LOS	B	B	-	-	A	A	-	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	0.1	-	-

Intersection: 1: Victory

Movement	WB	NB	SB	NE
Directions Served	R	L	L	>
Maximum Queue (ft)	26	6	8	26
Average Queue (ft)	9	2	3	11
95th Queue (ft)	31	10	10	33
Link Distance (ft)	183			427
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		110	125	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Independence

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LTR	LT	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	20	71	36	28	35	43	16	8	102	35	44	18
Average Queue (ft)	4	48	18	11	12	18	4	2	60	13	17	4
95th Queue (ft)	34	92	44	40	36	51	21	9	110	41	51	19
Link Distance (ft)		431	265	265		2240	2240	2240		1325	1325	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	215				230				175			180
Storage Blk Time (%)												
Queuing Penalty (veh)												

Network Summary

Network wide Queuing Penalty: 0

Lanes, Volumes, Timings
1: Victory

8/31/2015

Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations											
Traffic Volume (vph)	0	7	19	1011	3	86	542	72	0	0	8
Future Volume (vph)	0	7	19	1011	3	86	542	72	0	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	110		105	125		390	0	0	
Storage Lanes	0	1	1		1	1		1	0	1	
Taper Length (ft)	25		25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt		0.865			0.850			0.850			0.865
Flt Protected			0.950			0.950					
Satd. Flow (prot)	0	1580	1736	3471	1553	1736	3471	1553	0	0	1580
Flt Permitted			0.950			0.950					
Satd. Flow (perm)	0	1580	1736	3471	1553	1736	3471	1553	0	0	1580
Link Speed (mph)	30			55			55		35		
Link Distance (ft)	250			1447			2600		500		
Travel Time (s)	5.7			17.9			32.2		9.7		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	8	21	1123	3	96	602	80	0	0	9
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	8	21	1123	3	96	602	80	0	0	9
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(ft)	0			20			20		0		
Link Offset(ft)	0			0			0		0		
Crosswalk Width(ft)	16			16			16		16		
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15		9	15		9	15	9	9
Sign Control	Stop			Free			Free		Stop		

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.4%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	263	9	47	94	30	180	22	743	31	23	438	126
Future Volume (vph)	263	9	47	94	30	180	22	743	31	23	438	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	215		0	125		0	230		0	175		180
Storage Lanes	1		0	0		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955				0.850			0.850			0.850
Flt Protected	0.950	0.969			0.963		0.950			0.950		
Satd. Flow (prot)	1649	1606	0	0	1759	1553	1736	3471	1553	1736	3471	1553
Flt Permitted	0.950	0.969			0.963		0.450			0.264		
Satd. Flow (perm)	1649	1606	0	0	1759	1553	822	3471	1553	482	3471	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30				128			94			140
Link Speed (mph)		35			30			55			55	
Link Distance (ft)		500			331			2300			1447	
Travel Time (s)		9.7			7.5			28.5			17.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	292	10	52	104	33	200	24	826	34	26	487	140
Shared Lane Traffic (%)	38%											
Lane Group Flow (vph)	181	173	0	0	137	200	24	826	34	26	487	140
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			0			20			20	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA		Split	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases						8	2		2	6		6

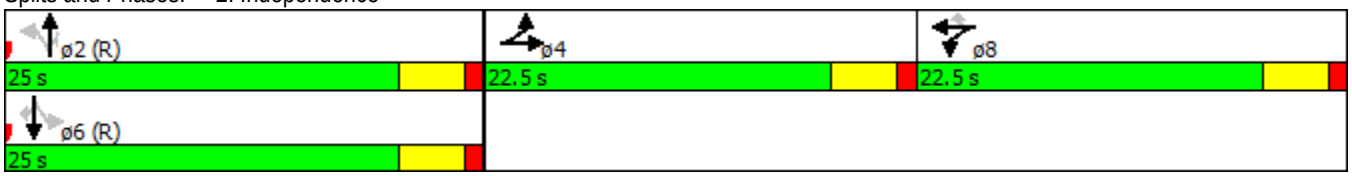
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5		22.5	22.5	22.5	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	32.1%	32.1%		32.1%	32.1%	32.1%	35.7%	35.7%	35.7%	35.7%	35.7%	35.7%
Maximum Green (s)	18.0	18.0		18.0	18.0	18.0	20.5	20.5	20.5	20.5	20.5	20.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effct Green (s)	12.9	12.9			10.9	10.9	32.7	32.7	32.7	32.7	32.7	32.7
Actuated g/C Ratio	0.18	0.18			0.16	0.16	0.47	0.47	0.47	0.47	0.47	0.47
v/c Ratio	0.60	0.54			0.50	0.57	0.06	0.51	0.04	0.12	0.30	0.18
Control Delay	33.7	26.8			32.6	17.2	14.7	16.2	0.1	16.3	14.0	4.0
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.7	26.8			32.6	17.2	14.7	16.2	0.1	16.3	14.0	4.0
LOS	C	C			C	B	B	B	A	B	B	A
Approach Delay		30.3			23.5			15.6			11.9	
Approach LOS		C			C			B			B	
90th %ile Green (s)	18.0	18.0		15.9	15.9	15.9	22.6	22.6	22.6	22.6	22.6	22.6
90th %ile Term Code	Max	Max		Gap	Gap	Gap	Coord	Coord	Coord	Coord	Coord	Coord
70th %ile Green (s)	15.0	15.0		12.4	12.4	12.4	29.1	29.1	29.1	29.1	29.1	29.1
70th %ile Term Code	Gap	Gap		Gap	Gap	Gap	Coord	Coord	Coord	Coord	Coord	Coord
50th %ile Green (s)	12.9	12.9		10.7	10.7	10.7	32.9	32.9	32.9	32.9	32.9	32.9
50th %ile Term Code	Gap	Gap		Gap	Gap	Gap	Coord	Coord	Coord	Coord	Coord	Coord
30th %ile Green (s)	10.8	10.8		9.0	9.0	9.0	36.7	36.7	36.7	36.7	36.7	36.7
30th %ile Term Code	Gap	Gap		Gap	Gap	Gap	Coord	Coord	Coord	Coord	Coord	Coord
10th %ile Green (s)	7.8	7.8		6.6	6.6	6.6	42.1	42.1	42.1	42.1	42.1	42.1
10th %ile Term Code	Gap	Gap		Gap	Gap	Gap	Coord	Coord	Coord	Coord	Coord	Coord
Stops (vph)	142	112			108	67	17	516	0	18	270	18
Fuel Used(gal)	3	2			2	1	1	23	0	1	10	2
CO Emissions (g/hr)	194	158			121	102	49	1598	32	43	718	111
NOx Emissions (g/hr)	38	31			24	20	10	311	6	8	140	22
VOC Emissions (g/hr)	45	37			28	24	11	370	7	10	166	26
Dilemma Vehicles (#)	0	9			0	0	0	53	0	0	31	0
Queue Length 50th (ft)	75	58			55	28	5	123	0	6	64	0
Queue Length 95th (ft)	126	107			96	79	23	227	0	26	126	35
Internal Link Dist (ft)		420			251			2220			1367	
Turn Bay Length (ft)	215						230			175		180
Base Capacity (vph)	424	435			452	494	383	1620	775	224	1620	799
Starvation Cap Reductn	0	0			0	0	0	0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0			0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0			0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.40			0.30	0.40	0.06	0.51	0.04	0.12	0.30	0.18

Intersection Summary

Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 70	
Offset: 48 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay: 18.0	Intersection LOS: B
Intersection Capacity Utilization 51.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Independence



Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Traffic Vol, veh/h	0	7	19	1011	3	86	542	72	0	0
Future Vol, veh/h	0	7	19	1011	3	86	542	72	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	-	None	-	-
Storage Length	-	0	110	-	105	125	-	390	-	0
Veh in Median Storage, #	0	-	-	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	-	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	4	4	4	4	4	4	4	4	4	4
Mvmt Flow	0	8	21	1123	3	96	602	80	0	0

Major/Minor	Minor1		Major1			Major2			Minor2	
Conflicting Flow All	1658	562	602	0	0	1123	0	0	1397	301
Stage 1	1166	-	-	-	-	-	-	-	793	-
Stage 2	492	-	-	-	-	-	-	-	604	-
Critical Hdwy	7.58	6.98	4.18	-	-	4.18	-	-	7.58	6.98
Critical Hdwy Stg 1	6.58	-	-	-	-	-	-	-	6.58	-
Critical Hdwy Stg 2	6.58	-	-	-	-	-	-	-	6.58	-
Follow-up Hdwy	3.54	3.34	2.24	-	-	2.24	-	-	3.54	3.34
Pot Cap-1 Maneuver	63	465	958	-	-	606	-	-	99	689
Stage 1	203	-	-	-	-	-	-	-	344	-
Stage 2	522	-	-	-	-	-	-	-	447	-
Platoon blocked, %				-	-		-	-		
Mov Cap-1 Maneuver	54	465	958	-	-	606	-	-	84	689
Mov Cap-2 Maneuver	54	-	-	-	-	-	-	-	84	-
Stage 1	199	-	-	-	-	-	-	-	336	-
Stage 2	434	-	-	-	-	-	-	-	430	-

Approach	WB	NB	SB	NE
HCM Control Delay, s	12.9	0.2	1.5	10.3
HCM LOS	B			B

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	689	958	-	-	465	606	-	-
HCM Lane V/C Ratio	0.013	0.022	-	-	0.017	0.158	-	-
HCM Control Delay (s)	10.3	8.8	-	-	12.9	12	-	-
HCM Lane LOS	B	A	-	-	B	B	-	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0.1	0.6	-	-

Intersection: 1: Victory

Movement	WB	NB	SB	NE
Directions Served	R	L	L	>
Maximum Queue (ft)	17	5	28	24
Average Queue (ft)	5	1	12	10
95th Queue (ft)	23	5	33	30
Link Distance (ft)	183			427
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		110	125	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Independence

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LTR	LT	R	L	T	T	L	T	T	R
Maximum Queue (ft)	122	191	95	102	14	136	116	24	64	75	29
Average Queue (ft)	39	132	64	67	5	90	62	9	43	44	7
95th Queue (ft)	142	210	111	115	17	149	135	28	77	85	32
Link Distance (ft)		431	265	265		2240	2240		1325	1325	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	215				230			175			180
Storage Blk Time (%)	0	1									
Queuing Penalty (veh)	0	1									

Network Summary

Network wide Queuing Penalty: 1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	261	246	4	37	7	231	102	36	53	196	335
Future Volume (vph)	76	261	246	4	37	7	231	102	36	53	196	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	270		225	0		225
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1863	1324	1770	1863	1583	1480	1776	1583	1770	1776	1509
Flt Permitted	0.730			0.455			0.494			0.682		
Satd. Flow (perm)	1296	1863	1324	848	1863	1583	769	1776	1583	1270	1776	1509
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			255			218			131			381
Link Speed (mph)		35			30			45			45	
Link Distance (ft)		300			289			1511			376	
Travel Time (s)		5.8			6.6			22.9			5.7	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	7%	2%	22%	2%	2%	2%	22%	7%	2%	2%	7%	7%
Adj. Flow (vph)	86	297	280	5	42	8	263	116	41	60	223	381
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	297	280	5	42	8	263	116	41	60	223	381
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	pm+ov	Perm	NA	Perm	D.P+P	NA	Perm	Perm	NA	pm+ov
Protected Phases	5	2	3		6		3	8			4	5

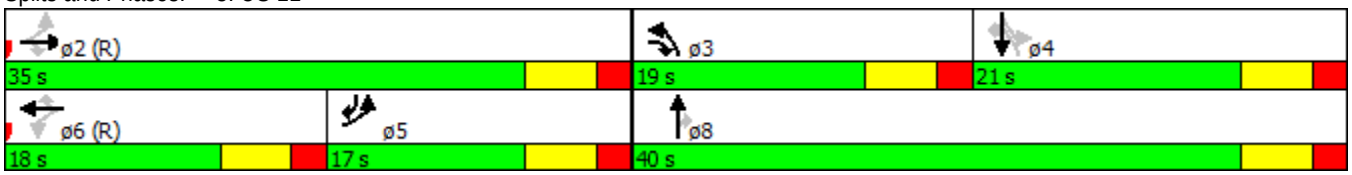
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	4		8	4		4
Detector Phase	5	2	3	6	6	6	3	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	10.0	10.0	10.0	7.0	10.0	10.0	10.0	10.0	7.0
Minimum Split (s)	13.0	16.0	13.0	16.0	16.0	16.0	13.0	16.0	16.0	16.0	16.0	13.0
Total Split (s)	17.0	35.0	19.0	18.0	18.0	18.0	19.0	40.0	40.0	21.0	21.0	17.0
Total Split (%)	22.7%	46.7%	25.3%	24.0%	24.0%	24.0%	25.3%	53.3%	53.3%	28.0%	28.0%	22.7%
Maximum Green (s)	11.0	29.0	13.0	12.0	12.0	12.0	13.0	34.0	34.0	15.0	15.0	11.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag		Lead	Lead	Lead	Lead	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Min	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	31.3	31.3	49.6	12.3	12.3	12.3	25.7	31.7	31.7	13.4	13.4	26.4
Actuated g/C Ratio	0.42	0.42	0.66	0.16	0.16	0.16	0.34	0.42	0.42	0.18	0.18	0.35
v/c Ratio	0.14	0.38	0.29	0.04	0.14	0.02	0.69	0.15	0.06	0.27	0.71	0.49
Control Delay	12.3	13.5	0.9	29.2	29.9	0.1	25.9	13.2	0.1	29.1	41.4	3.3
Queue Delay	0.0	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	14.2	1.2	29.2	29.9	0.1	25.9	13.2	0.1	29.1	41.4	3.3
LOS	B	B	A	C	C	A	C	B	A	C	D	A
Approach Delay		8.5			25.5			19.8			18.4	
Approach LOS		A			C			B			B	
90th %ile Green (s)	13.0	29.0	13.0	10.0	10.0	10.0	13.0	34.0	34.0	15.0	15.0	13.0
90th %ile Term Code	Hold	Coord	Max	Coord	Coord	Coord	Max	Hold	Hold	Max	Max	Hold
70th %ile Green (s)	13.0	29.0	13.0	10.0	10.0	10.0	13.0	34.0	34.0	15.0	15.0	13.0
70th %ile Term Code	Hold	Coord	Max	Coord	Coord	Coord	Max	Hold	Hold	Max	Max	Hold
50th %ile Green (s)	13.0	29.5	13.0	10.5	10.5	10.5	13.0	33.5	33.5	14.5	14.5	13.0
50th %ile Term Code	Hold	Coord	Max	Coord	Coord	Coord	Max	Hold	Hold	Gap	Gap	Hold
30th %ile Green (s)	13.0	32.0	12.6	13.0	13.0	13.0	12.6	31.0	31.0	12.4	12.4	13.0
30th %ile Term Code	Hold	Coord	Gap	Coord	Coord	Coord	Gap	Hold	Hold	Gap	Gap	Hold
10th %ile Green (s)	13.0	37.2	9.8	18.2	18.2	18.2	9.8	25.8	25.8	10.0	10.0	13.0
10th %ile Term Code	Hold	Coord	Gap	Coord	Coord	Coord	Gap	Hold	Hold	Min	Min	Hold
Stops (vph)	33	121	5	6	33	0	171	57	0	45	179	30
Fuel Used(gal)	1	2	1	0	0	0	6	2	0	1	4	1
CO Emissions (g/hr)	42	153	43	5	34	1	392	139	25	70	305	99
NOx Emissions (g/hr)	8	30	8	1	7	0	76	27	5	14	59	19
VOC Emissions (g/hr)	10	35	10	1	8	0	91	32	6	16	71	23
Dilemma Vehicles (#)	0	17	0	0	0	0	0	5	0	0	12	0
Queue Length 50th (ft)	18	65	0	2	17	0	79	31	0	24	97	0
Queue Length 95th (ft)	34	108	0	11	44	0	131	58	0	54	161	22
Internal Link Dist (ft)		220			209			1431			296	
Turn Bay Length (ft)				200			270		225			225
Base Capacity (vph)	609	778	972	151	334	462	393	805	789	254	355	777
Starvation Cap Reductn	0	235	271	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.14	0.55	0.40	0.03	0.13	0.02	0.67	0.14	0.05	0.24	0.63	0.49

Intersection Summary

Area Type: Other	
Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 6 (8%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 15.3	Intersection LOS: B
Intersection Capacity Utilization 56.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: US 11



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	320	0	0	413	179	60	0	265	0	0	0
Future Volume (vph)	85	320	0	0	413	179	60	0	265	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		500	0		0
Storage Lanes	1		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.955				0.850			
Flt Protected	0.950							0.950				
Satd. Flow (prot)	1444	2888	0	0	3963	0	0	1444	1292	0	0	0
Flt Permitted	0.334							0.950				
Satd. Flow (perm)	508	2888	0	0	3963	0	0	1444	1292	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					143				301			
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		560			300			1068			184	
Travel Time (s)		10.9			5.8			24.3			4.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	97	364	0	0	469	203	68	0	301	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	364	0	0	672	0	0	68	301	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2		1	2	1			
Detector Template	Left	Thru			Thru		Left	Thru	Right			
Leading Detector (ft)	20	100			100		20	100	20			
Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft)	20	6			6		20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2						8		8			
Detector Phase	5	2			6		8	8	8			
Switch Phase												
Minimum Initial (s)	7.0	10.0			10.0		10.0	10.0	10.0			
Minimum Split (s)	16.0	16.0			16.0		16.0	16.0	16.0			
Total Split (s)	18.0	44.0			26.0		31.0	31.0	31.0			
Total Split (%)	24.0%	58.7%			34.7%		41.3%	41.3%	41.3%			
Maximum Green (s)	12.0	38.0			20.0		25.0	25.0	25.0			
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0	2.0			
Lost Time Adjust (s)	0.0	0.0			0.0			0.0	0.0			
Total Lost Time (s)	6.0	6.0			6.0			6.0	6.0			
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Recall Mode	None	C-Min			C-Min		None	None	None			
Act Effct Green (s)	51.4	51.4			40.3			11.6	11.6			
Actuated g/C Ratio	0.69	0.69			0.54			0.15	0.15			
v/c Ratio	0.22	0.18			0.31			0.30	0.66			
Control Delay	2.2	1.6			9.0			30.9	11.3			
Queue Delay	0.0	0.0			0.0			0.0	0.0			
Total Delay	2.2	1.6			9.0			30.9	11.3			
LOS	A	A			A			C	B			
Approach Delay		1.7			9.0			14.9				
Approach LOS		A			A			B				
90th %ile Green (s)	9.8	45.3			29.5		17.7	17.7	17.7			
90th %ile Term Code	Gap	Coord			Coord		Gap	Gap	Gap			
70th %ile Green (s)	7.7	52.6			38.9		10.4	10.4	10.4			
70th %ile Term Code	Gap	Coord			Coord		Gap	Gap	Gap			
50th %ile Green (s)	7.0	53.0			40.0		10.0	10.0	10.0			
50th %ile Term Code	Min	Coord			Coord		Min	Min	Min			
30th %ile Green (s)	7.0	53.0			40.0		10.0	10.0	10.0			
30th %ile Term Code	Min	Coord			Coord		Min	Min	Min			
10th %ile Green (s)	0.0	53.0			53.0		10.0	10.0	10.0			
10th %ile Term Code	Skip	Coord			Coord		Min	Min	Min			
Stops (vph)	12	51			218			51	39			
Fuel Used(gal)	0	2			4			1	3			
CO Emissions (g/hr)	33	125			279			81	212			
NOx Emissions (g/hr)	6	24			54			16	41			
VOC Emissions (g/hr)	8	29			65			19	49			
Dilemma Vehicles (#)	0	5			42			0	0			
Queue Length 50th (ft)	2	4			42			29	0			
Queue Length 95th (ft)	m8	m18			82			57	56			
Internal Link Dist (ft)		480			220			988			104	
Turn Bay Length (ft)									500			
Base Capacity (vph)	497	1978			2194			481	631			
Starvation Cap Reductn	0	0			0			0	0			
Spillback Cap Reductn	0	0			0			0	0			
Storage Cap Reductn	0	0			0			0	0			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.20	0.18			0.31			0.14	0.48			

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 44 (59%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 8.2 Intersection LOS: A
Intersection Capacity Utilization 53.7% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: NB I-81

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	165	178	347	126	0	0	0	0	234	2	123
Future Volume (vph)	0	165	178	347	126	0	0	0	0	234	2	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.922										0.850
Flt Protected				0.950							0.953	
Satd. Flow (prot)	0	2663	0	1444	2888	0	0	0	0	0	1449	1292
Flt Permitted				0.950							0.953	
Satd. Flow (perm)	0	2663	0	1444	2888	0	0	0	0	0	1449	1292
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		202										140
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			560			215			1058	
Travel Time (s)		9.7			10.9			4.9			24.0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	0	188	202	394	143	0	0	0	0	266	2	140
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	390	0	394	143	0	0	0	0	0	268	140
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (ft)		100		20	100					20	100	20
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases										4		4
Detector Phase		2		1	6					4	4	4
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		10.0		10.0	10.0					10.0	10.0	10.0
Minimum Split (s)		21.0		24.0	24.0					20.0	20.0	20.0
Total Split (s)		22.0		30.0	52.0					23.0	23.0	23.0
Total Split (%)		29.3%		40.0%	69.3%					30.7%	30.7%	30.7%
Maximum Green (s)		16.0		24.0	46.0					17.0	17.0	17.0
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0						6.0	6.0
Lead/Lag		Lead		Lag								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Recall Mode		C-Min		Min	C-Min					None	None	None
Act Effct Green (s)		16.3		23.9	46.2						16.8	16.8
Actuated g/C Ratio		0.22		0.32	0.62						0.22	0.22
v/c Ratio		0.53		0.86	0.08						0.83	0.35
Control Delay		16.0		38.0	4.2						50.8	7.6
Queue Delay		0.0		0.0	0.0						0.0	0.0
Total Delay		16.0		38.0	4.2						50.8	7.6
LOS		B		D	A						D	A
Approach Delay		16.0			29.0						35.9	
Approach LOS		B			C						D	
90th %ile Green (s)		16.0		24.0	46.0					17.0	17.0	17.0
90th %ile Term Code		Coord		Max	Coord					Max	Max	Max
70th %ile Green (s)		13.1		26.9	46.0					17.0	17.0	17.0
70th %ile Term Code		Coord		Max	Coord					Max	Max	Max
50th %ile Green (s)		11.0		26.6	43.6					19.4	19.4	19.4
50th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
30th %ile Green (s)		16.2		23.5	45.7					17.3	17.3	17.3
30th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
10th %ile Green (s)		25.4		18.5	49.9					13.1	13.1	13.1
10th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
Stops (vph)		150		253	27						202	22
Fuel Used(gal)		3		6	1						6	1
CO Emissions (g/hr)		243		419	57						385	93
NOx Emissions (g/hr)		47		81	11						75	18
VOC Emissions (g/hr)		56		97	13						89	21
Dilemma Vehicles (#)		23		0	10						0	0
Queue Length 50th (ft)		42		133	7						113	0
Queue Length 95th (ft)		76		#306	12						#233	40
Internal Link Dist (ft)		420			480			135			978	
Turn Bay Length (ft)												
Base Capacity (vph)		790		483	1801						338	409
Starvation Cap Reductn		0		0	0						0	0
Spillback Cap Reductn		0		0	0						0	0
Storage Cap Reductn		0		0	0						0	0
Reduced v/c Ratio		0.49		0.82	0.08						0.79	0.34

Intersection Summary

Area Type:	Other
Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 24 (32%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 27.3	Intersection LOS: C
Intersection Capacity Utilization 53.7%	ICU Level of Service A
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: SB I-81

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	1	6	10	1	21	7	134	6	6	240	55
Future Volume (vph)	58	1	6	10	1	21	7	134	6	6	240	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	0		0
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.910			0.993				0.850
Flt Protected		0.957			0.985		0.950			0.950		
Satd. Flow (prot)	0	897	0	0	1554	0	902	1763	0	1687	1776	808
Flt Permitted		0.957			0.985		0.950			0.950		
Satd. Flow (perm)	0	897	0	0	1554	0	902	1763	0	1687	1776	808
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		302			190			1001			1511	
Travel Time (s)		6.9			4.3			15.2			22.9	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	100%	100%	100%	7%	100%	7%	100%	7%	7%	7%	7%	100%
Adj. Flow (vph)	66	1	7	11	1	24	8	152	7	7	273	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	0	0	36	0	8	159	0	7	273	63
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection: 3: US 11

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	47	125	70	12	39	13	163	68	15	65	166	108
Average Queue (ft)	26	89	41	3	20	3	105	32	7	30	107	69
95th Queue (ft)	54	142	77	17	48	16	189	79	19	76	197	125
Link Distance (ft)	201	201	201		244	244		1432		320	320	
Upstream Blk Time (%)											0	
Queuing Penalty (veh)											0	
Storage Bay Dist (ft)				200			270		225			225
Storage Blk Time (%)											1	
Queuing Penalty (veh)											2	

Intersection: 6: NB I-81

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	TR	LT	R
Maximum Queue (ft)	60	26	42	110	46	91	84	108
Average Queue (ft)	37	6	13	60	16	43	45	76
95th Queue (ft)	83	31	53	133	55	102	98	127
Link Distance (ft)	520	520	520	201	201	201	1011	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)								500
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 9: SB I-81

Movement	EB	EB	WB	WB	WB	SB	SB
Directions Served	T	TR	L	T	T	LT	R
Maximum Queue (ft)	121	246	268	43	40	215	83
Average Queue (ft)	45	161	196	19	18	145	46
95th Queue (ft)	163	293	305	49	50	252	95
Link Distance (ft)	462	462	520	520	520	1010	1010
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 12: Truck Dwy/Woodbine

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	91	42	11	5
Average Queue (ft)	57	22	2	1
95th Queue (ft)	100	53	20	11
Link Distance (ft)	249	150		1432
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			150	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	261	246	4	37	7	231	102	36	53	196	335
Future Volume (vph)	76	261	246	4	37	7	231	102	36	53	196	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	270		225	0		225
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1863	1509	1770	1863	1583	1687	1776	1583	1770	1776	1509
Flt Permitted	0.543			0.579			0.500			0.682		
Satd. Flow (perm)	964	1863	1509	1079	1863	1583	888	1776	1583	1270	1776	1509
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			279			218			131			381
Link Speed (mph)		35			30			45			45	
Link Distance (ft)		300			289			1511			376	
Travel Time (s)		5.8			6.6			22.9			5.7	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	7%	2%	7%	2%	2%	2%	7%	7%	2%	2%	7%	7%
Adj. Flow (vph)	86	297	280	5	42	8	263	116	41	60	223	381
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	297	280	5	42	8	263	116	41	60	223	381
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	pm+ov	Perm	NA	Perm	D.P+P	NA	Perm	Perm	NA	pm+ov
Protected Phases	5	2	3		6		3	8			4	5

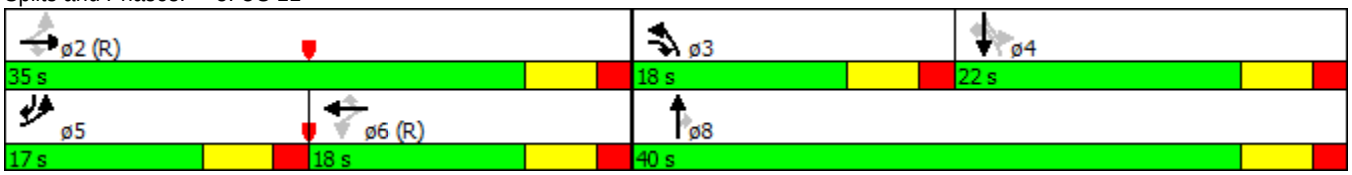
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	4		8	4		4
Detector Phase	5	2	3	6	6	6	3	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	10.0	10.0	10.0	7.0	10.0	10.0	10.0	10.0	7.0
Minimum Split (s)	13.0	16.0	13.0	16.0	16.0	16.0	13.0	16.0	16.0	16.0	16.0	13.0
Total Split (s)	17.0	35.0	18.0	18.0	18.0	18.0	18.0	40.0	40.0	22.0	22.0	17.0
Total Split (%)	22.7%	46.7%	24.0%	24.0%	24.0%	24.0%	24.0%	53.3%	53.3%	29.3%	29.3%	22.7%
Maximum Green (s)	11.0	29.0	12.0	12.0	12.0	12.0	12.0	34.0	34.0	16.0	16.0	11.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lead	Lag	Lag	Lag	Lead			Lag	Lag	Lead
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Min	C-Min	C-Min	None	None	None	None	None	None
Act Effct Green (s)	31.8	31.8	49.2	17.6	17.6	17.6	25.2	31.2	31.2	13.8	13.8	28.0
Actuated g/C Ratio	0.42	0.42	0.66	0.23	0.23	0.23	0.34	0.42	0.42	0.18	0.18	0.37
v/c Ratio	0.18	0.38	0.26	0.02	0.10	0.01	0.63	0.16	0.06	0.26	0.69	0.48
Control Delay	12.2	13.2	0.7	25.8	26.1	0.0	22.2	13.4	0.1	28.3	39.6	3.8
Queue Delay	0.0	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	14.0	1.0	25.8	26.1	0.0	22.2	13.4	0.1	28.3	39.6	3.8
LOS	B	B	A	C	C	A	C	B	A	C	D	A
Approach Delay		8.3			22.2			17.6			18.1	
Approach LOS		A			C			B			B	
90th %ile Green (s)	10.5	29.0	12.0	12.5	12.5	12.5	12.0	34.0	34.0	16.0	16.0	10.5
90th %ile Term Code	Gap	Coord	Max	Coord	Coord	Coord	Max	Hold	Hold	Max	Max	Gap
70th %ile Green (s)	9.0	29.0	12.0	14.0	14.0	14.0	12.0	34.0	34.0	16.0	16.0	9.0
70th %ile Term Code	Gap	Coord	Max	Coord	Coord	Coord	Max	Hold	Hold	Max	Max	Gap
50th %ile Green (s)	7.8	30.5	12.0	16.7	16.7	16.7	12.0	32.5	32.5	14.5	14.5	7.8
50th %ile Term Code	Gap	Coord	Max	Coord	Coord	Coord	Max	Hold	Hold	Gap	Gap	Gap
30th %ile Green (s)	7.0	32.9	11.8	19.9	19.9	19.9	11.8	30.1	30.1	12.3	12.3	7.0
30th %ile Term Code	Min	Coord	Gap	Coord	Coord	Coord	Gap	Hold	Hold	Gap	Gap	Min
10th %ile Green (s)	7.0	37.7	9.3	24.7	24.7	24.7	9.3	25.3	25.3	10.0	10.0	7.0
10th %ile Term Code	Min	Coord	Gap	Coord	Coord	Coord	Gap	Hold	Hold	Min	Min	Min
Stops (vph)	33	120	4	6	33	0	165	58	0	44	178	30
Fuel Used(gal)	1	2	1	0	0	0	5	2	0	1	4	1
CO Emissions (g/hr)	42	152	42	4	32	1	375	140	25	69	299	101
NOx Emissions (g/hr)	8	30	8	1	6	0	73	27	5	13	58	20
VOC Emissions (g/hr)	10	35	10	1	7	0	87	32	6	16	69	24
Dilemma Vehicles (#)	0	17	0	0	0	0	0	5	0	0	12	0
Queue Length 50th (ft)	18	64	0	2	16	0	79	32	0	24	97	0
Queue Length 95th (ft)	34	108	0	11	42	0	125	58	0	53	158	42
Internal Link Dist (ft)		220			209			1431			296	
Turn Bay Length (ft)				200			270		225			225
Base Capacity (vph)	514	790	1095	252	436	537	432	805	789	270	378	843
Starvation Cap Reductn	0	246	367	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.17	0.55	0.38	0.02	0.10	0.01	0.61	0.14	0.05	0.22	0.59	0.45

Intersection Summary

Area Type: Other	
Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 23 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 14.5	Intersection LOS: B
Intersection Capacity Utilization 56.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: US 11



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	320	0	0	413	179	60	0	265	0	0	0
Future Volume (vph)	85	320	0	0	413	179	60	0	265	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		500	0		0
Storage Lanes	1		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.955				0.850			
Flt Protected	0.950							0.950				
Satd. Flow (prot)	1444	2888	0	0	3963	0	0	1444	1292	0	0	0
Flt Permitted	0.334							0.950				
Satd. Flow (perm)	508	2888	0	0	3963	0	0	1444	1292	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					143				301			
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		560			300			1068			184	
Travel Time (s)		10.9			5.8			24.3			4.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	97	364	0	0	469	203	68	0	301	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	364	0	0	672	0	0	68	301	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2		1	2	1			
Detector Template	Left	Thru			Thru		Left	Thru	Right			
Leading Detector (ft)	20	100			100		20	100	20			
Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft)	20	6			6		20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2						8		8			
Detector Phase	5	2			6		8	8	8			
Switch Phase												
Minimum Initial (s)	7.0	10.0			10.0		10.0	10.0	10.0			
Minimum Split (s)	16.0	16.0			16.0		16.0	16.0	16.0			
Total Split (s)	18.0	44.0			26.0		31.0	31.0	31.0			
Total Split (%)	24.0%	58.7%			34.7%		41.3%	41.3%	41.3%			
Maximum Green (s)	12.0	38.0			20.0		25.0	25.0	25.0			
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0	2.0			
Lost Time Adjust (s)	0.0	0.0			0.0			0.0	0.0			
Total Lost Time (s)	6.0	6.0			6.0			6.0	6.0			
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Recall Mode	None	C-Min			C-Min		None	None	None			
Act Effct Green (s)	51.4	51.4			40.3			11.6	11.6			
Actuated g/C Ratio	0.69	0.69			0.54			0.15	0.15			
v/c Ratio	0.22	0.18			0.31			0.30	0.66			
Control Delay	2.2	1.6			9.0			30.9	11.3			
Queue Delay	0.0	0.0			0.0			0.0	0.0			
Total Delay	2.2	1.6			9.0			30.9	11.3			
LOS	A	A			A			C	B			
Approach Delay		1.7			9.0			14.9				
Approach LOS		A			A			B				
90th %ile Green (s)	9.8	45.3			29.5		17.7	17.7	17.7			
90th %ile Term Code	Gap	Coord			Coord		Gap	Gap	Gap			
70th %ile Green (s)	7.7	52.6			38.9		10.4	10.4	10.4			
70th %ile Term Code	Gap	Coord			Coord		Gap	Gap	Gap			
50th %ile Green (s)	7.0	53.0			40.0		10.0	10.0	10.0			
50th %ile Term Code	Min	Coord			Coord		Min	Min	Min			
30th %ile Green (s)	7.0	53.0			40.0		10.0	10.0	10.0			
30th %ile Term Code	Min	Coord			Coord		Min	Min	Min			
10th %ile Green (s)	0.0	53.0			53.0		10.0	10.0	10.0			
10th %ile Term Code	Skip	Coord			Coord		Min	Min	Min			
Stops (vph)	12	51			205			51	39			
Fuel Used(gal)	0	2			4			1	3			
CO Emissions (g/hr)	33	125			273			81	212			
NOx Emissions (g/hr)	6	24			53			16	41			
VOC Emissions (g/hr)	8	29			63			19	49			
Dilemma Vehicles (#)	0	5			37			0	0			
Queue Length 50th (ft)	2	4			34			29	0			
Queue Length 95th (ft)	m8	m18			81			57	56			
Internal Link Dist (ft)		480			220			988			104	
Turn Bay Length (ft)									500			
Base Capacity (vph)	497	1978			2194			481	631			
Starvation Cap Reductn	0	0			0			0	0			
Spillback Cap Reductn	0	0			0			0	0			
Storage Cap Reductn	0	0			0			0	0			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.20	0.18			0.31			0.14	0.48			

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 44 (59%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 8.2 Intersection LOS: A
Intersection Capacity Utilization 53.7% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: NB I-81

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	165	178	347	126	0	0	0	0	234	2	123
Future Volume (vph)	0	165	178	347	126	0	0	0	0	234	2	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.922										0.850
Flt Protected				0.950							0.953	
Satd. Flow (prot)	0	2663	0	1444	2888	0	0	0	0	0	1449	1292
Flt Permitted				0.950							0.953	
Satd. Flow (perm)	0	2663	0	1444	2888	0	0	0	0	0	1449	1292
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		202										140
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			560			215			1058	
Travel Time (s)		9.7			10.9			4.9			24.0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	0	188	202	394	143	0	0	0	0	266	2	140
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	390	0	394	143	0	0	0	0	0	268	140
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (ft)		100		20	100					20	100	20
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases										4		4
Detector Phase		2		1	6					4	4	4
Switch Phase												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		10.0		10.0	10.0					10.0	10.0	10.0
Minimum Split (s)		21.0		24.0	24.0					20.0	20.0	20.0
Total Split (s)		22.0		30.0	52.0					23.0	23.0	23.0
Total Split (%)		29.3%		40.0%	69.3%					30.7%	30.7%	30.7%
Maximum Green (s)		16.0		24.0	46.0					17.0	17.0	17.0
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0						6.0	6.0
Lead/Lag		Lead		Lag								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Recall Mode		C-Min		Min	C-Min					None	None	None
Act Effct Green (s)		16.3		23.9	46.2						16.8	16.8
Actuated g/C Ratio		0.22		0.32	0.62						0.22	0.22
v/c Ratio		0.53		0.86	0.08						0.83	0.35
Control Delay		16.0		37.4	4.0						50.8	7.6
Queue Delay		0.0		0.0	0.0						0.0	0.0
Total Delay		16.0		37.4	4.0						50.8	7.6
LOS		B		D	A						D	A
Approach Delay		16.0			28.5						35.9	
Approach LOS		B			C						D	
90th %ile Green (s)		16.0		24.0	46.0					17.0	17.0	17.0
90th %ile Term Code		Coord		Max	Coord					Max	Max	Max
70th %ile Green (s)		13.1		26.9	46.0					17.0	17.0	17.0
70th %ile Term Code		Coord		Max	Coord					Max	Max	Max
50th %ile Green (s)		11.0		26.6	43.6					19.4	19.4	19.4
50th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
30th %ile Green (s)		16.2		23.5	45.7					17.3	17.3	17.3
30th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
10th %ile Green (s)		25.4		18.5	49.9					13.1	13.1	13.1
10th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
Stops (vph)		150		252	26						202	22
Fuel Used(gal)		3		6	1						6	1
CO Emissions (g/hr)		243		415	56						385	93
NOx Emissions (g/hr)		47		81	11						75	18
VOC Emissions (g/hr)		56		96	13						89	21
Dilemma Vehicles (#)		23		0	8						0	0
Queue Length 50th (ft)		42		132	7						113	0
Queue Length 95th (ft)		76		#305	12						#233	40
Internal Link Dist (ft)		420			480			135			978	
Turn Bay Length (ft)												
Base Capacity (vph)		790		483	1801						338	409
Starvation Cap Reductn		0		0	0						0	0
Spillback Cap Reductn		0		0	0						0	0
Storage Cap Reductn		0		0	0						0	0
Reduced v/c Ratio		0.49		0.82	0.08						0.79	0.34

Intersection Summary

Area Type:	Other
Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 24 (32%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 27.1	Intersection LOS: C
Intersection Capacity Utilization 53.7%	ICU Level of Service A
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: SB I-81

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	1	6	10	1	21	7	134	6	6	240	55
Future Volume (vph)	58	1	6	10	1	21	7	134	6	6	240	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	0		0
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.910			0.993				0.850
Flt Protected		0.957			0.985		0.950			0.950		
Satd. Flow (prot)	0	897	0	0	1554	0	902	1763	0	1687	1776	808
Flt Permitted		0.957			0.985		0.950			0.950		
Satd. Flow (perm)	0	897	0	0	1554	0	902	1763	0	1687	1776	808
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		302			190			1001			1511	
Travel Time (s)		6.9			4.3			15.2			22.9	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	100%	100%	100%	7%	100%	7%	100%	7%	7%	7%	7%	100%
Adj. Flow (vph)	66	1	7	11	1	24	8	152	7	7	273	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	0	0	36	0	8	159	0	7	273	63
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 28.1%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	58	1	6	10	1	21	7	134	6	6	240	55
Future Vol, veh/h	58	1	6	10	1	21	7	134	6	6	240	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	100	100	100	7	100	7	100	7	7	7	7	100
Mvmt Flow	66	1	7	11	1	24	8	152	7	7	273	63

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	470	461	273	462	458	156	273	0	0	159	0	0
Stage 1	286	286	-	172	172	-	-	-	-	-	-	-
Stage 2	184	175	-	290	286	-	-	-	-	-	-	-
Critical Hdwy	8.1	7.5	7.2	7.17	7.5	6.27	5.1	-	-	4.17	-	-
Critical Hdwy Stg 1	7.1	6.5	-	6.17	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.1	6.5	-	6.17	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	4.4	4.9	4.2	3.563	4.9	3.363	3.1	-	-	2.263	-	-
Pot Cap-1 Maneuver	374	379	580	502	380	877	885	-	-	1390	-	-
Stage 1	552	529	-	818	604	-	-	-	-	-	-	-
Stage 2	636	602	-	707	529	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	359	374	580	490	375	877	885	-	-	1390	-	-
Mov Cap-2 Maneuver	359	374	-	490	375	-	-	-	-	-	-	-
Stage 1	547	526	-	811	599	-	-	-	-	-	-	-
Stage 2	612	597	-	694	526	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.1	10.6	0.4	0.2
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	885	-	-	372	681	1390	-	-
HCM Lane V/C Ratio	0.009	-	-	0.199	0.053	0.005	-	-
HCM Control Delay (s)	9.1	-	-	17.1	10.6	7.6	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.7	0.2	0	-	-

Intersection: 3: US 11

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	61	133	68	11	45	9	163	56	16	60	167	120
Average Queue (ft)	30	86	44	3	24	2	102	30	7	36	112	76
95th Queue (ft)	72	148	75	17	55	15	188	68	20	74	184	137
Link Distance (ft)	201	201	201		244	244		1432		320	320	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)				200			270		225			225
Storage Blk Time (%)							0				0	0
Queuing Penalty (veh)							0				0	0

Intersection: 6: NB I-81

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	TR	LT	R
Maximum Queue (ft)	73	20	30	135	80	94	69	116
Average Queue (ft)	41	4	6	70	26	49	41	75
95th Queue (ft)	83	27	39	141	89	110	81	129
Link Distance (ft)	520	520	520	201	201	201	1011	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)								500
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 9: SB I-81

Movement	EB	EB	WB	WB	WB	SB	SB
Directions Served	T	TR	L	T	T	LT	R
Maximum Queue (ft)	152	227	308	45	40	224	74
Average Queue (ft)	52	152	223	16	12	148	48
95th Queue (ft)	191	299	345	52	46	246	87
Link Distance (ft)	462	462	520	520	520	1010	1010
Upstream Blk Time (%)		1					
Queuing Penalty (veh)		0					
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 12: Truck Dwy/Woodbine

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	90	42	17	10
Average Queue (ft)	52	20	3	2
95th Queue (ft)	96	50	26	15
Link Distance (ft)	249	150		1432
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			150	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	318	47	252	30	228	46	267	344	6	9	156	170
Future Volume (vph)	318	47	252	30	228	46	267	344	6	9	156	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	270		225	0		225
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1863	1509	1770	1863	1583	1687	1776	1583	1770	1776	1509
Flt Permitted	0.502			0.722			0.646			0.531		
Satd. Flow (perm)	891	1863	1509	1345	1863	1583	1147	1776	1583	989	1776	1509
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			243			252			151			190
Link Speed (mph)		35			30			45			45	
Link Distance (ft)		300			289			1511			376	
Travel Time (s)		5.8			6.6			22.9			5.7	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	7%	2%	7%	2%	2%	2%	7%	7%	2%	2%	7%	7%
Adj. Flow (vph)	361	53	286	34	259	52	303	391	7	10	177	193
Shared Lane Traffic (%)												
Lane Group Flow (vph)	361	53	286	34	259	52	303	391	7	10	177	193
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	pm+ov	Perm	NA	Perm	D.P+P	NA	Perm	Perm	NA	pm+ov
Protected Phases	5	2	3		6		3	8			4	5

