

PENNSYLVANIA AVE-MINNESOTA AVE, S.E.
INTERSECTION IMPROVEMENT
FINAL ENVIRONMENTAL ASSESSMENT AND
FINDING OF NO SIGNIFICANT IMPACT



JUNE 2015



**FINAL ENVIRONMENTAL ASSESSMENT
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FOR THE
PENNSYLVANIA AVE-MINNESOTA AVE, S.E.
INTERSECTION IMPROVEMENT
WASHINGTON, DC**

Prepared pursuant to 42 U.S.C. 4332(2)(c) by:

U.S. Department of Transportation
Federal Highway Administration
District Department of Transportation

with the cooperation with
National Park Service
National Capital Planning Commission

6/10/15

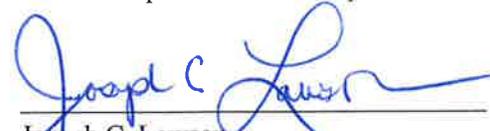
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*Text that has been added or modified since the release of the October 2013
Pennsylvania and Minnesota Avenues, S.E. Intersection Improvement
Environmental Assessment is denoted in bold and italic fonts.*

EXECUTIVE SUMMARY

ES.1. Preface

The Federal Highway Administration (FHWA) in conjunction with the District Department of Transportation (DDOT) is proposing improvements to the Pennsylvania Avenue, SE and Minnesota Avenue, SE intersection. This action would also include the transfer of land from the National Park Service (NPS) to DDOT. The land transfer would facilitate the proposed reconfiguration of this intersection, also known as the “Twining Square” area in Southeast Washington, DC. ***The open green space within Twining Square would remain parkland.*** This ***Environmental Assessment*** (EA) has been prepared in accordance with the National Environmental Policy Act (NEPA) and implementing regulations, the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations (CFR) 1500-1508), the FHWA’s *Environmental Impact and Related Procedures* (23 CFR 771), FHWA *Technical Advisory Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (T6640.8A), NPS *Director’s Order #12: Conservation Planning, Environmental Impact Analysis, and Decision-making (DO-12)* and DDOT’s *Environmental Policy and Process Manual*.

The FHWA and DDOT prepared an EA which was released for agency and public review on October 28, 2013. A public hearing was held on November 13, 2013. Subsequently, this Final EA has been prepared to address agency and public comments received, and identifies FHWA and DDOT’s Preferred Alternative after consideration of public and agency comments.

The Proposed Action includes modifications to the intersection to improve safety, mobility, and connectivity for pedestrians and motorists. A land transfer from NPS to DDOT would be necessary, pending National Capital Planning Commission (NCPC) approval, to carry out ***some of*** the proposed intersection improvements.

ES.2. Purpose and Need

The purpose of the Proposed Action is to provide transportation improvements to the Pennsylvania and Minnesota Avenues, SE intersection in keeping with the District of Columbia’s Great Streets Initiative as set forth in the 2007 *Great Streets Framework Plan* and the 2007 *Revitalization of Pennsylvania Avenue, SE for the Great Streets Initiative Concepts Design Final Report (Great Streets Design Final Report)*.

The project needs consist of the following:

- Improve pedestrian and vehicular safety;
- Create a consolidated, usable park space;
- Improve multimodal connectivity and access; and
- Support improved land use and community needs.

For additional information on the Great Streets Initiative principles, program goals, and applicability to the Study Area, see *Section 1.3, Project Overview* and *Appendix A*.

ES.3. Project Background

The Study Area is located at the western end of the Pennsylvania Avenue, SE Great Streets corridor at the intersection of Pennsylvania Avenue with Minnesota Avenue, SE, in the immediate vicinity of Twining Square, also referred to as L'Enfant Square in the *Great Streets Framework Plan*.

The Pennsylvania and Minnesota Avenues, SE intersection includes NPS property, U.S. Reservation 487 (Twining Square), which includes four small park parcels fragmented by intersecting roadways and the adjacent roadway medians, totaling approximately **1.44** acres. The roadways split the reservations into areas that effectively function as traffic islands for pedestrians while crossing the street; the pieces of parkland are too small to function as true