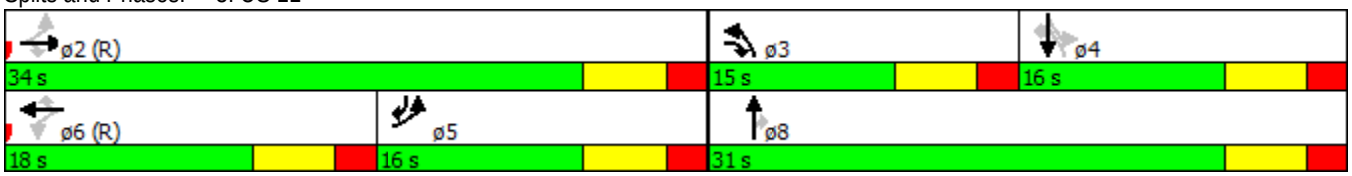
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6	4		8	4		4
Detector Phase	5	2	3	6	6	6	3	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	10.0	10.0	10.0	7.0	10.0	10.0	10.0	10.0	7.0
Minimum Split (s)	13.0	16.0	13.0	16.0	16.0	16.0	13.0	16.0	16.0	16.0	16.0	13.0
Total Split (s)	16.0	34.0	15.0	18.0	18.0	18.0	15.0	31.0	31.0	16.0	16.0	16.0
Total Split (%)	24.6%	52.3%	23.1%	27.7%	27.7%	27.7%	23.1%	47.7%	47.7%	24.6%	24.6%	24.6%
Maximum Green (s)	10.0	28.0	9.0	12.0	12.0	12.0	9.0	25.0	25.0	10.0	10.0	10.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag		Lead	Lead	Lead	Lead	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	C-Max	C-Max	C-Max	None	Max	Max	Max	Max	None
Act Effct Green (s)	28.0	28.0	43.0	12.0	12.0	12.0	19.0	25.0	25.0	10.0	10.0	20.0
Actuated g/C Ratio	0.43	0.43	0.66	0.18	0.18	0.18	0.29	0.38	0.38	0.15	0.15	0.31
v/c Ratio	0.71	0.07	0.26	0.14	0.76	0.10	0.74	0.57	0.01	0.07	0.65	0.32
Control Delay	24.9	10.2	1.8	23.9	41.6	0.4	29.6	19.9	0.0	24.8	38.9	3.2
Queue Delay	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	10.2	2.2	23.9	41.6	0.4	29.6	19.9	0.0	24.8	38.9	3.2
LOS	C	B	A	C	D	A	C	B	A	C	D	A
Approach Delay		14.5			33.6			23.9			20.4	
Approach LOS		B			C			C			C	
90th %ile Green (s)	10.0	28.0	9.0	12.0	12.0	12.0	9.0	25.0	25.0	10.0	10.0	10.0
90th %ile Term Code	Max	Coord	Max	Coord	Coord	Coord	Max	MaxR	MaxR	MaxR	MaxR	Max
70th %ile Green (s)	10.0	28.0	9.0	12.0	12.0	12.0	9.0	25.0	25.0	10.0	10.0	10.0
70th %ile Term Code	Max	Coord	Max	Coord	Coord	Coord	Max	MaxR	MaxR	MaxR	MaxR	Max
50th %ile Green (s)	10.0	28.0	9.0	12.0	12.0	12.0	9.0	25.0	25.0	10.0	10.0	10.0
50th %ile Term Code	Hold	Coord	Max	Coord	Coord	Coord	Max	MaxR	MaxR	MaxR	MaxR	Hold
30th %ile Green (s)	10.0	28.0	9.0	12.0	12.0	12.0	9.0	25.0	25.0	10.0	10.0	10.0
30th %ile Term Code	Hold	Coord	Max	Coord	Coord	Coord	Max	MaxR	MaxR	MaxR	MaxR	Hold
10th %ile Green (s)	10.0	28.0	9.0	12.0	12.0	12.0	9.0	25.0	25.0	10.0	10.0	10.0
10th %ile Term Code	Hold	Coord	Max	Coord	Coord	Coord	Max	MaxR	MaxR	MaxR	MaxR	Hold
Stops (vph)	205	27	32	27	198	0	216	262	0	12	137	23
Fuel Used(gal)	4	0	1	0	4	0	7	8	0	0	3	1
CO Emissions (g/hr)	269	28	61	25	247	8	483	561	4	15	232	57
NOx Emissions (g/hr)	52	5	12	5	48	1	94	109	1	3	45	11
VOC Emissions (g/hr)	62	7	14	6	57	2	112	130	1	4	54	13
Dilemma Vehicles (#)	0	2	0	0	0	0	0	27	0	0	12	0
Queue Length 50th (ft)	90	11	0	11	98	0	87	118	0	3	67	0
Queue Length 95th (ft)	#175	m27	35	32	#194	0	#170	192	0	15	#138	18
Internal Link Dist (ft)		220			209			1431			296	
Turn Bay Length (ft)				200			270		225			225
Base Capacity (vph)	506	802	1080	248	343	497	410	683	701	152	273	595
Starvation Cap Reductn	0	0	390	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.71	0.07	0.41	0.14	0.76	0.10	0.74	0.57	0.01	0.07	0.65	0.32

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 65
Offset: 46 (71%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 21.7 Intersection LOS: C
Intersection Capacity Utilization 76.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: US 11



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	253	0	0	407	271	164	0	367	0	0	0
Future Volume (vph)	141	253	0	0	407	271	164	0	367	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		500	0		0
Storage Lanes	1		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.940				0.850			
Flt Protected	0.950							0.950				
Satd. Flow (prot)	1444	2888	0	0	3901	0	0	1444	1292	0	0	0
Flt Permitted	0.224							0.950				
Satd. Flow (perm)	340	2888	0	0	3901	0	0	1444	1292	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					246				417			
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		560			300			1068			184	
Travel Time (s)		10.9			5.8			24.3			4.2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	160	288	0	0	463	308	186	0	417	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	160	288	0	0	771	0	0	186	417	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2		1	2	1			
Detector Template	Left	Thru			Thru		Left	Thru	Right			
Leading Detector (ft)	20	100			100		20	100	20			
Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft)	20	6			6		20	6	20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	pm+pt	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2						8		8			
Detector Phase	5	2			6		8	8	8			
Switch Phase												
Minimum Initial (s)	7.0	10.0			10.0		10.0	10.0	10.0			
Minimum Split (s)	16.0	16.0			16.0		16.0	16.0	16.0			
Total Split (s)	16.0	38.0			22.0		27.0	27.0	27.0			
Total Split (%)	24.6%	58.5%			33.8%		41.5%	41.5%	41.5%			
Maximum Green (s)	10.0	32.0			16.0		21.0	21.0	21.0			
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0	2.0			
Lost Time Adjust (s)	0.0	0.0			0.0			0.0	0.0			
Total Lost Time (s)	6.0	6.0			6.0			6.0	6.0			
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0			
Recall Mode	None	C-Max			C-Max		Max	Max	Max			
Act Effct Green (s)	32.0	32.0			19.6			21.0	21.0			
Actuated g/C Ratio	0.49	0.49			0.30			0.32	0.32			
v/c Ratio	0.50	0.20			0.57			0.40	0.60			
Control Delay	12.1	3.2			9.4			20.3	6.2			
Queue Delay	0.0	0.0			0.0			0.0	0.0			
Total Delay	12.1	3.2			9.4			20.3	6.2			
LOS	B	A			A			C	A			
Approach Delay		6.4			9.4			10.5				
Approach LOS		A			A			B				
90th %ile Green (s)	10.0	32.0			16.0		21.0	21.0	21.0			
90th %ile Term Code	Max	Coord			Coord		MaxR	MaxR	MaxR			
70th %ile Green (s)	10.0	32.0			16.0		21.0	21.0	21.0			
70th %ile Term Code	Max	Coord			Coord		MaxR	MaxR	MaxR			
50th %ile Green (s)	9.6	32.0			16.4		21.0	21.0	21.0			
50th %ile Term Code	Gap	Coord			Coord		MaxR	MaxR	MaxR			
30th %ile Green (s)	8.2	32.0			17.8		21.0	21.0	21.0			
30th %ile Term Code	Gap	Coord			Coord		MaxR	MaxR	MaxR			
10th %ile Green (s)	0.0	32.0			32.0		21.0	21.0	21.0			
10th %ile Term Code	Skip	Coord			Coord		MaxR	MaxR	MaxR			
Stops (vph)	85	76			425			123	47			
Fuel Used(gal)	2	2			6			3	4			
CO Emissions (g/hr)	109	123			417			190	264			
NOx Emissions (g/hr)	21	24			81			37	51			
VOC Emissions (g/hr)	25	29			97			44	61			
Dilemma Vehicles (#)	0	4			29			0	0			
Queue Length 50th (ft)	7	6			46			56	0			
Queue Length 95th (ft)	m40	6			72			105	52			
Internal Link Dist (ft)		480			220			988			104	
Turn Bay Length (ft)									500			
Base Capacity (vph)	337	1421			1350			466	699			
Starvation Cap Reductn	0	0			0			0	0			
Spillback Cap Reductn	0	12			0			0	1			
Storage Cap Reductn	0	0			0			0	0			

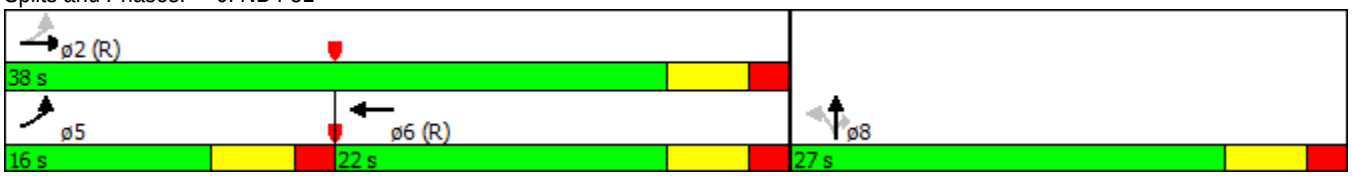
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.47	0.20			0.57			0.40	0.60			

Intersection Summary

Area Type: Other	
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 48 (74%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay: 9.0	Intersection LOS: A
Intersection Capacity Utilization 51.1%	ICU Level of Service A
Analysis Period (min) 15	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: NB I-81



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	227	140	282	289	0	0	0	0	173	3	163
Future Volume (vph)	0	227	140	282	289	0	0	0	0	173	3	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.943										0.850
Flt Protected				0.950							0.953	
Satd. Flow (prot)	0	2723	0	1444	2888	0	0	0	0	0	1449	1292
Flt Permitted				0.950							0.953	
Satd. Flow (perm)	0	2723	0	1444	2888	0	0	0	0	0	1449	1292
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		159										185
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		500			560			215			1058	
Travel Time (s)		9.7			10.9			4.9			24.0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Adj. Flow (vph)	0	258	159	320	328	0	0	0	0	197	3	185
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	417	0	320	328	0	0	0	0	0	200	185
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (ft)		100		20	100					20	100	20
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		6		20	6					20	6	20
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(ft)		94			94						94	
Detector 2 Size(ft)		6			6						6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases										4		4
Detector Phase		2		1	6					4	4	4
Switch Phase												

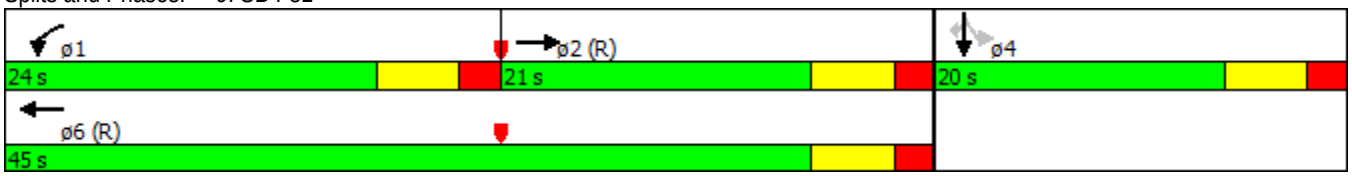
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)		10.0		7.0	7.0					10.0	10.0	10.0
Minimum Split (s)		21.0		16.0	16.0					20.0	20.0	20.0
Total Split (s)		21.0		24.0	45.0					20.0	20.0	20.0
Total Split (%)		32.3%		36.9%	69.2%					30.8%	30.8%	30.8%
Maximum Green (s)		15.0		18.0	39.0					14.0	14.0	14.0
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0						6.0	6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Recall Mode		C-Max		None	C-Max					Max	Max	Max
Act Effct Green (s)		16.1		16.9	39.0						14.0	14.0
Actuated g/C Ratio		0.25		0.26	0.60						0.22	0.22
v/c Ratio		0.53		0.85	0.19						0.64	0.44
Control Delay		16.0		38.2	2.3						34.4	7.7
Queue Delay		0.0		0.0	0.0						0.0	0.0
Total Delay		16.0		38.2	2.3						34.4	7.7
LOS		B		D	A						C	A
Approach Delay		16.0			20.0						21.6	
Approach LOS		B			C						C	
90th %ile Green (s)		15.0		18.0	39.0					14.0	14.0	14.0
90th %ile Term Code		Coord		Max	Coord					MaxR	MaxR	MaxR
70th %ile Green (s)		15.0		18.0	39.0					14.0	14.0	14.0
70th %ile Term Code		Coord		Max	Coord					MaxR	MaxR	MaxR
50th %ile Green (s)		15.0		18.0	39.0					14.0	14.0	14.0
50th %ile Term Code		Coord		Max	Coord					MaxR	MaxR	MaxR
30th %ile Green (s)		15.5		17.5	39.0					14.0	14.0	14.0
30th %ile Term Code		Coord		Gap	Coord					MaxR	MaxR	MaxR
10th %ile Green (s)		19.8		13.2	39.0					14.0	14.0	14.0
10th %ile Term Code		Coord		Gap	Coord					MaxR	MaxR	MaxR
Stops (vph)		195		214	37						153	27
Fuel Used(gal)		4		5	2						4	2
CO Emissions (g/hr)		279		346	110						247	122
NOx Emissions (g/hr)		54		67	21						48	24
VOC Emissions (g/hr)		65		80	26						57	28
Dilemma Vehicles (#)		28		0	11						0	0
Queue Length 50th (ft)		45		64	7						73	0
Queue Length 95th (ft)		83		#230	9						#146	43
Internal Link Dist (ft)		420			480			135			978	
Turn Bay Length (ft)												
Base Capacity (vph)		792		399	1732						312	423
Starvation Cap Reductn		0		0	0						0	0
Spillback Cap Reductn		0		0	0						0	0
Storage Cap Reductn		0		0	0						0	0
Reduced v/c Ratio		0.53		0.80	0.19						0.64	0.44

Intersection Summary

Area Type:	Other
Cycle Length: 65	
Actuated Cycle Length: 65	
Offset: 16 (25%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 19.3	Intersection LOS: B
Intersection Capacity Utilization 51.1%	ICU Level of Service A
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: SB I-81



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	1	6	5	1	10	6	370	6	19	218	59
Future Volume (vph)	58	1	6	5	1	10	6	370	6	19	218	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	0		0
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.917			0.998				0.850
Flt Protected		0.957			0.984		0.950			0.950		
Satd. Flow (prot)	0	897	0	0	1528	0	902	1772	0	1687	1776	808
Flt Permitted		0.957			0.984		0.950			0.950		
Satd. Flow (perm)	0	897	0	0	1528	0	902	1772	0	1687	1776	808
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		302			190			1001			1511	
Travel Time (s)		6.9			4.3			15.2			22.9	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	100%	100%	100%	7%	100%	7%	100%	7%	7%	7%	7%	100%
Adj. Flow (vph)	66	1	7	6	1	11	7	420	7	22	248	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	0	0	18	0	7	427	0	22	248	67
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	58	1	6	5	1	10	6	370	6	19	218	59
Future Vol, veh/h	58	1	6	5	1	10	6	370	6	19	218	59
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	100	100	100	7	100	7	100	7	7	7	7	100
Mvmt Flow	66	1	7	6	1	11	7	420	7	22	248	67

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	735	732	248	733	729	424	248	0	0	427	0	0
Stage 1	291	291	-	438	438	-	-	-	-	-	-	-
Stage 2	444	441	-	295	291	-	-	-	-	-	-	-
Critical Hdwy	8.1	7.5	7.2	7.17	7.5	6.27	5.1	-	-	4.17	-	-
Critical Hdwy Stg 1	7.1	6.5	-	6.17	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.1	6.5	-	6.17	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	4.4	4.9	4.2	3.563	4.9	3.363	3.1	-	-	2.263	-	-
Pot Cap-1 Maneuver	237	253	601	330	254	619	908	-	-	1106	-	-
Stage 1	548	526	-	588	442	-	-	-	-	-	-	-
Stage 2	442	441	-	703	526	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	227	246	601	318	247	619	908	-	-	1106	-	-
Mov Cap-2 Maneuver	227	246	-	318	247	-	-	-	-	-	-	-
Stage 1	544	516	-	583	439	-	-	-	-	-	-	-
Stage 2	429	438	-	680	516	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.4	13.4	0.1	0.5
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	908	-	-	241	445	1106	-	-
HCM Lane V/C Ratio	0.008	-	-	0.306	0.041	0.02	-	-
HCM Control Delay (s)	9	-	-	26.4	13.4	8.3	-	-
HCM Lane LOS	A	-	-	D	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.3	0.1	0.1	-	-

Intersection: 3: US 11

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	193	47	68	35	169	37	159	128	7	19	137	72
Average Queue (ft)	131	24	44	19	113	19	106	84	1	7	84	49
95th Queue (ft)	210	58	79	44	195	46	189	146	8	24	149	82
Link Distance (ft)	201	201	201		244	244		1432		320	320	
Upstream Blk Time (%)	3				0							
Queuing Penalty (veh)	6				0							
Storage Bay Dist (ft)				200			270		225			225
Storage Blk Time (%)					1		0					
Queuing Penalty (veh)					0		0					

Intersection: 6: NB I-81

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	TR	LT	R
Maximum Queue (ft)	124	63	67	117	110	156	143	164
Average Queue (ft)	79	26	26	70	64	100	84	99
95th Queue (ft)	145	73	74	129	126	181	163	197
Link Distance (ft)	520	520	520	201	201	201	1011	
Upstream Blk Time (%)						0		
Queuing Penalty (veh)						1		
Storage Bay Dist (ft)								500
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 9: SB I-81

Movement	EB	EB	WB	WB	WB	SB	SB
Directions Served	T	TR	L	T	T	LT	R
Maximum Queue (ft)	90	177	251	79	58	145	95
Average Queue (ft)	39	101	167	38	28	101	61
95th Queue (ft)	100	197	302	89	74	173	106
Link Distance (ft)	462	462	520	520	520	1010	1010
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 12: Woodbine

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	L	L
Maximum Queue (ft)	93	31	21	14
Average Queue (ft)	50	14	4	4
95th Queue (ft)	105	44	28	18
Link Distance (ft)	249	150		1432
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			150	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 7

Intersection: 3: US 11

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	173	41	72	41	148	37	156	134	8	14	125	76
Average Queue (ft)	126	20	46	20	105	22	103	90	2	5	80	47
95th Queue (ft)	195	49	84	49	173	47	176	157	11	20	136	79
Link Distance (ft)	201	201	201		244	244		1432		320	320	
Upstream Blk Time (%)	1											
Queuing Penalty (veh)	1											
Storage Bay Dist (ft)				200			270		225			225
Storage Blk Time (%)					1							
Queuing Penalty (veh)					0							

Intersection: 6: NB I-81

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	TR	LT	R
Maximum Queue (ft)	112	56	60	122	101	132	138	152
Average Queue (ft)	70	21	25	73	54	91	88	105
95th Queue (ft)	120	65	72	137	111	158	173	172
Link Distance (ft)	520	520	520	201	201	201	1011	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)								500
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 9: SB I-81

Movement	EB	EB	WB	WB	WB	SB	SB
Directions Served	T	TR	L	T	T	LT	R
Maximum Queue (ft)	99	183	220	78	64	141	84
Average Queue (ft)	43	108	145	37	29	100	56
95th Queue (ft)	110	198	247	86	78	166	94
Link Distance (ft)	462	462	520	520	520	1010	1010
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 12: Woodbine

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	L	L	T
Maximum Queue (ft)	101	36	16	13	2
Average Queue (ft)	56	12	4	3	0
95th Queue (ft)	126	44	30	17	6
Link Distance (ft)	249	150		1432	1432
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			150		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 1

APPENDIX N

WHITEHALL SITE - TRUCK TURNING RADIUS

15.00
53.00
3.00
45.50
0.00
4.00
19.50
WB-67
feet
Tractor Width : 8.00
Trailer Width : 8.50
Tractor Track : 8.00
Trailer Track : 8.50
Lock to Lock Time : 6.0
Steering Angle : 28.4
Articulating Angle : 75.0

FBI Complex TIA, Frederick County, VA

Summary of VDOT Review Comments

October 15, 2015

Report Comments

1. VDOT recommends that once a site is selected for the proposed use, an updated site specific TIA be prepared and submitted with the Site Plan to address the outstanding comments provided below.

2. In the *Programmed Roadway Improvements* section of the report, it states that if selected the development of the Arcadia Site will accommodate the future Highway 37. However, an engineering / concept plan of the site has not been included in the report to verify layout, entrance and circulation compatibility with the future road project. The report states that a plan has not been included for security reasons due to the sensitivity of the use. As a state government agency, VDOT has standard procedures for the submission of sensitive material. If a scaled layout of the site cannot be submitted at this time, VDOT review and approval of the development layout and entrance spacing along US 17/50 will occur during the Site Plan submission and review process. The report states that neither the proposed primary entrance nor the right in / right out entrance to the site will meet VDOT Access Management spacing standards from the future Highway 37 southbound off ramp onto US 17/50 and will require the submission of a design exception at Site Plan. It should be noted that the proposed secondary right in / right out entrance is not a guarantee and will be evaluated with the exception process for safety and operational performance. The TIA has been prepared under the scenario that the secondary access will be for emergency purposes only and all site traffic has been modeled as using the primary entrance.

3. The *Programmed Roadway Improvements* section of the report also states that either site, if selected will accommodate the Frederick County Comprehensive Plan programmed improvements to the US 17/50 widening and Independence Drive extension for the Arcadia Site and the Rest Church Road extension for the Whitehall Site. Again, since the report does not include engineering plans of the sites, VDOT verification of the accommodation of these future improvements will be required during the Site Plan review process.

4. Please add the accommodation / reservation of the necessary right-of-way for the programmed road improvements stated above to the recommendations for both sites in the *Executive Summary* and *Recommended Improvements* sections of the report.

5. Additionally, the *Planned Pedestrian / Bicycle Improvements* section of the report states that either site, if selected will accommodate the programmed bicycle facilities along US 17/50 or US 11 at Site Plan stage. This accommodation should also be added to the recommendations for both sites in the *Executive Summary* and *Recommended Improvements* sections of the report.

6. Please update the report to reference future 37 East as "Highway 37", not "Interstate 37". The roadway will be a Virginia Primary and not part of the Interstate System.

7. The recommended improvement to the intersection of US 17/50 and Victory Lane at the Arcadia Site introduces Superstreet design elements to the US 17/50 corridor. VDOT supports the concept of Superstreet design implementation along the US 17/50 corridor and recommends that these design elements be further evaluated and potentially expanded to the primary entrance of the site at Independence Drive during Site Plan development, should the site be selected.

Synchro Comments

The follow comments consist of errors and/or concerns observed by VDOT during review of the TIA 2nd submission synchro files and simulations. VDOT requests that these comments be addressed with an updated TIA at Site Plan stage, following the selection of a site.

8. Several Synchro models continue to contain lane geometry errors, including but not limited to:
   - Arcadia Site in the Existing and 2019 models: Median width errors and incorrect movement assignments on Victory Lane on both sides of US 17/50 due to issues with the angles of the roadway geometry.
   - Whitehall Site in the Existing and 2019 models: Additional lane along southbound US 11 in all models. Should be one lane in the existing models (there is a short right turn lane into the existing service station) and two lanes in the 2019 models (based on the continuous right turn lane improvements associated with the Mr. Fuel TIA)
   - Whitehall Site in the Existing and 2019 models: The models only show two lanes at the Rest Church Road eastbound approach at the intersection with the I-81 southbound ramps. There are three lanes at this approach.

   These errors should be corrected to verify there are no impacts to the reported Synchro results.

9. The Arcadia Site 2019 with recommendations scenario models permissive-only left turn phasing for both approaches of US 17/50. This is inconsistent with all other signals on US 17/50, which are all running protected-only left turn phasing to turn left off of the mainline. Left turn phasing will need to be analyzed at Site Plan in accordance with VDOT's Left-Turn Phasing Mode Selection Guidance: (http://www.virginiadot.org/VDOT/Business/asset_upload_file523_80800.pdf). Please verify that the recommended 200' storage length of the southbound US 17/50 left turn lane into the

site accommodates the 95th percentile queue length if the left turn is programmed as protected-only phasing.

10. On the Whitehall Site models, simulations in SimTraffic identify an inordinate number of vehicles making a U-turn movement off and back onto the interstate ramps. Therefore, volume balancing should be applied using the Link Origin Destination Volume settings, in order to produce more accurate simulations and results.

11. The Whitehall Site 2019 scenarios model different left turn phasing for each approach at the Rest Church Road / US 11 signal (northbound is flashing yellow arrow, eastbound is protected-permissive, and southbound and westbound are permissive-only). VDOT recommends analyzing the intersection with flashing yellow arrow (D.P+P phasing) for all approaches to take advantage of lead/lag optimization. Again, Left turn phasing will need to be analyzed at Site Plan in accordance with VDOT's Left-Turn Phasing Mode Selection Guidance: (http://www.virginiadot.org/VDOT/Business/asset_upload_file523_80800.pdf).

12. On the Whitehall Site, VDOT recommends evaluating lead/lag optimization for the left turn phasing at both interstate ramp intersections. Both movements do not have opposing left turns, so there is no need to adjust the existing phasing type.

13. In the Whitehall 2019 PM model, there is a discrepancy in the Rest Church / US 11 intersection in the PM peak period, as opposed to the 2019 AM model. In the AM model, it has phases ø4 and ø7 (permissive left and permissive right) running concurrently. But in the PM model, the phases are running consecutively. (It's a quirk on Synchro in that, when split phase is selected, it uses ø4 and ø8 and re-sets the ring/barrier diagram to have the phases run consecutively. But it's not what we do here at VDOT; instead, we use ø3 and ø4 for split phase without re-setting the ring/barrier structure.) As a function of that, the PM 2019 model has the signal operating out of coordination, with a 96-second cycle length at US-11, but 70 seconds for the I-81 ramps. Therefore, the model result is not valid. In all cases, minimum split shall be set to minimum green + yellow + all-red clearance interval (or in the case of a crosswalk, walk + flashing hand + yellow + all-red). DO NOT set minimum split to be equal to maximum split; we will hinder the signal optimization process if we do that. Also, we are liable to get a Min Err that is unwarranted.

14. Since Rest Church Road and US-11 is currently running as a protected-only left-turn phasing, any future year scenario that considers the use of protected/permissive left-turn phasing at that intersection shall also consider the impacts of using protected-only phasing (NOT using protected/permissive phasing). If a safety problem starts to develop with protected/permissive left-turn phasing, we will want to change it back to protected-only phasing and the impacts of that change will need to be evaluated. This was a previous comment that was not addressed. The applicate stated that the proposed phasing was utilized based on the recommendations of the Mr. Fuel TIA. However, VDOT requested that the existing protected-only left turn phasing be evaluated in the Build and Design year scenarios with the Mr. Fuel TIA as well. We would expect the same evaluation with this TIA based on the proposed and background build year traffic volumes.

APPENDIX D
PHASE I INDIANA AND NORTHERN LONG EARED BAT HABITAT SURVEY

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Indiana Bat (*Myotis sodalis*) and Northern Long-eared Bat (*Myotis septentrionalis*) Habitat Assessment of the Arcadia and Whitehall Sites, FBI Central Records Complex, Frederick County, Virginia

8 June 2015

Completed for:

Cardno
Shaping the Future

Completed by:

Chris Leftwich
Copperhead Environmental Consulting, Inc.

COPPERHEAD ENVIRONMENTAL CONSULTING, INC.
P.O. BOX 73 ■ 11641 RICHMOND RD. ■ PAINT LICK, KENTUCKY, 40461
(859) 925-9012 OFFICE (859) 925-9816 FAX
mwgumbert@copperheadconsulting.com

www.copperheadconsulting.com

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INTRODUCTION

The United States (U.S.) General Services Administration (GSA) is proposing to acquire property and construct a central records complex for the Federal Bureau of Investigation (FBI) in Frederick County, Virginia. The two properties under consideration are the Arcadia site and Whitehall site (Figure 1). The Whitehall site is approximately 51.3 acres and located in the city of Clear Brook, approximately four miles north of Winchester (Figure 2). The Arcadia site is approximately 63.3 acres and located at 2117 Milwood Pike, approximately four miles southeast of Winchester, Frederick County, Virginia (Figure 3).

Because both properties are within the range of the federally endangered Indiana bat (*Myotis sodalis*) and federally threatened northern long-eared bat (*Myotis septentrionalis*), the U.S. Fish and Wildlife Service (USFWS) sent an email stating there is the potential for impacts to both species and recommended that a habitat assessment be conducted. Therefore, Copperhead Environmental Consulting, Inc. (Copperhead) was contracted by Cardno to conduct an Indiana bat and northern long-eared bat summer (roosting) and winter (hibernacula) habitat assessment of the Arcadia and Whitehall sites.

Assessment of potential summer bat habitat was conducted in accordance with the 2015 USFWS Range-Wide Indiana bat Summer Survey Guidelines (USFWS 2015). Currently, there is no standardized range-wide guidance specific to surveys of potential winter habitat (i.e., caves, quarries, and/or abandoned mines); therefore, assessment of potential winter habitat was conducted in accordance with the Supplemental Indiana Bat Survey Guidance for Kentucky (USFWS and KDFWR 2015).

METHODS

Desktop Analysis

A desktop analysis of each site was conducted utilizing GIS, primarily remote sensing classifications and aerial photography interpretation, to evaluate landscape characteristics of the proposed sites and how they may affect the suitability of the site to provide summer (roosting) and winter (hibernacula) habitat for Indiana bats and northern long-eared bats. For summer habitat, aerial photography was used to calculate forested acreage and to identify features such as open fields, water resources, and flight corridors (e.g., forest roads or trails) that could be used by bats as roosting, foraging, or commuting habitat. The USGS mineral resource geologic GIS database (http://mrdata.usgs.gov/geology/state/state.php?state=VA), National Active Mines and Mineral Plants in the U.S. (http://mrdata.usgs.gove/mineplant), State of VA Active, Released, and Orphaned Mine Locations (http://dmme.virginia.gov/webmaps/DMM), and USGS 7.5 quadrangle maps were used to assess the potential for each site to provide winter habitat (e.g., caves, mines).

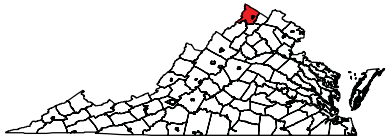
Field Habitat Assessment

An onsite habitat assessment was conducted at each site in order to determine the suitability of the sites to provide summer habitat (roosting, foraging, and commuting) and winter hibernacula for Indiana and northern long-eared bats. All distinct habitat types visible on aerial

COPPERHEAD
ENVIRONMENTAL CONSULTING

Summer and Winter Bat Habitat Assessment for the FBI Central Records Complex

Overview Map



Frederick County, Virginia

Proposed Whitehall Location
Proposed Arcadia Location
County Boundary

1:120,000
or
1 inch = 10,000 ft

Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Sources: Cardno, Virginia Department of Mines, Minerals, and Energy, ESRI, USGS
Date: 6/2/2015

0 10,000 Ft

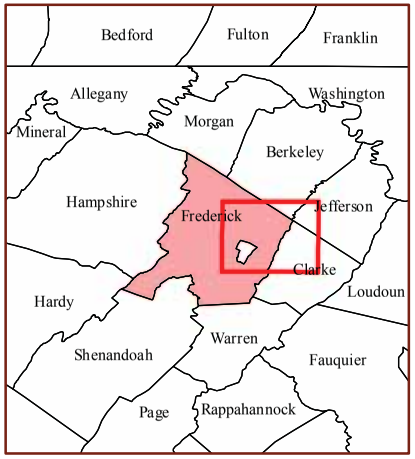


Figure 1. Proposed site locations for FBI Central Records Complex, Frederick County, Virginia.

COPPERHEAD
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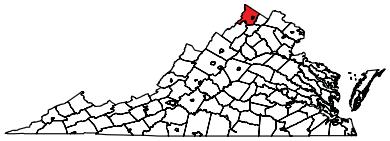
Summer and Winter Bat Habitat Assessment for the FBI Central Records Complex
Project Location Map



Frederick County, Virginia

Proposed Whitehall Boundary
State/County Boundary

1:4,800
or
1 inch = 400 ft

0 400 Ft

Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983
Sources: Cardno, Virginia Department of Mines, Minerals, and Energy, ESRI, USGS
Date: 6/9/2015

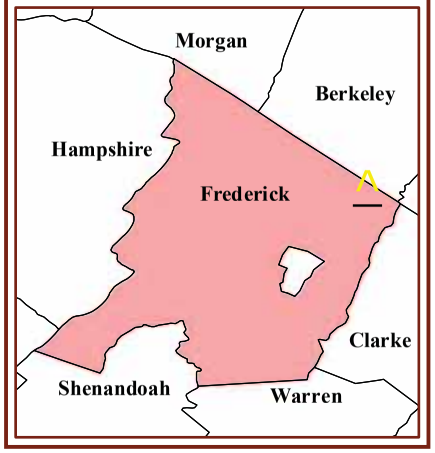


Figure 2. Proposed boundary of the Whitehall project location for FBI Central Records Complex, Frederick County, Virginia.

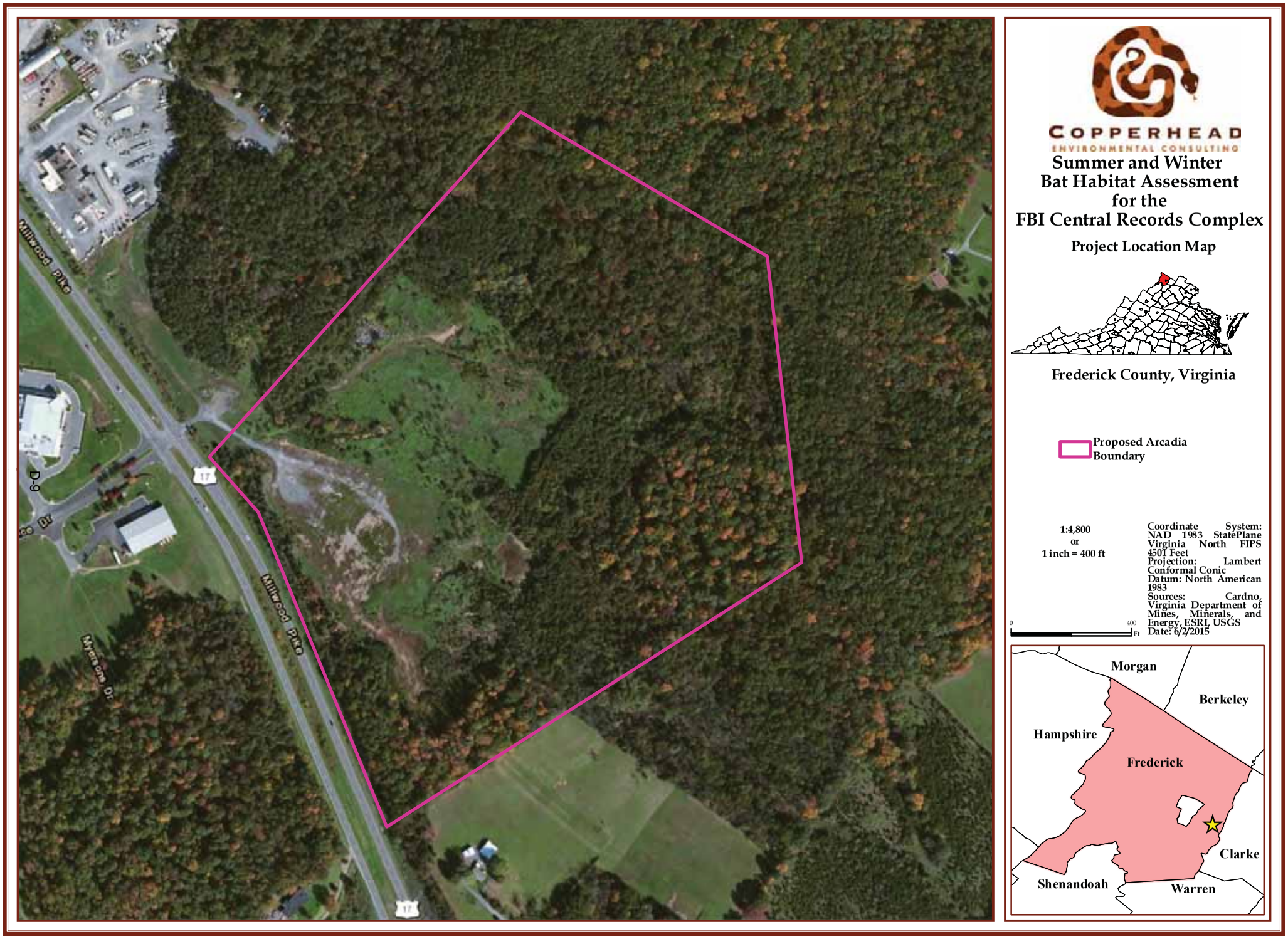


Figure 3. Proposed boundary of the Arcadia site, Frederick County, Virginia.

photography were ground-truthed to confirm habitat type. An effort was made to look for suitable potential roost trees (PRT); however, a complete survey of all trees was not conducted. If encountered, PRT were photographed. Phase 1 Summer Habitat Assessment data sheets provided in the 2015 Range-Wide Indiana Bat Summer Survey Guidelines were used to help describe the sites (Appendix A). General site photographs and photographs of unique features (PRT, water, etc.) are provided in Appendix B for each site.

The habitat assessment was conducted by a qualified Copperhead biologist (Chris Leftwich, Federal Fish & Wildlife Permit TES070584-12) with over ten years of experience capturing bats, conducting habitat assessments, and radio-tracking bats to roost trees.

RESULTS

Whitehall Site

Winter Habitat

Desktop analysis revealed that the Whitehall site overlies Ob. Dolostone (dolomite), limestone and could potentially contain limestone that could be subject to karst formation (Figure 4). Review of the USGS 7.5 minute quadrangle, National Active Mines and Mineral Plants in the U.S., and the State of VA Active, Released, and Orphaned Mine locations did not reveal past underground mining operations or abandoned mine portals that could provide winter habitat. No caves or mine portals were found during the field visit.

Summer Habitat

Aerial photography of the Whitehall site showed limited forested habitat present in two fence rows and a small woodlot in the NW corner of the property (Figure 5). The largest habitat types observed were agricultural (planted wheat) and shrub dominated by dense bush honey suckle (*Diervilla* sp.) and cedar (*Juniperus* sp.) (Table 1). The forested woodlot in the NW corner of the site was dominated by young canopy trees with a dense/cluttered understory of bush honey suckle.

No PRT suitable for use by Indiana bat maternity colonies (>14″ dbh) were found. Two snags that had the minimal characteristics of roosts used by northern long-eared bats (>3″ dbh, peeling bark) and Indiana bats (>5″ dbh) were found in the center of the property. However, these snags were located in or at the edge of the shrub areas and are isolated from surrounding forested habitat making them unlikely to be used by Indiana or northern long-eared bats. Northern long-eared bats prefer interior portions of upland forest for roosting and foraging. Although the snags receive sufficient solar exposure needed by Indiana bats, the lack of surrounding forested habitat makes them unlikely to be used by Indiana bats. No PRT suitable for either species were found in the fence rows on the eastern edge of the site. No creeks or streams that might provide foraging or commuting habitat were present. A small ephemeral pond that could provide a drinking or foraging source for bats was found at the edge of the woodlot in the NW corner of the site. Overall, habitat within the site is not likely to provide adequate roosting, foraging, and commuting habitat needed to support summer colonies of Indiana bats or northern long-eared bats. Although a few snags had the minimum requirements needed to be classified as PRT, overall site conditions were considered poor

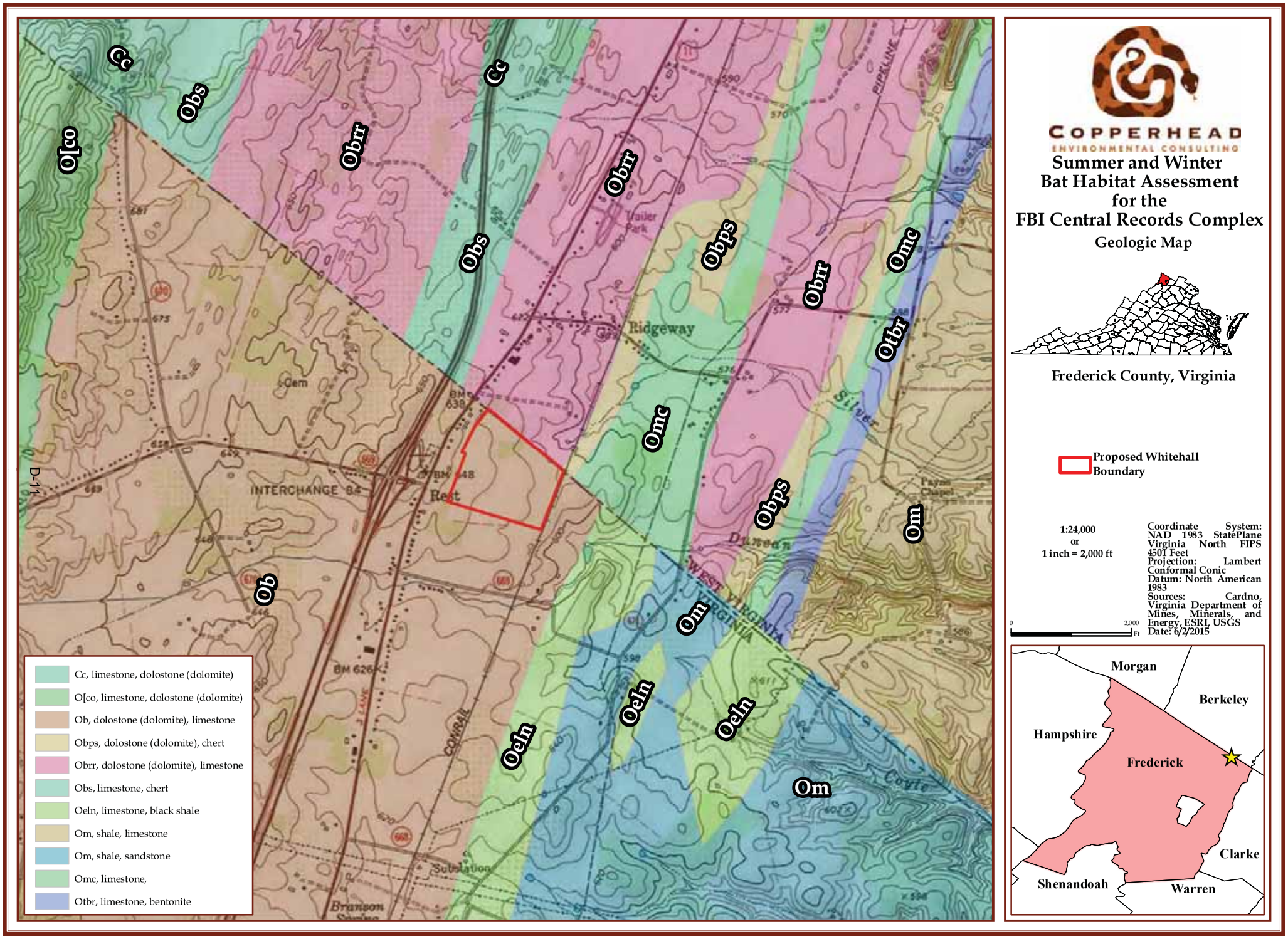


Figure 4. USGS geology map for the Whitehall site, Frederick County, Virginia.

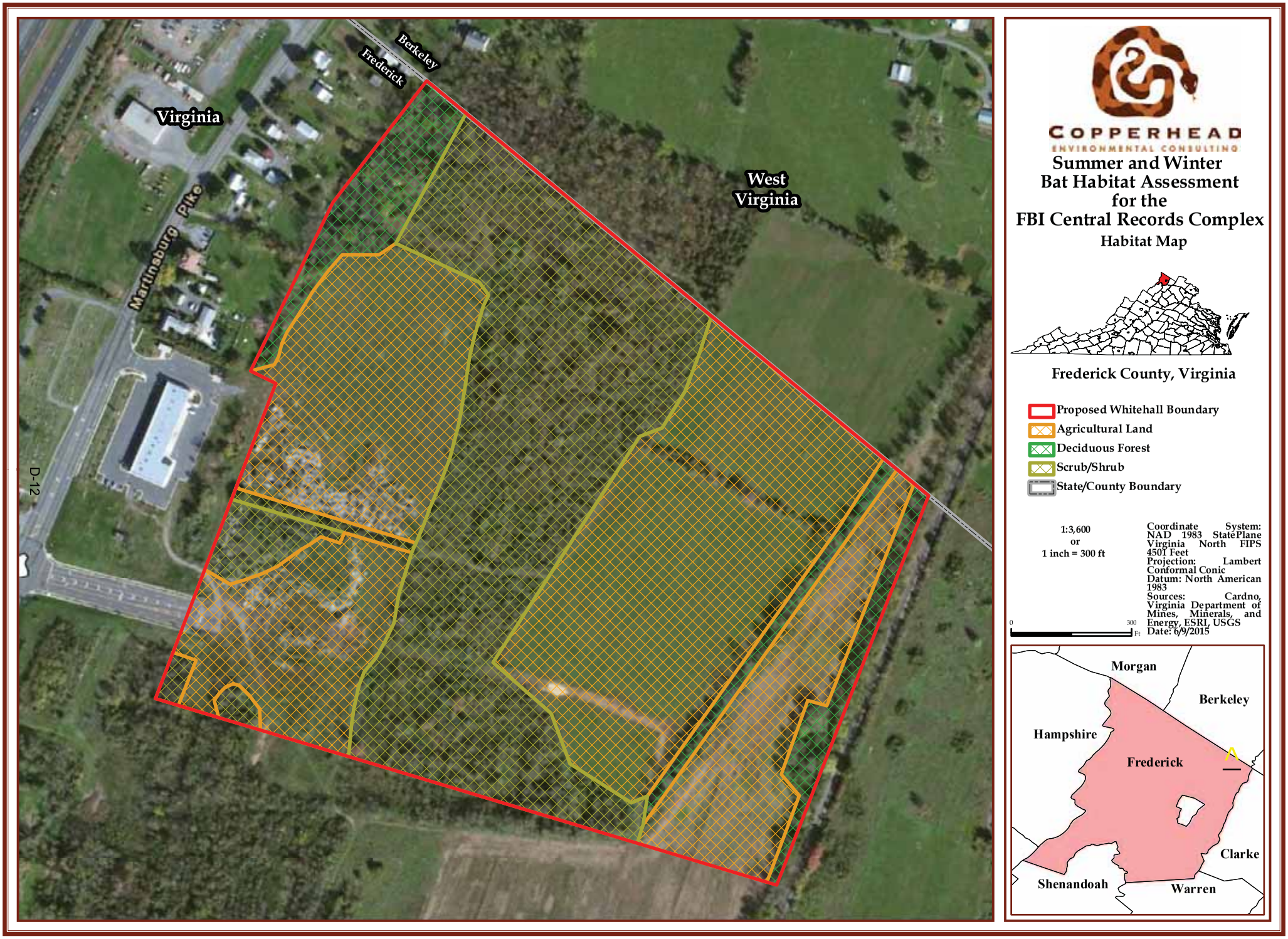


Figure 6. Habitat types identified of the Whitehall project location for the FBI Central Records Complex, Frederick County, Virginia.

habitat for either bat. Completed USFWS habitat assessment data sheets are provide in Appendix A and site photographs are provided in Appendix B.

Table 1. Acreage of habitat types and their suitability as bat habitat found within the Whitehall site, Frederick County, VA.

Habitat Type	Acres	MYSO* Roosting Habitat	MYSO Foraging Habitat	MYSE** Roosting Habitat	MYSE Foraging Habitat
Agriculture	28.7	No	No	No	No
Deciduous Forest (young)	4.2	No	Poor	Poor	Poor
Shrub	18.4	No	No	No	No

*MYSO = Indiana bat
** MYSE = northern long-eared bat

Arcadia Site

Winter Habitat

Desktop analysis revealed the majority of the Arcadia site overlies Om. Shale, sandstone, which is not conducive to karst formation. However, Oeln. limestone, black shale exists along the perimeter of the site and could potentially contain limestone that could be subject to karst formation (Figure 6). Review of the USGS 7.5 minute quadrangle, National Active Mines and Mineral Plants in the U.S., and the State of VA Active, Released, and Orphaned Mine locations did not reveal past underground mining operations or abandoned mine portals that could provide access to winter habitat. No caves or mine portals were found during the field visit.

Summer Habitat

Aerial photography of the Arcadia site showed that potential roosting habitat was likely present within the forested portions of the site (Figure 7). Forested portions of the site were dominated by multiple oak species (*Quercus alba, Q. velutina*), red maple (*Acer rubrum*), and Virginia pine (*Pinus virginianus*) (Table 2). Several PRT were located within the forested portions that could provide roosting habitat for Indiana and northern long-eared bats. No creeks or streams that might provide foraging or commuting habitat were present. A small forested ephemeral pond that could provide a drinking and foraging habitat for bats was found near the northern portion of the site. Completed USFWS habitat assessment data sheets are provide in Appendix C and site photographs are provided in Appendix D.

Table 2. Acreage of habitat types and their suitability as bat habitat found within the Arcadia site, Frederick County, VA.

Habitat Type	Acres	MYSO* Roosting Habitat	MYSO Foraging Habitat	MYSE** Roosting Habitat	MYSE Foraging Habitat
Coniferous Forest	7.7	No	Yes	Yes	Yes
Mixed Coniferous/Deciduous Forest	34.5	Yes	Yes	Yes	Yes
Grassland	21.2	No	No	No	Yes

*MYSO = Indiana bat
** MYSE = northern long-eared bat

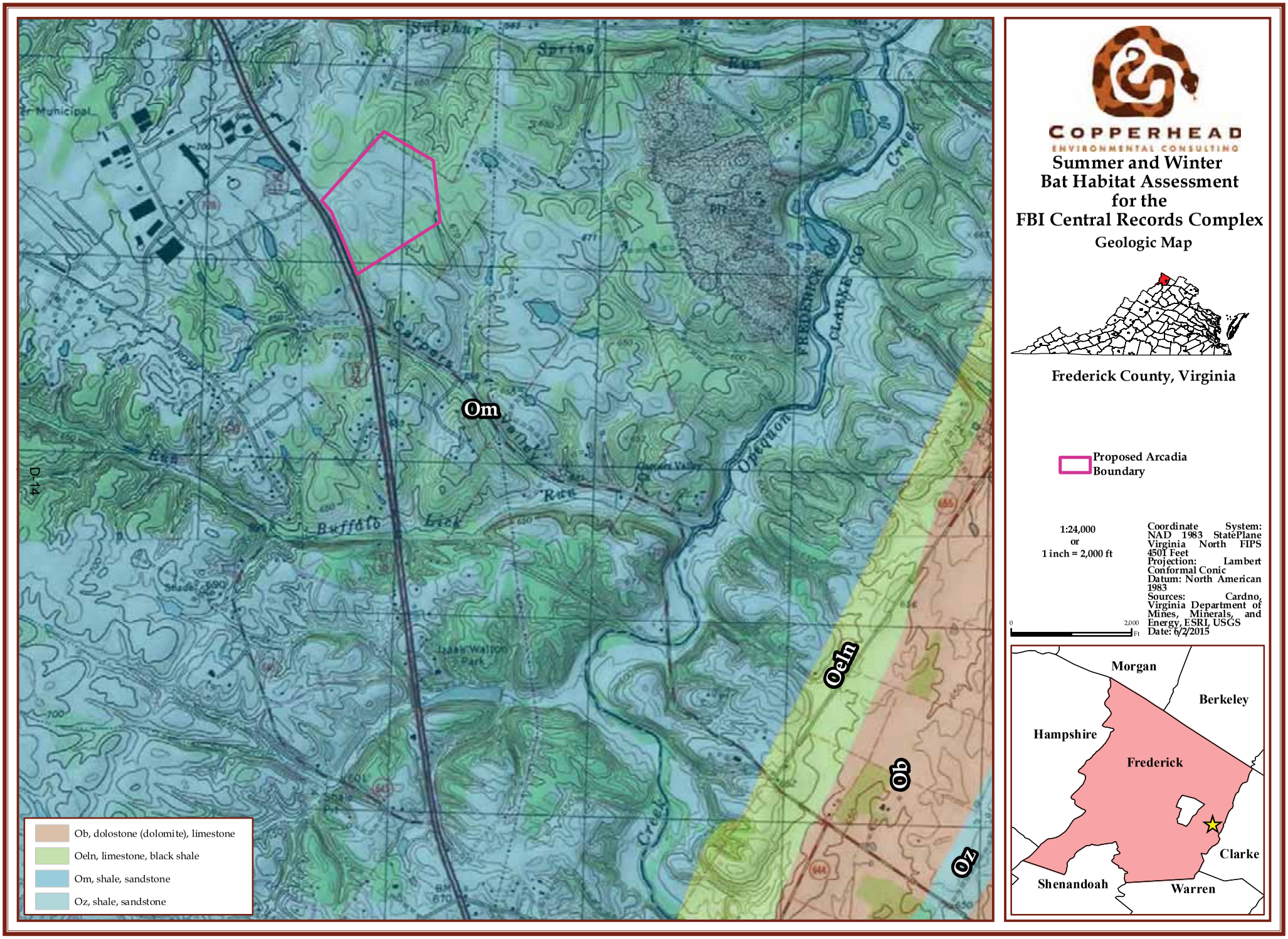


Figure 6. USGS geology map for the Arcadia site, Frederick County, Virginia.

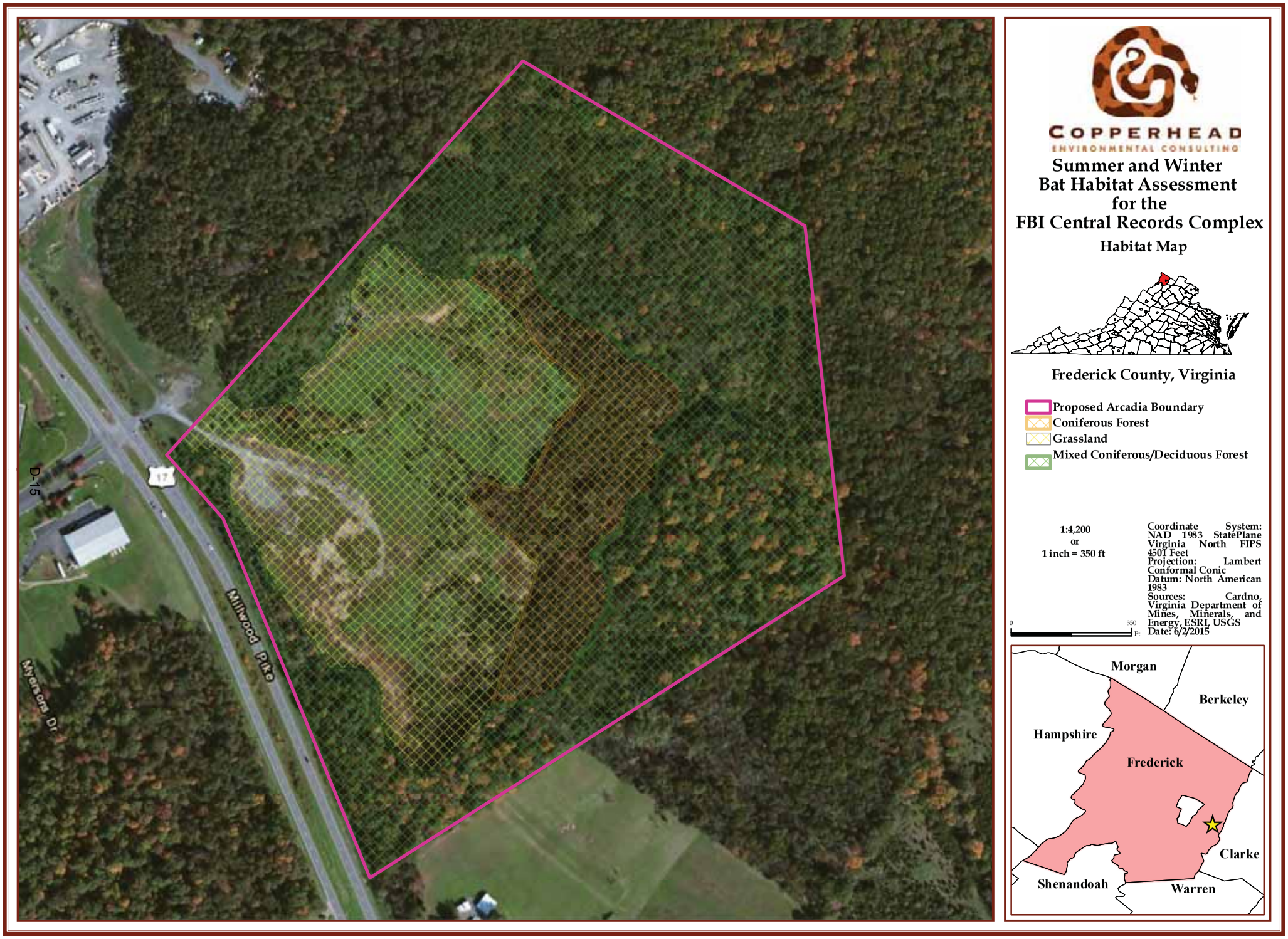


Figure 7 . Habitat types identified on the Arcadia site, Frederick County, Virginia.

CONCLUSIONS

Whitehall Site

Habitat within the site is not likely to be used by Indiana or northern long-eared bats due to the small amount and quality of available forested habitat, lack of quality foraging and commuting habitat, and lack of PRT. Therefore, it is unlikely that populations of Indiana or northern long-eared bats would use the site during the summer maternity season or fall/spring migration.

Arcadia Site

The Arcadia site provides poor to moderate roosting habitat for Indiana bats due to the presence of PRT with sufficient solar exposure. Roosting habitat for northern long-eared bats is moderate to excellent in quality due to several suitable PRT and amount of forested habitat. In addition, the site provides moderate Indiana bat foraging habitat especially along edges, above the canopy, or in areas with lower stem density, and moderate to excellent foraging habitat for northern long-eared bats. Therefore, it is possible that the Indiana and/or northern long-eared bats could use the site during the summer maternity season.

LITERATURE CITED

(USFWS) United States Fish and Wildlife Service. 2015. 2015 Range-Wide Indiana Bat Summer Survey Guidelines. April 2015.

(USFWS and KDFWR) United States Fish and Wildlife Service, Kentucky Field Office and Kentucky Department for Fish and Wildlife Resources. 2015. Supplemental Indiana Bat Survey Guidance for Kentucky. April 27, 2015.

Appendix A

Whitehall - USFWS Field Data Sheets

APPENDIX A
PHASE 1 SUMMER HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: FBI Records Complex - Whitehall Date: 20 May 15

Township/Range/Section:

Lat/Long/UTM/Zone: N39.29062 ; W078.07911 Surveyor: C. Lefteviche

Brief Project Description

GSA is proposing to aquire property + construct a central records complex for the FBI

Project Area

	Total Acres	Forest Acres		Open Acres
Project	51.3	4.1 ac deciduous 18.5 ac shrub		28.7 agricultural
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	unk	unk	unk	

Vegetation Cover Types

Pre-Project	Post-Project
- dense bush honeysuckle + cedar - young deciduous forest w/ dense honeysuckle understory - fence rows + wheat	unk

Landscape within 5 mile radius

Flight corridors to other forested areas?

minimal, small patchy forests mixed w/ residential + commercial

Describe Adjacent Properties (e.g. forested, grassland, commercial or residencial development, water sources)

mainly agricultural w/ small woodlots + residential/commercial

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

~13 miles SE of Sleepy Creek WMA
~16 mi W of Shenandoah River
~20 mi SW of Potomac River

APPENDIX A
PHASE 1 SUMMER HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description	Whitehall
Sample Site No.(s): 1	N 39.29062 W 078.07911

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: N/A
	–	–	–	
Pools/Ponds (# and size)	–	Open and accessible to bats? N/A		
Wetlands (approx. ac.)	Permanent	Seasonal		
	unk	unk		

Forest Resources at Sample Site				
Closure/Density	Canopy (>50%)	Midstory (20-50%)	Understory (<20%)	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
	1	1	4	
Dominant Species of Mature Trees	None (Cedar, Bush Honeysuckle)			
% Trees w/ Exfoliating Bark	<1%			
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	95	5	0	
No. of Suitable Snags MYSE = 0	MYSE = 2			

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? no

MYSE? unlikely due to lack of forested habitat

Additional Comments:

Img 35-38 : General habitat
- Scrub shrub, cedar, ag and grasses, highly disturbed

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations: understory midstory canopy, examples of potential suitable snags and live trees, water sources

Appendix B

Whitehall – Site Photographs

COPPERHEAD ENVIRONMENTAL CONSULTING	Bat Habitat Assessment - Whitehall Site Photographic Record	
Project No.: **397.01**	**County, State:** **Frederick County, Virginia**	**Client:** **Cardno/GSA**

Photo No.: 026 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.2892429; -78.08015568 **Location:** n/a **View Direction:** north **Description:** General habitat showing agriculture and sparse/dense shrubs.	
Photo No.: 30 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.29021034; -78.0791864 **Location:** n/a **View Direction:** east **Description:** Snag above dense bush honey suckle shrubs, isolated from forested area. Some peeling bark.	

Photo No.: 033 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.2906219; -78.07910912 **Location:** n/a **View Direction:** north **Description:** Snag above dense bush honey suckle, isolated from forested area. Some peeling bark.	
Photo No.: 034 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.2906219; -78.07910912 **Location:** n/a **View Direction:** west **Description:** Habitat near snags pictured above.	

Photo No.: 037 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.2906219; -78.07910912 **Location:** n/a **View Direction:** north east **Description:** General habitat view.	
Photo No.: 040 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.29236701; -78.07862439 **Location:** n/a **View Direction:** north **Description:** General habitat view.	

Photo No.: 044 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.29276347; -78.07927885 **Location:** n/a **View Direction:** North west **Description:** Ephemeral pond.	
Photo No.: 045 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.29270698; -78.07968252 **Location:** n/a **View Direction:** north west **Description:** Dense understory of small woodlot in NW corner of site.	

Photo No.: 047 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.29212452; -78.0765632 **Location:** n/a **View Direction:** east **Description:** General habitat showing planted wheat and fence row at eastern edge of site.	
Photo No.: 0052 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.29085156; -78.07484441 **Location:** n/a **View Direction:** north **Description:** Wooded fence row at eastern edge of site.	

Appendix C

Arcadia – USFWS Field Data Sheets

APPENDIX A
PHASE 1 SUMMER HABITAT ASSESSMENTS

INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: FBI Records Complex - Arcadia Date: 20 May 15

Township/Range/Section:

Lat/Long/UTM/Zone: N 39.14100 ; W078.11493 Surveyor: C. Leftwich

Brief Project Description

GSA is proposing to aquire property + construct a Central records complex for the FBI

Project Area

	Total Acres	Forest Acres	Open Acres
Project	63.4	34.5 mixed Forest 7.7 Young cedars/pine	21.2

	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing
Proposed Tree Removal (ac)	unk	unk	unk

Vegetation Cover Types

Pre-Project	Post-Project
grassland - disturbed soils dense cedar thickets mixed-deciduous forest	unk

Landscape within 5 mile radius

Flight corridors to other forested areas?

Yes, forested connectivity to patchy + larger forested tracts

Describe Adjacent Properties (e.g. forested, grassland, commercial or residencial development, water sources)

mixed rural ag. + forested to the east + south; Residential + commercial to the north and west

Proximity to Public Land

What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?

~6.8 mi NE of Lake Frederick
~1.3 mi N of Izaak Walton Park
~8.5 mi WNW of the Shenandoah River
~16 mi NE of George Washington Forest

APPENDIX A
PHASE 1 SUMMER HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area
A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description	Arcadia
Sample Site No.(s): 1	N 39.14228 W 78.12101

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: shallow, forested; foraging habitat
	–	–	–	
Pools/Ponds (# and size)	1 / 6m x 12m	Open and accessible to bats?		
		yes		
Wetlands (approx. ac.)	Permanent	Seasonal		
	unknown	unknown		

Forest Resources at Sample Site				
Closure/Density	Canopy (>50')	Midstory (20-50')	Understory (<20')	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
	6	4	2	
Dominant Species of Mature Trees	P. virginianus ; A. rubrum			
% Trees w/ Exfoliating Bark	<1%			
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	50	40	10	
No. of Suitable Snags	MYSO : 1	MYSE : 4	Total : 4	

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? yes; poor-mod roosting ; poor-moderate foraging
MYSE ? yes; mod roosting ; mod-exc foraging

Additional Comments:

Img 0005 : Pine snag 7" DBH
" 6-7 : Pond
" 8 : Snag next to pond

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory midstory canopy, examples of potential suitable snags and live trees, water sources

APPENDIX A
PHASE 1 SUMMER HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area
A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description	Arcadia
Sample Site No.(s): 2	N 39.14100 W078.11793

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources:
	—	—	—	
Pools/Ponds (# and size)	—	Open and accessible to bats?		N/A
Wetlands (approx. ac.)	Permanent	Seasonal		
	unk	unk		

Forest Resources at Sample Site				
Closure/Density	Canopy (>50')	Midstory (20-50')	Understory (<20')	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
	3	5	5	
Dominant Species of Mature Trees	Oak (multiple) & Ash (multiple)			
% Trees w/ Exfoliating Bark	0			
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	60	35	5	
No. of Suitable Snags	0	0		

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? Yes, roosting poor-mod; foraging poor-marginal
MYSE? yes, poor roosting

Additional Comments:
Img 13-15 : General site

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations: understory/midstory/canopy, examples of potential suitable snags and live trees, water sources

APPENDIX A
PHASE 1 SUMMER HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area
A single sheet can be used for multiple sample sites if habitat is the same

Sample Site Description	Arcadia
Sample Site No.(s): 3	N 39.13962 W 078.11819

Water Resources at Sample Site				
Stream Type (# and length)	Ephemeral	Intermittent	Perennial	Describe existing condition of water sources: N/A
	–	–	–	
Pools/Ponds (# and size)	–	Open and accessible to bats?		
Wetlands (approx. ac.)	Permanent	Seasonal		
	–	–		

Forest Resources at Sample Site				
Closure/Density	Canopy (> 50')	Midstory (20-50')	Understory (<20')	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
	4	4	3	
Dominant Species of Mature Trees	Q. alba, Q. velutina, Q. prinus			
% Trees w/ Exfoliating Bark	< 5%			
Size Composition of Live Trees (%)	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
	60	30	10	
No. of Suitable Snags	MYSO: 0	MYSE: <5		

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? yes; roosting poor; foraging moderate (mod)
MYSE? yes; roosting mod; "

Additional Comments:
Img 16-19 : General site

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

Photographic Documentation: habitat shots at edge and interior from multiple locations; understory midstory canopy, examples of potential suitable snags and live trees; water sources

Appendix D

Arcadia – Site Photographs

COPPERHEAD ENVIRONMENTAL CONSULTING	**Bat Habitat Assessment - Arcadia Site Photographic Record**

Project No.: 397.01	**County, State:** Frederick County, Virginia	**Client:** Cardno/GSA

Photo No.: 002 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.14148965; -78.12156111 **Location:** n/a **View Direction:** east **Description:** General habitat showing grassland and shrub.	
Photo No.: 005 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.14228132; -78.12100933 **Location:** n/a **View Direction:** north **Description:** Sub canopy pine snag ~7" dbh.	

Photo No.: 007 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.14228132; -78.12100933 **Location:** n/a **View Direction:** north east **Description:** Ephemeral pond, foraging habitat.	
Photo No.: 008 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.14228132; -78.12100933 **Location:** n/a **View Direction:** south **Description:** Snag at edge of ephemeral pond.	

Photo No.: 009 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.14329587; -78.11997936 **Location:** n/a **View Direction:** west **Description:** Large snag, ~24-30″ dbh. Most roost potential below canopy.	
Photo No.: 012 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.14133408; -78.11876231 **Location:** n/a **View Direction:** n/a **Description:** Small ephemeral water source, ~1 meter diameter.	

Photo No.: 014 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.14099445; -78.11793108 **Location:** n/a **View Direction:** north west **Description:** Dense, young forested portion of site.	
Photo No.: 017 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.13961914; -78.11819058 **Location:** n/a **View Direction:** north **Description:** Interior habitat, oak/maple.	

Photo No.: 020 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.13828516; -78.11934452 **Location:** n/a **View Direction:** n/a **Description:** Large snag with roosting potential above canopy, ~20" dbh.	
Photo No.: 022 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.13828516; -78.11934452 **Location:** n/a **View Direction:** south east **Description:** Medium snag with roosting potential above the canopy, ~12-15" dbh.	

Photo No.: 024 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.1380234; -78.12166429 **Location:** n/a **View Direction:** n/a **Description:** Abandoned 2 room house. No signs of bat use (guano, staining, insect parts).	
Photo No.: 025 **Date of Photo:** 20 May 2015 **Lat/Long:** 39.13970154; -78.12039158 **Location:** n/a **View Direction:** south **Description:** Old drainage pond from past mining operations, not holding water	

APPENDIX E
PUBLIC OUTREACH

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Northern Virginia
The Daily

152 North Holliday Street
Strasburg, VA 22657
540-465-5137 800-296-5137
Fax 540-465-9388

CERTIFICATE OF PUBLICATION

We hereby certify that the attached publication was inserted in regular editions of the Northern Virginia Daily, published at Strasburg, Virginia, the first insertion being on the 22nd day of August, 2015, and subsequent insertions on _____, 2015.

Given under my hand this 25th day of August, 2015.

Northern Virginia Daily
by Debbie C. Fadeley
Debbie C. Fadeley, Advertising Clerk

Total charge for advertising **$189.75**
plus $12 certificate of publication charge

County of Shenandoah
State of Virginia

Subscribed and sworn to before me this 25th day of August, 2015.

Kimberly S. Fauber

KIMBERLY S. FAUBER
NOTARY PUBLIC
REGISTRATION # 7526598
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES
JANUARY 31, 2016

U.S. General Services Administration Announces the Availability of the Draft Supplemental Environmental Impact Statement for the Federal Bureau of Investigation Central Records Complex

The U.S. General Services Administration (GSA) announces the availability of the Draft Supplemental Environmental Impact Statement (SEIS) for the site acquisition, development, and operation of the Federal Bureau of Investigation Central Records Complex located in Frederick County, Virginia.

The Supplemental Draft EIS incorporates by reference and builds upon the analyses presented in the published 2007 Final EIS. The alternatives fully evaluated in the Draft SEIS include the No Action Alternative, Arcadia Route 50 property, and Whitehall Commerce Center.

The Draft SEIS can be reviewed online at http://www.fbicrc-seis.com or printed copies can be reviewed at the following locations:

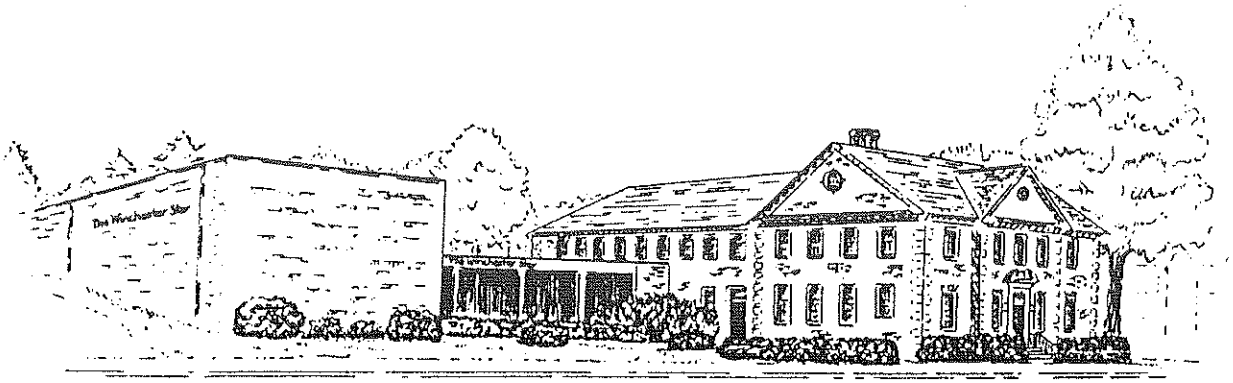
- Handley Library, 100 West Piccadilly St, P.O. Box 58, Winchester, VA 22604
- Bowman Library, 871 Tasker Rd, P.O. Box 1300, Stephens City, VA 22655
- Smith Library, Shenandoah University, 718 Wade Miller Dr., Winchester, VA 22601

Public Meeting:
September 10, 2015 between 6:00 p.m. and 8:00 p.m. in the War Memorial Building Social Hall at Jim Barnett Park, War Memorial Drive, Winchester, VA 22601.

A 45-day public review and comment period on the Draft Supplemental EIS begins August 24 and ends October 8, 2015. Your participation is encouraged and important. Please submit all comments by October 8, 2015 to ensure consideration in the preparation of the Final SEIS.

GSA invites comments on the Draft Supplemental EIS, which will help GSA arrive at the best possible informed decision about the proposed project. Comments can be submitted three ways: 1) send to the project e-mail address at **frederick.va.siteacquisition@gsa.gov**. 2) submit during the public meeting; or 3) mail to: Ms. Courtenay Hoernemann, Project Environmental Planner, 20 North 8th Street, Philadelphia, PA 19107.

258310



The Winchester Star

U.S. General Services Administration Announces the Availability of the Draft Supplemental Environmental Impact Statement for the Federal Bureau of Investigation Central Records Complex

The U.S. General Services Administration (GSA) announces the availability of the Draft Supplemental Environmental Impact Statement (SEIS) for the site acquisition, development, and operation of the Federal Bureau of Investigation Central Records Complex located in Frederick County, Virginia.

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GSA invites comments on the Draft Supplemental EIS, which will help GSA arrive at the best possible informed decision about the proposed project. Comments can be submitted three ways: 1) send to the project e-mail address at frederick.va.siteacquisition@gsa.gov, 2) submit during the public meeting; or 3) mail to: Ms. Courtenay Hoernemann, Project Environmental Planner, 20 North 8th Street, Philadelphia, PA 19107.

CERTIFICATE OF PUBLICATION

We certified that the attached advertisment in the cause of: GSA Evaluation Impact Statement appeared in The Winchester Star, a newspaper published in the City of Winchester, Virginia, with a general circulation over 23,000 in the areas of the City in Winchester, and the counties of Frederick, Clarke and Warren, Virginia.

Aug. 22, 2015

Signature: Laura Wine

Title: Bookkeeping

Date: 8-22-15

****

STATE OF VIRGINIA
City of Winchester

Sworn and subscribed to before me 22nd day of August 2015

Deborah M. Burke

Notary Public

DEBORAH M. BURKE
NOTARY PUBLIC
REG. #184135
MY COMMISSION EXPIRES 9/30/15
COMMONWEALTH OF VIRGINIA

LOVE YOUR CAREER

RN | LPN

Full-time position available for 3 p.m.-11 p.m. shift. Full-time float position available between 7 a.m.-3 p.m. shift and 3 p.m.-11 p.m. shift. Must be a Virginia-licensed nurse.

Certified Nursing Assistant

Full-time position available for 3 p.m.-11 p.m. shift. Must be a Virginia-certified nursing assistant.

Brandi_Harpine@LCCA.com
LifeCareCareers.com

Life Care Center of New Market

55964 | EOE/M/F/V/D

265976e

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nvdaily.com

Providing Service with our *Hearts* and *Hands*

Now Hiring

Join the Consulate Health Care of Woodstock Team!

Now Hiring for the Following Positions:

- Licensed CNAs full time
- Licensed Nurses

** Valid Virginia Licenses Required*

Candidates may apply in person at Consulate Health Care of Woodstock

803 S. Main St. | Woodstock, VA 22664
ph. (540) 459-5676 | fax (540) 459-5490

CONSULATE HEALTH CARE OF WOODSTOCK
EOE/SF/DF

263182

U.S. General Services Administration Notice of Intent to Prepare a Supplemental Draft Environmental Impact Statement For the Federal Bureau of Investigation Central Records Complex

The U.S. General Services Administration (GSA) will prepare a Supplemental Environmental Impact Statement (SEIS) in accordance with the National Environmental Policy Act of 1969 (as implemented by the Council on Environmental Quality Regulations [40 Code of Federal Regulations (CFR) parts 1500-1508]) and the National Historic Preservation Act (36 CFR Part 800). The Supplemental Draft EIS will analyze and assess the environmental impacts of site acquisition and construction of the Federal Bureau of Investigation (FBI) Central Records Complex (CRC) in Frederick County, Virginia. The three site alternatives to be evaluated in the EIS are:

Alternative 1: Arcadia Route 50 Property, 2117 Millwood Pike, Winchester, VA

Alternative 2: Blackburn Limited Partnership, Apple Valley Road, Winchester, VA

Alternative 3: Whitehall Commerce Ctr, Route 669 & Route 11, Clear Brook, VA

A Final EIS and Record of Decision (ROD) were issued for the project in May 2007. The project was to be completed as a lease construction, and GSA continued with the procurement process. However, due to market conditions and the specialized nature of the facility, GSA was not able to successfully award a lease. In 2014, the project was federally funded with a reduced set of requirements. The SEIS is being prepared to address changes to the proposed action and will assess any new circumstances or information relevant to potential environmental impacts.

The public is invited to submit comments on the proposed project to GSA. A Notice of Intent will be published in the Federal Register on Tuesday February 17th which will start a 30 day public scoping period. The scoping period is an opportunity for the public to identify community and local issues that may be important to the development of the SEIS. The 30-day scoping period will begin on February 17 and end on March 18, 2015. Written comments concerning the project may be mailed to Courtenay Hoernemann, Project Environmental Planner, 20 N 8th Street, Philadelphia, PA 19107, or via e-mail to frederick.va.siteacquisition@gsa.gov. To ensure consideration in the Draft SEIS, comments must be submitted via email or postmarked by March 18, 2015. Future notices will be published to announce the availability of the Draft SEIS and additional opportunities for public input.

266060

NOTICE OF PUBLIC HEARING

NOTICE is hereby given that the New Market Planning Commission and the Town Council of New Market, Virginia, will hold a joint public hearing pursuant to the provisions of Section 70-188 of the Code of Laws of the Town of New Market, Virginia, and Section 15.2-2204 of the Code of Virginia of 1950, as amended, on Monday, March 2, 2015 at 7:30 p.m., or as soon thereafter as the matter may be heard, in the Council Chambers of the Arthur L. Hildreth, Jr., Municipal Building, 9418 John Sevier Road, New Market, Virginia 22844.

Text Amendment – Lawn and Garden Centers

The purpose of this hearing is to receive public comment(s) on a text amendment to define lawn and garden centers and allow exterior storage of lawn and garden center supplies and materials in the B-1, B-2, and M-1 zoning districts by amending Sections 70-10, 70-59(a), 70-60(v) and 70-69 of the Zoning Ordinance.

Interested parties may appear at the above time and place to express their views on the proposed amendments. A copy of the above application and proposed amendments may be inspected at the Town Office of the Town of New Market, Virginia, Monday – Friday, 7:30 a.m. – 4:00 p.m.

Chad Neese
Town Planner

266059

PUBLIC NOTICE

BOARD OF EQUALIZATION

For Warren County, Virginia

Public Notice is hereby given that the Board of Equalization for Warren County will meet on the days hereafter listed for the purpose of hearing complaints of inequalities including errors in acreage. Upon hearing such complaints, either oral or written, the Board will give consideration AND INCREASE, DECREASE, OR AFFIRM such real estate assessments. Before a change can be granted, the taxpayer or his agent must overcome a clear presumption in favor of the assessment. The taxpayer or his agent must provide a preponderance of the evidence that the assessment of the property is not uniform with the assessments of other similar properties or that the property is assessed in excess of its fair market value.

In any appeal of the assessment of any residential property containing less than four residential units, the taxpayer has a right during business hours (9:00 a.m. – 5:00 p.m., Monday – Friday) to review and obtain copies of the assessment records pertaining to the determination of fair market value of the property, and a right to request the assessor to make a physical examination of the subject property.

Appointments will be scheduled approximately every 15 minutes to minimize waiting. To appear before the Board of Equalization, please call (540) 635-3184 from 9:00 a.m. to 5:00 p.m. Monday through Friday. Meetings of the Board to hear objections will be held at the Warren County Government Center, 220 North Commerce Ave., Front Royal, VA. The dates and times are:

April 1	9:00 a.m. to 12:00 p.m.	April 2	9:00 a.m. to 5:00 p.m.
April 7	12:00 p.m. to 5:00 p.m.	April 8	9:00 a.m. to 12:00 p.m.
April 9	9:00 a.m. to 5:00 p.m.	April 14	9:00 a.m. to 5:00 p.m.
April 15	9:00 a.m. to 5:00 p.m.	April 16	9:00 a.m. to 5:00 p.m.
April 20	9:00 a.m. to 5:00 p.m.		

Applications to the Board of Equalization for adjustments to assessments must be received by the Board no later than **February 27, 2015.** The Board of Equalization shall complete all adjustments no later than April 20, 2015.

By order of the Warren County Board of Equalization.

263011

TRUSTEE SALE

5099 Bentonville Road
Bentonville, VA 23610
Warren County

In execution of a Deed of Trust in the original principal amount of **$462,840.00**, dated **July 31, 2008** recorded in the Clerk's Office of the Circuit Court of the **Warren County,Virginia,** in **Document No. 080005140, at Page 000030 and re-recorded in Document No. 080005888, at Page 000075**, default having occurred in the payment of the Note thereby secured and at the request of the holder of said Note, the undersigned Substitute Trustee will offer for sale at public auction at the entrance to the Circuit Court for the **County of Warren, South Royal Avenue entrance, 1 East Main Street, Front Royal,** on **February 25, 2015 at 10:00 AM** the property described in said deed, located at the above address and briefly described as:

Lot No. 11, Meadowbrook Farms, with improvements thereon.

Subject to any and all covenants, conditions, restrictions, easements, and all other matters of record taking priority over the Deed of Trust, if any, affecting the aforesaid property.

TERMS OF SALE: CASH: A deposit of **$20,000.00** or 10% of the sales price, whichever is lower, cash or certified check will be required at the time of sale, but no more than $9,000.00 of cash will be accepted, with settlement within fifteen (15) days from the date of sale. Sale is subject to post sale confirmation that the borrower did not file for protection under the U.S. Bankruptcy Code prior to the sale, as well as to post-sale confirmation of the status of the loan with the loan servicer including, but not limited to, determination of whether the borrower entered into any repayment agreement, reinstated or paid off the loan prior to the sale. In any such event, the sale shall be null and void, and the Purchaser's sole remedy, in law or equity, shall be the return of his deposit without interest. Additional terms may be announced at the time of sale. Pursuant to the Federal Fair Debt Collection Practices Act, we advise you that this firm is a debt collector attempting to collect the indebtedness referred to herein and any information we obtain will be used for that purpose.

SAMUEL I. WHITE, P.C., Substitute Trustee
This is a communication from a debt collector.

FOR INFORMATION CONTACT:
SAMUEL I. WHITE, P.C. (28235)
5040 Corporate Woods Drive, Suite 120
Virginia Beach, Virginia 23462
757-457-1460
Call Between 9:00 a.m. and 5:00 p.m.
or visit our website at www.siwpc.net

#1850

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20 Help Wanted

WANTED

Enjoy working with children?
Full time
Daycare Providers
needed for busy day care facility.
Call 540-635-6630
for information.

The Apple House Self Storage, LLC

will sell the following person's contents to satisfy debt due.

ERVIN SMITH
Suffern, NY • Unit 95

ROBERT LAMBERT
The Plains, VA • Unit 160

MARY DUNCAN
Front Royal, VA • Unit 91

JENNIFER ANDREWS
Linden, VA • Unit 114

DAVID SHADLER
Woodstock, VA • Unit 33

BARRY HUNTER
W. Salem, OH • Unit 146&147

Settlement of the account would constitute cancellation of sale.

Settlement must be Made by NOON, Feb. 25, 2015

265430

WANTED

IMMEDIATE OPENING

FOR GOAL ORIENTED INDIVIDUALS SEEKING A CAREER WITH A FUTURE IN OUR SALES DEPARTMENT

- Excellent Pay Plan • Full Benefit Package
- Comprehensive Paid Training Program
- 5 Day Work Week • No Sundays

APPLICANT ATTRIBUTES

- Outgoing, Personable Demeanor
- Positive Attitude • Well Organized
- Self Motivated Punctual
- Good Driving Record

Apply In Person

APPLE VALLEY HYUNDAI

2934 Valley Avenue • Winchester, VA
"Equal Opportunity Employer"

246611e

SALE OF SURPLUS REAL PROPERTY

SHENANDOAH COUNTY

The County of Shenandoah is disposing by sealed bid surplus property consisting of two parcels:

Tract 1) 0.32 acres more or less located on the southeast side of Jadwyn Road, Woodstock, Virginia; required minimum bid of $2,600 and

Tract 2) 0.60 acres more or less located south of Stonewall Lane, Mt. Jackson, Virginia; required minimum bid of $500.

The minimum bids noted above for both tracts 1 and 2 are the assessed value of the lots.Both tracts of land are being sold with special warranty.

Anyone interested in purchasing the parcels should submit a sealed bid by 4:00 p.m. on February 20, 2015. A complete description of the meets and bounds can be received from County Administration by calling 540.459.6165 or by visiting the website at **http://shenandoah countyva.us/administration/public-notices.** Sealed Bids to purchase can should be submitted to Mary T. Price, County Administrator, 600 N. Main Street, Suite 102, Woodstock, Virginia, 22664 or e-mailed to mbprice@shenandoahcountyva.us.

All disposal of real public property is subject to a public hearing held by the governing body in accordance with Section 15.2-1800 (B) of Code of Virginia.

262859

Town of Front Royal

NOTICE of PUBLIC HEARING

The Town Council of the Town of Front Royal, Virginia, will hold a Public Hearing on Monday, February 23, 2015 at 7:00 P.M. in the Warren County Government Center's Board Meeting Room, 220 N Commerce Avenue, Front Royal, VA,. at which time and location, interested persons may appear and express their views on the following:

1st Reading - ORD08-06-179. An ordinance to amend and completely update Chapter 148 of the Town Code, the Subdivision and Land Development Ordinance, which governs the development of land and subdivision of land in the Town of Front Royal, as mandated by the Commonwealth of Virginia under Virginia Code §15.2-2240, and as recommended by the Town of Front Royal Planning Commission.

Copies of this proposal may be examined during normal business hours in the office of the Town of Front Royal Department of Planning & Zoning, located at 102 E. Main Street,Town Administration Building, 1st Floor. Information may also be obtained at **http://www.frontroyalva.com/draft-ordinances.html,** or by phone at 540-635-4236.

MAYOR AND TOWN COUNCIL
TOWN OF FRONT ROYAL, VIRGINIA

262757

---

20 Help Wanted

Field Inspectors Needed
Carlson Field Services Inc. needs honest and reliable field inspectors in Warren, Shenandoah and Page counties. For details send contact information and work history to
roger.carlson@
carlsonfieldservices.com

Full-Time Experienced
Mechanic

For extremely busy shop. Offering competitive pay, paid holidays and retirement benefits.
Work Hours: M-F, 8-5
Apply at:
Luray Import Service
3 Painter St., Luray
540-743-1555

Full Time Garage Door Installer and Service

Shenandoah County area.
Experience necessary.
Must have valid drivers license and good driving record.

540-933-6622

---

20 Help Wanted

1st Day!

JOB FAIR for Warehouse Freight Handlers
Tues. Feb. 17
9 a.m. - 1p.m.
Holiday Inn Express Winchester
142 Foxridge Ln., Winchester
Capstone Logistics is hiring for several shifts in Winchester, VA.
Prod. pay average $11/hour-$12/hour, benefits and paid training.
PLEASE pre-apply at www.capstone.jobs
Search "REQUISITION" #4555 or call 770-724-0577 for more information. Be prepared to pass background/ drug screening.

MILLING SUPERINTENDENT
capable of running multiple crews/scheduling/etc
MILLING FOREMAN/OPERATOR
CDL A Required
MILLING GROUNDMAN
(experienced)
Health and dental benefits available
540-465-1764
540-974-0050

Northern Virginia Drilling
is in search of Honest, Hardworking, Dependable people that have a good attitude and are willing to learn our trade.
Please call
703-361-6859

Now accepting applications for
Excavator and Loader Operators.
Minimum 5 years experience with water and sewer main lines on a pipe crew. Must show up every day and be ready to work.
SERIOUS inquiries only!
For application call
540-778-1887. *EOE*

Now Hiring - All Shifts
Shift Managers and Drivers
Woodstock Pizza Hut
Please Inquire Within
325 W. Reservoir Road

Oasis Salon & Spa is looking for established cosmetologist and massage therapist to join their team. Booth/room renters are encouraged to apply. Plenty of space, parking and handi-capped accessible. All calls will be kept confidential. Please call Denise at 540-481-0084.

Shenandoah County is currently hiring for the following position:

Building Codes Inspector

For a complete job description and an application please visit
http://shenandoahcountyva.us/administration/employment
or contact
County Administration
at 540-459-6165

Shenandoah County is an Equal Opportunity Employer

Shop Foreman

Responsibilities to include but not limited to: Preventive, mechanical and electrical repair to tractors, trucks and trailers; Coach/ Mentor/ Develop other assigned mechanics; Assist in assuring a clean and safe working environment;
Other duties and tasks as required. Our company offers excellent wages and benefits.
Qualifications:
Minimum 7 years fleet maintenance management experience preferred; High school diploma or equivalent plus an Associates or Tech School Degree Strong Caterpillar engine and Eaton transmission experience preferred. Valid CDL-A license required.
Please send resume along with salary requirements to:

shop_foreman@aol.com
Only qualified candidates need apply.

Skilled Laborers, Concrete Form Carpenters, and Concrete Finishers

General contractor seeking experienced employees in Wastewater Treatment Plant Construction for a 2 year project in Front Royal, VA. Please contact Jennifer at 937-274-5318. Drug screen required and General Contractor is An Equal Opportunity Employer.

The Daily's Policies

The Northern Virginia Daily will not be responsible for errors concerning your in-column classified word ad after the first insertion date. If you find an error on the first day of the run, please call (540) 465-5137 and the correction will be made and you will be given a free day additional. Corrections can also be made after the first insertion, but no additional days will be given. If an existing ad needs to have words added, the ad will be stopped and a new one started. Words may be deleted from an existing ad, but the price of the ad will remain the same. No refunds will be given for any cancelled in-line ads.

All charges on billable accounts are due immediately after invoice date. All payments are applied at the discretion of the Northern Virginia Daily.

The Northern Virginia Daily does not guarantee placement of in-column classified ads. Ads will appear under the classification or header most appropriate. Every attempt is made to place them in alphabetical order, however, there is no guarantee.

Equal Opportunity Employment All employment advertising in this newspaper is subject to federal and state antidiscrimination laws. Title VII of the Civil Rights Act, the Age Discrimination Act in the Employment Act, the Rehabilitation Act and the Americans with Disabilities Act — all prohibit employment advertisements that express a preference on the basis of: race, color, sex, national origin, religion, age or disability. The Virginia Human Rights Act prohibits employment practices that discriminate on the basis of race, color, religion, national origin, sex, pregnancy, childbirth or related medical conditions, age, marital status or disability. The newspaper will not knowingly accept any advertising for employment, which is a violation of the law. Our readers are hereby informed that all employment advertised in this newspaper is available on an equal opportunity basis. To complain of discrimination, contact the U.S. Equal Opportunity Employment Commission (EEOC), 1801 L Street NW, Washington D.C., 20507 or call the EEOC field office toll free 800-669-4000. For individuals with hearing impairments, EEOC's toll free TTD number is 800-800-3302.

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20 Help Wanted

English Construction Company is looking to hire ***skilled and unskilled*** *Laborers, Carpenters, Carpenter Helpers, Operators, Pipelayers and Pipefitters* in Strasburg. Apply in person between 7:30 a.m. and 5 p.m. at

495-A Miller Dr., Strasburg, VA 22657
EOE/M/F/D/V

Experienced **Construction Laborer** needed for the Winchester-Harrisonburg area. Valid Drivers License necessary. Interested applicants please respond to: newconstruction

applicants@yahoo.com
540-771-0844

20 Help Wanted

Front Desk Staff
Busy physical therapy office seeking pleasant, motivated individual for front desk coverage must have an approachable and helpful attitude, dependability and a professional manner, computer skills and multi-tasking abilities. Fitness experience a plus. Duties include: greeting clients, answering phones, scheduling appointments, filing, typing and data entry. Pay starts at $9-11/ hour. Please submit cover letter, resume and references to:

Human Resources
P.O. Box 803
Woodstock, VA 22664

20 Help Wanted

Front Royal Company Hiring
Need Reliable employees with driver's license and able to lift 50 lbs. $15 per hour plus benefits. Call 540-336-0055 or 540-931-1178

Front Royal Moose Lodge is looking for a part time Cook. Experience preferred, ***must be able to work weekends.*** Apply in person: Front Royal Moose Lodge 1340 John Marshall Hwy.

Front Royal Moose Lodge is looking for part time Wait Staff. Experience preferred, ***must be able to work weekends.*** Apply in person: Front Royal Moose Lodge 1340 John Marshall Hwy.

Place your classified by phone --- Call 1-800-296-5137

or by e-mail:

classifieds@nvdaily.com

AMERICAN EXPRESS VISA MasterCard DISCOVER

Are you looking for a rewarding job in a pleasant atmosphere with beautiful surroundings??

If so, please join us to discuss employment opportunities at our

JOB FAIR

Thursday, August 27
2:00pm – 6:00pm

Winchester's Premier Continuing Care Retirement Community -
Shenandoah Valley Westminster-Canterbury
300 Westminster-Canterbury Drive
Winchester, VA 22603
(Rt. 522 North)
An Equal Opportunity Employer

We currently have opportunities in Health Care, Dining Services, Salon, Security and Housekeeping. Please visit our website at svwc.org for specific opportunities.

While here, you can complete an application, meet our hiring managers, tour our facility and enjoy some refreshments!

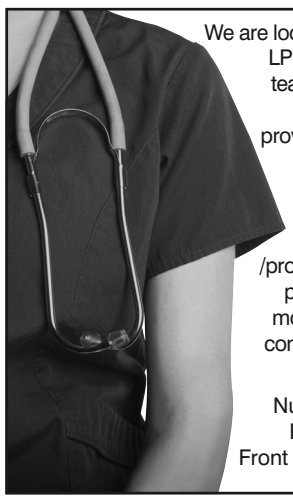
Please plan to join us.

If you have any questions or need directions, please contact the Human Resources Department at (540) 535-1514.

We look forward to seeing you!

WestminsterCanterbury
SHENANDOAH VALLEY
Connected for Life

257968



We are looking for a full-time LPN or RN to join our team of highly skilled staff of health care providers at our family practice facility. Excellent benefit package includes health, pension /profit, generous leave package and much more. For immediate consideration forward resume to:

Nurse Manager
PO Box 347
Front Royal, VA 22630

250786

U.S. General Services Administration Announces the Availability of the Draft Supplemental Environmental Impact Statement for the Federal Bureau of Investigation Central Records Complex

The U.S. General Services Administration (GSA) announces the availability of the Draft Supplemental Environmental Impact Statement (SEIS) for the site acquisition, development, and operation of the Federal Bureau of Investigation Central Records Complex located in Frederick County, Virginia.

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258310

CARROLL CONSTRUCTION

Carroll Construction Co. has an immediate opening for a Class B Dump Truck Driver.

Please apply in person at

283 Ebert Rd.
Winchester, VA 22603
(540) 667-1596

257391

SHENANDOAH UNIVERSITY

Shenandoah University is seeking applicants for the following positions at their Leesburg campus:

FULL-TIME ADMINISTRATIVE ASSISTANT

PART-TIME ADMINISTRATIVE ASSISTANT

For more information and to apply, visit the Career site at
www.su.edu/careers

Shenandoah University does not discriminate on the basis of sex, race, color, religion, national or ethnic origin, age, physical or mental disability or sexual orientation.

258039

Good things come from Sysco™

Sysco Northeast Redistribution Center is an affiliate of Sysco Corporation. Sysco is the largest foodservice distributor in North America!

Join a Dynamic Group of Associates Already Enjoying a Competitive Compensation and Benefit Package!

Sysco Northeast Redistribution Center operates a state-of-the-art redistribution warehouse in Front Royal, VA.

We currently have the following full-time ***night*** shift career opportunities:

10-HOUR SHIFT, 4-DAY WORK WEEK

Sunday - Thursday, 8:00 p.m. - 6:00 a.m.
4-day weekend every 5th week!
(work schedule may fluctuate based on business needs)

Candidate must be at least 18 years of age and have the ability to pass a post-offer functional capacity test. High school diploma or general education degree (GED) preferred; previous warehouse experience and/or training preferred. Required to work in freezer, cooler and dry warehouse areas. Performs all duties safely, accurately, and meets set productivity goals. Material Handling Equipment experience preferred.

ENTRY LEVEL WAREHOUSE ASSOCIATE

(Unloader)

Unloads inbound cases of foodservice product to specified configurations for storage and shipment as directed under general supervision. This position will include manual movement of cases, as well as using Material Handling Equipment. Must be willing to cross train in other warehouse positions as required.

$1,000 Sign on Bonus*
WAREHOUSE ASSOCIATE

For order selection process, selects products from inventory and assembles, packs and transports to staging areas for shipment. Required to maintain the appropriate productivity standards. Forklift experience preferred.

***Must meet established guidelines to receive sign on bonus**

The Sysco Northeast Redistribution Center offers an outstanding compensation and benefits package. For more detailed information about these positions, or to apply, you may visit our web site at www.sysco.com/baughne and submit an on-line application. For your convenience, computer terminals are available Monday-Friday from 9 a.m. until 4 p.m. at our Front Royal facility for completion of on-line applications.

258036

Sysco's Mission: To market and deliver great products to our customers with exceptional service. Sysco Northeast Redistribution Center is an EO employer - M/F/Veteran/Disability

---

Interbake Foods

RESOURCE LEADER

(Production Shift Supervisor)

Interbake is a growth-oriented manufacturer of ice cream sandwich wafers and crackers who has been in business for over 100 years. If you are looking for a great place to work in a team-oriented environment where employees participate in decision-making and continuous improvement, then Interbake is the ideal place for you.

Responsibilities:

- Acts as a resource facilitator to high performance work teams
- Coaches team members regarding performance and process issues
- Monitors and improves production process through SPC system
- Ensures proper GMP (Good Manufacturing Practices)
- Ensures teams use safe work practices and that safe working conditions exist
- Ensures that all products are running in control and meeting goals
- Ensures the lines meet sanitation standards
- Communicates process problems to employees, management and following shift
- Facilitates team problem solving and decision making
- Delivers team training, monitors effectiveness and identifies gaps

Requirements:

- BA, BS or AS degree preferred
- 2+ years supervisory experience in a manufacturing environment required
- Strong team building skills
- Experience implementing safety programs
- Demonstrated problem solving and decision making skills
- Experience with BPCS or an ERP system preferred
- Proficiency in Microsoft Word, Excel, PowerPoint and Lotus Notes required
- Training experience desired
- GMP, HACCP, and SPC background preferred

Interbake Foods Offers:
Medical, dental, vision, prescription drug coverage, Paid vacation, Employee, spouse & dependent child life insurance, 11 Paid holidays, 401k with company match and company contribution, Short & long term disability insurance, Medical & child care flexible spending accounts, Tuition reimbursement

Submit resume online at **www.interbake.com** under Career Opportunities; email to jslaughter@interbake.com or fax to HR at 540-631-8117. Drug and background screenings required for employment.

200 Baker Plaza (off Baugh Drive), Front Royal, VA 22630
M/F Disabled and Vet EEO/AA Employer

257967

GEORGE'S®

George's has the following opportunity available at our Edinburg Facility;

Bus Driver

3rd shift Bus Driver needed. Must have CDL Class B license with Passenger Endorsement. Must work flexible shifts and weekends.

George's Chicken, LLC,
19992 Senedo Road,
Edinburg, VA 22824

or fax to 540/984-6871

George's is a smoke free/drug free workplace. EOE.

258038

H.N. Funkhouser & Co.
Quality Petroleum Products Since 1932

DELIVERY DRIVER

H. N. Funkhouser & Co. is seeking a motivated, detail oriented person to fill the position of a delivery driver. Please provide a copy of a good, clean driving record. Class B CDL with HAZMAT and Tank Endorsements are a plus.

Applicants can email or apply in person to Rachel Fenton at:
206 South Commerce Avenue
Front Royal, VA 22630
Phone: 540-636-8000
Email: rfenton@hnfunkhouser.com

257398e

H.N. Funkhouser & Co. is an Equal Opportunity Employer

The Daily's Policies

The Northern Virginia Daily will not be responsible for errors concerning your in-column classified word ad after the first insertion date. If you find an error on the first day of the run, please call (540) 465-5137 and the correction will be made and you will be given a free day additional. Corrections can also be made after the first insertion, but no additional days will be given. If an existing ad needs to have words added, the ad will be stopped and a new one started. Words may be deleted from an existing ad, but the price of the ad will remain the same. No refunds will be given for any cancelled in-line ads.

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Notices 101-153

Happy Ads 101

SWEEP up some extra cash, sell that old vacuum cleaner with a fast action Classified Ad.
540-665-4949

Black Sheep Harley-Davidson for Christ, Christian Motorcycle ministry now forming local area. If interested please respond to **lonniehitch@aol.com**

Special Notices 107

IT'S ILLEGAL FOR companies doing business by phone to promise you a loan and ask you to pay for it before they deliver.(DO NOT SEND MONEY) A public service message from the Federal Trade Commission and The Winchester Star.

Yard Sales 108

111 CARTER PLACE
Fri. & Sat.
(8/21-22) 8AM - 2PM
Everything must go! Furniture, electronics, collectibles, household items, lawnmowers, a little bit of everything! Free items in driveway on Sunday.
NO EARLY BIRDS, PLEASE

5 Generation Yard Sale
326 Cross Junction Road
Cross Junction VA
August, 21, 22, 23
Friday, Saturday, Sunday
Vintage items, Clothes (all sizes) Furniture, Books, Housewares, Sporting Goods, Toys, Holiday Decorations

BABY BABY BABY!
Car seat, swing, bathtub, toys & clothes for boy 0-18 mos. Adult clothes, musical organ, & other items as well.
2159 SENSENY RD.
WINCHESTER
FRIDAY & SATURDAY 8AM

BABY CLOTHES
Boy/Girl size newborn to 18 months available. Additional items include misc household decor/furniture.
August 22 and 23
8 - ?
311 Tanager Dr.
Stephens City

Back to School
Round Hill Ruritan
164 Poorhouse Rd.
(white building on corner)
Saturday, August 22
8am - 2pm
Sales Inside & Outside
Rain or Shine
Inside spaces - $10
(with table and chairs)
Outside spaces - $5
(you provide table & chairs)
Call Cyndi@540-514-5746
to reserve your space.

BACK YARD SALE
AUGUST 22nd
SATURDAY, 8-3
228 Muse Drive off Baker Lane
Lots of Miscellaneous, too much to list.

BIG YARD SALE
double stroller, toddler bed, children's toys children's and adult clothing misc. housewares
Saturday, August 22nd
7AM-1PM
111 Essex Circle
Stephens City
Rain Date: September 12th same time.

COMMUNITY YARD SALE
AUG 22
Old Dominion Greens HOA, Stephens City.
Saturday, 8/22, 8 AM - 4 PM.
Located off Warrior Drive & Bridgewater Drive.
Rain date 8/23.

DOWNTOWN BERRYVILLE YARD SALES
Saturday
September 12
Rain Date
September 19
8 am until 3 pm
Over 100 vendors
For Setup location register before September 10
Call 540-313-7467 or email info@bvmerchants.com

Wash N Wag
Self Serve
Dog Wash & Grooming
Baths start at $15
Walk-ins Welcome
Unique Retail Products
Grooming by Appointment Only
220 Millwood Ave.
Winchester, VA 22601
540-773-3025
Like us on fb for monthly specials & events

$$ SELLING & BUYING $$
AMERICAN & SOME FOREIGN COINS
Gold & Silver Coins
Pre-1964 Dimes, Quarters & Half dollars
ALSO Buying: Euros, Pounds, Canadian Currency
Shenandoah Numismatics Coins & Currency
213 Millwood Ave.
Winchester
Hours: Mon - Sat 10am - 6pm
Call or stop by anytime
$$ 540-545-8933 $$

Yard Sales 108

FRIDAY & SATURDAY BACK YARD SALE
8:30AM-?
125 DOGWOOD RD.
Girls Bike, Microwave, Baker's Rack, Christmas Items, Womens clothes, Lots of Misc.

HUGE GARAGE SALE IN THE RAVENS
Friday, Aug. 2st
Saturday, Aug. 22nd
8am-5pm
Low prices. Furniture, lamps, household items, clothes, washer and dryer, and much, much more.
135 Darby Drive, Winchester
In the Ravens

HUGE YARD SALE
WINCHESTER STAR PARKING LOT
SATURDAY, AUGUST 22ND
8AM-2PM
Benefit for Winchester Senior Center Walk-A-Thon
Under the Umbrella of Shenandoah Area Agency on Aging

Yard Sales 108

MOVING SALE - SATURDAY ONLY
8:00AM - ?
Big 3pc. Entertainment Center, Corner TV/entertainment cabinet, sofa table, twin bed, chair & ottoman, kitchen table & 6 chairs, nightstand, collectibles, household items, misc. items.
380 Rest Church Rd.
Winchester
(Exit 323 off I-81)
540-877-2624

MOVING SALE
FRIDAY & SATURDAY
8AM-4PM
1092 SALEM CHURCH RD.
STEPHENS CITY
Twin beds, desks, vehicle paint equipment, Home Int., electric Wheelchair, household goods, tools, Thomasville hutch.

MOVING-YARD SALE
FRI & SAT
8-1
100 Fairfield Dr.
OAKDALE CROSSING!
Collectibles, Furniture, Yard tools, Household items

SHOP the Classifieds for that much-needed item!

In Memoriam 103

Don Mort
1931 - 2014

Happy 84th Birthday
The first one in Heaven. You loved the Lord, was a good husband, father and grandfather.
We miss you!
Love Jane, Vicki, Brett and all the Family.
P.S. I Love You

In Memory of
James Todd Gibson
August 23, 1966 – March 9, 1998
You are my brother, you are my friend. You taught me a lot. You've been there and back through thick and thin. You've gone away to a place, seen no more, but I keep memories of you in my heart knowing I'll see you in the end. I love you, Todd.
~Tim Gibson
Love, Tim, Patrick and Jackie

In Memory of Christopher Persinger

who passed away 5/19/07
August 23, 1970
Happy Birthday, Son,
In your new home up above;
We miss you so very much,
And send you all our love.
We stopped an angel as she passed along the way,
And gave her a tiny package for you on this sad day.
It was wrapped with our love; sealed with our tears;
Tied with a chain of memories to last us through the years.
Open it, dear son, you'll find us there,
Still loving you, missing you, never ceasing to care.
Mother, Barbara Anderson
Sister, Nieces, Nephews & Family

Yard Sales 108

MULTI-FAMILY YARD SALE
Friday, Aug 21
Saturday, Aug 22
7am - 1pm
220 Brandylion Drive
Stephens City
(Wakeland Manor)

Don't Miss This One!
MULTI-FAMILY YARD SALE
127 Morgan Mill Rd
Saturday 8/22 8-??
Girl clothes Sizes NB-5T. Boy clothes Sizes NB-16. Thirty One Bags, Longaberger Baskets, Harley Davidson attire, Riding leathers, Helmets, House Decor, Dishes, Antiques, Women's clothes, Wheels and Tires, Hunting and Fishing decor, Speakers, Movies, Toys, Baby gear, and MUCH MUCH MORE!
EVERYTHING IS PRICED TO SELL!!!

MULTI-GENERATIONAL YARD SALE
930 Armistead Street
Morlyn Hills
Sat., August 22, 2015
8-?
Furniture, Upscale Clothes –Womens, Mens, Children, Designer - purses, shoes, & jewelry, Kitchen wares- set of dishes, pots & pans, Holiday d'cor, Wedding d'cor- from a recent wedding, Computer accessories, Vintage pictures, Scuba gear, Chainsaw, Telescope, lamps.

YARD SALE
102 Greenwood Avenue
Saturday 8/22
Sunday 8/23
7AM-2PM
Thirty-One, Baby & Kids, Boy & Girl Clothes, Toys, Household, Women's Pageant/Prom Dresses.

YARD SALE
DOWNSIZING
FRIDAY & SATURDAY
8AM-?
1223 BRUCETOWN RD
Across from Clearbrook Park
LOTS OF STUFF!

YARD SALE
Friday & Saturday
8am to 6pm
Multiple items, Books, Bedroom set, Household items, Glasswares and many more items.
493 Retreat Road
approximately 6 miles east of Berryville.

YARD SALE
Friday & Saturday
8-?
1237 Baker Ln.
Lots of lines & curtains, pictures & mirrors, nice clothes, gun cabinet, large T.V. Stand, Longaberger, pie plates, dishes & silverware, milk glass picture & glasses, lots of misc.

YARD SALE
Friday, Aug 21
Saturday, Aug 22
8 to 2
Anything & Everything
Furniture
Lots of nice Baby Clothes
Carpet Remnants
(Below Wholesale prices)
Ross' Carpet & Floors
102 W. Hart St
Winchester, VA.

YARD SALE
SATURDAY
8AM-1PM
436 IMPERIAL ST
(Off Papermill Rd.)
20" Bike, 2 Bed frames, Puzzles, Books, Toys, Dishes, Household items, Clothes (baby to men's XL)

SHOP the Classifieds for that much-needed item!

Business Services 110

The Family Trust Numismatics LLC
18 North Church Street
Berryville, VA 22611
540-955-8067
familytrustnumis@yahoo.com
Buying Coins, Gold, Silver, Platinum, Paper Money.
Appraisal Services Available, Paying the highest for your coin collection, silver, gold, jewelry.
Come see us in Berryville.
Hours: Monday-Friday 9:30-5:30 Saturday 10-2

AJ's Grading & Landshaping
• Retaining Walls • Patios • Culverts • Repairing Foundations • Land Clearing • Underground Utilities • Driveway Repairs • Water Problems • Building Pads • Tree & Shrub Removal • Yard Services • Final Grade
Licensed & Insured
Free Estimates
Proudly Serving the Community Since 2002
Call 540-931-3784

Service Directory 110-146

Business Services 110

ACE HAULING
Junk, Appliances, Brush & Debris Removal, Etc.
Foreclosure & Rental Clean-ups
Free Estimates
Senior Discounts
540-869-3466
540-303-3614

A Craftsman for Hire
By the hour, day or week.
All phases of Carpentry Interior/Exterior Painting, Drywall & Plaster Repair, Entry/Storm Door Installation Replacement Windows w/Custom Metal Wrap, Siding & Gutter Repair, Pressure Wash, Clean Gutters, Stain Decks/Fences, Install Blinds, Curtains, & Pictures
All work is skilled, knowledgeable & NEAT.
30 years of remodeling experience.
540-532-5856

A+ HANDYMAN
Reliable Source for Quality Home and Commercial Repairs
30/yrs. Experience
in painting, drywall, carpentry, windows, doors, decks, kitchens, bathrooms, basements, flooring, pressure washing, gutter cleaning, plumbing, electric . Many other small repairs.
Excellent References.
Licensed/Insured/Bonded
Jim Ogletree
540-550-2856
aplushandymanva.com
On Time Every Time!

A.B.S. LANDSCAPING & TREE CARE
"We Will Go Out On A Limb For You!"
**Fall Cleanup*
**Storm Damage*
**Tree Removal*
**Dead Wooding*
**Trimming/Pruning*
**Mulching*
**Yard Clean-up*
**Leaf Removal*
**Hedge Trimming*
**Mowing, Residential*
Free estimates
Licensed/Insured
540-664-8168

VENDORS Want more vendees? Tell your story in a Classified ad. 540-665-4949 or 540-667-3200 or submit your ad using our website: *www.winchesterstar.com*

Business Services 110

AFFORABLE TREE SERVICE,
No job too large or too small we do it all!
•Trimming •Topping
•Take Down
•Lawn Service
•Mulching
•Deep Root Feeding
•Shrubbery Trimming
•Driveway Repairs
& Much Much More.
Call today for your free estimates & a 10% discount on new customers.
540-532-3952
Licensed & Insured,
In Business for 48 Years.
GOD BLESS

Top of the Line
Business Services, LLC
Bookkeeping & Payroll Services for Small Businesses & Individuals
Reasonable Rates
Free Quotes
www.topoftheline business.com
tina@topoftheline business.com
540-667-4322

BRIONES AUTO REPAIR
29B W. Oates Ave.
Winchester
Call TODAY for Top of the Line Diagnostics!!!
Domestics, Diesel Trucks & Imports including: Audi, BMW, VW, Mercedes Benz, Land Rover and MORE
540-722-0078-Shop
540-327-5275-Victor
540-514-7631-Beto
Towing Service

DECK DOCTOR
Deck cleaning and preserving.
Total House Washing
Licensed and Insured
Operating for 20 years.
540-535-7400

HEAVENS BEST CARPET CLEANING
$99
3-Room Special !
Dry in 1-Hour
540-974-2663

HYLTON LANDSCAPING
Bobcat & Backhoe Use
Leaf Cleanup & Removal
Fencing
Mowing Contracts
Patios & Walks
Retaining Walls
Clearing
Lawn Maintenance
Mulching
Trimming Trees & Bushes
Draining Ditches
Licensed & Insured
Free Estimates
540-539-4424

Special Notices 107

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E-7

HOROSCOPE

Saturday, August 22, 2015

By HOLIDAY MATHIS

The curtain closes, the applause dies and immediately the union workers start clearing the set for the next show. Tomorrow the sun trades Leo's glamour for Virgo's operational genius. We're headed into one of the most productive times of the year. What appetites are burbling up in you? Take this night to dream about it.

ARIES (March 21-April 19). Those who lack a supportive relationship with their own minds will seek constant external validation. Is it your job to provide this? If you take it on, just know that it will be an exhausting job.

TAURUS (April 20-May 20). What about when the conversation flattens like a rug? Instead of marching across it to the door, you'll try to zap it with your magic and offer the others a carpet ride.

GEMINI (May 21-June 21). There are some things you have to do just to prove to yourself that you can. They're not posted on your social media. They're between you and you and whoever is close enough to you to know.

CANCER (June 22-July 22). You'll be more fun at the party if the party in question is not yours. Sure, you're the ideal host. That's why you should give it a break and go relax in someone else's care. Bonus: You'll get inspired.

LEO (July 23-Aug. 22). You hate to see anyone bored, even the dog. With the sun just moments away from leaving your sign, seize this wonderful opportunity to entertain anyone and everyone. The spotlight loves you.

VIRGO (Aug. 23-Sept. 22). Flaws can be strengths, too, so don't be too quick to discount them as useless. Often flaws are the very things you should build on to create success. Embrace your nature.

LIBRA (Sept. 23-Oct. 23). The omens suggest you hide your displeasure and withhold your opinion for now. Also, vent the steam in private. You'll gain power through emotional control and strategy.

SCORPIO (Oct. 24-Nov. 21). Being in a very selective mood, you are unlikely to fall for just any interesting offer that comes along. You have rules that qualify your rules. All of this selectiveness can't play well every day, but today it works for you.

SAGITTARIUS (Nov. 22-Dec. 21). You make your way through this day like you make your way through a concert crowd — not by pushing and pulling, but by courteously moving through open spaces.

CAPRICORN (Dec. 22-Jan. 19). The road to victory is a labyrinth. You're good at mazes and enjoy puzzles of all kinds, really. Think of this afternoon's social discourse as part of the game — it is.

AQUARIUS (Jan. 20-Feb. 18). You still need a better platform from which to shine. Dream and scheme. What would your fantasy project be? It's a perfect night for brainstorming with friends.

PISCES (Feb. 19-March 20). Extenuating circumstances of late have caused you to slip on a few matters that are important to your health and well-being. It's now time to get back to taking good care of yourself.

TODAY'S BIRTHDAY (Aug. 22). The beauty you bring to your home will transcend it. A secret aspiration for your personal life will come to be in September. You'll adventure with a special someone in October. Loyalty matters to you. When friends go through changes in 2016, you'll be right alongside them. Bonus money will come in May. Aries and Gemini people adore you. Your lucky numbers are: 10, 33, 28, 36 and 41

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HOROSCOPE

Sunday, August 23, 2015

By HOLIDAY MATHIS

The sun stretches its rays into Virgo, the sign of growing up. The Virgo sun is like a gas card handed from doting parents to children in college. It's assistance. It's fuel. It will help out. It can't be used for much other than the intended purpose, and that's the beauty of it. The Virgo sun keeps us honest. It wants to support, but it doesn't want to enable.

ARIES (March 21-April 19). Reaching your potential is a function of challenging yourself constantly. That doesn't mean you never take a break, though. All living things need one. Avoid burnout by honoring that part of the cycle.

TAURUS (April 20-May 20). The thinking, plotting and planning can only go on for a short while more before you'll miss the opportunity. Act by the end of the day. Make the first move, even if it's just a phone call. Action is the success key.

GEMINI (May 21-June 21). You're hatching a plan. Have fun with this. Draw up several versions. This is the stage at which you can go a little crazy. The edits and practicalities can wait until tomorrow.

CANCER (June 22-July 22). Talk about what you know — it will bring luck. But don't claim that this is the only truth. In the days to come, your certainty will be blasted by the cold winds of doubt and then warmed by new realizations.

LEO (July 23-Aug. 22). Your mood: risk-averse. This has nothing to do with being afraid and everything to do with being smart. If you can get your prize while incurring the least amount of risk possible, it will help all involved.

VIRGO (Aug. 23-Sept. 22). You may develop a crush, become a fan or find yourself generally intrigued. This fascination stems from a desire. The other person has achieved something you'd like to achieve, and you're ready to learn.

LIBRA (Sept. 23-Oct. 23). You can grow on your own, but why would you want to when you can get there so much faster by spending time with the people who help and inspire you to learn, do and be more?

SCORPIO (Oct. 24-Nov. 21). If you ask everyone around you for help today, it will only confuse your effort. Trust yourself. You're smart, you're concise, and you'll find the fastest route to getting what you need.

SAGITTARIUS (Nov. 22-Dec. 21). Concentration is a tricky matter today. Too much focus on one area will lead to burnout. You can stop yourself from getting bored and tired by bouncing between four different projects.

CAPRICORN (Dec. 22-Jan. 19). Beliefs can free or enclose. Often those living inside an enclosing belief do not even know they are held captive until someone leads them out into the open air. You'll be that someone.

AQUARIUS (Jan. 20-Feb. 18). You'll notice a quality you dislike in another person. You don't share this quality exactly, and yet the fact that it triggers such a response in you is a signal that there's something you'd like to change about yourself.

PISCES (Feb. 19-March 20). Don't listen to the armchair critics. It's easy to complain about and correct the world from the comfort of a climate-controlled living room. Everything is different where you are: in the heat of the action.

TODAY'S BIRTHDAY (Aug. 23). The invisible bonds that keep you connected to your inner circle are felt so vividly that you and yours will be compelled to move as one toward a common goal. Extra daily dollars now through the end of the year add up to a fabulous vacation. February brings the professional change you've been working toward. Pisces and Scorpio people adore you. Your lucky numbers are: 7, 19, 34, 30 and 17.

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8/22/2015

HINTS FROM HELOISE

The Ins and Outs of Fostering a Pet

BY HELOISE

Dear Heloise: I've FOSTERED DOGS AND CATS, and it's so rewarding! It's a commitment, but is worth it to save a deserving animal that otherwise might be euthanized.

Some animals need fostering for extra socialization and playtime, like litters of new puppies or kittens, or animals that have fear and anxiety issues. Normally, once an animal is in a home instead of the chaotic shelter, the fear will subside, and they are calmer.

Check with shelters or rescue groups for requirements. Mine wanted to ensure that I would care for the animal and attend adoption events. I agreed that it was all right to give my phone number and email to potential adopters. Usually the shelter pays for medical expenses.

It's hard to say goodbye to my fosters once they get adopted, but I'm happy they are going on to a great life, thanks in part to fostering!

— Any Pet Lover, Anywhere

Woof, meow, chirp, squeak! Fostering is special, because it takes a VERY special person to "let go" when the time is right. Big Heloise Hug to all who foster! — Heloise

PET PAL

Dear Readers: Julie in Corpus Christi, Texas, shared a picture of her 2-year-old Chihuahua, Prico. "Prico" is a mixture of "Princess" and "Coco," her two previous Chis. Prico just wandered into her yard one day, and it's been a love connection ever since! To see Prico, visit www.Heloise.com and click on "Pet of the Week." — Heloise

EXPIRED MAKEUP

Dear Heloise: I have a lot of makeup and need to eliminate some. How do I know when to toss old makeup?

— Frances M., Clovis, N.M.

Good question, and one that might surprise most folks. Once opened, the more moisture in makeup — think liquid foundation or eyeliner — the shorter the life. The closer it comes to the eye, more caution should be used about how long to keep the makeup. There is a higher probability of makeup contamination in the eye area than others. Of course, temperature (think hot Texas or Arizona) or humidity (Portland or along the coastline) plays a factor, too.

Generally, if stored in a cool, dark place, NOT a humid or bright bathroom, each has a little different life span. Pencils, powder blush and eye shadow last much longer than any liquid or even mascara.

Bottom line: Does it smell funny, look different, or is it gloppy or lumpy? Toss!

— Heloise

P.S.: Lipstick? Don't ask!

READ, SNIP, STORE

Dear Heloise: I keep a spare pair of glasses, some sandwich bags and scissors in the bedroom. I can read care directions on garments with the glasses; scissors cut tags and loose strings; and the bags hold a myriad of things.

— Karen in Greenville, Ohio

DESIGNER TISSUE BOX

Dear Heloise: I like to decorate my rooms with name-brand tissue boxes, but they are expensive. When they are nearly done, simply open one end and refill them with store-brand tissues! I close the end with double-stick tape. Ta-da!

— Peggy G., Hobe Sound, Fla.

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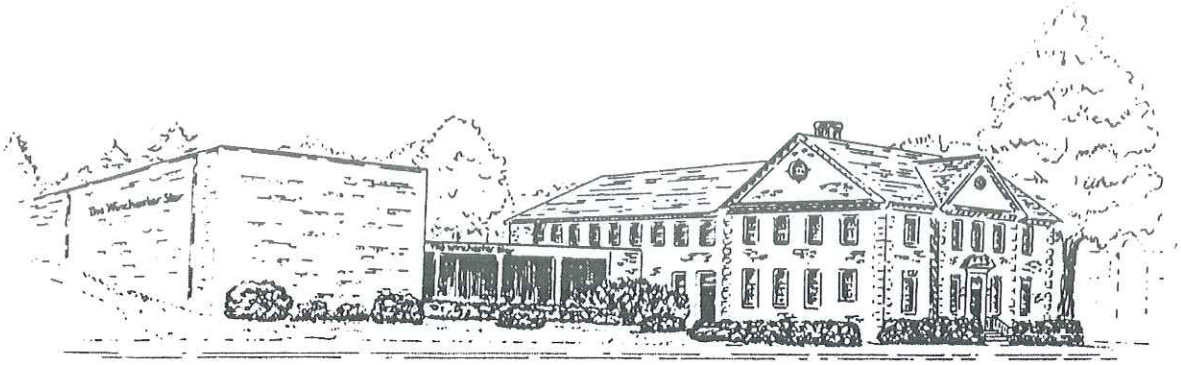

The Winchester Star

CERTIFICATE OF PUBLICATION

We certified that the attached advertisment in the cause of: _____

Environ Impact Statement

appeared in The Winchester Star, a newspaper published in the City of Winchester, Virginia, with a general circulation over 23,000 in the areas of the City in Winchester, and the counties of Frederick, Clarke and Warren, Virginia.

Feb. 14, 2015

Signature: Laura Hinkle

Title: Bookkeeping

Date: 2-14-15

****

STATE OF VIRGINIA
City of Winchester

Sworn and subscribed to before me 17th day of Feb 2015

Deborah M. Burke

Notary Public

DEBORAH M. BURKE
NOTARY PUBLIC
REG. #184135
MY COMMISSION EXPIRES 9/30/15
COMMONWEALTH OF VIRGINIA

U.S. General Services Administration Notice of Intent to Prepare a Supplemental Draft Environmental Impact Statement For the Federal Bureau of Investigation Central Records Complex

The U.S. General Services Administration (GSA) will prepare a Supplemental Environmental Impact Statement (SEIS) in accordance with the National Environmental Policy Act of 1969 (as implemented by the Council on Environmental Quality Regulations [40 Code of Federal Regulations (CFR) parts 1500-1508]) and the National Historic Preservation Act (36 CFR Part 800). The Supplemental Draft EIS will analyze and assess the environmental impacts of site acquisition and construction of the Federal Bureau of Investigation (FBI) Central Records Complex (CRC) in Frederick County, Virginia. The three site alternatives to be evaluated in the EIS are:

Alternative 1: Arcadia Route 50 Property, 2117 Millwood Pike, Winchester, VA

Alternative 2: Blackburn Limited Partnership, Apple Valley Road, Winchester, VA

Alternative 3: Whitehall Commerce Ctr, Route 669 & Route 11, Clear Brook, VA

A Final EIS and Record of Decision (ROD) were issued for the project in May 2007. The project was to be completed as a lease construction, and GSA continued with the procurement process. However, due to market conditions and the specialized nature of the facility, GSA was not able to successfully award a lease. In 2014, the project was federally funded with a reduced set of requirements. The SEIS is being prepared to address changes to the proposed action and will assess any new circumstances or information relevant to potential environmental impacts.

The public is invited to submit comments on the proposed project to GSA. A Notice of Intent will be published in the Federal Register on Tuesday February 17th which will start a 30 day public scoping period. The scoping period is an opportunity for the public to identify community and local issues that may be important to the development of the SEIS. The 30-day scoping period will begin on February 17 and end on March 18, 2015. Written comments concerning the project may be mailed to Courtenay Hoernemann, Project Environmental Planner, 20 N 8th Street, Philadelphia, PA 19107, or via e-mail to frederick.va.siteacquisition@gsa.gov. To ensure consideration in the Draft SEIS, comments must be submitted via email or postmarked by March 18, 2015. Future notices will be published to announce the availability of the Draft SEIS and additional opportunities for public input.

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Northern Virginia
The Daily

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CERTIFICATE OF PUBLICATION

We hereby certify that the attached publication was inserted in regular editions of the Northern Virginia Daily, published at Strasburg, Virginia, the first insertion being on the 14th day of February, 2015, and subsequent insertions on _____, 2015.

Given under my hand this 17th day of February, 2015.

Northern Virginia Daily

by Debbie C. Fadeley

Debbie C. Fadeley, Advertising Clerk

Total charge for advertising **$224.25**
plus $12 certificate of publication charge

County of Shenandoah
State of Virginia

Subscribed and sworn to before me this 17th day of February, 2015.

Kimberly S. Fauber

KIMBERLY S. FAUBER
NOTARY PUBLIC
REGISTRATION # 7526598
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES
JANUARY 31, 2016

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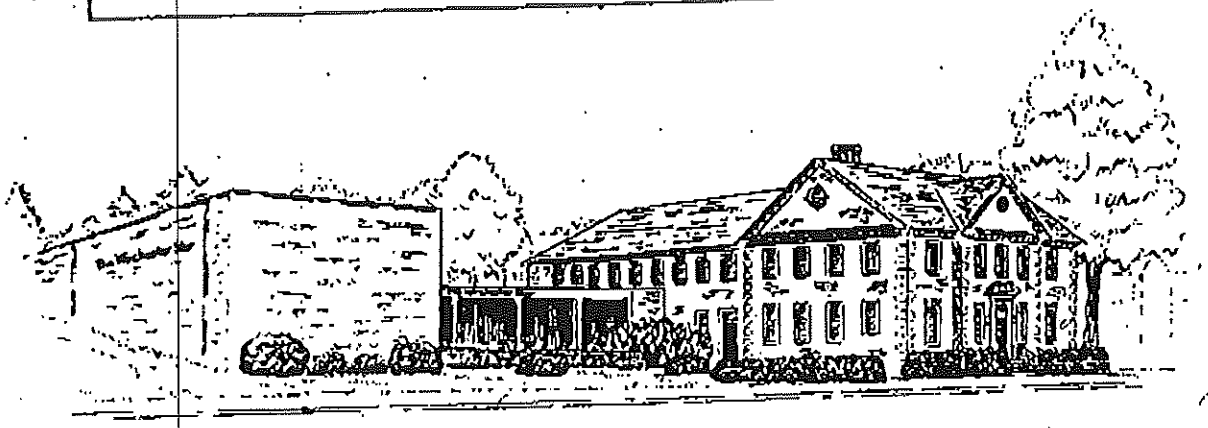
717-547-6357

YOUR MORNING NEWSPAPER



The Winchester Star

www.winchesterstar.com

FAX TRANSMISSION COVER PAGE

TO: Abigail Shoff @ Cardno

DATE: Fri. 2/20/15 TIME: 225pm

NUMBER OF PAGES SENT INCLUDING COVER PAGE: 2

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- Two regular and two alternate vacancies on the Board of Zoning Appeals
- One vacancy on the Winchester-Frederick County MPO Citizens Advisory Committee
- One vacancy on the Board of Architectural Review Board
- Two regular and two alternate vacancies on the Building Code Board of Appeals
- One regular and two alternate vacancies on the Fire Prevention Code Board of Appeals
- One vacancy on the Lord Fairfax Emergency Medical Services Council
- Two vacancies on the Towing and Recovery Advisory Board
- One vacancy on the Winchester Parking Authority
- One regular and one alternate vacancy on the Board of Equalization of Real Estate Assessments

Nominations are being accepted through February 27, 2015, and should be submitted to the City Manager at Rouss City Hall.

Kari J. Van Diest, CMC
Deputy Clerk of the Common Council

2-14-15

Special Notices 107

U.S. General Services Administration Notice of Intent to Prepare a Supplemental Draft Environmental Impact Statement For the Federal Bureau of Investigation Central Records Complex

The U.S. General Services Administration (GSA) will prepare a Supplemental Environmental Impact Statement (SEIS) in accordance with the National Environmental Policy Act of 1969 (as implemented by the Council on Environmental Quality Regulations [40 Code of Federal Regulations (CFR) parts 1500-1508]) and the National Historic Preservation Act (36 CFR Part 800). The Supplemental Draft EIS will analyze and assess the environmental impacts of site acquisition and construction of the Federal Bureau of Investigation (FBI) Central Records Complex (CRC) in Frederick County, Virginia. The three site alternatives to be evaluated in the EIS are:

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The public is invited to submit comments on the proposed project to GSA. A Notice of Intent will be published in the Federal Register on Tuesday February 17th which will start a 30 day public scoping period. The scoping period is an opportunity for the public to identify community and local issues that may be important to the development of the SEIS. The 30-day scoping period will begin on February 17 and end on March 18, 2015. Written comments concerning the project may be mailed to Courtenay Hoernemann, Project Environmental Planner, 20 N 8th Street, Philadelphia, PA 19107, or via e-mail to frederick.va.siteacquisition@gsa.gov. To ensure consideration in the Draft SEIS, comments must be submitted via email or postmarked by March 18, 2015. Future notices will be published to announce the availability of the Draft SEIS and additional opportunities for public input.

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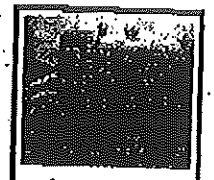

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2. *Wanda L. Rednour, individually, and as trustee of the Bypass Trust UWO John E. Rednour*; to retain voting shares of Perry County Bancorp, Inc., and thereby indirectly retain voting shares of Du Quoin State Bank, all of Du Quoin, Illinois.

Board of Governors of the Federal Reserve System, February 10, 2015.

Michael J. Lewandowski,

Associate Secretary of the Board.

[FR Doc. 2015–03083 Filed 2–13–15; 8:45 am]

BILLING CODE 6210–01–P

GENERAL SERVICES ADMINISTRATION

[Notice–2015–PM–01; Docket No. 2015–0002; Sequence No. 1]

Notice of Intent To Prepare a Supplemental Draft Environmental Impact Statement for the Federal Bureau of Investigation Central Records Complex in Winchester County, Virginia

AGENCY: U.S. General Services Administration (GSA).

ACTION: Notice.

SUMMARY: Pursuant to the National Environmental Policy Act (NEPA) of 1969, as implemented by the Council on Environmental Quality regulations, the GSA announces its intent to prepare a Supplement to the Final Environmental Impact Statement (EIS), from May 2007, analyzing the environmental impacts of site acquisition and development of the Federal Bureau of Investigation (FBI), Central Records Complex (CRC), in Winchester County, Virginia.

DATES: February 17, 2015.

ADDRESSES: Submit public comments by March 19, 2015. Written comments may be mailed to Courtenay Hoernemann, Project Environmental Planner, 20 N 8th Street, Philadelphia, PA 19107, or via email to *frederick.va.siteacquisition@gsa.gov.*

SUPPLEMENTARY INFORMATION:

Background: GSA began the site selection process for an approximately 100 acre site in Frederick County, Virginia in 2006 in order to procure via lease construction a central records storage facility for the FBI. The facility, referred to as the CRC, would consolidate FBI's records currently housed within the Washington DC area, in addition to field offices and information technology centers nationwide.

The project requirements were 947,000 rentable square feet consisting of three buildings; an office building, a records storage facility, and a data center. The center would accommodate 1,300 employees and 1,225 parking spaces. Three sites were considered for site selection. As part of the site selection process, GSA prepared an Environmental Impact Statement (EIS) and Record of Decision (ROD) completed in May 2007 for the selected alternative, the Sempeles Site. GSA continued with the procurement process, however was unable to successfully award a lease due to market conditions and the specialized nature of the facility.

FBI then determined that the records storage piece of the project was the number one priority, and it was decided that the best way to move forward with meeting this mission critical function was through a federal construction funding request. The revised project requirements are now for an overall square footage of 256,425 gross square feet, to include the records storage building, support area, visitor's screening facility, service center, and guard booth; parking would be at 427 spaces.

Current Efforts: In 2014, federal funding was approved, and a notice was put out on FedBizOps for expressions of interest for sites at a minimum of 40 acres and a maximum of 108 acres. As a result of GSA's and FBI's evaluations, including environmental reconnaissance and application of site criteria, a short list of three (3) sites has been reached, one of which was in the 2007 EIS, the Sempeles Site, now referred to as Whitehall Commerce Center.

The Supplemental Draft EIS will evaluate potential direct, indirect, and cumulative impacts from construction at the three site alternatives, as well as the no action alternative. Relevant and reasonable measures that could avoid or mitigate environmental effects will also be analyzed. Additionally, GSA will undertake any consultations required by applicable laws or regulations, including the National Historic Preservation Act.

The Supplemental Draft EIS is being prepared to address changes to the proposed action that are relevant to environmental concerns, as required under NEPA (40 CFR 1502.9), and the following three sites will serve as alternatives:

Alternative 1: Arcadia Route 50 Property, 2117 Millwood Pike, Winchester VA.

Alternative 2: Blackburn Limited Partnership, Apple Valley Road, Winchester, VA.

Alternative 3: Whitehall Commerce Center, Route 669 & Route 11, Clear Brook, VA.

The Supplemental Draft EIS will incorporate by reference and build upon the analyses presented in the 2007 Final EIS, and will document the Section 106 process under the National Historic Preservation Act of 1966, as amended (36 CFR part 800).

A public scoping period and public scoping meeting for the proposed action were held in January 2006. However, in light of the amount of time that has transpired, changes to project requirements, and new site alternatives, a public comment period will commence on the date of this notice and be open for 30 days to allow the public to submit comments concerning the project.

Future notices will be published to announce the availability of the Supplemental Draft EIS and additional opportunities for public input.

No decision will be made to implement any alternative until the NEPA process is completed and a Record of Decision is signed.

Dated: February 5, 2015.

Toby Tobin,

Acting Division Director, Facilities Management & Services Programs Division, U.S. GSA, Mid-Atlantic Region.

[FR Doc. 2015–02974 Filed 2–13–15; 8:45 am]

BILLING CODE 6820–89–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Office of the Secretary

[Document Identifier: HHS–OS–0990–new–30D]

Agency Information Collection Activities; Proposed Collection; Public Comment Request

AGENCY: Office of the Assistant Secretary for Health, Office of Adolescent Health, HHS.

ACTION: Notice.

SUMMARY: In compliance with section 3506(c)(2)(A) of the Paperwork Reduction Act of 1995, the Office of the Secretary (OS), Department of Health and Human Services, announces plans to submit a new Information Collection Request (ICR), described below, to the Office of Management and Budget (OMB). Prior to submitting that ICR to OMB, OS seeks comments from the public regarding the burden estimate, below, or any other aspect of the ICR.

DATES: Comments on the ICR must be received on or before March 19, 2015.

every year in order to retain their status as ''current'' members of the Safe Harbor Framework.

California Skate-Line sells skating-related lessons and clothing, hosts events, and sponsors live performances. According to the Commission's complaint, since at least January 2015, California Skate-Line set forth on its Web site, *http://caliskateline.com/index.php?col=3&page=privacy,* privacy policies and statements about its practices, including statements related to its participation in the U.S.-EU Safe Harbor Framework.

The Commission's complaint alleges that California Skate-Line falsely represented that it was a participant in the U.S.-EU Safe Harbor Framework when, in fact, California Skate-Line was never a participant in the U.S.-EU Safe Harbor Framework. Commerce has never included the company on its public Web site.

Part I of the proposed order prohibits California Skate-Line from making misrepresentations about its membership in any privacy or security program sponsored by the government or any other self-regulatory or standard-setting organization, including, but not limited to, the U.S.-EU Safe Harbor Framework and U.S.-Swiss Safe Harbor Framework.

Parts II through VI of the proposed order are reporting and compliance provisions. Part II requires California Skate-Line to retain documents relating to its compliance with the Order for a five-year period. Part III requires dissemination of the order now and in the future to persons with responsibilities relating to the subject matter of the order. Part IV ensures the notification to the FTC of changes in corporate status. Part V mandates that California Skate-Line submit an initial compliance report to the FTC, and make available to the FTC subsequent reports. Part VI is a provision ''sunsetting'' the order after twenty (20) years, with certain exceptions.

The purpose of this analysis is to facilitate public comment on the proposed order. It is not intended to constitute an official interpretation of the proposed complaint or order or to modify the order's terms in any way.

By direction of the Commission.

April J. Tabor,

Acting Secretary.

[FR Doc. 2015–20594 Filed 8–19–15; 8:45 am]

BILLING CODE 6750–01–P

GENERAL SERVICES ADMINISTRATION

[Notice–2015–PM–03; Docket No. 2015–0002; Sequence No. 18]

Notice of Public Meeting for the Supplemental Draft Environmental Impact Statement for the Federal Bureau of Investigation Central Records Complex in Winchester County, Virginia

AGENCY: General Services Administration (GSA).

ACTION: Meeting notice.

SUMMARY: Pursuant to the National Environmental Policy Act (NEPA) of 1969, as implemented by the Council on Environmental Quality regulations, the GSA has prepared and filed with the Environmental Protection Agency (EPA), a Supplement to the Final Environmental Impact Statement (EIS), from May 2007, analyzing the environmental impacts of site acquisition and development of the Federal Bureau of Investigation (FBI), Central Records Complex (CRC), in Winchester County, Virginia.

DATES: *Effective Date:* August 21, 2015. The public may submit comments on the Supplemental Draft EIS during a 45-day public review and comment period beginning Friday, August 21, 2015, and ending on Monday, October 5, 2015. Instructions for submitting comments may be found under the heading **SUPPLEMENTAL INFORMATION** in this notice.

Public Meeting: A public information meeting is scheduled for Thursday, September 10, 2015 between 6:00 p.m. and 8:00 p.m., Eastern Standard Time (EST), at the War Memorial Building Social Hall at Jim Barnett Park, located at 1001 East Cork Street, Winchester, VA 22601.

FOR FURTHER INFORMATION CONTACT: Ms. Courtenay Hoernemann, Project Environmental Planner, 20 N 8th Street, Philadelphia PA 19107 at 215–446–4710.

ADDRESSES: Send written comments by email to *frederick.va.siteacquisition@gsa.gov,* or U.S. Postal Service to Courtenay Hoernemann, Project Environmental Planner, 20 N 8th Street, Philadelphia, PA 19107.

SUPPLEMENTARY INFORMATION:

Background: The proposed FBI facility would consolidate the FBI's records currently housed within the Washington DC area, in addition to field offices and information technology centers nationwide. The project requirements are for an overall square footage of 256,425 gross square feet, and will include the records storage building, support area, visitor's screening facility, service center, and guard booth. Parking is proposed at 427 spaces. A Notice of Intent to prepare a Supplemental Draft EIS was published in the **Federal Register** at 80 FR 8311 on February 17, 2015. A public scoping comment period was held for 30 days following publication of the Notice of Intent.

The alternatives fully evaluated in the Supplemental Draft EIS include the No Action Alternative, the Arcadia Route 50 property, and Whitehall Commerce Center.

The Supplemental Draft EIS incorporates by reference and builds upon the analyses presented in the 2007 Final EIS, and documents the Section 106 process under the National Historic Preservation Act of 1966, as amended (36 CFR part 800). The Supplemental Draft EIS addresses changes to the proposed action relevant to environmental concerns and assesses any new circumstances or information relevant to potential environmental impacts.

The Supplemental Draft EIS has been distributed to various federal, state, and local agencies. The Supplemental Draft EIS is available for review on the project Web site *http://www.fbicrc-seis.com.* A printed copy of the Supplemental Draft EIS is available for viewing at the following libraries:

- Handley Library, 100 West Piccadilly Street, P.O. Box 58, Winchester, VA 22604
- Bowman Library, 871 Tasker Road, P.O. Box 1300, Stephens City, VA 22655
- Smith Library, Shenandoah University, 718 Wade Miller Drive, Winchester, VA 22601

Federal, state, and local agencies, and other interested parties, are invited and encouraged to be present or represented at the public meeting on Thursday, September 10, 2015. All formal comments will become part of the public record and substantive comments will be responded to in the Final Supplemental EIS.

Public Comments: Comments on the Supplemental Draft EIS can be submitted three ways: (1) Submit comments via the project email address: *frederick.va.siteacquisition@gsa.gov,* (2) provide written comments during the public meeting, or (3) mail a comment form or letter to: Ms. Courtenay Hoernemann, Project Environmental Planner, 20 N. 8th Street, Philadelphia, PA 19107. Written comments postmarked by October 5, 2015 will become part of the official public record.

Public Meeting: The format will be open house with informational posters

on display, and representatives from GSA and FBI will be available to explain the proposed project, answer questions, and receive comments from the public. Comment forms will be available for the public to provide formal written comments.

Dated: August 14, 2015.

John Hofmann,

Division Director, Facilities Management & Services Programs Division, General Services Administration, Mid-Atlantic Region.

[FR Doc. 2015–20532 Filed 8–19–15; 8:45 am]

BILLING CODE 6820–89–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Agency for Healthcare Research and Quality

Agency Information Collection Activities: Proposed Collection; Comment Request

AGENCY: Agency for Healthcare Research and Quality, HHS.

ACTION: Notice.

SUMMARY: This notice announces the intention of the Agency for Healthcare Research and Quality (AHRQ) to request that the Office of Management and Budget (OMB) approve the proposed information collection project: ''*Online Application Order Form for Products from the Healthcare Cost and Utilization Project (HCUP).*''

In accordance with the Paperwork Reduction Act, 44 U.S.C. 3501–3521, AHRQ invites the public to comment on this proposed information collection.

DATES: Comments on this notice must be received by October 19, 2015.

ADDRESSES: Written comments should be submitted to: Doris Lefkowitz, Reports Clearance Officer, AHRQ, by email at *doris.lefkowitz@AHRQ.hhs.gov.*

Copies of the proposed collection plans, data collection instruments, and specific details on the estimated burden can be obtained from the AHRQ Reports Clearance Officer.

FOR FURTHER INFORMATION CONTACT: Doris Lefkowitz, AHRQ Reports Clearance Officer, (301) 427–1477, or by email at *doris.lefkowitz@AHRQ.hhs.gov.*

SUPPLEMENTARY INFORMATION:

Proposed Project

Online Application Order Form for Products From the Healthcare Cost and Utilization Project (HCUP)

The Healthcare Cost and Utilization Project (HCUP is a vital resource helping the Agency achieve its mission to produce evidence to make health care safer, higher quality, more accessible, equitable, and affordable. HCUP is a family of health care databases and related software tools and products developed through a Federal-State-Industry partnership and sponsored by AHRQ. HCUP includes the largest collection of longitudinal hospital care data in the United States, with all-payer, encounter-level information beginning in 1988. The HCUP databases are annual files that contain anonymous information from hospital discharge records for inpatient care and certain components of outpatient care, such as emergency care and ambulatory surgeries. The project currently releases seven types of databases created for research use on a broad range of health issues, including cost and quality of health services, medical practice patterns, access to health care programs, and outcomes of treatments at the national, State, and local market levels. HCUP also produces a large number of software tools to enhance the use of administrative health care data for research and public health use. Software tools use information available from a variety of sources to create new data elements, often through sophisticated algorithms, for use with the HCUP databases.

HCUP's objectives are to:

- Create and enhance a powerful source of national, state, and all-payer health care data.
- Produce a broad set of software tools and products to facilitate the use of HCUP and other administrative data.
- Enrich a collaborative partnership with statewide data organizations (that voluntarily participate in the project) aimed at increasing the quality and use of health care data.
- Conduct and translate research to inform decision making and improve health care delivery.

This project is being conducted by AHRQ through its primary contractor and subcontractor, Truven Health Analytics and Social & Scientific Systems, Inc., pursuant to AHRQ's statutory authority to conduct and support research on health care and on systems for the delivery of such care, including activities with respect to the outcomes, cost, cost-effectiveness, and use of health care services and access to such services. 42 U.S.C. 299a(a)(3).

Method of Collection

The HCUP releases seven types of databases for public research use:

(1) The National Inpatient Sample (NIS) is the largest all-payer inpatient care database in the United States, yielding national estimates of hospital inpatient stays. The NIS approximates 20 percent of the discharges from all U.S. community hospitals and contains data from approximately 8 million hospital stays each year. NIS data releases are available for purchase from the HCUP Central Distributor for data years beginning in 1988.

(2) The Kids' Inpatient Database (KID) is the only all-payer inpatient care database for children in the United States. The KID was specifically designed to permit researchers to study a broad range of conditions and procedures related to child health issues. The KID contains a sample of 2 to 3 million discharges for children age 20 and younger from more than 3,500 U.S. community hospitals. KID data releases are available every third year starting in 1997.

(3) The Nationwide Emergency Department Sample (NEDS) is the largest all-payer Emergency Department (ED) database in the United States. It is constructed to capture information both on ED visits that do not result in an admission and on ED visits that result in an admission to the same hospital. The NEDS contains more than 25 million unweighted records for ED visits at about 1,000 U.S. community hospitals and approximates a 20-percent stratified sample of U.S. hospital-based EDs. NEDS data releases are available beginning with data year 2006.

(4) The State Inpatient Databases (SID) contain the universe of inpatient discharge abstracts from data organizations in 46 States and the District of Columbia that currently participate in the SID. Together, the SID encompasse approximately 96 percent of all U.S. community hospital discharges. Most States that participate in the SID make their data available for purchase through the HCUP Central Distributor. Files are available beginning with data year 1990.

(5) The State Ambulatory Surgery and Services Databases (SASD) contain encounter-level data from ambulatory surgery and other outpatient services from hospital-owned facilities. In addition, some States provide data for ambulatory surgery and outpatient services from nonhospital-owned facilities. Currently, 34 States participate in the SASD. Files are available beginning with data year 1997.

(6) The State Emergency Department Databases (SEDD) contain data from hospital-owned EDs for visits that do not result in a hospitalization. Currently, 32 States participate in the SEDD. Files are available beginning with data year 1999.

(7) A new database called the Nationwide Readmissions Database (NRD) is planned for release in late

APPENDIX F
PUBLIC COMMENTS

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

October 7, 2015

Ms. Courtenay Hoernemann
U.S. General Services Administration
20 N Eighth Street
Philadelphia, PA 19107

Re: Draft Supplemental Environmental Impact Statement for the Federal Bureau of Investigation Central Records Complex in Frederick County, VA (CEQ #20150228)

Dear Ms. Hoernemann:

In accordance with the National Environmental Policy Act (NEPA) of 1969, Section 309 of the Clean Air Act and the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508), the U.S. Environmental Protection Agency has reviewed the Draft Supplemental Environmental Impact Statement (DSEIS) for the Federal Bureau of Investigation (FBI) Central Records Complex (CRC) in Frederick County, VA.

The purpose of the Proposed Action is to construct a CRC facility that will allow the FBI improved records management. The FBI determined the need for a CRC facility to consolidate records from various locations within the United States, including Washington, DC. Consolidation of the records would decrease response time of records retrieval, improve security of the records and allow for a more cost-effective and efficient means of record storage.

In 2006, GSA began the site selection process to lease construction of a CRC storage facility. Three sites were evaluated in a DEIS. A Final EIS and Record of Decision (ROD) were issued for the project in May 2007. The project was to be completed as a lease construction. However, due to market conditions and the specialized nature of the facility, GSA was not able to successfully award a lease. Through reevaluation of the project, the FBI determined that the records storage component of the project was the number one priority and the best way to meet this mission-critical function was through a federal construction funding request. A DSEIS has been prepared due to the lapse in time between the 2007 Final EIS and ROD and because the proposed action has changed from a lease construction project to an acquisition construction project.

The DSEIS evaluated two action alternative sites, Alternative 1 – Arcadia, 59 acres of land located approximately 4 miles southeast of Winchester in Frederick County, VA and

Alternative 2 – Whitehall, 58 acres of undeveloped farmland located approximately 4 miles north of Winchester in the town of Clear Brook, Frederick County, VA. The proposed CRC facility would construct up to 256,425 gross square feet of office, warehouse, and related space, including ancillary facilities and 427 surface parking spaces. In the 2007 FEIS and signed ROD, GSA identified the Sempeles (Whitehall) site as the preferred alternative**.** The DSEIS did not specify a preferred alternative for the Proposed Action. It is assumed that a Preferred Alternative will be identified in the Final Supplemental EIS and/or ROD.

In general, the rating of an EIS is typically based on the lead agency's preferred alternative. With no Preferred Alternative identified, individual ratings for each alternative can be made. As is the case of the FBI CRC, EPA has rated the alternatives and the DSEIS the same due to the need to have more information to better assess environmental impacts. EPA has provided comments and questions for your consideration in the Technical Comments document which is enclosed.

In particular, EPA requests more information on the site selection process. The basis used for site selection was a study conducted in 2004 for the DEIS in 2006 and because the scope of the project decreased in the current DSEIS, there is question as to whether other sites may have been more conducive with less use of rural areas/environmental impacts. It is unclear how potential changes in environmental conditions or project need since 2004 are reflected in the current study. EPA strongly suggests that natural features of the sites be preserved and that reforestation, establishment of protected stream buffer, beneficial landscaping and low impact development (LID) are integrated into the site design. In addition, more information is needed for wetland mitigation, surface and groundwater, soils, environmental justice, traffic and transportation and greenhouse gas emissions. (Please see attached comments). As a result, EPA rated the DSEIS an EC-2 (Environmental Concerns/Insufficient Information), which indicates that we have environmental concerns regarding the proposal and that there is insufficient information in the document to fully assess the environmental impacts of this project. A copy of EPA's rating system can be accessed at the following site: http://www.epa.gov/compliance/nepa/comments/ratings/html.

Thank you for the opportunity to review this project. EPA would appreciate the chance to talk with you about our concerns on the project. If you have questions regarding these comments, the staff contact for this project is Karen DelGrosso; she can be reached at 215-814-2765.

Sincerely,

/s/

Barbara Rudnick
NEPA Team Leader
Office of Environmental Programs

Enclosures (1)

Technical Comments

Proposed Action/Alternatives

EPA questions whether the FBI considered incorporating the CRC facility into site planning for the proposed FBI Headquarters (HQ) Consolidation project scheduled to be evaluated in a DEIS in the Fall of 2015. Please discuss if this was considered. If the FBI did consider including the CRC facility into the proposed FBI HQ Consolidation project and it was determined not practical then please discuss in the Final Supplemental EIS (FSEIS). 1

Also, the site selection criteria states that the "site must be within the boundary of Frederick County, Virginia and/or the City of Winchester." To better understand the need to locate the proposed CRC facility in either of these areas, please explain the process or study used for this analysis in the FSEIS. The basis for this criteria should be explained and assessment presented to show if any changes in the last 10 years could modify the criteria. 2 EPA is aware that a Locational and Macro Site Selection Study (LMSSS) was completed in 2004 and that it was referenced and/or discussed in the 2007 EIS. However, because of the time lapse (and fully aware that this is a Supplement to the DEIS), briefly address how the resultant areas of focus (Frederick County and City of Winchester) were derived as a result of the study. 3 In addition, EPA would like to know if the 2004 report was readdressed since the scope of the proposed action has changed since then (i.e., from a lease project to a construction project as well as a considerable decrease in footprint size of the facility from that originally proposed in the 2006/2007 EIS). EPA requests the FSEIS explain if the differences in scope, scale and property acquisition method for the two studies was accounted for when referring to the LMSSS in the DSEIS. 4

As noted in the DSEIS (page ES-i and elsewhere), "Site must be contiguous, developable land that would allow the construction of up to a 256,425 gross square foot (gsf) office, warehouse, and related space and accommodate 427 parking spaces. Site must be a minimum of 40 acres with a maximum size of 108 acres." In addition, "The facility would have a secure perimeter consisting of a perimeter fence and natural features." Since both of the alternative sites are approximately 58 to 59 acres in size, and building footprint would consist of only 256,425 gsf plus parking to accommodate 427 spaces, it would appear that much of the acreage of land would not be developed. 5 It is assumed that the acreage criteria needed for the site may be due to security needs. Please confirm and/or explain site size needed. To reduce the footprint even more, has a structured parking garage been considered as opposed to the surface lot? 6 Please address. If a surface lot is needed, please consider the use of pervious pavers or other porous surface options (where feasible) to allow for infiltration. Vegetated swales over curb and gutter are highly recommended. 7 In addition, EPA strongly suggests that the natural features of the sites be preserved, that reforestation, establishment of protected steam buffers, beneficial landscaping and low impact development (LID) be integrated into the site design. EPA appreciates that the DSEIS states GSA's intent to use LID practices and environmentally sound landscaping practices to reduce adverse impacts to the natural environment. To aid in this endeavor, EPA has provided (below) additional information and resources on LID for your information and use.

As stated in Section 2.0 Proposed Action and Alternatives, page 2-2, the site must be able to accommodate the requirements of Interagency Security Committee (ISC) Level IV Security. Please explain what would be required to comply with Level IV Security as well as its impact on the environment, building design and setback requirements. 8

The DSEIS states that the Arcadia site is approximately 59 acres and the Whitehall site is approximately 58 acres in size. The Traffic Impact Study (page 1) states that Arcadia is a 65-acre site and Whitehall is a 34-acre site. There is a discrepancy in the size of the two alternatives sites within the DSEIS and the Traffic Impact Study. Please clarify. 9

Land Use

Page 4-7 states (for the Arcadia alternative), "However, according to the 2030 Frederick County Comprehensive Plan, this site is within the path of the proposed Route 37 east, a priority transportation project (Frederick County Planning Commission 2011)." Where is the path of the proposed Route 37 transportation project in relation to proposed construction on the Arcadia site? The FSEIS should provide a map of the Arcadia site, building placement and proposed Route 37 transportation project. 10

Page 4-8 states, "Proposed Route 37 project would be taken into consideration during site design to minimize future land use compatibility issues." Please specify and discuss measures that could be taken to minimize land use compatibility issues. Will land use be changed, zoning permits needed, etc.? 11

Traffic and Transportation

Page 15 of the Traffic Impact Study states, "There are no planned capacity projects within the study area for the Arcadia site." The DSEIS mentions the Route 37 transportation project, but this project is not discussed in the Traffic Impact Study. A discussion of the two projects, potential impacts on each other, and cumulative environmental impacts should be addressed. A map depicting the proposed site in relation to Route 37 transportation project should be provided. 12

In reference to the Whitehall site, the Traffic Impact Study (page 15) states, "The only planned project listed near the Whitehall site is the 1.2 mile Route 655 (Sulphur Springs Road) roadway reconstruction from Route 17 to Route 656 but this is not scheduled for completion until 2020." Where is the planned project in relation to the proposed action? Please discuss environmental and cumulative impacts as well as depict road reconstruction on a map in relation to the proposed action. 13

Soils/Prime Farmland

Page 5-12 (Whitehall) states, "Of the 38 acres of impacts to soils, approximately 33 acres would be to prime farmland soils. Therefore, in accordance with FPPA (Farmland Protection Policy Act), an AD-1006 form was prepared and the site assessment criteria scored 38 points, well below the 160 point threshold requiring further consultation with the Natural Resource Conservation Service." Page 2-3 states, "The Whitehall site consists of approximately 58 acres 14

14 (continued)

of undeveloped farmland…." Is the site or a portion of the site actively used for farming? Page 3-7of the DSEIS states, "The FPPA is based on the protection of prime farmland soils and not on whether the area is in agricultural use." Although this may be true, doesn't the National Resource Conservation Service (NRCS) have to confirm GSA's finding and evaluate the completed form AD-1006? Confirmation of the NRCS should be documented in the EIS. Also, since there was no Distribution List included in the DSEIS, it cannot be determined if NRCS has had the opportunity to review GSA's findings. NRCS confirmation should be discussed and support documentation included in the EIS. 15

Additionally, agricultural information was cited in Appendix D, Phase I Indiana and Northern Long-eared Bat Habitat Survey, providing site photographs of the Whitehall site. Photo no. 047 describes the picture as "General habitat showing planted wheat and fence row at eastern edge of site." The picture displays farmland in use; it is unclear why it is identified as undeveloped land. Please explain. 16

Surface Water/Wetlands/Groundwater

Pages 4-28 and 4-29 state that of the 2.62 acres of wetlands delineated in the 59-acre project area (Arcadia), approximately 2.25 acres of wetlands would be impacted. Page 4-30 states, "Significant impacts to wetlands are not expected under Alternative 1 because GSA would mitigate for these impacts in accordance with wetland permit conditions to satisfy permit requirements." Since the majority of the wetlands on the Arcadia site will be impacted and no definitive discussion of wetland mitigation was presented, it is difficult to see the impacts as anything less than significant. Possible minimization and mitigation options should be discussed in the FSEIS. Early coordination with U.S. Army Corps of Engineers is recommended. 17

In addition, page 4-29 (Arcadia site) states "Approximately 2,168 linear feet of ephemeral streams would be impacted by construction of the CRC facility." The text states, "The direct impacts to the streams are considered significant; however, mitigation would reduce the impacts to less than significant." The FSEIS should specify and discuss mitigation and how it will reduce impacts to ephemeral streams to less than significant. 18

Appendix D**,** Photo no. 025 shows an "old drainage pond from past mining operations, not holding water" for the Arcadia site. Please discuss as to where this drainage pond is in relation to the proposed planned development as well as environmental impacts from the pond and future plans for remediation, if applicable. Page 2-3 states that the site had been quarried for shale. How long ago and for how long was the site quarried? Has groundwater, soils and surface water been assessed and/or tested for possible contamination from past mining operations? A site assessment is strongly recommended to determine the condition of resources prior to selecting a preferred alternative. If a Phase I Environmental Site Assessment (ESA) was completed on the site, please identify and discuss results of ESA in the FSEIS. 19 20

Environmental Justice

The Environmental Justice (EJ) assessment for the FBI CRC DSEIS is not complete. The methodology used is not supported by assessment of the census block group level demographics. 21

It seems that only cursory review of county level data was used as the basis for decision making. There is not enough data and evaluative methodology presented to make any fact-based identification of areas of EJ concern. Which block groups are impacted by the project? What is the makeup of those block groups? What benchmarking values are used? Where are the tables that support the determination? 21

With little or no information to use as an objective measurement instrument, how can it be said that there are no populations of EJ concern in the study area? 22

Greenhouse Gas Emissions (GHG)/Climate Change

In December 2014, the Council on Environmental Quality issued Revised Draft Guidance for Greenhouse Gas Emissions (GHG) and Climate Change Impacts for Federal agencies' consideration. The guidance outlines a reasonable approach to analyze GHG emissions and climate change impacts. The guidance can be found at: https://www.whitehouse.gov/administration/eop/ceq/initiatives/nepa/ghg-guidance.

EPA supports that NEPA documents should address the concern of GHG emissions and incorporate resiliency into project design. Although there was mention of GHG emissions in the DSEIS, EPA offers the following comments and suggestions to further refine the discussion and exemplify that which is expected in NEPA documents. It is recommended that GSA (and FBI) use the draft guidance to assist in project development and incorporate measures into the FSEIS and Record of Decision (ROD), as appropriate. 23

Page 3-2 discusses and defines Greenhouse Gases. Page 3-3 states, "On a national scale, federal agencies are working to reduce GHG emissions as mandated in federal laws and EOs. These requirements are based on annual reductions to achieve specified target levels." Although correct, what is most expected of lead federal agencies, particularly within the Affected Environment section of the EIS, is a summary discussion of climate change and ongoing and reasonably foreseeable climate change impacts relevant to the proposed action. This discussion should be based on U.S. Global Change Research Program assessments which assists with identification of potential project impacts especially those that may be exacerbated by climate change and to inform consideration of measures to adapt to climate change impacts. 24

Within the Environmental Consequences section of the EIS, an estimate of the GHG emissions associated with the proposed action and alternatives should be provided. For actions which are likely to have less than 25,000 metric tons of CO2-e emissions/year, provide a qualitative estimate unless quantification is easily accomplished. The estimated GHG emissions can serve as a reasonable proxy for climate change impacts when comparing the proposal and alternatives. Since climate impacts are not attributable to any single action, but are exacerbated by a series of smaller decisions, it is not recommended to compare GHG emissions from the proposed action to global emissions. It is also not recommended to compare GHG emissions to total U.S. emissions, as this approach does not provide meaningful information for a project level analysis. Rather, consider providing a frame of reference, such as an applicable Federal, state, tribal or local goal for GHG emission reductions, and discuss whether the emissions levels are consistent with such goals. 25

26

If possible, the FSEIS should discuss if the alternatives have considered and adjusted for resiliency to predicted climate change. The FSEIS should intend to implement measures to conserve energy and to reduce GHG emissions, requiring GSA (and FBI) to evaluate the effectiveness of incorporating emerging technologies. It would be helpful to specify and describe usable measures to reduce GHG emissions associated with the proposed action (for both construction and operation activities).

Table 7.1-1. Applicable Federal State Plans, Policies and Regulations, lists EO 13123, *Greening the Government through Efficient Energy Management*, and EO 13148, *Greening the Government through Leadership in Environmental Management*. EPA appreciates GSA's intention to incorporate Leadership in Environment and Energy Design (LEED) standards into the design of the proposed CRC facility as well as Low Impact Development (LID) measures. EPA encourages LEED and LID into all building development, where feasible, to further reduce GHG emissions.

It is important to note, though, that Table 7.1-1 did not list the new Executive Order (EO) 13693, *Planning for Federal Sustainability in the Next Decade*, signed by President Obama on March 19, 2015 which provides specific guidance on GHG emissions. Federal agencies should discuss how their individual project will meet the requirements of the EO. Section 16 of EO 13693 revokes Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, of October 5, 2009 and Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, of January 24, 2007 (as well as Presidential Memorandums specified in EO 13693, see http://www.fedcenter.gov/programs/eo13693). However, EO 13693 retains the breath of these revoked executive orders (and Presidential memorandums) while establishing newly defined targets. Thus, the goal of EO 13693 is to maintain Federal leadership in sustainability and GHG emissions reductions/energy conservation.

The following summarizes highlights of EO 13693:

The EO 13693 outlines a combination of more efficient Federal operations to reduce agency direct GHG emissions while fostering innovation, reducing spending and strengthening the communities in which Federal facilities operate. Agencies shall increase efficiency and improve their environmental performance. Improved environmental performance will help protect our planet for future generations and save taxpayer dollars through avoided energy costs and increased efficiency, while also making Federal facilities more resilient. To improve environmental performance and Federal sustainability, priority is placed on reducing energy use and cost, then on finding renewable or alternative energy solutions. Pursuing clean sources of energy will improve energy and water security, while ensuring that Federal facilities will continue to meet mission requirements and lead by example. Employing this strategy for the next decade calls for expanded and updated Federal environmental performance goals with a clear overarching objective of reducing GHG emissions across Federal operations and the Federal supply chain.

Federal Agencies shall, where life-cycle cost-effective, beginning in fiscal year 2016, unless otherwise specified, promote building energy conservation, efficiency, and management by reducing agency building energy intensity measured in British thermal units per gross square foot by 2.5 percent annually through the end of fiscal year 2025, relative to the baseline of the agency's building energy use in fiscal year 2015 and taking into account agency progress to date.

Federal Agencies shall, where life-cycle cost-effective, beginning in fiscal year 2016, unless otherwise specified, improve data center energy efficiency at agency facilities by:

- ensuring the agency chief information officer promotes data center energy optimization, efficiency, and performance;
- installing and monitoring advanced energy meters in all data centers by fiscal year 2018; and
- establishing a power usage effectiveness target of 1.2 to 1.4 for new data centers and less than 1.5 for existing data centers.

Federal Agencies shall, where life-cycle cost-effective, beginning in fiscal year 2016, unless otherwise specified, ensure that at a minimum, the following percentage of the total amount of building electric energy and thermal energy shall be clean energy, accounted for by renewable electric energy and alternative energy:

- not less than 10 percent in fiscal years 2016 and 2017;
- not less than 13 percent in fiscal years 2018 and 2019;
- not less than 16 percent in fiscal years 2020 and 2021;
- not less than 20 percent in fiscal years 2022 and 2023; and
- not less than 25 percent by fiscal year 2025 and each year thereafter.

Federal Agencies shall, where life-cycle cost-effective, beginning in fiscal year 2016, unless otherwise specified, improve agency water use efficiency and management, including stormwater management by:

- reducing agency potable water consumption intensity measured in gallons per gross square foot by 36 percent by fiscal year 2025 through reductions of 2 percent annually through fiscal year 2025 relative to a baseline of the agency's water consumption in fiscal year 2007
- installing water meters and collecting and utilizing building and facility water balance data to improve water conservation and management;
- reducing agency industrial, landscaping, and agricultural (ILA) water consumption measured in gallons by 2 percent annually through fiscal year 2025 relative to a baseline of the agency's ILA water consumption in fiscal year 2010; and
- installing appropriate green infrastructure features on federally owned property to help with stormwater and wastewater management.

If an agency operates a fleet of at least 20 motor vehicles, they will improve agency fleet and vehicle efficiency and management by taking actions that reduce fleet-wide per-mile GHG

emissions from agency fleet vehicles, relative to a baseline of emissions in fiscal year 2014, to achieve the following percentage reductions:

- less than 4 percent by the end of fiscal year 2017;
- not less than 15 percent by the end of fiscal year 2021; and
- not less than 30 percent by the end of fiscal year 2025.

NOTE: This is not a comprehensive representation of all of the requirements detailed in EO 13693. Additional information will be added in the coming days/weeks.

Information relating to EO 13693 can be obtained through the following links below:

- Regulations, Guidance, and Policy
  - EO 13693
- Supporting Information and Tools
  - Databases/Software Tools
  - Libraries/Repositories
- Lessons Learned
- Training, Presentations, and Briefings

Conferences and Events

The FSEIS should address EO 13693 and discuss how the proposed action will meet the requirements of the EO.

Distribution List

27

An EIS should include a Distribution List of agencies, organizations, and persons to whom copies of the document were sent as indicated in 40 CFR §1502.10 under "Recommended format" and §1502.19. A Distribution List identifies those parties who have been given the opportunity to comment and reveals that those not included on the list may need to be given the EIS for review. This information is critical to ensuring all necessary parties are given the opportunity to review and provide input to the impacts of the proposed action.

Low Impact Development

28

Federal agencies are required to reduce the impacts on watershed hydrology and aquatic resources. This effort commonly referred to as low impact development (LID), implements environmentally and economically beneficial landscape practices into landscape programs, policies and practices by using a natural approach to land development and stormwater management. EPA encourages and promotes the principles of "sustainable landscape design and management" which recognizes the interconnection of natural resources, human resources, site design, building design, energy management, water supply, waste prevention, and facility maintenance and operation.

It is important to incorporate LID efforts to mitigate the effects of development through traditional stormwater management practices which have proven to not be entirely successful. Traditional collection and conveyance systems, stormwater ponds and other stormwater facilities do not replicate natural systems, which greatly slow water before it reaches streams, wetlands and other waters. Development often times results in the loss of trees and other vegetation, the compaction of soils by heavy equipment, and the creation of vast stretches of connected impervious areas. These combined factors are extremely difficult to compensate for using traditional practices. As a result, the following site design (goals) and planning practices can be used to minimize stormwater impacts.

Goal: Minimize direct stormwater impacts to streams and wetlands to the maximum extent practicable.

Practices:

1. Locate stormwater facilities outside of streams and wetlands;
2. maintain natural drainage routes on site;
3. preserve riparian buffers; and
4. distribute "Integrated Management Practices" (IMP) used in lieu of centralized ponds.

Goal: Preserve the natural cover on as much of the site as possible, especially for areas located on hydrologic soil groups (HSG) A and B.

Practices:

1. Utilize clustered development designs and preserve a significant portion of the site in a natural state;
2. utilize "fingerprint" clearing by limiting the clearing and grading of forests and native vegetation to the minimum area needed for the construction of the lots, the provision of necessary access, and fire protection;
3. avoid impacts to wetlands to vegetated riparian buffers; and
4. preserve A and B Soils in natural cover.

Goal: Minimize the overall impervious cover.

Practices:

1. Utilize the minimum required width for streets and roads;
2. utilize street layouts that reduce the number of homes per unit length;
3. minimize cul-de-sac diameters, use doughnut cul-de-sacs, or use alternative turnarounds;
4. minimize excess parking space construction, utilize pervious pavers in low-use parking areas;
5. utilize structured or shared parking;
6. reduce home setbacks and frontages;
7. where permitted, minimize sidewalk construction by utilizing sidewalks on one side only, utilizing "Skinny" sidewalks, or substituting sidewalks with pervious trails through common greenspace;
8. substitute pervious surfaces for impervious wherever possible;
9. where permitted, avoid the use of curb and gutter and utilize vegetated open swales, preferably "engineered swales" with a permeable soil base; and
10. minimize compaction of the landscape and in areas where soils will be "disked" prior to seeding, and amended with loam or sand to increase absorption capacity.

Goal: Locate infiltration practices on HSG A and B soils wherever possible. Thus, every effort should be made to utilize areas with these soils for Integrated Management Practices (IMP) that promote infiltration.

Goal: Locate impervious areas on less permeable soils (HSG C and D). Placement of impervious areas on lower permeability soils minimizes the potential loss of infiltration/recharge capacity on the site.

Goal: "Disconnect" impervious areas. "Disconnecting" means having impervious cover drain to pervious cover (i.e. downspouts draining to the yard, not the driveway). This decreases both the runoff volume and Time of Concentration.

Goal: Increase the travel time of water off of the site (Time of Concentration).
Practices:

1. Flatten grades for stormwater conveyance to the minimum sufficient to allow positive drainage;
2. increase the travel time in vegetated swales by using more circuitous flow routes, rougher vegetation in swales, and check dams; and
3. utilize "engineered" swales in lieu of pipes or hardened channels.

Goal: Utilize soil management/enhancement techniques to increase soil absorption.
Practices:

1. Delineate soils on site for the preservation of infiltration capacity; and
2. require compacted soils in areas receiving sheetflow runoff (such as yards, downslope of downspouts).

Goal: Revegetate all cleared and graded areas.

Goal: Use "engineered swales" for conveyance in lieu of curb and gutter wherever possible.

Goal: Utilize level spreading of flow into natural open space.

For additional and more comprehensive LID information, please refer to the following web sites.

U.S. EPA's Low Impact Development Web site: www.epa.gov/nps/lid
U.S. EPA's Green Infrastructure Web site: www.epa.gov/own/greeninfrastruce
U.S. EPA's Smart Growth Website: www.epa.gov/smartgrowth
International Stormwater BMP Database: http://www.bmpdatabase.org

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Custom House, Room 244
200 Chestnut Street
Philadelphia, Pennsylvania 19106-2904

IN REPLY REFER TO:

October 5, 2015

9043.1
ER 15/0458

Ms. Courtenay Hoernemann
General Services Administration
Project Environmental Planner
20 North 8th Street
Philadelphia, PA 19107

Dear Ms. Hoernemann:

29

The Department of the Interior (Department) has no comment on the Supplemental Draft Environmental Impact Statement for the proposed Federal Bureau of Investigations (FBI) Central Records Complex, located in Winchester County, Virginia.

Thank you for the opportunity to comment.

Sincerely,

Lindy Nelson
Regional Environmental Officer

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
Fax: 804-698-4019 - TDD (804) 698-4021
www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4020
1-800-592-5482

September 30, 2015

Ms. Courtenay Hoernemann
Project Environmental Planner
20 North 8th Street
Philadelphia, Pennsylvania 19107

RE: Draft Environmental Impact Statement for the Central Records Complex, Federal Bureau of Investigation, Frederick County (DEQ 15-135F)

Dear Ms. Hoernemann:

The Commonwealth of Virginia has completed its review of the above-referenced document. The Department of Environmental Quality (DEQ) is responsible for coordinating Virginia's review of federal environmental documents submitted under the National Environmental Policy Act (NEPA) and responding to appropriate federal officials on behalf of the Commonwealth. The following agencies and locality joined in this review:

Department of Environmental Quality
Department of Game and Inland Fisheries
Department of Conservation and Recreation
Virginia Marine Resources Commission
Department of Health
Department of Forestry
Department of Transportation
Department of Historic Resources
Frederick County

In addition, the Department of Agriculture and Consumer Services, Department of Mines, Minerals, and Energy, and the Northern Shenandoah Valley Regional Commission were invited to comment on the proposal.

PROJECT DESCRIPTION

The General Services Administration (GSA) has submitted a Draft Supplemental Environmental Impact Statement (SEIS) to evaluate the environmental impacts of site acquisition and development of the proposed Federal Bureau of Investigation (FBI)

Central Records Complex (CRC) in Frederick County, Virginia. The proposed action would include the acquisition of property for the construction and operation of a CRC for the FBI. GSA would acquire one site with a minimum of 40 acres and a maximum of 108 acres. GSA would then construct a five-story, approximately 256,425 gross square foot building with records storage, support area, visitor screening facility, service center, and guard booth, and approximately 427 parking spaces. The facility would have a secure perimeter consisting of a perimeter fence and natural features. The CRC would be operated by approximately 430 employees who would primarily come from the existing facility on Marcel Drive in Winchester. The GSA is considering two sites.

Arcadia (Alternative 1): The Arcadia site is located at 2117 Millwood Pike, approximately 4 miles southeast of Winchester, Frederick County. The site consists of approximately 59 acres. The site has not been previously developed; however, it has been quarried for shale and extensive disturbance has occurred. Access to the site would be from Millwood Pike (U.S. Route 17/50). Secondary access would be provided along Independence Drive (a proffer road would be constructed to extend Independence Drive east of U.S. Route 17/50).

Whitehall (Alternative 2): The Whitehall site consists of approximately 58 acres of undeveloped farmland in Frederick County. The site is located in the town of Clear Brook, approximately 4 miles north of Winchester. It is approximately 1,000 feet east of Interstate 81 (I-81) and 400 feet east of U.S. Route 11. Access to the site would be at the intersection of U.S. Route 11 and Rest Church Road. A secondary access road would be located along Woodbine Road (a proffer road would be constructed to extend and connect Rest Church Road to Woodbine Road). The Whitehall site is also adjacent to the Conrail/CSX Railroad line.

It is anticipated that acquisition of a site would occur in 2016 and the facility would begin occupancy and transition into operations in late 2019.

CONCLUSION

Provided activities are performed in accordance with the recommendations which follow in the Impacts and Mitigation section of this report, this proposal is unlikely to have significant effects on ambient air quality, important farmland, and wetlands. It is unlikely to adversely affect species of plants or insects listed by state agencies as rare, threatened, or endangered.

ENVIRONMENTAL IMPACTS AND MITIGATION

1. Surface Waters and Wetlands.

(i) Arcadia

According to the SEIS (page 4-29), approximately 2,168 linear feet of ephemeral streams would be impacted by construction of the CRC facility. The document

concludes that direct impacts to the streams are considered "significant;" however, mitigation would reduce the impacts to "less than significant." In addition, the document (page 4-29) finds that there are 2.62 acres of wetlands that were delineated in the 59-acre project area and approximately 2.25 acres of wetlands would be impacted.

(ii) Whitehall

The SEIS (page 5-13) indicates that a small ephemeral pond found at the edge of the woodlot in the northwest corner of the site is the only surface water feature on site and would be avoided during construction. In addition, the document finds that there are no wetlands within the Whitehall site boundary that are likely to be considered jurisdictional. There is one wet area located in the northwest portion of the site. However, construction in this area would be avoided. The document concludes that implementation of this alternative would have no impact on wetlands.

1(a) Agency Jurisdiction. The State Water Control Board promulgates Virginia's water regulations covering a variety of permits to include the Virginia Pollutant Discharge Elimination System Permit regulating point source discharges to surface waters, Virginia Pollution Abatement Permit regulating sewage sludge, storage and land application of biosolids, industrial wastes (sludge and wastewater), municipal wastewater, and animal wastes, the Surface and Groundwater Withdrawal Permit, and the Virginia Water Protection (VWP) Permit regulating impacts to streams, wetlands, and other surface waters. The VWP permit is a state permit which governs wetlands, surface water, and surface water withdrawals and impoundments. It also serves as §401 certification of the federal Clean Water Act §404 permits for dredge and fill activities in waters of the U.S. The VWP Permit Program is under the Office of Wetlands and Stream Protection, within the DEQ Division of Water Permitting. In addition to central office staff that review and issue VWP permits for transportation and water withdrawal projects, the six DEQ regional offices perform permit application reviews and issue permits for the covered activities:

- Clean Water Act, §401;
- Section 404(b)(i) Guidelines Mitigation Memorandum of Agreement (2/90);
- State Water Control Law, Virginia Code section 62.1-44.15:20 *et seq.*; and
- State Water Control *Regulations*, 9 VAC 25-210-10.

1(b) Agency Findings. The DEQ Valley Regional Office (DEQ-VRO) did not indicate any concerns with proposed impacts to surface waters and wetlands. 30

1(c) Recommendations. In general, DEQ recommends that stream and wetland impacts be avoided to the maximum extent practicable. To minimize unavoidable impacts to wetlands and waterways, DEQ recommends the following practices:

- Operate machinery and construction vehicles outside of stream-beds and wetlands; use synthetic mats when in-stream work is unavoidable.
- Preserve the top 12 inches of material removed from wetlands for use as wetland

seed and root-stock in the excavated area.

- Design erosion and sedimentation controls in accordance with the most current edition of the *Virginia Erosion and Sediment Control Handbook*. These controls should be in place prior to clearing and grading, and maintained in good working order to minimize impacts to state waters. The controls should remain in place until the area is stabilized.
- Place heavy equipment, located in temporarily impacted wetland areas, on mats, geotextile fabric, or use other suitable measures to minimize soil disturbance, to the maximum extent practicable.
- Restore all temporarily disturbed wetland areas to pre-construction conditions and plant or seed with appropriate wetlands vegetation in accordance with the cover type (emergent, scrub-shrub, or forested). The applicant should take all appropriate measures to promote revegetation of these areas. Stabilization and restoration efforts should occur immediately after the temporary disturbance of each wetland area instead of waiting until the entire project has been completed.
- Place all materials which are temporarily stockpiled in wetlands, designated for use for the immediate stabilization of wetlands, on mats, geotextile fabric in order to prevent entry in state waters. These materials should be managed in a manner that prevents leachates from entering state waters and must be entirely removed within thirty days following completion of that construction activity. The disturbed areas should be returned to their original contours, stabilized within thirty days following removal of the stockpile, and restored to the original vegetated state.
- Flag or clearly mark all non-impacted surface waters within the project or right-of-way limits that are within 50 feet of any clearing, grading, or filling activities for the life of the construction activity within that area. The project proponent should notify all contractors that these marked areas are surface waters where no activities are to occur.
- Employ measures to prevent spills of fuels or lubricants into state waters.

1(d) Requirements. According to DEQ-VRO, the disturbance of surface waters or wetlands may require prior approval by DEQ and/or the U.S. Army Corps of Engineers (Corps). The Corps is the final authority for an official confirmation of whether there are federal jurisdictional wetlands or other surface waters that may be impacted by the proposed project. DEQ may confirm additional waters as jurisdictional beyond those under federal authority. Review of National Wetland Inventory (NWI) maps or topographic maps for locating wetlands or streams may not be sufficient and may require a site-specific review by a qualified professional. Potential water quality impacts resulting from construction site surface runoff must be minimized regardless of whether there is no intentional placement of fill material in jurisdictional waters. This can be achieved by using Best Management Practices (BMPs). If construction activities will occur in or along any streams (perennial, intermittent, or ephemeral), open water or wetlands, the applicant must contact DEQ-VRO, Eric Millard at (540) 574-7813 or eric.millard@deq.virginia.gov to determine the need for any permits prior to commencing work that could impact surface waters or wetlands.

2. Subaqueous Lands Impacts.

(i) Arcadia

As noted above, the SEIS (page 4-29) finds that approximately 2,168 linear feet of ephemeral streams would be impacted by construction of the CRC facility. The document concludes that direct impacts to the streams are considered "significant;" however, mitigation would reduce the impacts to "less than significant."

(ii) Whitehall

The SEIS (page 5-13) indicates that a small ephemeral pond found at the edge of the woodlot in the northwest corner of the site is the only surface water feature on site and would be avoided during construction.

2(a) Agency Jurisdiction. The Virginia Marine Resources Commission (VMRC) regulates encroachments in, on or over state-owned subaqueous beds as well as tidal wetlands pursuant to Virginia Code §28.2-1200 through 1400. For nontidal waterways, VMRC states that it has been the policy of the Habitat Management Division to exert jurisdiction only over the beds of perennial streams where the upstream drainage area is 5 square miles or greater. The beds of such waterways are considered public below the ordinary high water line.

2(b) Agency Findings. VMRC finds that provided there are no impacts to perennial streams with a drainage area upstream of 5 square miles or greater, no state-owned bottomlands will be involved and authorization from VMRC will not be required. 31

2(c) Requirement. Should it be anticipated that activities would result in impacts to state subaqueous lands, a permit may be required from VMRC. Any jurisdictional impacts will be reviewed by VMRC during the Joint Permit Application process.

3. Erosion and Sediment Control and Stormwater Management. For either site, the SEIS states that stormwater quality and quantity control would be required in compliance with state and county requirements. A Virginia Stormwater Management Program (VSMP) General Permit for construction activity stormwater discharges would be obtained from DEQ. Additionally, a Stormwater Pollution Prevention Plan (SWPPP), which is based on the approved sediment and erosion control plans, would be prepared in compliance with the VSMP permit. Any impacts to surface waters associated with an increase of stormwater runoff due to construction activities would be minimized by implementation of SWPPP and BMPs. The document concludes that construction of the proposed CRC facility at either site would not have significant adverse impacts to surrounding surface waters.

3(a) Agency Jurisdiction. The DEQ Office of Stormwater Management (OSWM) administers the following laws and regulations governing construction activities:

- Virginia Erosion and Sediment Control (ECS) Law (§ 62.1-44.15:51 *et seq.*) and Regulations (9 VAC 25-840);
- Virginia Stormwater Management Act (§ 62.1-44.15:24 *et seq.*);
- Virginia Stormwater Management Program regulation (9 VAC2 5-870); and
- 2014 General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Construction Activities (9 VAC 25-880).

In addition, DEQ is responsible for the VSMP General Permit for Stormwater Discharges from Construction Activities related to Municipal Separate Storm Sewer Systems (MS4s) and construction activities for the control of stormwater discharges from MS4s and land disturbing activities under the Virginia Stormwater Management Program (9 VAC 25-890-40).

3(b) Requirements. DEQ-OSWM did not respond to our request for comments. However, based on responses to similar projects, regulatory guidance for the control of non-point source pollution is presented below.

(i) Erosion and Sediment Control and Stormwater Management Plans

GSA and its authorized agents conducting regulated land-disturbing activities on private and public lands in the state must comply with *VESCL&R* and *VSWML&R*, including coverage under the general permit for stormwater discharge from construction activities, and other applicable federal nonpoint source pollution mandates (e.g. Clean Water Act-Section 313, federal consistency under the Coastal Zone Management Act). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, borrow areas, soil stockpiles, and related land-disturbing activities that result in the total land disturbance of equal to or greater than 10,000 square feet would be regulated by *VESCL&R*. Accordingly, GSA must prepare and implement an Erosion and Sediment Control plan to ensure compliance with state law and regulations. The ESC plan is submitted to DEQ-VRO which serves the area where the project is located for review for compliance. GSA is ultimately responsible for achieving project compliance through oversight of on-site contractors, regular field inspection, prompt action against non-compliant sites, and other mechanisms consistent with agency policy. [Reference: VESCL 62.1-44.15 *et seq.*]

(ii) General VPDES Permit for Discharges of Stormwater from Construction Activities (VAR10)

The operator or owner of a construction project involving land-disturbing activities equal to or greater than one acre is required to register for coverage under the VAR10 permit and develop a project-specific stormwater pollution prevention plan. The SWPPP must be prepared prior to submission of the registration statement for coverage under the general permit, and it must address water quality and quantity in accordance with the *VSMP Permit Regulations*. General information and registration forms for the General Permit are available on DEQ's website at
http://www.deq.virginia.gov/Programs/Water/StormwaterManagement/VSMPPermits/Co

nstructionGeneralPermit.aspx. [Reference: Virginia Stormwater Management *Act* 62.1-§44.15 *et seq.*] *VSMP Permit Regulations* 9 VAC 25-870-10 *et seq.*].

4. Air Pollution Control. For either site the SEIS (page 4-5) finds that fugitive dust from land-disturbing activities would be the primary source of emissions during construction, with most of the emissions occurring during Year 1. Direct impacts to air quality may also include emissions from the burning of construction debris, if such an activity were undertaken during construction. Construction activities would result in an estimated 3,540 metric tons of greenhouse gas emissions over the entire construction period (two years). These emissions are the result of equipment operations and so are short-lived and temporary. The facility is likely to include emergency generators and may have one or more boilers for heat and/or hot water. This equipment is regulated under the Clean Air Act and would require that a permit to construct be obtained, and that the equipment, at a minimum, is registered with DEQ.

4(a) Agency Jurisdiction. The DEQ Air Division, on behalf of the State Air Pollution Control Board, is responsible for developing regulations that implement Virginia's Air Pollution Control Law (Virginia Code §10.1-1300 *et seq.*). DEQ is charged with carrying out mandates of the state law and related regulations as well as Virginia's federal obligations under the Clean Air Act as amended in 1990. The objective is to protect and enhance public health and quality of life through control and mitigation of air pollution. The division ensures the safety and quality of air in Virginia by monitoring and analyzing air quality data, regulating sources of air pollution, and working with local, state and federal agencies to plan and implement strategies to protect Virginia's air quality. The appropriate DEQ regional office is directly responsible for the issuance of necessary permits to construct and operate all stationary sources in the region as well as monitoring emissions from these sources for compliance. As a part of this mandate, environmental impact reviews of projects to be undertaken in the state are also reviewed. In the case of certain projects, additional evaluation and demonstration must be made under the general conformity provisions of state and federal law.

The Air Division regulates emissions of air pollutants from industries and facilities and implements programs designed to ensure that Virginia meets national air quality standards. The most common regulations associated with construction projects are:

- Open burning: 9 VAC 5-130 *et seq.*
- Fugitive dust control: 9 VAC 5-50-60 *et seq.*
- Permits for fuel-burning equipment: 9 VAC 5-80-1100 *et seq.*

4(b) Agency Findings. According to the DEQ Air Division, the project site is located in a designated ozone maintenance area and emission control area for oxides of nitrogen (NO_x) and volatile organic compounds (VOCs). Precursors to ozone (O_3) pollution include VOCs and NO_x.

4(c) Recommendation. All reasonable precautions should be taken to limit emissions of VOCs and NO_x, principally by controlling or limiting the burning of fossil fuels.

4(d) Requirements.

(i) Fugitive Dust

Fugitive dust must be kept to a minimum by using control methods outlined in 9 VAC 5-50-60 *et seq.* of the *Regulations for the Control and Abatement of Air Pollution.* These precautions include, but are not limited to, the following:

- Use, where possible, of water or chemicals for dust control (However, do not use water for dust control to the extent that it results in runoff to surface waters or wetlands.);
- Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials;
- Covering of open equipment for conveying materials; and
- Prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments resulting from soil erosion.

(ii) Asphalt Paving

There are some limitations stemming from 9 VAC 5-40-5490 in the *Regulations for the Control and Abatement of Air Pollution* on the use of "cut-back" (liquefied asphalt cement, blended with petroleum solvents) that may apply to paving that may be associated with the proposed access road. Moreover, there are time-of-year restrictions on its use during the months of April through October in VOC emission control areas.

(iii) Open Burning

If project activities include the open burning or use of special incineration devices for the disposal of land clearing debris, this activity must meet the requirements of 9 VAC 5-130-10 through 9 VAC 5-130-60 and 9 VAC 5-130-100 of the *Regulations* for open burning, and it may require a permit. The *Regulations* provide for, but do not require, the local adoption of a model ordinance concerning open burning. The project proponent should contact Frederick County fire officials to determine what local requirements, if any, exist. The shredding or chipping of vegetative debris and reuse on-site is recommended over open burning.

(iv) Fuel-burning Equipment

Should the project include the installation of fuel-burning equipment (boilers, generators, compressors, etc.), or any other air pollution emitting equipment, the project may be subject to 9 VAC 5-80, Article 6, Permits for New and Modified Sources. Accordingly, the project manager should contact the DEQ-VRO Air Permit Manager for a permitting determination prior to the installation, construction, and operation of fuel-burning or other air pollution emitting equipment.

5. Solid and Hazardous Wastes and Hazardous Materials.

(i) Arcadia

According to the SEIS (page 4-34), a historic structure is located on the site and is assumed to have been constructed prior to 1979 and, as such, has the potential to contain lead-based paint, asbestos-containing materials and polychlorinated biphenyls.

(ii) Whitehall

The SEIS (page 5-22) indicates that the parcel was used for agricultural purposes until 2007, when development of an adjacent strip mall began. As such, heavy use of pesticides and fertilizers is suspected.

For either site, the construction contractors would be responsible for safely removing construction-generated wastes from the construction site and for arranging for recycling or disposal in accordance with applicable regulations. Pesticides and herbicides would be used as part of routine grounds and facility maintenance and would be applied and managed in accordance with applicable regulations and manufacturer instructions.

5(a) Agency Jurisdiction. On behalf of the Virginia Waste Management Board, the DEQ Division of Land Protection and Revitalization (DEQ-DLPR) is responsible for carrying out the mandates of the Virginia Waste Management Act (Virginia Code §10.1-1400 *et seq.*), as well as meeting Virginia's federal obligations under the Resource Conservation and Recovery Act and the Comprehensive Environmental Response Compensation Liability Act , commonly known as Superfund. DEQ-DLPR also administers laws and regulations on behalf of the State Water Control Board governing Petroleum Storage Tanks (Virginia Code §62.1-44.34:8 *et seq.*), including Aboveground Storage Tanks (9 VAC 25-91 *et seq.*) and Underground Storage Tanks (9 VAC 25-580 *et seq.* and 9 VAC 25-580-370 *et seq.*), also known as 'Virginia Tank Regulations', and § 62.1-44.34:14 *et seq.* which covers oil spills.

Virginia:

- Virginia Waste Management Act, Virginia Code § 10.1-1400 *et seq.*
- *Virginia Solid Waste Management Regulations*, 9 VAC 20-81
  - (9 VAC 20-81-620 applies to asbestos-containing materials)
- *Virginia Hazardous Waste Management Regulations*, 9 VAC 20-60
  - (9 VAC 20-60-261 applies to lead-based paints)
- *Virginia Regulations for the Transportation of Hazardous Materials*, 9 VAC 20-110.

Federal:

- Resource Conservation and Recovery Act (RCRA), 42 U.S. Code sections 6901 *et seq.*

- U.S. Department of Transportation *Rules for Transportation of Hazardous Materials*, 49 *Code of Federal Regulations*, Part 107
- Applicable rules contained in Title 40, *Code of Federal Regulations*.

5(b) Agency Findings. DEQ-DLPR finds that both solid and hazardous waste issues were addressed in the SEIS. DEQ-DLPR conducted a geographic information system (GIS) database search to identify any waste sites within a 200-foot radius that could impact or be impacted by the subject sites. In addition, DEQ-DLPR conducted a cursory review of DEQ data files for zip codes 22602 and 22624 and determined that there are two Resource Conservation and Recovery Act (RCRA) hazardous waste sites and one petroleum release site in the area of the project sites. The RCRA sites are: 32

- ID# VAD007861933 – Perry Engineering Co., Inc., 1945 Millwood Pike, Winchester, VA 22602. Contact: Jeff Perry at 540-667-4310.
- ID# VAP301201102 – Frederick County Public Schools, Building and Grounds, 280 Woodbine Road, Clearbrook, VA 22624. Contact: David M. Hart at 540-867-4865, ext 88457.

The petroleum release site is:

- ID# 20086024 – Gregory Strosnider property, 4754 Martinsburg Pike, Clearbrook, VA 22624. Event Date: 9/21/2007. Status: Closed.

5(c) Recommendations.

(i) Solid and Hazardous Waste Databases

The proposed development of specific sites should include an environmental investigation on and near the properties in order to identify any solid or hazardous waste sites or issues related to the project area. The DEQ databases that should be investigated include the Permitted Solid Waste Management Facilities, Virginia Environmental Geographic Information Systems (Solid Waste, Voluntary Remediation Program, and Petroleum Release sites), Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Facilities, and Hazardous Waste Facilities databases.

(ii) Pollution Prevention

DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately

5(d) Requirements.

(i) Generated Waste

Any soil that is suspected of contamination or wastes that are generated during construction-related activities must be tested and disposed of in accordance with applicable federal, state, and local laws and regulations.

(ii) Asbestos-containing Material and Lead-based Paint

All structures being demolished or removed should be checked for asbestos-containing materials (ACM) (such as insulation) and lead-based paint (LBP) prior to construction. If ACM or LBP are found, in addition to the federal waste-related regulations mentioned above, state regulations 9 VAC 20-80-640 for ACM and 9 VAC 20-60-261 for LBP must be followed.

Questions or requests for further information regarding these comments may be directed to DEQ-DLPR, Steve Coe at (804) 698-4029.

6. Pesticides and Herbicides. DEQ recommends that the use of herbicides or pesticides for construction or landscape maintenance should be in accordance with the principles of integrated pest management. The least toxic pesticides that are effective in controlling the target species should be used to the extent feasible. Contact the Department of Agriculture and Consumer Services at (804) 786-3501 for more information.

7. Natural Heritage Resources. Development of the SEIS was coordinated with the Department of Conservation and Recreation (Appendix A, DCR letter dated June 8, 2015).

7(a) Agency Jurisdiction.

(i) Department of Conservation and Recreation

The Virginia Department of Conservation and Recreation's (DCR) Division of Natural Heritage (DNH). DNH's mission is conserving Virginia's biodiversity through inventory, protection and stewardship. The Virginia Natural Area Preserves Act (Virginia Code §10.1-209 through 217), authorized DCR to maintain a statewide database for conservation planning and project review, protect land for the conservation of biodiversity, and the protect and ecologically manage the natural heritage resources of Virginia (the habitats of rare, threatened and endangered species, significant natural communities, geologic sites, and other natural features).

(ii) Department of Agriculture and Consumer Services

The Virginia Department of Agriculture and Consumer Services (VDACS): The Endangered Plant and Insect Species Act of 1979 (Virginia Code Chapter 39 §3.1-1020

through 1030) authorizes VDACS to conserve, protect and manage endangered and threatened species of plants and insects. Under a Memorandum of Agreement established between VDACS and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species.

7(b) Agency Findings.

(i) Arcadia Site 33

According to the information currently in DCR files, the Opequon Creek Stream Conservation Unit (SCU) is downstream of the project site. The Opequon Creek SCU has been given a biodiversity significance ranking of B5, which represents a site of general significance. The natural heritage resource of concern associated with this SCU is:

Glyptemys insculpta	Wood turtle	G3/S2/NL/LT

The Wood turtle ranges from southeastern Canada, south to the Great Lake states and New England. In Virginia, it is know from northern counties within the Potomac River drainage (NatureServe, 2009). The Wood turtle inhabits areas containing clear streams with adjacent forested floodplains and nearby fields, wet meadows, and farmlands (Buhlmann *et al.*, 2008; Mitchell, 1994). Since this species overwinters on the bottoms of creeks and streams, a primary habitat requirement is the presence of water (Mitchell, 1994). Threats to the wood turtle include habitat fragmentation, urbanization, and automobile or farm machinery mortality (Buhlmann *et al.*, 2008). The Wood turtle is currently classified as threatened by the Virginia Department of Game and Inland Fisheries.

(ii) Whitehall Site 34

This project site is situated on karst-forming carbonate rock and can be characterized by sinkholes, caves, disappearing streams, and large springs. Discharge of runoff to sinkholes or sinking streams, filling of sinkholes, and alteration of cave entrances can lead to surface collapse, flooding, erosion and sedimentation, groundwater contamination, and degradation of subterranean habitat for natural heritage resources. The document *Karst Assessment Standard Practice* developed by the Virginia Cave Board for land development can be found at http://www.dcr.virginia.gov/natural_heritage/documents/karst_assessment_guidelines.pdf.

(iii) Northern Long-Eared Bat 35

There is potential for the Northern Long-eared bat (*Myotis septentrionalis,* G1G3/S3/LT/NL) to occur within both project areas. The Northern Long-eared bat is a small insect-eating bat characterized by its long-rounded ears that when folded forward extend beyond the tip of the nose. Hibernation occurs in caves, mines and tunnels from

late fall through early spring and bats occupy summer roosts comprised of older trees including single and multiple tree-fall gaps, standing snags and woody debris. Threats include white nose syndrome and loss of hibernacula, maternity roosts and foraging habitat (NatureServe, 2014). Due to the decline in population numbers, the Northern Long-eared bat has been federally-listed as threatened by the U.S. Fish and Wildlife Service (USFWS).

(iv) State-listed Plant and Insect Species

Under a Memorandum of Agreement established between VDACS and DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. DCR finds that the proposed action at either site will not affect any documented state-listed threatened or endangered plants or insects.

(v) State Natural Area Preserves

DCR files do not indicate the presence of any State Natural Area Preserves under the agency's jurisdiction at either project site.

7(c) Recommendations.

(i) Karst Areas

If sinkholes, caves, disappearing streams, and large springs are encountered on the project site, the applicant should coordinate with DCR-DNH.

(ii) Aquatic Ecosystem

DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control and stormwater management laws and regulations to minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities.

(iii) Northern Long-Eared Bat 35 (continued)

Due to the legal status of the Northern Long-eared bat, if tree removal is proposed for the project, DCR recommends coordination with the USFWS to ensure compliance with protected species legislation.

(iv) Natural Heritage Resources

Contact DCR-DNH to secure updated information on natural heritage resources if the scope of the project changes and/or six months has passed before it is utilized. New and updated information is continually added to the Biotics Data System.

8. Wildlife Resources and Protected Species. According to the SEIS (pages 4-24 and 5-11), development of either site would result in adverse impacts to wildlife that would not be considered significant. The document does not indicate that federal- or state-listed protected species would be adversely impacted. A time-of-year restriction on tree clearing activities for the period of April 15-September 15 would be observed on either site to avoid impacts to protected bat species (i.e. Indiana bat and Northern long-eared bat).

8(a) Agency Jurisdiction. The Virginia Department of Game and Inland Fisheries (DGIF), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state- or federally-listed endangered or threatened species, but excluding listed insects (Virginia Code, Title 29.1). DGIF is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S. Code §661 *et seq.*) and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce or compensate for those impacts. For more information, see the DGIF website at *www.dgif.virginia.gov.*

8(b) Agency Findings.

(i) Arcadia Site

Opequon Creek is located downstream of this site and has been designated a Threatened and Endangered Species Water due to the presence of state-listed Threatened wood turtle. However, it does not appear that there are any perennial tributaries to Opequon Creek on the project site. Therefore, DGIF does not anticipate this project to result in adverse impacts upon the wood turtle.

(ii) Whitehall Site

DGIF documents a stockable trout stream from the project site. However, based on the scope and location of the proposed work, DGIF does not anticipate it to result in adverse impacts upon this resource.

8(c) Recommendations.

(i) Wood Turtle 36

DGIF recommends coordination with agency staff regarding protection of the Wood turtle and its habitat if perennial waters or lands within 900 feet of such waters will be impacted.

(ii) Northern Long-Eared Bat 37

DGIF recommends coordination with the USFWS regarding potential impacts upon federally-listed Threatened Northern long-eared bat if tree removal is proposed.

(iii) Instream Work

If instream work is proposed, DGIF recommends the following:

- Conduct activities during low or no-flow conditions.
- Use non-erodible cofferdams or turbidity curtains to isolate the construction area.
- Block no more than 50% of the streamflow at any given time.
- Stockpile excavated material in a manner that prevents reentry into the stream.
- Restore original streambed and streambank contours.
- Revegetate barren areas with native vegetation.
- Implement strict erosion and sediment control measures.

(iv) Concrete Work

DGIF recommends the following to minimize harm to the aquatic environment and its residents resulting from 1) installing concrete using the Tremie method, 2) installing grout bags, or 3) pouring concrete:

- Conduct activities only "in the dry."
- Allow all concrete to harden and cure prior to contact with open water.

(v) Stream Crossings

DGIF recommends that stream crossings should be constructed via clear-span bridges due to future maintenance costs associated with culverts and the loss of riparian and aquatic habitat. However, if this is not possible, DGIF recommends countersinking any culverts below the streambed at least 6 inches or the use of bottomless culverts to allow passage of aquatic organisms. In addition, DGIF recommends the installation of floodplain culverts to carry bankfull discharges.

(vi) General Wildlife Protection

DGIF offers the following recommendations to minimize overall impacts to wildlife and natural resources as a result of proposed development activities:

- Avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable, including relocating stream channels as opposed to filling or channelizing as well as using, and incorporating into the development plan a natural stream channel design and wooded buffers.
- Maintain undisturbed naturally vegetated buffers of at least 100 feet in width around all on-site wetlands and on both sides of all perennial and intermittent

streams.

- Maintain wooded lots to the fullest extent possible.
- Adhere to a time-of-year restriction protective of resident and migratory songbird nesting from March 15 through August 15 of any year for all tree removal and ground clearing.
- Adhere to erosion and sediment controls during ground disturbance.
- Design stormwater controls to replicate and maintain the hydrographic condition of the site prior to the change in landscape. This should include, but not be limited to, utilizing bioretention areas, and minimizing the use of curb and gutter in favor of grassed swales. Bioretention areas (also called rain gardens) and grass swales are components of Low Impact Development (LID). They are designed to capture stormwater runoff as close to the source as possible and allow it to slowly infiltrate into the surrounding soil. They benefit natural resources by filtering pollutants and decreasing downstream runoff volumes.

DGIF does not generally support proposals to mitigate wetland impacts through the construction of stormwater management ponds, nor does it support the creation of in-stream stormwater management ponds.

DGIF staff is available to assist the applicant in developing a plan that includes open-space, wildlife habitat, and natural stream channels which retain their wooded buffers.

9. Water Supply. According to the SEIS (page 4-9), existing offsite water lines would require extension to provide potable water to the site. This would involve trenching to lay the lines, though the proximity of existing water lines means that the trenching distance would be relatively short. The operation of the facility would result in an increase in use of potable water in the area, though there is sufficient water supply available from the Frederick County Sanitation Authority (FCSA) (Earl Wiley. Personal communication. 2015).

9(a) Agency Jurisdiction. The Virginia Department of Health (VDH), Office of Drinking Water (ODW) reviews projects for the potential to impact public drinking water sources (groundwater wells and surface water intakes).

9(b) Agency Findings. VDH-ODW finds that there are no public groundwater wells within a 1-mile radius of the project site. In addition, the following surface water intakes are located within a 5 mile radius of the project site:

PWSID	SYSNAME	FACNAME
2069250	FREDERICK COUNTY SANITATION AUTHORITY	CLEAR BROOK QUARRY (PIT 3)
2069250	FREDERICK COUNTY SANITATION AUTHORITY	CLEAR BROOK QUARRY (PIT 2)

The project is within the watershed of the following public surface water sources:

PWSID	SYSNAME	FACNAME
6107300	LEESBURG, TOWN OF	POTOMAC INTAKE
2043125	BERRYVILLE, TOWN OF	SHENANDOAH RIVER

9(c) Recommendation. VDH-ODW recommends that potential impacts to public water distribution systems must be verified by the local utility. In addition, BMPs should be employed on the project site including erosion and sediment controls and spill prevention controls and countermeasures. 38

9(d) Conclusion. VDH concludes the there may be impacts to public drinking water sources due to this project if the mitigation efforts outlined above are not implemented.

Contact VDH-ODW, Arlene Warren at (804) 864-7781, for additional information regarding these comments.

10. Wastewater. According to the SEIS (pages 4-9 and 5-4), access to the existing FCSA system would be available via a new connection to a forced sewer main already located close to the properties. A lift station would be required for the Arcadia site in order for sanitation service to be available to the facility. An existing lift station is located near the Whitehall site. Wastewater generated at the facility would be treated at the Opequon Water Reclamation Facility. This Reclamation Facility has enough capacity to readily accommodate the volume of wastewater that would be generated at the FBI facility (Earl Wiley. Personal communication. 2015).

10(a) Agency Jurisdiction. DEQ has approval authority for most discharging sewage collection systems and treatment works, except drainfields and other on-site systems approved by the local health department. This authority is contained in the *Sewage Collection and Treatment Regulations* (9 VAC 25-790 *et seq.*). Additional information is available on the DEQ website at *www.deq.virginia.gov/Programs/Water/WastewaterAssistanceTraining/WastewaterEngineering/Regulations.aspx*. Construction of sanitary wastewater collection systems must comply with the state's sewerage regulations.

10(b) Agency Findings. According to DEQ-VRO, DEQ has approval authority over wastewater discharges in accordance with the State Water Control Law and corresponding regulations. This includes discharges or land application of any wastewaters generated from washing of vehicles or other practices relevant to this project. In addition, DEQ has approval authority over plans and specifications for sewage collection systems and treatment works (except drainfields and other on-site systems approved by the local health department), per the Sewage Collection and Treatment (SCAT) Regulations, http://law.lis.virginia.gov/admincode/title9/agency25/chapter790/.

10(c) Requirement. Any wastewaters generated by this project must be properly managed and disposed. 39

For additional information and assistance, contact DEQ-VRO, Brandon Kiracofe at (540) 574-7892 or brandon.kiracofe@deq.virginia.gov.

11. Forest Resources.

(i) Arcadia Site

According to the SEIS (page 4-23), development would take place on roughly 49.3 acres of the 59-acre project area. Based on the conceptual design layout, implementing Alternative 1 would result in the removal of up to 32.2 acres of forested habitat within the area to be developed.

(ii) Whitehall Site

The SEIS (page 5-10) states that development would take place on roughly 38.4 acres of the 58-acre project area. Based on the conceptual design layout, implementing Alternative 2 would result in the removal of up to 22.6 acres of shrub and cedar habitat within the area to be developed.

Following construction, grass would be planted around buildings, with the addition of ornamental shrubs, trees, and mulching in select areas.

11(a) Agency Jurisdiction. The Virginia Department of Forestry (DOF) reviews applications to ensure that the forest resources of the Commonwealth are managed in a sustainable manner to meet the economic, ecological, and social needs of Virginia in perpetuity. DOF is charged with protecting and developing healthy, sustainable forest resources that maintain functioning forest ecosystem and improve forest health, sustaining the supply of raw materials necessary for the economic growth of Virginia's timber industry, and supporting the protection of water quality and sources of water supply within Virginia's watersheds (Virginia Code, §10.1-1101, 10.1-1105, and 10.1-1106).

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11(b) Agency Findings. Based on the material provided, DOF finds that forest land will be lost under both potential site alternatives but significantly more so at the Arcadia site. The SEIS concludes that either site would not result in significant cumulative impacts to biological resources "when combined with past, present, and reasonably foreseeable future projects." With regard to foreseeable future projects, it is assumed the document refers to development that would be allowed under the local comprehensive plan. The cumulative impact assessment conclusion, therefore, appears to assume that development of the sites is going to occur in the future and, therefore, the site alternatives should be evaluated within that context and considered *de minimis* for both site alternatives. While DOF acknowledges that future possibility, its review must be restricted to evaluating the impact of the proposed project on forest resources of the Commonwealth as submitted for this review. Accordingly, DOF finds that the Arcadia site is far more forested and is connected to a larger, contiguous forest

than the Whitehall site. Furthermore, based on the information provided, the tree species on the Arcadia site are more diverse and the forest provides a more robust wildlife habitat. 40 (continued)

11(c) Recommendation. DOF recommends the Whitehall site (Alternative 2) as the preferred site. 41

For additional information, contact DOF, Greg Evans at (434) 906-3658 or gregory.evans@dof.virginia.gov.

12. Transportation Impacts.

(i) Arcadia Site

According to the SEIS (page 4-17), a traffic impact analysis anticipates the new FBI CRC would be operating in 2019. In 2019, traffic conditions associated with the eastbound Victory Road approach and the eastbound and westbound left-turns at Independence Drive are anticipated to result in significant delays. Eastbound left-turns at U.S. Route 17/50 and Victory Road and U.S. Route 17/50 and Independence Drive would be further impacted by 2019 due to additional trips associated with the proposed action. Although the impacts to traffic would be considered significant, it is anticipated that with the implementation of mitigation measures these impacts would mitigated to a less than significant impact.

(ii) Whitehall Site

The SEIS (page 5-8) states that primary access to the proposed FBI CRC would be from a single access point from Rest Church Road and U.S. Route 11. A secondary access point would be located along Woodbine Road, east of U.S. Route 11. Based on the traffic impact study there would be no excessive delays; therefore, adverse impacts to traffic would not be significant. Implementation of the mitigation measures would further reduce the minor delays that would occur.

12(a) Agency Jurisdiction. The Virginia Department of Transportation provides comments pertaining to potential impacts to existing and future transportation systems.

12(b) Agency Findings. The VDOT Staunton District Planning is currently conducting a separate review of a Traffic Impact Analysis (TIA) report for this project as submitted by the GSA. All transportation related impacts and mitigation measures related to the project will be identified and resolved through the TIA review and approval process. The initial submission of the TIA and VDOT's review comments are included in the SEIS. However, VDOT is currently reviewing a second submission of the TIA, which has been substantially revised following the initial submission. VDOT has no additional comments related directly to the SEIS. 42

For additional information, contact VDOT, Adam Campbell at (540) 332-9067 or adam.campbell@vdot.virginia.gov.

13. Historic & Archaeological Resources.

(i) Arcadia Site

According to the SEIS (page 4-33), none of the architectural resources in the area of potential effect (APE) are eligible for listing in the National Register of Historic Places (NRHP). In addition, a Phase I archaeology survey did not identify any archaeological sites eligible for inclusion in the NRHP. Therefore, the document concludes that there will be no historic properties or archaeological resources affected by this alternative. The GSA is consulting with the Virginia State Historic Preservation Office (SHPO) on this finding of effect and the results will be included in the Final SEIS.

(ii) Whitehall Site

The SEIS (page 5-20) states that the APE for Alternative 2 includes one architectural resource that is listed in the NRHP, the James Nathanial Burwell House. The NRHP property is located in the northern part of the APE, approximately 900 feet north of the Whitehall site. GSA has determined that construction of the 5-story CRC building would introduce a new element within the rural setting of the James Nathanial Burwell House that would diminish its integrity of setting and feeling and thus, result in an adverse effect under Section 106 of the NHPA. The GSA is consulting with the SHPO on its finding of effect. No archaeological sites are present within the project area; therefore, no impacts to archaeological sites eligible for inclusion in the NRHP for Alternative 2 would occur.

13(a) Agency Jurisdiction. The Virginia Department of Historic Resources (DHR) conducts reviews of both federal and state projects to determine their effect on historic properties. Under the federal process, DHR is the State Historic Preservation Office, and ensures that federal undertakings-including licenses, permits, or funding-comply with Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulation at 36 CFR Part 800. Section 106 requires federal agencies to consider the effects of federal projects on properties that are listed or eligible for listing on the National Register of Historic Places. Please see DHR's website for more information about applicable state and federal laws and how to submit an application for review: http://www.dhr.virginia.gov/StateStewardship/Index.htm.

13(b) Agency Findings. DHR has been in consultation with the GSA regarding this project.

13(c) Requirement. The GSA must continue to consult directly with DHR, as necessary, pursuant to Section 106 of the National Historic Preservation Act (as amended) and its implementing regulations codified at 36 CFR Part 800 which require federal agencies to consider the effects of their undertakings on historic properties.

14. Local Review.

14(a) Agency Jurisdiction. DEQ distributes a copy of environmental documents to the chief administrative officer of every locality in which each project is proposed to be located. The purpose of the distribution is to enable the locality to evaluate the proposed project for environmental impact, consistency with the locality's comprehensive plan, local ordinances adopted pursuant to this chapter, and other applicable law and to provide the locality with an opportunity to comment.

14(b) Agency Findings. The Assistant County Administrator for Frederick County finds that the SEIS frequently cites sources that are now nearly nine years old (from GSA's 2007 EIS). This information is outdated and should be revisited for accuracy. The County believes that the entire document needs to be revised to reflect 2015 data rather than 2007 if the intent is to perform an accurate evaluation. 43

The County's response includes specific comments related to information presented in the SEIS with respect to traffic impacts, noise codes, zoning classifications, the Comprehensive Plan and other matters. The County's detailed response is not repeated here. However, it is included as an attachment to this response and should be addressed.

For additional information, contact Frederick County, Kris Tierney at (540) 665-6382.

15. Pollution Prevention. DEQ advocates that principles of pollution prevention be used in all construction projects. Effective siting, planning, and on-site Best Management Practices (BMPs) will help to ensure that environmental impacts are minimized. However, pollution prevention techniques also include decisions related to construction materials, design, and operational procedures that will facilitate the reduction of wastes at the source.

15(a) Recommendations. We have several pollution prevention recommendations that may be helpful in the construction of this development: 44

- Consider environmental attributes when purchasing materials. For example, the extent of recycled material content, toxicity level, and amount of packaging should be considered and can be specified in purchasing contracts.
- Consider contractors' commitment to the environment when choosing contractors. Specifications regarding raw materials and construction practices can be included in contract documents and requests for proposals.
- Choose sustainable materials and practices for infrastructure and building construction and design. These could include asphalt and concrete containing recycled materials, and integrated pest management in landscaping, among other things.

DEQ's Office of Pollution Prevention provides information and technical assistance relating to pollution prevention techniques. For more information, contact DEQ's Office of Pollution Prevention, Meghann Quinn at (804) 698-4021.

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16. Energy Conservation. The proposed facility should be planned and designed to comply with state and federal guidelines and industry standards for energy conservation and efficiency. The Commonwealth encourages architectural and engineering designers to recognize and incorporate the energy, environmental, and sustainability concepts listed in the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Rating System into the development and procurement of their projects.

The energy efficiency of the structures can be enhanced by maximizing the use of the following:

- thermally-efficient building shell components (roof, wall, floor, windows, and insulation);
- facility siting and orientation with consideration towards natural lighting and solar loads
- high efficiency heating, ventilation, air conditioning systems;
- high efficiency lighting systems and daylighting techniques; and
- energy-efficient appliances.

Contact the Department of Mines, Minerals and Energy, David Spears at (434) 951-6350 for additional information on energy conservation measures. For more information on the LEED rating system, visit www.leedbuilding.org.

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17. Water Conservation. The following recommendations will result in reduced water use associated with the operation of the facility.

- Grounds should be landscaped with hardy native plant species to conserve water as well as lessen the need to use fertilizers and pesticides.
- Convert turf to low water-use landscaping such as drought resistant grass, plants, shrubs and trees.
- Low-flow toilets should be installed in new facilities.
- Consider installing low flow restrictors and aerators to faucets.
- Improve irrigation practices by:
    - upgrading sprinkler clock; water at night, if possible, to reduce evapotranspiration (lawns need only 1 inch of water per week, and do not need to be watered daily; overwatering causes 85% of turf problems);
    - installing a rain shutoff device; and
    - collecting rainwater with a rain bucket or cistern system with drip lines.
- Use new high-efficiency washers and dishwashers to reduce water useage by 30-50% per use.

REGULATORY AND COORDINATION NEEDS

1. Surface Waters and Wetlands. A Virginia Water Protection (VWP) Permit may be required for impacts to surface waters and wetlands in Virginia pursuant to Virginia Code §62.1-44.15:20. Potential impacts would require the submission of a Joint Permit Application for review. The applicant must coordinate with the appropriate agencies through the JPA process. For additional information regarding the VWP Permit, contact DEQ-VRO, Eric Millard at (540) 574-7813.

2. Subaqueous Lands Management. If impacts to state subaqueous lands are anticipated, authorization from VMRC in accordance with §28.2-1203 of the Code of Virginia may be required. Accordingly, the applicant must coordinate with VMRC through the JPA process. For additional information and coordination, contact VMRC, Jay Woodward at (757) 247-8032.

3. Air Quality. Guidance on minimizing the emission of VOCs and NO_x during construction may be obtained from DEQ-VRO staff. Activities associated with this project may be subject to air regulations administered by DEQ. The state air pollution regulations that may apply to the construction and operation of the facility are:

- fugitive dust and emissions control (9 VAC 5-50-60 *et seq.*);
- asphalt paving operations (9 VAC 5-45-780 *et seq.*);
- open burning restrictions (9 VAC 5-130 *et seq.*); and
- fuel-burning equipment (9 VAC 5-80 *et seq.*).

The applicant should contact Frederick County fire officials for information on any local requirements pertaining to open burning. For more information, contact DEQ-VRO, Janardan Pandey at (540) 574-7817.

4. Solid and Hazardous Wastes. All solid waste, hazardous waste, and hazardous materials must be managed in accordance with all applicable federal, state, and local environmental regulations. Some of the applicable state laws and regulations are:

- *Virginia Waste Management Act* (Code of Virginia Section 10.1-1400 *et seq.*);
- *Virginia Hazardous Waste Management Regulations* (*VHWMR*) (9 VAC 20-60);
- *Virginia Solid Waste Management Regulations* (*VSWMR*) (9 VAC 20-81); and
- *Virginia Regulations for the Transportation of Hazardous Materials* (9 VAC 20-110).

Some of the applicable federal laws and regulations are:

- *Resource Conservation and Recovery Act* (*RCRA*) (42 U.S.C. Section 6901 *et seq.*);
- Title 40 of the Code of Federal Regulations; and
- U.S. Department of Transportation Rules for Transportation of Hazardous materials (49 CFR Part 107).

Contact DEQ-VRO, Keith Fowler at (540) 574-7812, for information on the location and availability of suitable waste management facilities in Virginia if free product, discolored soils, or other evidence of contaminated soils are encountered.

4(a) Asbestos-containing Material. Structures to be altered or demolished must be thoroughly inspected for the presence of asbestos, including Category I and Category II nonfriable asbestos containing material (ACM). Upon classification as friable or non-friable, all waste ACM shall be disposed of in accordance with the *Virginia Solid Waste Management Regulations* (9 VAC 20-80-640), and transported in accordance with the Virginia regulations governing Transportation of Hazardous Materials (9 VAC 20-110-10 *et seq.*). Contact the DEQ-VRO, Richard Wiggins at (540) 562-3580 and the Department of Labor and Industry, Ronald L. Graham (804) 786-0574 for additional information.

4(b) Lead-based Paint. Activities must comply with the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) regulations, and with the Virginia Lead-Based Paint Activities Rules and Regulations. For additional information regarding these requirements contact the Department of Professional and Occupational Regulation, David Dick at (804) 367-8588.

5. Natural Heritage Resources.

(i) Karst Areas

If sinkholes, caves, disappearing streams and large springs are encountered on the project site, coordinate with DCR-DNH, Wil Orndorff at (540) 230-5960 or wil.orndorff@dcr.virginia.gov), to document and minimize adverse impacts. If the project involves filling or "improvement" of sinkholes or cave openings, coordinate with DCR with detailed location information and copies of the design specifications. In cases where sinkhole improvement is for stormwater discharge, copies of the Virginia Department of Transportation Form EQ-120 will suffice.

(ii) Northern Long-Eared Bat

Coordinate with the USFWS Virginia Field Office, Cindy Schulz at (804) 824-2426 or cindy.schulz@fws.gov regarding any potential impacts upon the federally-listed Threatened Northern long-eared bat that may be associated with tree removal.

(iii) Natural Heritage Resources

Contact DCR-DNH, Rene Hypes at (804) 371-2708, to secure updated information on natural heritage resources if the scope of the project changes and/or six months passes before the project is implemented, since new and updated information is continually added to the Biotics Data System.

6. Wildlife Resources. Coordination with DGIF regarding protection of the Wood turtle and its habitat may be accomplished by contacting DGIF, Amy Ewing at (804) 367-2211. In addition, the development of project-specific measures to minimize project impacts upon wildlife resources may be coordinated with the DGIF contact noted above.

7. Water and Sewer. Coordinate with the Frederick County Sanitation Authority at (540) 868-1061, concerning connections to the local water supply and sanitary sewer systems. In addition, contact DEQ-VRO, Brandon Kiracofe at (540) 574-7892 or brandon.kiracofe@deq.virginia.gov to ensure compliance with the Sewage Collection and Treatment (SCAT) Regulations as administered by DEQ.

8. Historic & Archaeological Resources. In accordance with Section 106 of the *National Historic Preservation Act*, as amended, and its implementing regulation 36 CFR 800, the GSA must continue to coordinate with DHR with respect to potential project impacts to historic and archaeological resources. For additional information and coordination, contact DHR, Andrea Burke at (804) 482-6084.

Thank you for the opportunity to review the Draft SEIS for the Central Records Complex for the FBI. Detailed comments of reviewing agencies are attached for your review. Please contact me at (804) 698-4204 or John Fisher at (804) 698-4339 for clarification of these comments.

Sincerely,

Bettina Sullivan, Program Manager
Environmental Impact Review

Enclosures

Ec: Tony Watkinson, VMRC
Amy M. Ewing, DGIF
Keith Tignor, VDACS
Robbie Rhur, DCR
Roy Soto, VDH
Roger Kirchen, DHR
David Spears, DMME
Greg Evans, DOF
Chip Ray, VDOT
Brenda Garton, Frederick County
Martha Shickle, Northern Shenandoah Valley Regional Commission

NAVY FEDERAL Credit Union

October 6, 2015

Ms. Courtenay Hoernemann
Project Environmental Planner
20 North 8th Street
Philadelphia, PA 19107

Dear Ms. Hoernemann:

This letter is in response to the FBI/GSA Supplemental EIS of August 2015 and the potential Arcadia site for the new FBI central records facility.

While both Groves Harley Davidson and Valley Cycle are listed in the study and are associated with Independence Drive, we want to bring to your attention that Navy Federal has a 160,000 square-foot, 1400 employee campus located on Security Drive just off of Independence Drive. Our campus operates around the clock every day. Our largest shift is between 8:00 AM and 4:30 PM weekdays, and our heaviest vehicle traffic is at 2:00 PM and 4:00 PM entering and leaving via Independence Drive. We are concerned that our facility, and the associated traffic, is not specifically accounted for in the study.

Based on observations, we believe current traffic warrants a traffic light at the US 17 and Independence Drive intersection. We support the preparation of a thorough traffic study to ensure appropriate mitigation for safety and flow should the decision be made to locate the central records facility at Arcadia. One concern to us is the draft proposal to make Victory Road right-turn-out-only onto US 17 because this may cause industrial park traffic to use Independence Drive in order to turn left onto US 17. Between this potential additional traffic, the proposed FBI facility, and our employees this may become a bottleneck at peak times. 47

We also want to bring to your attention that we are considering expanding our Winchester campus. The specific nature of this expansion and timing is to be determined. Current and future transportation and traffic will be one factor in our decision and we suggest the traffic study account for potential industrial park growth too.

We appreciate your consideration and invite you to visit our facility if more information is needed. Please contact me at 703.255.8509 or george_eichert@navyfederal.org if you have any questions.

George E. Eichert

Copy to:
Mr. Gene Fisher, Supervisor, Shawnee District, County of Frederick
Mr. Patrick Barker, Executive Director, Frederick County Economic Development Authority

PO Box 3000 Merrifield VA 22119-3000

Fisher, John (DEQ)

From: Fowler, Keith (DEQ)
Sent: Wednesday, August 26, 2015 11:45 AM
To: Fisher, John (DEQ)
Subject: RE: NEW PROJECT GSA 15-135F

Below are DEQ Valley Regional Office review comments for the subject project. Other than the information provided below, I have no additional recommendations re this project. Please let me know if you need any additional information.

1. Water Quality and Wetlands. Measures must be taken to avoid and minimize impacts to surface waters and wetlands during construction activities. The disturbance of surface waters or wetlands may require prior approval by DEQ and/or the U.S. Army Corps of Engineers. The Army Corps of Engineers is the final authority for an official confirmation of whether there are federal jurisdictional wetlands or other surface waters that may be impacted by the proposed project. DEQ may confirm additional waters as jurisdictional beyond those under federal authority. Review of National Wetland Inventory maps or topographic maps for locating wetlands or streams may not be sufficient; there may need to be a site-specific review of the site by a qualified professional. Even if there will be no intentional placement of fill material in jurisdictional waters, potential water quality impacts resulting from construction site surface runoff must be minimized. This can be achieved by using Best Management Practices (BMPs). If construction activities will occur in or along any streams (perennial, intermittent, or ephemeral), open water or wetlands, the applicant should contact Eric Millard at DEQ-VRO (540-574-7813, Eric.Millard@deq.virginia.gov) to determine the need for any permits prior to commencing work that could impact surface waters or wetlands.

2. Erosion and Sediment Control and Storm Water Management. DEQ has regulatory authority for the Virginia Pollutant Discharge Elimination System (VPDES) programs related to municipal separate storm sewer systems (MS4s) and construction activities. Erosion and sediment control measures are addressed in local ordinances and State regulations. Additional information is available at http://www.deq.virginia.gov/Programs/Water/StormwaterManagement.aspx. Non-point source pollution resulting from this project should be minimized by using effective erosion and sediment control practices and structures. Also, denuded areas should be promptly revegetated following construction work. If the total land disturbance exceeds 10,000 square feet, an erosion and sediment control plan will be required. Some localities also require an E&S plan for disturbances less than 10,000 square feet. A stormwater management plan may also be required. For any land disturbing activities equal to one acre or more, you are required to apply for coverage under the VPDES General Permit for Discharges of Storm Water from Construction Activities. The Virginia Stormwater Management Permit Authority may be DEQ or the locality. Specific questions regarding the Stormwater Management Program requirements should be directed to Gary Flory at DEQ-VRO (540-574-7840, Gary.Flory@deq.virginia.gov).

3. Other Site Development Considerations. Fugitive dust generated during construction should be controlled by using measures such as the prompt removal of spilled or tracked dirt or other materials from paved streets, limited application of water to suppress dust, and washing of construction vehicles and paved roadways immediately adjacent to construction sites. Do not use water for dust control to the extent that it results in runoff to surface waters or wetlands. Land clearing wastes (vegetative debris) generated during construction should be properly managed in accordance with applicable regulations and local ordinances. Shredding/chipping of vegetative debris and reuse on-site is usually recommended over open burning. Any open burning of vegetative debris must be performed in accordance with the Open Burning Regulation and coordinated with the local fire official to ensure that all local ordinances are met. A copy of DEQ's open burning regulation and related information are accessible from http://www.deq.virginia.gov/Programs/Air/AirQualityPlans/OpenBurning.aspx. Also, no open burning should take place in violation of the Virginia Waste Management Regulations, http://law.lis.virginia.gov/admincode/title9/agency20/. Contact Keith Fowler at DEQ-VRO (540-574-7812, Keith.Fowler@deq.virginia.gov) for any questions related to the proper control of fugitive dust, or open burning requirements and prohibitions.

4. Air Quality. Installation / operation / modification of stationary or portable fuel burning equipment (e.g., generators, wood chippers/grinders, boilers, etc.) or other sources of air pollutants may be subject to registration and/or air permitting requirements (http://www.deq.virginia.gov/Programs/Air/PermittingCompliance/Permitting/TypesofAirPermits.aspx); for questions regarding this, please contact Janardan Pandey at DEQ-VRO (540-574-7817, Janardan.Pandey@deq.virginia.gov).

5. Petroleum Storage Tanks. Installation / operation / modification of tanks used for the storage of petroleum and CERCLA substances may be subject to registration and/or other regulatory requirements

(http://www.deq.virginia.gov/Programs/LandProtectionRevitalization/PetroleumProgram/StorageTanks.aspx). If petroleum-contaminated soils or water are encountered during excavation work, or if old petroleum tanks need to be removed or replaced, contact DEQ. For questions regarding any of this, please contact David Forrer at DEQ-VRO (540-574-7837, David.Forrer@deq.virginia.gov).

6. Solid and Hazardous Wastes, and Hazardous Substances. DEQ administers the Virginia Waste Management Regulations, http://law.lis.virginia.gov/admincode/title9/agency20/. All solid wastes, hazardous wastes, and hazardous materials, including construction and demolition (C&D) wastes and universal wastes (batteries, fluorescent lights, refrigerants, mercury switches, mercury thermostats, etc.), must be managed in accordance with all applicable federal, state, and local environmental regulations. The generation of hazardous wastes should be minimized and solid wastes generated at the site should be reduced at the source, reused, or recycled. DEQ encourages the management of certain organic wastes by on-site composting or reuse as animal feed or soil amendment. Also, if you encounter any improperly disposed solid or hazardous wastes, or petroleum contaminated soils, you should contact DEQ-VRO. You may wish to refer to the web link for "What's in My Back Yard?", http://www.deq.virginia.gov/ConnectWithDEQ/VEGIS.aspx, to help you determine areas where residual contamination may be more likely. Contact Graham Simmerman at DEQ-VRO (540-574-7865, Graham.Simmerman@deq.virginia.gov) for any questions related to waste management / disposal. Manage / dispose of any asbestos-containing materials (ACMs) in accordance with Virginia Department of Labor and Industry (DOLI) regulations. Contact Doug Wiggins at DOLI (Richard.Wiggins@doli.virginia.gov, 540-562-3580, ext. 131) for any questions related to management / disposal of ACMs. Any open burning must be conducted in compliance with the Open Burning Regulation, http://law.lis.virginia.gov/admincode/title9/agency5/chapter130/. Contact Keith Fowler at DEQ-VRO (540-574-7812, Keith.Fowler@deq.virginia.gov) for any questions related to open burning requirements and prohibitions.

7. Pesticides and Herbicides. DEQ recommends that herbicides or pesticides for construction or landscape maintenance, when necessary, be used in accordance with the principles of integrated pest management, and that the least toxic pesticides that are effective in controlling the target species be used. Please contact the Department of Agriculture and Consumer Services at (804) 786-3501 for more information. If applying aquatic pesticides to surface waters, the applicant must comply with the DEQ's Pesticide General Permit, http://www.deq.virginia.gov/Programs/Water/PermittingCompliance/PollutionDischargeElimination/PermitsFees.aspx#pest .

8. Natural Heritage Resources. The Virginia Department of Conservation and Recreation (DCR) Division of Natural Heritage (DNH) can search its Biotics Data System for occurrences of natural heritage resources from the area indicated on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered animal and plant species, unique or exemplary natural communities, and significant geologic communities. We recommend that the DNH be contacted at (804) 786-7951 to secure updated information on natural heritage resources before commencing the project.

9. Wildlife Resources. The Virginia Department of Game and Inland Fisheries (DGIF) exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state or federally listed endangered or threatened species. DGIF determines likely impacts on fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce, or compensate for those impacts. For more information, see the DGIF website at http://www.dgif.virginia.gov or contact Ray Fernald at (804) 367-6913.

10. Historic and Archaeological Resources. *Section 106 of the National Historic and Preservation Act of 1966*, as amended, requires that activities that receive federal funding must consider effects to properties that are listed or eligible for listing on the National Register of Historic Places. The Department of Historic Resources (DHR) conducts reviews of projects to determine their effect on historic structures or cultural resources. If applicable, contact DHR. In the event that archaeological resources are encountered during construction, immediately contact Ms. Ethel Eaton, DHR, at (804) 367-2323.

11. Pollution Prevention. DEQ recommends that construction projects incorporate the principles of pollution prevention including the following recommendations:

- Consider environmental attributes when purchasing materials. For example, the extent of recycled material content and toxicity level should be considered.
- Consider contractors' commitment to the environment when choosing contractors. Also, specifications regarding raw material selection (alternative fuels and energy sources) and construction practices can be included in contract documents and requests for proposals.
- Choose sustainable practices and materials in infrastructure and construction and design. These could include asphalt and concrete containing recycled materials and integrated pest management in landscaping.
- Integrate pollution prevention techniques into maintenance and operation activities to include source reduction (fixing leaks, energy efficient products).

Pollution prevention measures are likely to reduce potential environmental impacts and reduce costs for material purchasing and waste disposal. DEQ's Office of Pollution of Prevention hosts a number of programs and initiatives that provide non-regulatory assistance to businesses, institutions, and communities including the Virginia Environmental Excellence Program and Virginia Green. For more information, please visit our web site at http://www.deq.virginia.gov/Programs/PollutionPrevention.aspx.

12. Energy Conservation. Any structures should be planned and designed to comply with state and federal guidelines and industry standards for energy conservation and efficiency. For example, energy efficiency of the structures can be enhanced by maximizing the use of the following:

- thermally-efficient building shell components (roof, wall, floor, and insulation);
- high efficiency heating, ventilation, air conditioning systems; and
- high efficiency lighting systems.

Matt Heller at the Department of Mines, Minerals and Energy, (434) 951-6351, may be contacted for assistance in meeting this challenge.

13. Potable Water. Installation of potable water lines and appurtenances must comply with the State's Waterworks Regulations. The Virginia Department of Health (VDH), http://www.vdh.state.va.us/ODW/, administers both federal and state laws governing waterworks operation. For more information, contact the VDH's Lexington Office of Water Programs at (540) 463-7136.

14. Wastewaters. DEQ has approval authority over wastewater discharges per the State Water Control Law and corresponding regulations. This includes discharges or land application of any wastewaters generated from washing of vehicles or other practices relevant to this project. DEQ also has approval authority over plans and specifications for sewage collection systems and treatment works (except drainfields and other on-site systems approved by the local health department), per the Sewage Collection and Treatment (SCAT) Regulations, http://law.lis.virginia.gov/admincode/title9/agency25/chapter790/. Any wastewaters generated by this project must be properly managed and disposed. For additional information and assistance, contact Brandon Kiracofe at DEQ-VRO (540-574-7892, Brandon.Kiracofe@deq.virginia.gov).

B. Keith Fowler | Deputy Regional Director | DEQ-Valley Regional Office | 4411 Early Road | P. O. Box 3000 | Harrisonburg, VA 22801 | 540-574-7812 | Keith.Fowler@deq.virginia.gov

Fisher, John (DEQ)

From: Woodward, Jay (MRC)
Sent: Monday, September 28, 2015 11:45 AM
To: Fisher, John (DEQ)
Subject: RE: NEW PROJECT GSA 15-135F

John,

Sorry I'm late, swamped here.

Provided there are no impacts to perennial streams with a drainage area upstream of 5 square miles or greater, no State-owned bottomlands will be involved and authorization from VMRC will not be required.

Hope this meets your needs.

Jay

Jay Woodward
Environmental Engineer, Sr.
Habitat Management Division
Virginia Marine Resources Commission
2600 Washington Ave., 3rd Floor
Newport News, VA 23607
Office (757) 247-8032
Mobile (757) 504-7009
jay.woodward@mrc.virginia.gov
Website www.mrc.virginia.gov

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR PROGRAM COORDINATION

ENVIRONMENTAL REVIEW COMMENTS APPLICABLE TO AIR QUALITY

TO: John E. Fisher **DEQ - OEIA PROJECT NUMBER: 15 – 135F**

PROJECT TYPE: ☐ STATE EA / EIR **X FEDERAL EA / EIS** ☐ SCC

☐ CONSISTENCY DETERMINATION

PROJECT TITLE: FEDERAL BUREAU OF INVESTIGATION CENTRAL RECORDS COMPLEX

PROJECT SPONSOR: U. S. GENERAL SERVICES ADMINISTRATION

PROJECT LOCATION: **X OZONE MAINTENANCE AND EMISSION CONTROL AREA FOR NOX & VOC**

REGULATORY REQUIREMENTSMAY BE APPLICABLE TO: **X CONSTRUCTION**
☐ OPERATION

STATE AIR POLLUTION CONTROL BOARD REGULATIONS THAT MAY APPLY:

1. ☐ 9 VAC 5-40-5200 C & 9 VAC 5-40-5220 E – STAGE I
2. ☐ 9 VAC 5-40-5200 C & 9 VAC 5-40-5220 F – STAGE II Vapor Recovery
3. ☐ 9 VAC 5-45-780 et seq. – Asphalt Paving operations
4. **X 9 VAC 5-130 et seq. – Open Burning**
5. **X 9 VAC 5-50-60 et seq. Fugitive Dust Emissions**
6. ☐ 9 VAC 5-50-130 et seq. - Odorous Emissions; Applicable to_____
7. ☐ 9 VAC 5-50-160 et seq. – Standards of Performance for Toxic Pollutants
8. ☐ 9 VAC 5-50-400 Subpart_____, Standards of Performance for New Stationary Sources, designates standards of performance for the_____
9. ☐ 9 VAC 5-80-1100 et seq. of the regulations – Permits for Stationary Sources
10. ☐ 9 VAC 5-80-1700 et seq. Of the regulations – Major or Modified Sources located in PSD areas. This rule may be applicable to the _____
11. ☐ 9 VAC 5-80-2000 et seq. of the regulations – New and modified sources located in non-attainment areas
12. ☐ 9 VAC 5-80-800 et seq. Of the regulations – Operating Permits and exemptions. This rule may be applicable to _____

COMMENTS SPECIFIC TO THE PROJECT:

All precautions are necessary to restrict the emissions of volatile organic compounds (VOC) and oxides of nitrogen (NO_X).

K. S. Narasimhan

(Kotur S. Narasimhan)
Office of Air Data Analysis **DATE: August 27, 2015**

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

MEMORANDUM

TO: John Fisher, Environmental Program Planner

FROM: Steve Coe, Division of Land Protection & Revitalization Review Coordinator

DATE: September 14, 2015

COPIES: Sanjay Thirunagari, Division of Land Protection & Revitalization Review Manager; file

SUBJECT: Environmental Impact Review: 15-135F GSA FBI Central Records Complex Frederick County, VA 22602 and 22624.

The Division of Land Protection & Revitalization has completed its review of the Environmental Impact report for the GSA FBI Central Records Complex Frederick County, VA 22602 or 22624. The project scope:

> Acquire property and construct and operate a new Central Records Complex with records storage, support area, visitor screening facility, guard booth, service center, and parking on one of two sites in Frederick County.

We have the following comments concerning the waste issues associated with this project:

Both solid and hazardous waste issues were addressed in the report. The report indicated a search of waste-related data bases. A GIS database search was done by staff to identify any waste sites within a 200 foot radius that could impact or be impacted by the subject sites. The Division of Land Protection & Revitalization staff performed a cursory review of its data files and **determined that there three waste sites in the area(s) of the project site**/within the same zip codes 22602 or 22624 that should be considered for possible impact to the project.

Cerclis – none

The following website may prove helpful in locating additional information for this identification number: http://www.epa.gov/superfund/sites/cursites/index.htm.

RCRA/HW – 6 sites were identified in zip code 22602 or 22624, with two in possible close proximity to the project site(s):

1) ID# VAD007861933 – Perry Engineering Co., Inc., 1945 Millwood Pike, Winchester, VA 22602. Contact: Jeff Perry at 540-667-4310.

2) ID# VAP301201102 – Frederick County Public Schools, Building and Grounds, 280 Woodbine Road, Clearbrook, VA 22624. Contact: David M. Hart at 540-867-4865, ext 88457.

The following website may prove helpful in locating additional information for the identified sites: http://www.epa.gov/enviro/html/rcris/rcris_query_java.html.

VRP – none

FUDS – none

SW - none

Petroleum Releases – one

ID# 20086024 – Gregory Strosnider property, 4754 Martinsburg Pike, Clearbrook, VA 22624. Event Date: 9/21/2007. Status: Closed.

Please note that the DEQ's petroleum contamination (PC) case files may identify petroleum releases that should be evaluated by the project engineer or manager to establish the exact location of the release and the nature and extent of the petroleum release and the potential to impact the proposed project. The facility representative should contact the DEQ's Valley Regional Office at 540-574-7800 (Tank Program) for further information and the administrative records of the PC cases which are determined to be in close proximity to the proposed project.

GENERAL COMMENTS:

Soil, Sediment, and Waste Management

Any soil that is suspected of contamination or wastes that are generated must be tested and disposed of in accordance with applicable Federal, State, and local laws and regulations. Some of the applicable state laws and regulations are: Virginia Waste Management Act, Code of Virginia Section 10.1-1400 *et seq.*; Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60); Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-81); Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110). Some of the applicable Federal laws and regulations are: the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations; and the U.S. Department of Transportation Rules for Transportation of Hazardous Materials, 49 CFR Part 107.

Asbestos and/or Lead-based Paint

All structures being demolished/renovated/removed should be checked for asbestos-containing materials (ACM) and lead-based paint (LBP) prior to demolition. If ACM or LBP are found, in addition to the federal waste-related regulations mentioned above, State regulations 9VAC 20-81-620 for ACM and 9VAC 20-60-261 for LBP must be followed. Questions on these topics may be directed to Graham Simmerman in DEQ's Valley Regional Office at 540-574-7865.

Please note that DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

If you have any questions or need further information, please contact Steve Coe at (804) 698-4029.

Molly Joseph Ward
Secretary of Natural Resources

Clyde E. Cristman
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

Joe Elton
Deputy Director of Operations

Rochelle Altholz
Deputy Director of Administration and Finance

David Dowling
Deputy Director of Soil and Water and Dam Safety

MEMORANDUM

DATE: September 10, 2015

TO: John Fisher

FROM: Roberta Rhur, Environmental Impact Review Coordinator

SUBJECT: DEQ 15-135F, FBI Central Records Complex

Division of Natural Heritage
The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

Arcadia Site

According to the information currently in our files, the Opequon Creek Stream Conservation Unit (SCU) is downstream of the project site. SCUs identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within this reach. SCUs are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. The Opequon Creek SCU has been given a biodiversity significance ranking of B5, which represents a site of general significance. The natural heritage resource of concern associated with this SCU is:

Glyptemys insculpta	Wood turtle	G3/S2/NL/LT

The Wood turtle ranges from southeastern Canada, south to the Great Lake states and New England. In Virginia, it is know from northern counties within the Potomac River drainage (NatureServe, 2009). The Wood turtle inhabits areas with clear streams with adjacent forested floodplains and nearby fields, wet meadows, and farmlands (Buhlmann et al., 2008; Mitchell, 1994). Since this species overwinters on the bottoms of creeks and streams, a primary habitat requirement is the presence of water (Mitchell, 1994).

Threats to the wood turtle include habitat fragmentation, urbanization, and automobile or farm machinery mortality (Buhlmann et al., 2008). Please note that the Wood turtle is currently classified as threatened by the Virginia Department of Game and Inland Fisheries (VDGIF).

In addition, Opequon Creek has been designated by the VDGIF as a "Threatened and Endangered Species Water". The species associated with this T & E Water is the Wood turtle.

Whitehall Site

This project is situated on karst-forming carbonate rock and can be characterized by sinkholes, caves, disappearing streams, and large springs. If such features are encountered during the project, please coordinate with Wil Orndorff (540-230-5960, Wil.Orndorff@dcr.virginia.gov) to document and minimize adverse impacts. Discharge of runoff to sinkholes or sinking streams, filling of sinkholes, and alteration of cave entrances can lead to surface collapse, flooding, erosion and sedimentation, groundwater contamination, and degradation of subterranean habitat for natural heritage resources. If the project involves filling or "improvement" of sinkholes or cave openings, DCR would like detailed location information and copies of the design specifications. In cases where sinkhole improvement is for stormwater discharge, copies of VDOT Form EQ-120 will suffice. New "Karst Assessment Guidelines" developed by the Virginia Cave Board for land development can be found at http://www.dcr.virginia.gov/natural_heritage/documents/karst_assessment_guidelines.pdf.

There is potential for the Northern Long-eared bat (*Myotis septentrionalis,* G1G3/S3/LT/NL) to occur within both project areas. The Northern Long-eared bat is a small insect-eating bat characterized by its long-rounded ears that when folded forward extend beyond the tip of the nose. Hibernation occurs in caves, mines and tunnels from late fall through early spring and bats occupy summer roosts comprised of older trees including single and multiple tree-fall gaps, standing snags and woody debris. Threats include white nose syndrome and loss of hibernacula, maternity roosts and foraging habitat (NatureServe, 2014). Due to the decline in population numbers, the Northern Long-eared bat has been federally listed as "threatened" by the United States Fish and Wildlife Service (USFWS).

To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations. Due to the legal status of the Wood turtle, DCR recommends coordination with Virginia's regulatory authority for the management and protection of this species, the VDGIF, to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 – 570). Also, due to the legal status of the Northern Long-eared bat, if tree removal is proposed for the project DCR recommends coordination with the USFWS to ensure compliance with protected species legislation.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The VDGIF maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from http://vafwis.org/fwis/ or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dgif.virginia.gov.

CC: Troy Anderson, USFWS
Ernie Aschenbach, VDGIF
Wil Orndorff, DCR-Karst

The remaining DCR divisions have no comments regarding the scope of this project. Thank you for the opportunity to comment

Literature Cited

Buhlmann, K, T. Tuberville, and W. Gibbons. 2008. Turtles of the southeast. University of Georgia Press. Athens, GA. 252 pp.

Mitchell, J. C. 1994. Reptiles of Virginia. Smithsonian Institution Press, Washington. pp. 88-91.

NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: April 8, 2010).

NatureServe, 2014. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe. Arlington, Virginia. Available http://explorer.natureserve.org (Accessed: December 22, 2014).

Fisher, John (DEQ)

From: Ewing, Amy (DGIF)
Sent: Wednesday, September 16, 2015 11:42 AM
To: Fisher, John (DEQ)
Cc: nhreview (DCR)
Subject: ESSLog# 36018_15-135F_GSA: FBI Complex-Frederick County

Arcadia Alternative:
Opequon Creek, located downstream of this project site, has been designated a Threatened and Endangered Species Water due to the presence of state Threatened wood turtles. It does not appear that there are any perennial tributaries to Opequon Creek on the project site. In that case, we do not anticipate this project to result in adverse impacts upon wood turtles. However, if perennial waters are proposed for impacts associated with this project, or lands within 900 feet of such waters are proposed for impacts, we recommend coordination with us regarding protection of wood turtles and their habitats.

This project site is located within 2 miles of a documented occurrence of a state or federal threatened or endangered plant or insect species and/or other Natural Heritage coordination species. Therefore, we recommend coordination with VDCR-DNH regarding the protection of these resources.

Whitehall Alternative:
We document a stockable trout stream from the project site. However, based on the scope and location of the proposed work, we do not anticipate it to result in adverse impacts upon this resource.

This project site is located within 2 miles of a documented occurrence of a state or federal threatened or endangered plant or insect species and/or other Natural Heritage coordination species. Therefore, we recommend coordination with VDCR-DNH regarding the protection of these resources.

Overall Project:
We recommend coordination with the USFWS regarding potential impacts upon federally Threatened northern long-eared bats associated with tree removal, if such is proposed.

If instream work is proposed, we recommend conducting such activities during low or no-flow conditions, using non-erodible cofferdams or turbidity curtains to isolate the construction area, blocking no more than 50% of the streamflow at any given time, stockpiling excavated material in a manner that prevents reentry into the stream, restoring original streambed and streambank contours, revegetating barren areas with native vegetation, and implementing strict erosion and sediment control measures. To minimize harm to the aquatic environment and its residents resulting from use of the Tremie method to install concrete, installation of grout bags, and traditional pouring of concrete, we recommend that such activities occur only in the dry, allowing all concrete to harden and cure prior to contact with open water. Due to future maintenance costs associated with culverts, and the loss of riparian and aquatic habitat, we prefer stream crossings to be constructed via clear-span bridges. However, if this is not possible, we recommend countersinking any culverts below the streambed at least 6 inches, or the use of bottomless culverts, to allow passage of aquatic organisms. We also recommend the installation of floodplain culverts to carry bankfull discharges.

To minimize overall impacts to wildlife and our natural resources, we offer the following comments about development activities: We recommend that the applicant avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable. Avoidance and minimization of impact may include relocating stream channels as opposed to filling or channelizing as well as using, and incorporating into the development plan, a natural stream channel design and wooded buffers. We recommend maintaining undisturbed naturally vegetated buffers of at least 100 feet in width around all on-site wetlands and on both sides of all perennial and intermittent streams. We recommend maintaining wooded lots to the fullest extent possible. We generally do not support proposals to mitigate wetland impacts through the construction of stormwater management ponds, nor do we support the creation of in-stream stormwater management ponds. We are willing to assist the applicant in developing a plan that includes open-space, wildlife habitat, and natural stream channels which retain their wooded buffers.

We recommend that the stormwater controls for this project be designed to replicate and maintain the hydrographic condition of the site prior to the change in landscape. This should include, but not be limited to, utilizing bioretention areas, and minimizing the use of curb and gutter in favor of grassed swales. Bioretention areas (also called rain gardens) and grass swales are components of Low Impact Development (LID). They are designed to capture stormwater runoff as

close to the source as possible and allow it to slowly infiltrate into the surrounding soil. They benefit natural resources by filtering pollutants and decreasing downstream runoff volumes.

We recommend that all tree removal and ground clearing adhere to a time of year restriction protective of resident and migratory songbird nesting from March 15 through August 15 of any year.

We recommend adherence to erosion and sediment controls during ground disturbance.

Thanks, Amy

Amy Ewing
Environmental Services Biologist/FWIS Manager
VA Dept. of Game and Inland Fisheries
7870 Villa Park Dr., Henrico, VA 23228
804-367-2211 ☯ DGIF.virginia.gov

Fisher, John (DEQ)

From: Warren, Arlene (VDH)
Sent: Tuesday, September 22, 2015 10:49 AM
To: Fisher, John (DEQ)
Cc: Soto, Roy (VDH)
Subject: RE: GSA: Federal Bureau of Investigation Central Records 15-135F

Project Name: GSA: Federal Bureau of Investigation Central Records
Project #: 15-135F Arcadia & Whitehall
UPC #: N/A
Location: Fredrick County

VDH – Office of Drinking Water has reviewed the above project. Below are our comments as they relate to proximity to **public drinking water sources** (groundwater wells, springs and surface water intakes). Potential impacts to public water distribution systems or sanitary sewage collection systems **must be verified by the local utility.**

There are no public groundwater wells within a 1 mile radius of the project site.

The following surface water intakes are located within a 5 mile radius of the project site:

PWSID	SYSNAME	FACNAME
2069250	FREDERICK COUNTY SANITATION AUTHORITY	CLEAR BROOK QUARRY (PIT 3)
2069250	FREDERICK COUNTY SANITATION AUTHORITY	CLEAR BROOK QUARRY (PIT 2)

The project is within the watershed of the following public surface water sources:

PWSID	SYSNAME	FACNAME
6107300	LEESBURG, TOWN OF	POTOMAC INTAKE
2043125	BERRYVILLE, TOWN OF	SHENANDOAH RIVER

Best Management Practices should be employed on the project site including Erosion & Sedimentation Controls as well as Spill Prevention Controls & Countermeasures.

There may be impacts to public drinking water sources due to this project if the mitigation efforts outlined above are not implemented.

Fisher, John (DEQ)

From: Evans, Gregory (DOF)
Sent: Friday, September 25, 2015 4:12 PM
To: Fisher, John (DEQ)
Subject: RE: NEW PROJECT GSA 15-135F

John,

I have completed a desk review of the above subject project on behalf of the Department of Forestry. Based on the material provided, DOF notes that forest land will be lost under both potential site alternatives but significantly more so if the Arcadia site is selected over the Whitehall site. The project sponsor's assessment concludes that implementation of Alternative 1 (Arcadia) or Alternative 2 (Whitehall) would not result in significant cumulative impacts to biological resources "when combined with past, present, and reasonably foreseeable future projects". With regard to foreseeable future projects, I am assuming he is referring to what development would be allowed under the comprehensive plans of the impacted localities since those plans are referenced. The sponsor's cumulative impact assessment conclusion therefore appears to take the position that development is going to occur someday, somehow anyway and therefore the project's site alternatives should be evaluated within that context and considered de minimus for both site alternatives.

While DOF acknowledges that future possibility, its environmental impact review must be restricted to evaluating what the impact of the proposed project will be on forest resources of the Commonwealth as submitted for this review. From that perspective, DOF notes that the Arcadia site is far more forested and that forest is also connected to a larger, contiguous forest. Further, based on the information provided the tree species on the Arcadia site are more diverse and the forest also provides more robust wildlife habitat too.

DOF therefore, recommends that Alternative 2, the Whitehall site be considered the preferred site.

This concludes our comments.

Greg

Greg Evans
Mitigation Program Manager/
Chesapeake Bay Program Lead
Virginia Department of Forestry
900 Natural Resources Drive, Suite 800
Charlottesville, VA 22903
434.906.3658
gregory.evans@dof.virginia.gov
www.dof.virginia.gov

COMMONWEALTH of VIRGINIA
DEPARTMENT OF TRANSPORTATION
811 COMMERCE ROAD
STAUNTON, VIRGINIA 24401-9029
www.VirginiaDOT.org

Charles A. Kilpatrick, P.E.
Commissioner

9/16/2015

John Fisher
Virginia Department of Environmental Quality
629 East Main Street
Richmond, VA 23219

Dear Mr. Fisher:

This letter is regarding the review of the Draft Supplemental Environmental Impact Statement for the Federal Bureau of Investigation Central Records Complex, located in Frederick County, Virginia (Federal Project Number 15-135F). The Virginia Department of Transportation (VDOT) Staunton District Planning is currently conducting a separate review of a Traffic Impact Analysis (TIA) report for this project as submitted by the U.S. General Services Administration (GSA). All transportation related impacts and mitigation measures related to the project will be identified and resolved through the TIA review and approval process. Please note that the initial submission of the TIA and VDOT's review comments are included in the Draft Supplemental Environmental Impact Statement document. VDOT is currently reviewing a second submission of the TIA, which has been substantially revised following the initial submission. VDOT has no additional comments related directly to the submitted Draft Supplemental Environmental Impact Statement.

Sincerely,

Adam Campbell, PLA
Assistant District Planner
Staunton District Planning

CC: Elizabeth Jordan, Ph. D., VDOT
Jim Cromwell, VDOT
Chip Ray, VDOT
Terry Short Jr., VDOT
Clifton Balderson, VDOT

Fisher, John (DEQ)

From: Burke, Andrea (DHR)
Sent: Wednesday, August 26, 2015 2:53 PM
To: Fisher, John (DEQ)
Subject: GSA, FBI Central Records Complex - DHR File No. 2006-0949/DEQ#15-135F

DHR has been in consultation with the *General Services Administration (GSA)* regarding this project. We request that the *GSA* continue to consult directly with DHR, as necessary, pursuant to Section 106 of the National Historic Preservation Act (as amended) and its implementing regulations codified at 36 CFR Part 800 which require Federal agencies to consider the effects of their undertakings on historic properties.

Andrea Burke
Architectural Historian, Review and Compliance Division
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221
(804) 482-6084
Fax: (804) 367-2391
andrea.burke@dhr.virginia.gov

COUNTY of FREDERICK

Kris C. Tierney
Assistant County Administrator

540/665-6382
Fax: 540/667-0370
E-mail: ktierney@fcva.us

RECEIVED
SEP 21 2015
DEQ Office of Environmental Impact Review

September 11, 2015

Mr. John E. Fisher
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, Virginia 23219

RE: Federal Project # 15-135F
Federal Bureau of Investigation Central Record Complex

Dear Mr. Fisher:

I offer the following comments and observation on the above reference project on behalf of Frederick County, Virginia.

The EIS frequently cites sources that are now nearly nine years old (from GSA's 2007 EIS). This information is outdated and should be revisited for accuracy. I offer the following cursory comments, but it's apparent that the entire document needs to be revised to reflect 2015 data rather than 2007 if the intent is to perform an accurate evaluation.

- It is noted throughout the document that the existing 440 employees at the FBI facility on Marcel Drive would transfer to the new facility. It was my understanding that the new facility would complement, not replace the Marcel Drive location.

- Section 2.5 states that the primary access to the Arcadia site would be from Route 50, and that the secondary access point would be via a proffered extension of Independence Drive. The extension should be referred to as Channing Drive for consistency with local planning. Due to the site's proximity to Planned Route 37, to accommodate vehicle stacking, and to accommodate east-bound traffic from leaving the site, the primary point of site access should be via Channing Drive, not Route 50.

- The Noise evaluations for the 2 sites (Arcadia and Whitehall) are incorrect; as this is all based on the City of Winchester, not Frederick County, code. Noise Sections 4.1 and 5.1 need corrections.

- Section 4.3.1. Incorrectly labels RA as rural residential. The Correct Zoning classification is *Rural Areas.*

- Section 4.3.2 line 32 (Arcadia site). Incorrectly states that the Federal use is not consistent with the Comprehensive Plan. The Federal use is, in fact consistent with the Comprehensive Plan, so long as the improvements are not within the Planned Route 37 corridor.

107 North Kent Street • Winchester, Virginia 22601

- Section 4.6.1.2 and 5.6.1.2 Incorrectly places the Sheriff's Office at 5. N. Kent Street, and references an under construction facility on Airport Road. The Sheriff's Office is located in the Public Safety Building located on Coverstone Drive. The address and number of deputies should be updated.

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- Multiple sections of the document incorrectly labels the proffered road as an extension of Independence Drive. This is Channing Drive.

- Section 4.7.2 envisions full time secondary access in the form of a right in, right out entrance. It should be noted that this would likely require an entrance spacing waiver from VDOT. The County would be more amenable to treating this as emergency access.

- Please correct directional references for Route 50/17 to EB and WB.

- Please add additional narrative to address the amount, type, and timeline of heavier or different type of traffic load as the facility is opened up and stocked.

- There are numerous references to coordination with the Frederick County Planning Commission. I believe Frederick County Planning Department is what is meant.

- Section 6.2.3 states that the Arcadia site would result in compatibility issues with the construction of Route 37. It should be noted in the report that the conflict does not exist if the GSA facility avoids the planned Route 37 right-of-way.

- Section footers are not always titled correctly to correspond with the Section.

- 6.2 notes that there is no environmental document on the Route 37 bypass. This is in correct. Environmental work, though dated, was done up to, and including a record of decision which VDOT provided to the project team. In addition environmental was updated for Route 37 from Exit 310 to Route 522.

We appreciate the opportunity to offer comments and look forward to a final site selection and commencement of construction of the new facility.

Respectfully,

Kris C. Tierney,
Assistant County Administrator

Federal Bureau of Investigation Central Records Complex

GSA

Comment Form

FBI CRC Supplemental Draft Environmental Impact Statement

The U.S. General Services Administration (GSA) has prepared a Supplemental Draft Environmental Impact Statement (EIS) for the proposed FBI Central Records Complex in Frederick County, VA. The Supplemental Draft EIS is available at local libraries and on the project website: **www.fbicrc-seis.com**. Please submit your comments on the Supplemental Draft EIS no later than October 8, 2015 by:

1. Filling out this form and dropping it in the comment box at the public information meeting
2. Submitting comments electronically via email to: **frederick.va.siteacquisition@gsa.gov**
3. Mailing your comment form to: Ms. Courtenay Hoernemann, Project Environmental Planner, 20 North 8th Street, Philadelphia, PA 19107.

Please provide comments no later than October 8, 2015 to ensure they are considered during preparation of the Final Supplemental EIS.

Please Note: The information and comments provided are published in the Final Supplemental EIS and become part of the administrative record associated with this proposed action.

*Please check here if you would **NOT** like to be on the Email/mailing list* _____

Please check here if you would like your name and Email/mailing address kept private (i.e., not published in the Final Supplemental EIS documents) X

PLEASE PRINT CLEARLY AND LEGIBLY

Name: Sally Grove Date: 9/10/15

Organization/Affiliation:

Email/Mailing Address: svis05@yahoo.com - 332 W Parkins Mill Rd

City, State, Zip Code: Winchester VA 22602

Comments: At the Arcadia site the proposed Rt 37 & Rt 50 Exits go thru the property - how will that change? or will it? 48

Thank You -

(Use reverse side for more space)

Federal Bureau of Investigation Central Records Complex

GSA

Comment Form

FBI CRC Supplemental Draft Environmental Impact Statement

The U.S. General Services Administration (GSA) has prepared a Supplemental Draft Environmental Impact Statement (EIS) for the proposed FBI Central Records Complex in Frederick County, VA. The Supplemental Draft EIS is available at local libraries and on the project website: **www.fbicrc-seis.com**. Please submit your comments on the Supplemental Draft EIS no later than October 8, 2015 by:

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Please check here if you would like your name and Email/mailing address kept private (i.e., not published in the Final Supplemental EIS documents) _____

PLEASE PRINT CLEARLY AND LEGIBLY

Name: KERMIT HICKS Date: 9/10/15

Organization/Affiliation:

Email/Mailing Address: 598 MEADOWVIEW CIRCLE

City, State, Zip Code: GREENCASTLE PA 17225

Comments: WOULD LIKE W VA SURVEY BOOKLET FOR THE WHITEHALL SITE 49

(Use reverse side for more space)

From: Courtenay Hoernemann - 3PMEE
To: Erika Fuery
Subject: Fwd: spending on omrre federal bui.ldinmg when they should be leasing all those empty facotry buildings where we dont make anything anymore
Date: Tuesday, August 25, 2015 8:53:58 AM

---------- Forwarded message ----------
From: **jean public** <jeanpublic1@gmail.com>
Date: Fri, Aug 21, 2015 at 8:01 PM
Subject: Re: spending on omrre federal bui.ldinmg when they should be leasing all those empty facotry buildings where we dont make anything anymore
To: frederick.va.siteacquisition@gsa.gov, viceprsident@whitehouse.gov, INFO <INFO@taxpayer.net>, media <media@cagw.org>, ungaro@gannett.com
Cc: INFO@njtaxes.org, AGREPUBLICANPRESS@mail.house.gov

ublic comment on federal register

50

i see absolutely no reason to build a building for storage of records when there are so many unused mfg and office facilities that are empty all over america. so much business has left america that the business sites are a glut. why would we build when we can rent or buy. this makes no sense at all and is simply another example of the stupdiity of management at the federal fat cat bureaucracy. the gsa particularly stands out from the conference they had when they freely spent taxpayer dollrsr showing htier propensity for not saving taxpayers any moneny at any time. they dont use their brains at the gsa. they jus spend spend spendlike a drunken sailor. lease a building. rent a building. buy a building. it will be far cheaper for the tapayers of this country and use up an empty building. we DONT NEED TO PUT GOVT BUILDINGS ON OPEN SPACE. THAT MAKES NO SENSE AT ALL. STOP DESTROYING THE ENVIRONMENT. USE WHAT IS UP ALREADY. THIS COMMENT IS FOR THE PUBLIC RECORD. PLASE RECEIPT. JEAN PUBLI JEANPUBLIC1@GMAIL.COM

On Thu, Aug 20, 2015 at 9:30 AM, Jean Public <jeanpublic1@yahoo.com> wrote:

[Federal Register Volume 80, Number 161 (Thursday, August 20, 2015)]
[Notices]
[Pages 50631-50632]
From the Federal Register Online via the Government Publishing Office [www.gpo.gov]
[FR Doc No: 2015-20532]

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GENERAL SERVICES ADMINISTRATION

[Notice-2015-PM-03; Docket No. 2015-0002; Sequence No. 18]

Notice of Public Meeting for the Supplemental Draft Environmental Impact Statement for the Federal Bureau of Investigation Central

Records Complex in Winchester County, Virginia

AGENCY: General Services Administration (GSA).

ACTION: Meeting notice.

SUMMARY: Pursuant to the National Environmental Policy Act (NEPA) of 1969, as implemented by the Council on Environmental Quality regulations, the GSA has prepared and filed with the Environmental Protection Agency (EPA), a Supplement to the Final Environmental Impact Statement (EIS), from May 2007, analyzing the environmental impacts of site acquisition and development of the Federal Bureau of Investigation (FBI), Central Records Complex (CRC), in Winchester County, Virginia.

DATES: Effective Date: August 21, 2015. The public may submit comments on the Supplemental Draft EIS during a 45-day public review and comment period beginning Friday, August 21, 2015, and ending on Monday, October 5, 2015. Instructions for submitting comments may be found under the heading Supplemental Information in this notice.

Public Meeting: A public information meeting is scheduled for Thursday, September 10, 2015 between 6:00 p.m. and 8:00 p.m., Eastern Standard Time (EST), at the War Memorial Building Social Hall at Jim Barnett Park, located at 1001 East Cork Street, Winchester, VA 22601.

FOR FURTHER INFORMATION CONTACT: Ms. Courtenay Hoernemann, Project Environmental Planner, 20 N 8th Street, Philadelphia PA 19107 at 215-446-4710.

ADDRESSES: Send written comments by email to frederick.va.siteacquisition@gsa.gov, or U.S. Postal Service to Courtenay Hoernemann, Project Environmental Planner, 20 N 8th Street, Philadelphia, PA 19107.

SUPPLEMENTARY INFORMATION: Background: The proposed FBI facility would consolidate the FBI's records currently housed within the Washington DC area, in addition to field offices and information technology centers nationwide. The project requirements are for an overall square footage of 256,425 gross square feet, and will include the records storage building, support area, visitor's screening facility, service center, and guard booth. Parking is proposed at 427 spaces. A Notice of Intent to prepare a Supplemental Draft EIS was published in the Federal Register at 80 FR 8311 on February 17, 2015. A public scoping comment period was held for 30 days following publication of the Notice of Intent.

The alternatives fully evaluated in the Supplemental Draft EIS include the No Action Alternative, the Arcadia Route 50 property, and Whitehall Commerce Center.

The Supplemental Draft EIS incorporates by reference and builds upon the analyses presented in the 2007 Final EIS, and documents the Section 106 process under the National Historic Preservation Act of

1966, as amended (36 CFR part 800). The Supplemental Draft EIS addresses changes to the proposed action relevant to environmental concerns and assesses any new circumstances or information relevant to potential environmental impacts.

The Supplemental Draft EIS has been distributed to various federal, state, and local agencies. The Supplemental Draft EIS is available for review on the project Web site http://www.fbicrc-seis.com. A printed copy of the Supplemental Draft EIS is available for viewing at the following libraries:

Handley Library, 100 West Piccadilly Street, P.O. Box 58, Winchester, VA 22604 Bowman Library, 871 Tasker Road, P.O. Box 1300, Stephens City, VA 22655 Smith Library, Shenandoah University, 718 Wade Miller Drive, Winchester, VA 22601 Federal, state, and local agencies, and other interested parties, are invited and encouraged to be present or represented at the public meeting on Thursday, September 10, 2015. All formal comments will become part of the public record and substantive comments will be responded to in the Final Supplemental EIS. Public Comments: Comments on the Supplemental Draft EIS can be submitted three ways: (1) Submit comments via the project email address: frederick.va.siteacquisition@gsa.gov, (2) provide written comments during the public meeting, or (3) mail a comment form or letter to: Ms. Courtenay Hoernemann, Project Environmental Planner, 20 N. 8th Street, Philadelphia, PA 19107. Written comments postmarked by October 5, 2015 will become part of the official public record. Public Meeting: The format will be open house with informational posters [[Page 50632]] on display, and representatives from GSA and FBI will be available to explain the proposed project, answer questions, and receive comments from the public. Comment forms will be available for the public to provide formal written comments. Dated: August 14, 2015. John Hofmann, Division Director, Facilities Management & Services Programs Division, General Services Administration, Mid-Atlantic Region. [FR Doc. 2015-20532 Filed 8-19-15; 8:45 am] BILLING CODE 6820-89-P

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You received this message because you are subscribed to the Google Groups "Frederick VA" group.
To unsubscribe from this group and stop receiving emails from it, send an email to frederick.va.siteacquisition+unsubscribe@gsa.gov.
To post to this group, send email to frederick.va.siteacquisition@gsa.gov.
To view this discussion on the web visit https://groups.google.com/a/gsa.gov/d/msgid/frederick.va.siteacquisition/CACkv051yo-5h7N0JRxe444tOwQJneWpzewQxSyT2xE%2BHn1N24A%40mail.gmail.com.

--
Courtenay Hoernemann
Environmental Protection Specialist
Facilities Management & Services Programs
General Services Administration
20 N Eighth Street
Philadelphia PA 19107
215-446-4710
215-280-5381 mobile
215-209-0422

From: Courtenay Hoernemann - 3PMEE
To: Erika Fuery
Subject: Fwd: FBI Records Center
Date: Thursday, October 08, 2015 1:41:35 PM

---------- Forwarded message ----------
From: **atkeenan via Frederick VA** <frederick.va.siteacquisition@gsa.gov>
Date: Thu, Oct 8, 2015 at 1:37 PM
Subject: FBI Records Center
To: frederick.va.siteacquisition@gsa.gov
Cc: Paypal <atkeenan@aol.com>

Ms. Hoernemann,

Wanted to comment on the FBI Center location. I've owned Lou Lou's Delicatessen for the past five years located on Martinsburg Pike directly in front of the proposed Whitehall site.

A small sandwich shop which serves the Shenandoah Valley and Eastern Panhandle of West Virginia. Business has been good and we pride ourselves for serving good sandwiches. Voted the People's Choice Award winner for several years, we've worked hard to established a solid business to serve the public, especially any new development within the community.

51

We support the Whitehall site as your selection and we are ready to expand and accommodate any new neighbors. Our services include catering and food trucks. Serving quality food is our goal and we will expand our hours to accommodate new construction and full time employees now and into the future.

The small Clear Brook community welcomes the FBI Center and we are excited that this site is being considered. Being a retired government civil servant myself, I know good lunch spots are hard to find.

Appreciate your efforts,

Warm Regards,

Alex Keenan
Lou Lou's Delicatessen
4740 Martinsburg Pike
Suite 1
Clear Brook, VA 22624
540-545-8017

--
You received this message because you are subscribed to the Google Groups "Frederick VA" group.
To unsubscribe from this group and stop receiving emails from it, send an email to frederick.va.siteacquisition+unsubscribe@gsa.gov.
To post to this group, send email to frederick.va.siteacquisition@gsa.gov.
To view this discussion on the web visit https://groups.google.com/a/gsa.gov/d/msgid/frederick.va.siteacquisition/20151008173701.6746198.87870.2736%40aol.com.

--
Courtenay Hoernemann
Environmental Protection Specialist
Facilities Management & Services Programs
General Services Administration
20 N Eighth Street
Philadelphia PA 19107
215-446-4710
215-280-5381 mobile
215-209-0422

Federal Bureau of Investigation Central Records Complex

GSA

Comment Form

FBI CRC Supplemental Draft Environmental Impact Statement

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*Please check here if you would **NOT** like to be on the Email/mailing list* _____

Please check here if you would like your name and Email/mailing address kept private (i.e., not published in the Final Supplemental EIS documents) ✓

PLEASE PRINT CLEARLY AND LEGIBLY

Name: Mitch Orndorff Date: September 10, 2015

Organization/Affiliation: Special Made Goods & Services, Inc.

Email/Mailing Address: Morndorff@specialmade.com 141 Marcel Drive

City, State, Zip Code: Winchester, VA 22602

Comments: Thank you for the opportunity to view the documents and meet with representatives. 52
We own the business in front of the current FBI Records facility on Tasker Road Winchester.
The FBI have been very good neighbors

(Use reverse side for more space)

C. William Staples
557 Marlboro Rd.
Stephens City Va. 22655

Courtenay:

After reading the Winchester Va Laving star I see there hasn't been a land decision for the FBI building.

My farm is 8 miles south of winchester, 81 south to exit 307 the town of Stephens City. I am 1 mi west of town, take fairfax pike west & it turn into marlboro Rd, after crossing railroad we are the first farm on the left yellow house & barn trimmed in green.

Reason for wanting to sell, I am 74 yrs old & I could settle with my family, & it would make it alot easier on everyone.

53

over

I have 163 acres with about a 1/4 mile of road frontage. Thanks for taking the time to read this look forward to hearing from you.

Phone Number 540-869-5160

Thanks again this day 9-14-15

C. William Staples

September 11, 2015

Mr. John E. Fisher
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, Virginia 23219

RE: Federal Project # 15-135F
Federal Bureau of Investigation Central Record Complex

Dear Mr. Fisher:

I offer the following comments and observation on the above reference project on behalf of Frederick County, Virginia.

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We appreciate the opportunity to offer comments and look forward to a final site selection and commencement of construction of the new facility.

Respectfully,

Kris C. Tierney,
Assistant County Administrator

Comment number	Commenter	page	line	comment	Response
1	USEPA			EPA questions whether the FBI considered incorporating the CRC facility into site planning for the proposed FBI Headquarters (HQ) Consolidation project scheduled to be evaluated in a DEIS in the Fall of 2015. Please discuss if this was considered. If the FBI did consider including the CRC facility into the proposed FBI HQ Consolidation project and it was determined not practical then please discuss in the Final Supplemental EIS (FSEIS).	There is no plan to co-locate the CRC with the proposed new FBI Headquarters, primarily due to a lack of mission alignment. The missions of Headquarters and the CRC have contradictory location requirements. The new Headquarters is required to be in proximity to the Washington DC area, and the proposed CRC has a delineated area in Frederick County. The delineated area is due in part from the need to protect the records in the event that the headquarters is targeted in a catastrophic event/attack. The CRC will also be designed and built to a lower threat level than the new Headquarters. No change has been made to the EIS.
2	USEPA	ES-i/2-1	30/34	The site selection criteria states that the "site must be within the boundary of Frederick County, Virginia and/or the City of Winchester." To better understand the need to locate the proposed CRC facility in either of these areas, please explain the process or study used for this analysis in the FSEIS. The basis for this criteria should be explained and assessment presented to show if any changes in the last 10 years could modify the criteria.	The Locational and Macro Site Selection Study has been referenced and a brief summary added to explain why the facility is to be located in Winchester, Frederick County.
3	USEPA			EPA is aware that a Locational and Macro Site Selection Study (LMSSS) was completed in 2004 and that it was referenced and/or discussed in the 2007 EIS. However, because of the time lapse (and fully aware that this is a Supplement to the DEIS), briefly address how the resultant areas of focus (Frederick County and City of Winchester) were derived as a result of the study.	The Staubach Company completed a Macro Site Selection Study in 2004, evaluating regional areas for Location, Labor Force, Quality of Life, Real Estate and proximity to other threats. The subsequent ranking helped GSA determine the delineated area for the prospectus submitted in 2005, as Frederick County. In addition, for the past 10 years, the majority of personnel and operations for the records management division have been operating out of the Winchester area. The new facility will be located close to existing operations.
4	USEPA			EPA would like to know if the 2004 report was readdressed since the scope of the proposed action has changed since then (i.e., from a lease project to a construction project as well as a considerable decrease in footprint size of the facility from that originally proposed in the 2006/2007 EIS). EPA requests the FSEIS explain if the differences in scope, scale and property acquisition method for the two studies was accounted for when referring to the LMSSS in the DSEIS.	The 2004 siting study was not re-addressed due to the change in scope as the siting was based on labor force, quality of life and proximity to other threats as well as locations and real estate.

Comment number	Commenter	page	line	comment	Response
5	USEPA	ES-i/2-1	32/34	As noted in the DSEIS (page ES-i and elsewhere), "Site must be contiguous, developable land that would allow the construction of up to a 256,425 gross square foot (gsf) office, warehouse, and related space and accommodate 427 parking spaces. Site must be a minimum of 40 acres with a maximum size of 108 acres." In addition, "The facility would have a secure perimeter consisting of a perimeter fence and natural features." Since both of the alternative sites are approximately 58 to 59 acres in size, and building footprint would consist of only 256,425 gsf plus parking to accommodate 427 spaces, it would appear that much of the acreage of land would not be developed. It is assumed that the acreage criteria needed for the site may be due to security needs. Please confirm and/or explain site size needed.	The acreage required for the siting or site is required to accommodate buildings, access/egress roads, parking areas, stormwater controls, and security setback requirements. Text has been edited to clarify.
6	USEPA			To reduce the footprint even more, has a structured parking garage been considered as opposed to the surface lot? Please address.	The alternative sites under consideration have sufficient space for surface parking. Structured parking is not considered a cost effective option for either alternative site.
7	USEPA			If a surface lot is needed, please consider the use of pervious pavers or other porous surface options (where feasible) to allow for infiltration. Vegetated swales over curb and gutter are highly recommended. In addition, EPA strongly suggests that the natural features of the sites be preserved, that reforestation, establishment of protected steam buffers, beneficial landscaping and low impact development (LID) be integrated into the site design. EPA appreciates that the DSEIS states GSA's intent to use LID practices and environmentally sound landscaping practices to reduce adverse impacts to the natural environment. To aid in this endeavor, EPA has provided (below) additional information and resources on LID for your information and use.	Text edited to state that as per the requirements of GSA's Facilities Standards for the Public Building Service (PBS-P100 issued March 2015), the CRC facility would achieve, at a minimum, a Leadership in Energy and Environmental Design (LEED) Gold rating through the LEED Green Building Rating System of the U.S. Green Building Council. Low impact development would be used wherever feasible, however, both sites have geological features (Arcadia-pyritic rock and Whitehall- Karst geology with sinkholes) that would be made worse with water infiltration. Mitigation to minimize these adverse impacts would include lining stormwater management components. These issues are addressed in the geology sections of the Final SEIS.
8	USEPA	2-2	4	As stated in Section 2.0 Proposed Action and Alternatives, page 2-2, the site must be able to accommodate the requirements of Interagency Security Committee (ISC) Level IV Security. Please explain what would be required to comply with Level IV Security as well as its impact on the environment, building design and setback requirements.	An explanation of what constitutes a Level IV facility has been added to the text. Specific security requirements are not discussed for security purposes.
9	USEPA	2-3 (SEIS)	9-Mar	The DSEIS states that the Arcadia site is approximately 59 acres and the Whitehall site is approximately 58 acres in size. The Traffic Impact Study (page 1) states that Arcadia is a 65-acre site and Whitehall is a 34-acre site. There is a discrepancy in the size of the two alternatives sites within the DSEIS and the Traffic Impact Study. Please clarify.	The site size descriptions have been made consistent in the Final SEIS; the Arcadia site is approximately 59 acres and the Whitehall site is approximately 50 acres.

Comment number	Commenter	page	line	comment	Response
10	USEPA	4-7	31	Page 4-7 states (for the Arcadia alternative), "However, according to the 2030 Frederick County Comprehensive Plan, this site is within the path of the proposed Route 37 east, a priority transportation project (Frederick County Planning Commission 2011)." Where is the path of the proposed Route 37 transportation project in relation to proposed construction on the Arcadia site? The FSEIS should provide a map of the Arcadia site, building placement and proposed Route 37 transportation project.	GSA and the FBI have met with the Virginia Department of Transportation (VDOT) and agreements have been reached regarding the coordination of development of the FBI CRC at the Arcadia site and the proposed Route 37 project. A discussion and new figure on this issue is provided in the Traffic section under the Alternative 1 - Arcadia in the Final SEIS.
11	USEPA	4-8	12	Page 4-8 states, "Proposed Route 37 project would be taken into consideration during site design to minimize future land use compatibility issues." Please specify and discuss measures that could be taken to minimize land use compatibility issues. Will land use be changed, zoning permits needed, etc.?	This discussion has been updated in the Final SEIS based upon meetings between GSA, the FBI and VDOT. Through meetings with VDOT a preliminary site design has been developed that will accommodate the needs of the facility and Route 37. Therefore, there will be no land use compatibility issues. Text has been revised accordingly.
12	USEPA			Page 15 of the Traffic Impact Study states, "There are no planned capacity projects within the study area for the Arcadia site." The DSEIS mentions the Route 37 transportation project, but this project is not discussed in the Traffic Impact Study. A discussion of the two projects, potential impacts on each other, and cumulative environmental impacts should be addressed. A map depicting the proposed site in relation to Route 37 transportation project should be provided.	The Traffic Impact Study has been updated and included in the Final SEIS (Appendix C). The Route 37 project is evaluated in Section 6 Cumulative Impacts. A new map is provided.
13	USEPA			In reference to the Whitehall site, the Traffic Impact Study (page 15) states, "The only planned project listed near the Whitehall site is the 1.2 mile Route 655 (Sulphur Springs Road) roadway reconstruction from Route 17 to Route 656 but this is not scheduled for completion until 2020." Where is the planned project in relation to the proposed action? Please discuss environmental and cumulative impacts as well as depict road reconstruction on a map in relation to the proposed action.	There is an error in the TIA. The proposed improvements to Route 655 are not located near the Whitehall site and would have no impacts with regards to the proposed action. The reference to route 655 has been removed from the TIA.
14	USEPA	5-12	22	Page 5-12 (Whitehall) states, "Of the 38 acres of impacts to soils, approximately 33 acres would be to prime farmland soils. Therefore, in accordance with FPPA (Farmland Protection Policy Act), an AD-1006 form was prepared and the site assessment criteria scored 38 points, well below the 160 point threshold requiring further consultation with the Natural Resource Conservation Service." Page 2-3 states, "The Whitehall site consists of approximately 58 acres of undeveloped farmland...." Is the site or a portion of the site actively used for farming?	Farmland impacts have been updated in Sections 4.9 and 5.9 of the Final SEIS.

Comment number	Commenter	page	line	comment	Response
15	USEPA	3-7	10	Page 3-7of the DSEIS states, "The FPPA is based on the protection of prime farmland soils and not on whether the area is in agricultural use." Although this may be true, doesn't the National Resource Conservation Service (NRCS) have to confirm GSA's finding and evaluate the completed form AD-1006? Confirmation of the NRCS should be documented in the EIS. Also, since there was no Distribution List included in the DSEIS, it cannot be determined if NRCS has had the opportunity to review GSA's findings. NRCS confirmation should be discussed and support documentation included in the EIS.	Coordination with the NRCS has been noted in Sections 4.9 and 5.9 and correspondence has been added to Appendix H of the Final EIS.
16	USEPA			Additionally, agricultural information was cited in Appendix D, Phase I Indiana and Northern Long-eared Bat Habitat Survey, providing site photographs of the Whitehall site. Photo no. 047 describes the picture as "General habitat showing planted wheat and fence row at eastern edge of site." The picture displays farmland in use; it is unclear why it is identified as undeveloped land. Please explain.	For purposes of the Bat Habitat Survey, undeveloped land is intended to mean land without any manmade structures. The site was visited in 2015 and did not appear to be supporting active farming activities. No change has been made to the text.
17	USEPA	4-30	1	Pages 4-28 and 4-29 state that of the 2.62 acres of wetlands delineated in the 59-acre project area (Arcadia), approximately 2.25 acres of wetlands would be impacted. Page 4-30 states, "Significant impacts to wetlands are not expected under Alternative 1 because GSA would mitigate for these impacts in accordance with wetland permit conditions to satisfy permit requirements." Since the majority of the wetlands on the Arcadia site will be impacted and no definitive discussion of wetland mitigation was presented, it is difficult to see the impacts as anything less than significant. Possible minimization and mitigation options should be discussed in the FSEIS. Early coordination with U.S. Army Corps of Engineers is recommended.	Preliminary layouts of the CRC on the Arcadia site have reduced the impacts on wetlands. Further avoidance and minimization will be done during the final design phase. On-site mitigation may be possible and further details will be developed during the final design and permitting phase of the project. It is anticipated the early coordination with the US Army Corps of Engineers will be done. Potential mitigation measures are mentioned in the document.
18	USEPA	4-29	12	In addition, page 4-29 (Arcadia site) states "Approximately 2,168 linear feet of ephemeral streams would be impacted by construction of the CRC facility." The text states, "The direct impacts to the streams are considered significant; however, mitigation would reduce the impacts to less than significant." The FSEIS should specify and discuss mitigation and how it will reduce impacts to ephemeral streams to less than significant.	Best management practices as well as avoidance would be implemented during construction and detailed during the permitting stage of the proposed project.
19	USEPA			Appendix D, Photo no. 025 shows an "old drainage pond from past mining operations, not holding water" for the Arcadia site. Please discuss as to where this drainage pond is in relation to the proposed planned development as well as environmental impacts from the pond and future plans for remediation, if applicable.	The subject pond would not be impacted by the proposed project.

Comment number	Commenter	page	line	comment	Response
20	USEPA	2-3	4	Page 2-3 states that the site had been quarried for shale. How long ago and for how long was the site quarried? Has groundwater, soils and surface water been assessed and/or tested for possible contamination from past mining operations? A site assessment is strongly recommended to determine the condition of resources prior to selecting a preferred alternative. If a Phase I Environmental Site Assessment (ESA) was completed on the site, please identify and discuss results of ESA in the FSEIS.	Phase 1 Environmental Site Assessments (ESA) were completed for both alternative sites in October 2015. Both sites were assessed by a site reconnaissance, records review and interviews. The ESAs for both sites revealed no evidence of recognized environmental conditions (hazardous substances or petroleum products) and no further investigation was deemed warranted.
21	USEPA	Sections 4-5 and 5-5		The Environmental Justice (EJ) assessment for the FBI CRC DSEIS is not complete. The methodology used is not supported by assessment of the census block group level demographics. It seems that only cursory review of county level data was used as the basis for decision making. There is not enough data and evaluative methodology presented to make any fact-based identification of areas of EJ concern. Which block groups are impacted by the project? What is the makeup of those block groups? What benchmarking values are used? Where are the tables that support the determination?	Data to assess the presence of minority and low income populations have been updated in this Final SEIS. There are no disproportionate adverse impacts to these communities at either the two alternative sites.
22	USEPA	Sections 4-5 and 5-6		With little or no information to use as an objective measurement instrument, how can it be said that there are no populations of EJ concern in the study area?	Information has been updated in this Final SEIS.
23	USEPA	Sections 4.2 and 5.2		EPA supports that NEPA documents should address the concern of GHG emissions and incorporate resiliency into project design. Although there was mention of GHG emissions in the DSEIS, EPA offers the following comments and suggestions to further refine the discussion and exemplify that which is expected in NEPA documents. It is recommended that GSA (and FBI) use the draft guidance to assist in project development and incorporate measures into the FSEIS and Record of Decision (ROD), as appropriate.	Comment noted. Thank you.
24	USEPA	3-3	18	Page 3-2 discusses and defines Greenhouse Gases. Page 3-3 states, "On a national scale, federal agencies are working to reduce GHG emissions as mandated in federal laws and EOs. These requirements are based on annual reductions to achieve specified target levels." Although correct, what is most expected of lead federal agencies, particularly within the Affected Environment section of the EIS, is a summary discussion of climate change and ongoing and reasonably foreseeable climate change impacts relevant to the proposed action. This discussion should be based on U.S. Global Change Research Program assessments which assists with identification of potential project impacts especially those that may be exacerbated by climate change and to inform consideration of measures to adapt to climate change impacts.	A summary discussion of climate change and associated impacts has been added to the document.

Comment number	Commenter	page	line	comment	Response
25	USEPA			Within the Environmental Consequences section of the EIS, an estimate of the GHG emissions associated with the proposed action and alternatives should be provided. For actions which are likely to have less than 25,000 metric tons of CO2-e emissions/year, provide a qualitative estimate unless quantification is easily accomplished. The estimated GHG emissions can serve as a reasonable proxy for climate change impacts when comparing the proposal and alternatives. Since climate impacts are not attributable to any single action, but are exacerbated by a series of smaller decisions, it is not recommended to compare GHG emissions from the proposed action to global emissions. It is also not recommended to compare GHG emissions to total U.S. emissions, as this approach does not provide meaningful information for a project level analysis. Rather, consider providing a frame of reference, such as an applicable Federal, state, tribal or local goal for GHG emission reductions, and discuss whether the emissions levels are consistent with such goals.	Emissions impacts associated with the proposed action are a result of construction activities. Section 4.2.2.1 notes "Construction activities would result in an estimated 3,540 metric tons of GHG emissions over the entire construction period (two years)." The impacts are the same for Alternative 2. This is well below the CEQ -recognized threshold of 25,000 metric tons of CO2e per year. In this instance, the qualitative analysis presented is appropriate. Language has been added to clarify the CEQ threshold of 25,000 metric tons per year.
26	USEPA			If possible, the FSEIS should discuss if the alternatives have considered and adjusted for resiliency to predicted climate change. The FSEIS should intend to implement measures to conserve energy and to reduce GHG emissions, requiring GSA (and FBI) to evaluate the effectiveness of incorporating emerging technologies. It would be helpful to specify and describe usable measures to reduce GHG emissions associated with the proposed action (for both construction and operation activities).	As required by PBS P-100 the proposed facility would be constructed to LEED gold standards and would incorporate measures and technologies to conserve energy and reduce GHG emissions.
27	USEPA			An EIS should include a Distribution List of agencies, organizations, and persons to whom copies of the document were sent as indicated in 40 CFR §1502.10 under "Recommended format" and §1502.19. A Distribution List identifies those parties who have been given the opportunity to comment and reveals that those not included on the list may need to be given the EIS for review. This information is critical to ensuring all necessary parties are given the opportunity to review and provide input to the impacts of the proposed action.	A distribution list chapter has been added to the document.

Comment number	Commenter	page	line	comment	Response
28	USEPA			Federal agencies are required to reduce the impacts on watershed hydrology and aquatic resources. This effort commonly referred to as low impact development (LID), implements environmentally and economically beneficial landscape practices into landscape programs, policies and practices by using a natural approach to land development and stormwater management. EPA encourages and promotes the principles of "sustainable landscape design and management" which recognizes the interconnection of natural resources, human resources, site design, building design, energy management, water supply, waste prevention, and facility maintenance and operation.	Comment noted. Thank you. Please see response to EPA Comment #7.
29	DOI			The Department of the Interior (Department) has no comment on the Supplemental Draft Environmental Impact Statement for the proposed Federal Bureau of Investigations (FBI) Central Records Complex, located in Winchester County, Virginia.	Comment noted. Thank you.
30	DEQ-VRO			The DEQ Valley Regional Office (DEQ-VRO) did not indicate any concerns with proposed impacts to surface waters and wetlands.	Comment noted. Thank you.
31	Virginia Marine Resources Commission			VMRC finds that provided there are no impacts to perennial streams with a drainage area upstream of 5 square miles or greater, no state-owned bottomlands will be involved and authorization from VMRC will not be required.	Comment noted. Thank you.
32	DEQ-DLPR			DEQ-DLPR finds that both solid and hazardous waste issues were addressed in the SEIS. DEQ-DLPR conducted a geographic information system (GIS) database search to identify any waste sites within a 200-foot radius that could impact or be impacted by the subject sites. In addition, DEQ-DLPR conducted a cursory review of DEQ data files for zip codes 22602 and 22624 and determined that there are two RCRA hazardous waste sites and one petroleum release site in the area of the project sites. The RCRA sites are: • ID# VAD007861933- Perry Engineering Co., Inc., 1945 Millwood Pike, Winchester, VA 22602. Contact: Jeff Perry at 540-667-4310. • ID# VAP301201102 - Frederick County Public Schools, Building and Grounds, 280 Woodbine Road, Clearbrook, VA 22624. Contact: David M. Hart at 540-867- 4865, ext 88457. The petroleum release site is: • ID# 20086024 - Gregory Strosnider property, 4754 Martinsburg Pike, Clearbrook, VA 22624. Event date: 9/21/2007. Status: Closed.	Thank you for the information. GSA has prepared Phase 1 ESAs for both sites and has determined that there is no evidence of recognized environmental conditions on the subject properties. The EIS has been updated with the findings of the Phase I ESAs.
33	DCR			Arcadia Site: According to the information currently in OCR files, the Opequon Creek Stream Conservation Unit (SCU) is downstream of the project site. The Opequon Creek SCU has been given a biodiversity significance ranking of 85, which represents a site of general significance. The natural heritage resource of concern associated with this SCU is: Glyptemys insculpta Wood turtle G3/S2/NULT	A discussion of wood turtles has been added to the document.

Comment number	Commenter	page	line	comment	Response
34	DCR			Whitehall Site: This project site is situated on karst-forming carbonate rock and can be characterized by sinkholes, caves, disappearing streams, and large springs. Discharge of runoff to sinkholes or sinking streams, filling of sinkholes, and alteration of cave entrances can lead to surface collapse, flooding, erosion and sedimentation, groundwater contamination, and degradation of subterranean habitat for natural heritage resources. The document Karst Assessment Standard Practice developed by the Virginia Cave Board for land development can be found at http://www.dcr.virginia.gov/natural heritage/documents/karst assessment guidelines.p df.	The geology section of the Final SEIS has been updated for the Whitehall site including the presence of a sinkhole and Karst rock formation. Alternative 2 - Whitehall is not the Preferred Alternative of this Final SEIS.
35	DCR			There is potential for the Northern Long-eared bat (Myotis septentrionalis, G1 G3/S3/LT/NL) to occur within both project areas. Due to the legal status of the Northern Long-eared bat, if tree removal is proposed for the project, OCR recommends coordination with the USFWS to ensure compliance with protected species legislation.	GSA has consulted with USFWS and the result of the consultation is included in Section 4.8 and Appendix A of the Final SEIS. Time-of-year restrictions for tree clearing will be incorporated into the proposed project as impact minimization measures to ensure no significant impacts to protected bat species.
36	DGIF			DGIF recommends coordination with agency staff regarding protection of the Wood turtle and its habitat if perennial waters or lands within 900 feet of such waters will be impacted.	Comment noted. The habitat on the proposed sites is not suitable for wood turtle. There are no perennial streams on the site or within 900 feet of the site.
37	DGIF			DGIF recommends coordination with the USFWS regarding potential impacts upon federally-listed Threatened Northern long-eared bat if tree removal is proposed.	See response to Comment #35.
38	VDH-CDW			VDH-ODW recommends that potential impacts to public water distribution systems must be verified by the local utility. In addition, BMPs should be employed on the project site including erosion and sediment controls and spill prevention controls and countermeasures. 9(d) Conclusion. VDH concludes the there may be impacts to public drinking water sources due to this project if the mitigation efforts outlined above are not implemented. Contact VDH-ODW, Arlene Warren at (804) 864-7781, for additional information regarding these comments.	Thank you for comment. Initial contacts have been made to the local water utility and further coordination would occur as the project develops.
39	DEQ-VRO			Any wastewaters generated by this project must be properly managed and disposed.	Preliminary concepts have been developed and initial contacts have been made with the wastewater treatment authorities for each of the alternative sites. All wastewater will be properly managed and disposed of through sewer connections and appropriate upgrades to the public wastewater system in the project area.

Comment number	Commenter	page	line	comment	Response
40	DOF			Based on the material provided, DOF finds that forest land will be lost under both potential site alternatives but significantly more so at the Arcadia site. The SEIS concludes that either site would not result in significant cumulative impacts to biological resources "when combined with past, present, and reasonably foreseeable future projects." With regard to foreseeable future projects, it is assumed the document refers to development that would be allowed under the local comprehensive plan. The cumulative impact assessment conclusion, therefore, appears to assume that development of the sites is going to occur in the future and, therefore, the site alternatives should be evaluated within that context and considered de minimis for both site alternatives. While DOF acknowledges that future possibility, its review must be restricted to evaluating the impact of the proposed project on forest resources of the Commonwealth as submitted for this review. Accordingly, DOF finds that the Arcadia site is far more forested and is connected to a larger, contiguous forest than the Whitehall site. Furthermore, based on the information provided, the tree species on the Arcadia site are more diverse and the forest provides a more robust wildlife habitat.	Comment noted. Thank you.
41	DOF			DOF recommends the Whitehall site (Alternative 2) as the preferred site. For additional information, contact DOF, Greg Evans at (434) 906-3658 or gregory.evans@dof.virginia.gov.	The Final SEIS identifies Alternative 2 - Whitehall as the environmentally preferred alternative. However, Alternative 1- Arcadia is the Preferred Alternative as it best meets the needs of GSA and the FBI to provide a site for the proposed FBI CRC that is implementable, cost effective and environmentally sound.
42	VDOT			The VDOT Staunton District Planning is currently conducting a separate review of a Traffic Impact Analysis (TIA) report for this project as submitted by the GSA. All transportation related impacts and mitigation measures related to the project will be identified and resolved through the TIA review and approval process. The initial submission of the TIA and VDOT's review comments are included in the SEIS. However, VDOT is currently reviewing a second submission of the TIA, which has been substantially revised following the initial submission. VDOT has no additional comments related directly to the SEIS.	The updated Traffic Impact Study is included in Appendix C of the Final SEIS. As agreed upon by VDOT, GSA, and FBI, a site specific traffic study will be submitted when the site design is finalized.

Comment number	Commenter	page	line	comment	Response
43	Frederick County			The Assistant County Administrator for Frederick County finds that the SEIS frequently cites sources that are now nearly nine years old (from GSA's 2007 EIS). This information is outdated and should be revisited for accuracy. The County believes that the entire document needs to be revised to reflect 2015 data rather than 2007 if the intent is to perform an accurate evaluation. The County's response includes specific comments related to information presented in the SEIS with respect to traffic impacts, noise codes, zoning classifications, the Comprehensive Plan and other matters. The County's detailed response is not repeated here. However, it is included as an attachment to this response and should be addressed. For additional information, contact Frederick County, Kris Tierney at (540) 665-6382.	The SEIS analysis was conducted based on best available data. Where appropriate, the document has been updated using current data (i.e., socioeconomics, community services, noise and zoning). The traffic study has been revised and a site specific study will be prepared once the final site design has been determined.
44	DEQ Office of Pollution Prevention			Pollution Prevention: • Consider environmental attributes when purchasing materials. For example, the extent of recycled material content, toxicity level, and amount of packaging should be considered and can be specified in purchasing contracts. • Consider contractors' commitment to the environment when choosing contractors. Specifications regarding raw materials and construction practices can be included in contract documents and requests for proposals. • Choose sustainable materials and practices for infrastructure and building construction and design. These could include asphalt and concrete containing recycled materials, and integrated pest management in landscaping, among other things.	Comment noted. Thank you.
45	Dept. of Mines, Minerals and Energy			Energy Conservation. The proposed facility should be planned and designed to comply with state and federal guidelines and industry standards for energy conservation and efficiency. The Commonwealth encourages architectural and engineering designers to recognize and incorporate the energy, environmental, and sustainability concepts listed in the U.S. Green Building Council's Leadership in Energy and Environmental	Comment noted. Thank you. GSA standards for public buildings require new construction to meet LEED Gold standards.

Comment number	Commenter	page	line	comment	Response
46	DEQ			Water Conservation: • Grounds should be landscaped with hardy native plant species to conserve water as well as lessen the need to use fertilizers and pesticides. • Convert turf to low water-use landscaping such as drought resistant grass, plants, shrubs and trees. • Low-flow toilets should be installed in new facilities. • Consider installing low flow restrictors and aerators to faucets. • Improve irrigation practices by: o upgrading sprinkler clock; water at night, if possible, to reduce evapotranspiration (lawns need only 1 inch of water per week, and do not need to be watered daily; overwatering causes 85% of turf problems); o installing a rain shutoff device; and o collecting rainwater with a rain bucket or cistern system with drip lines. • Use new high-efficiency washers and dishwashers to reduce water usage by 30-50% per use.	Comment noted. Thank you. GSA standards for public buildings require new construction to meet LEED Gold standards.
47	Navy Federal Credit Union			Based on observations, we believe current traffic warrants a traffic light at the US 1 7 and Independence Drive intersection. We support the preparation of a thorough traffic study to ensure appropriate mitigation for safety and flow should the decision be made to locate the central records facility at Arcadia. One concern to us is the draft proposal to make Victory Road right-tum-out-only onto US 17 because this may cause industrial park traffic to use Independence Drive in order to tum left onto US 17. Between this potential additional traffic, the proposed FBI facility, and our employees this may become a bottleneck at peak times.	A traffic light is proposed to be installed at this location based on the results of the traffic study. This study will be revised once the site design is finalized but would still incorporate a light at this location.
48	Sally Grove			At the Arcadia site the proposed RT 37 + Rt 50 exits go thru the property-how will that change? Or will it?	The final design of the Arcadia site will accommodate the proposed future development of Rt 37.
49	Kermit Hicks			Would Like WVA Survey Booklet for the Whitehall site	Document was shipped 10/14/15
50	Jeanpublic1@yahoo.com			i see absolutely no reason to build a building for storage of records when there are so many unused mfg and office facilities that are empty all over America.... it will be far cheaper for the tapayers of this country and use up an empty building. we DONT NEED TO PUT GOVT BUILDINGS ON OPEN SPACE. THAT MAKES NO SENSE AT ALL. STOP DESTROYING THE ENVIRONMENT. USE WHAT IS UP ALREADY	GSA looked to use existing buildings for the site of the FBI CRC facility and no suitable existing building were identified. As a result, the scope of the project was changed to construct a new facility prompting the need for this SEIS.
51	Alex Keenan			We support the Whitehall site as your selection and we are ready to expand and accommodate any new neighbors. Our services include catering and food trucks. Serving quality food is our goal and we will expand our hours to accommodate new construction and full time employees now and into the future.	Comment noted. Thank you.

Comment number	Commenter	page	line	comment	Response
52	Mitch Orndorff			Thank you for the opportunity to view the documents and meet with representatives. We own the business in front of the current FBI Records Facility in Winchester. The FBI have been very good neighbors.	Comment noted. Thank you.
53	William Staples			After reading the Winchester VA Star I see there hasn't been a land decision for the FBI building. My farm is 8 miles south of Winchester, 81 south to exit 3017 the town of Stephens City. I am west of town…Reason for wanting to sell, I am 74 years old and i could settle with my family, and it would make it alot easier on everyone. I have 163 acres with about 1/4 mile of road frontage...Look forward to hearing from you.	Thank you for your interest in the federal procurement of land in Frederick County, Virginia. As identified in the Request for Expression of Interests posted on www.fbo.gov (Federal Business Opportunities) on July 29, 2014, Expressions of Interests were due to the Contracting Officer by Aug 29, 2014, 4:00 pm EST. The Government is currently in the process of evaluating sites selected for the short-list. Based on the project schedule, we will not be able to consider your site at this time.
54	Kris Tierney			It is noted throughout the document that the existing 440 employees at the FBI facility on Marcel Drive would transfer to the new facility. It was my understanding that the new facility would complement, not replace the Marcel Drive location.	Text has been revised to indicate the new facility would not replace the Marcel Drive facility.
55	Kris Tierney			Section 2.5 states that the primary access to the Arcadia site would be from Route 50, and that the secondary access point would be via a proffered extension of Independence Drive. The extension should be referred to as Channing Drive for consistency with local planning. Due to the site's proximity to Planned Route 37, to accommodate vehicle stacking, and to accommodate east-bound traffic from leaving the site, the primary point of site access should be via Channing Drive, not Route 50.	Extension is referred to as Channing Drive, where appropriate.
56	Kris Tierney			The Noise evaluations for the 2 sites (Arcadia and Whitehall) are incorrect; as this is all based on the City of Winchester, not Frederick County, code. Noise Sections 4.1 and 5.1 need corrections.	A discussion of the Frederick County noise ordinance has been added to Chapter 4.
57	Kris Tierney			Section 4.3.1. Incorrectly labels RA as rural residential. The Correct Zoning classification is Rural Areas.	Text has been corrected.
58	Kris Tierney			Section 4.3.2 line 32 (Arcadia site). Incorrectly states that the Federal use is not consistent with the Comprehensive Plan. The Federal use is, in fact consistent with the Comprehensive Plan, so long as the improvements are not within the Planned Route 37 corridor.	Text rewritten as follows for clarification: "Federal land use is generally consistent with the 2030 Frederick County Comprehensive Plan; however, according to the 2030 Frederick County Comprehensive Plan, this site is within the path of the proposed Route 37 east, a priority transportation project (Frederick County Planning Commission 2011). Therefore, the change in land use that would occur as a result of the proposed action is not consistent with the desired land use for the site expressed in the 2030 Frederick County Comprehensive Plan. "

Comment number	Commenter	page	line	comment	Response
59	Kris Tierney			Section 4.6.1.2 and 5.6.1.2 Incorrectly places the Sheriff's Office at 5. N. Kent Street, and references an under construction facility on Airport Road. The Sheriff's Office is located in the Public Safety Building located on Coverstone Drive. The address and number of deputies should be updated.	The City of Winchester Sherriff is located at 5 N. Kent St, not the Frederick County Sheriff. Frederic County Sheriff's office location has been corrected in the text and an update on the services provided has been added.
60	Kris Tierney			It's impractical to attempt to comment extensively on the Traffic Impact Analyses since revisions are being made and have not been received. Section 4.7.1 notes they will be included in the final SEIS. Due to these modifications we cannot currently give accurate comment on the level of service claims in the report.	Comment noted. Thank you.
61	Kris Tierney			Multiple sections of the document incorrectly labels the proffered road as an extension of Independence Drive. This is Channing Drive	References to the proffered road at Arcadia have been edited to refer to the road as Channing Drive.
62	Kris Tierney			Section 4.7.2 envisions full time secondary access in the form of a right in, right out entrance. It should be noted that this would likely require an entrance spacing waiver from VDOT. The County would be more amenable to treating this as emergency access.	Text changed as follows: "Proposed secondary access would be from U.S. Route 17/50 south of Independence Drive. The secondary access would be limited to right-in and right-out turning movements. An entrance spacing waiver from VDOT would likely be required for this design. The traffic impact study..."
63	Kris Tierney			Please correct directional references for Route 50/17 to EB and WB.	Traffic sections has been rewritten to reflect the outcome of meeting with VDOT regarding the site design. Directional references have been removed.
64	Kris Tierney			Please add additional narrative to address the amount, type, and timeline of heavier or different type of traffic load as the facility is opened up and stocked.	Additional information has been added to identify trip generations resulting from the proposed action.
65	Kris Tierney			There are numerous references to coordination with the Frederick County Planning Commission. I believe Frederick County Planning Department is what is meant.	Global change made to "Frederick County Department of Planning and Development". http://www.co.frederick.va.us/departments/o-z/planning-development
66	Kris Tierney			Section 6.2.3 states that the Arcadia site would result in compatibility issues with the construction of Route 37. It should be noted in the report that the conflict does not exist if the GSA facility avoids the planned Route 37 right-of-way.	Text has been edited to reflect the new proposed site design and its compatibility with Route 37.
67	Kris Tierney			Section footers are not always titled correctly to correspond with the Section	Footers have been corrected throughout the document.
68	Kris Tierney			6.2 notes that there is no environmental document on the Route 37 bypass. This is in correct. Environmental work, though dated, was done up to, and including a record of decision which VDOT provided to the project team. In addition environmental was updated for Route 37 from Exit 310 to Route 522	The reference to no environmental document being prepared for Route 37 has been removed.

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APPENDIX G
USDA SOIL RATING FORMS

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U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 5/5/06
Name Of Project FBI Central Records Complex	Federal Agency Involved GSA
Proposed Land Use Building for Division of Records	County And State Frederick County, Virginia
PART II *(To be completed by NRCS)*	Date Request Received By NRCS 5/9/06

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply -- do not complete additional parts of this form).*	Yes ☒ No ☐	Acres Irrigated —	Average Farm Size 156 Ac.
Major Crop(s) Row crop; Hay	Farmable Land In Govt. Jurisdiction Acres: 112675 % 40%		Amount Of Farmland As Defined in FPPA Acres: 68543 % 25
Name Of Land Evaluation System Used LESA	Name Of Local Site Assessment System —		Date Land Evaluation Returned By NRCS 5-15-06

PART III *(To be completed by Federal Agency)*	Alternative Site Rating Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	107.0	101.0		
B. Total Acres To Be Converted Indirectly	0.0	0.0		
C. Total Acres In Site	107.0	101.0	0.0	0.0
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	70	65		
B. Total Acres Statewide And Local Important Farmland	37	20		
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	<0.1%	<0.1%		
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	13%	13%		
PART V *(To be completed by NRCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	~~8~~ 80	~~8~~ 82	0	0

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points	Site A	Site B	Site C	Site D
1. Area In Nonurban Use		7	12		
2. Perimeter In Nonurban Use		8	8		
3. Percent Of Site Being Farmed		18	20		
4. Protection Provided By State And Local Government		0	0		
5. Distance From Urban Builtup Area		5	15		
6. Distance To Urban Support Services		0	0		
7. Size Of Present Farm Unit Compared To Average		3	3		
8. Creation Of Nonfarmable Farmland		0	0		
9. Availability Of Farm Support Services		5	5		
10. On-Farm Investments		10	3		
11. Effects Of Conversion On Farm Support Services		0	0		
12. Compatibility With Existing Agricultural Use		10	10		
TOTAL SITE ASSESSMENT POINTS	160	66	76	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	80	82	0	0
Total Site Assessment *(From Part VI above or a local site assessment)*	160	66	76	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	146	158	0	0

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection:

Notes:

Site A = Carbaugh Site
Site B = Sempeles Site
No farmland soils exist on the Carpers Valley Golf Site

(See Instructions on reverse side)

This form was electronically produced by National Production Services Staff

Form AD-1006 (10-83)

Enclosure 1

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 10/27/2015
Name of Project FBI CRC	Federal Agency Involved GSA
Proposed Land Use Central Record Complex Facility	County and State Frederick County, VA
PART II *(To be completed by NRCS)*	Date Request Received By NRCS 10/28/2015 / Person Completing Form: Don Flegel

Does the site contain Prime, Unique, Statewide or Local Important Farmland? *(If no, the FPPA does not apply - do not complete additional parts of this form)*	YES ☑	NO ☐	Acres Irrigated 0	Average Farm Size

Major Crop(s)	Farmable Land In Govt. Jurisdiction	Amount of Farmland As Defined in FPPA
corn	Acres: 170,005 % 63.9	Acres: 69,806 % 26.2
Name of Land Evaluation System Used: Frederick County, Virginia	Name of State or Local Site Assessment System: none	Date Land Evaluation Returned by NRCS: 10/30/2015

PART III *(To be completed by Federal Agency)*	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	59			
B. Total Acres To Be Converted Indirectly	0			
C. Total Acres In Site	59			
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	0.3			
B. Total Acres Statewide Important or Local Important Farmland	0			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.001			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	71			
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)	37			

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)*	**Maximum Points**	Site A	Site B	Site C	Site D
1. Area In Non-urban Use	(15)	9			
2. Perimeter In Non-urban Use	(10)	8			
3. Percent Of Site Being Farmed	(20)	0			
4. Protection Provided By State and Local Government	(20)	0			
5. Distance From Urban Built-up Area	(15)	10			
6. Distance To Urban Support Services	(15)	0			
7. Size Of Present Farm Unit Compared To Average	(10)	3			
8. Creation Of Non-farmable Farmland	(10)	0			
9. Availability Of Farm Support Services	(5)	5			
10. On-Farm Investments	(20)	2			
11. Effects Of Conversion On Farm Support Services	(10)	0			
12. Compatibility With Existing Agricultural Use	(10)	10			
TOTAL SITE ASSESSMENT POINTS	160	47	0	0	0
PART VII ***(To be completed by Federal Agency)***					
Relative Value Of Farmland *(From Part V)*	100	37	0	0	0
Total Site Assessment *(From Part VI above or local site assessment)*	160	47	0	0	0
TOTAL POINTS ***(Total of above 2 lines)***	260	84	0	0	0

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? YES ☐ NO ☐

Reason For Selection:

Notes: Site A = Arcadia

Name of Federal agency representative completing this form: Erika Fuery | Date: 10/27/2015

(See Instructions on reverse side) **Form AD-1006 (03-02)**

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

Step 1 - Federal agencies (or Federally funded projects) involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form. For Corridor type projects, the Federal agency shall use form NRCS-CPA-106 in place of form AD-1006. The Land Evaluation and Site Assessment (LESA) process may also be accessed by visiting the FPPA website, http://fppa.nrcs.usda.gov/lesa/.

Step 2 - Originator (Federal Agency) will send one original copy of the form together with appropriate scaled maps indicating location(s)of project site(s), to the Natural Resources Conservation Service (NRCS) local Field Office or USDA Service Center and retain a copy for their files. (NRCS has offices in most counties in the U.S. The USDA Office Information Locator may be found at http://offices.usda.gov/scripts/ndISAPI.dll/oip_public/USA_map, or the offices can usually be found in the Phone Book under U.S. Government, Department of Agriculture. A list of field offices is available from the NRCS State Conservationist and State Office in each State.)

Step 3 - NRCS will, within 10 working days after receipt of the completed form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland. (When a site visit or land evaluation system design is needed, NRCS will respond within 30 working days.

Step 4 - For sites where farmland covered by the FPPA will be converted by the proposed project, NRCS will complete Parts II, IV and V of the form.

Step 5 - NRCS will return the original copy of the form to the Federal agency involved in the project, and retain a file copy for NRCS records.

Step 6 - The Federal agency involved in the proposed project will complete Parts VI and VII of the form and return the form with the final selected site to the servicing NRCS office.

Step 7 - The Federal agency providing financial or technical assistance to the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

(For Federal Agency)

Part I: When completing the "County and State" questions, list all the local governments that are responsible for local land use controls where site(s) are to be evaluated.

Part III: When completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them or other major change in the ability to use the land for agriculture.
2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities planned build out capacity) that will cause a direct conversion.

Part VI: Do not complete Part VI using the standard format if a State or Local site assessment is used. With local and NRCS assistance, use the local Land Evaluation and Site Assessment (LESA).

1. Assign the maximum points for each site assessment criterion as shown in § 658.5(b) of CFR. In cases of corridor-type project such as transportation, power line and flood control, criteria #5 and #6 will not apply and will, be weighted zero, however, criterion #8 will be weighed a maximum of 25 points and criterion #11 a maximum of 25 points.

2. Federal agencies may assign relative weights among the 12 site assessment criteria other than those shown on the FPPA rule after submitting individual agency FPPA policy for review and comment to NRCS. In all cases where other weights are assigned, relative adjustments must be made to maintain the maximum total points at 160. For project sites where the total points equal or exceed 160, consider alternative actions, as appropriate, that could reduce adverse impacts (e.g. Alternative Sites, Modifications or Mitigation).

Part VII: In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, convert the site assessment points to a base of 160.
Example: if the Site Assessment maximum is 200 points, and the alternative Site "A" is rated 180 points:

$$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \text{ X } 160 = 144 \text{ points for Site A}$$

For assistance in completing this form or FPPA process, contact the local NRCS Field Office or USDA Service Center.

NRCS employees, consult the FPPA Manual and/or policy for additional instructions to complete the AD-1006 form.

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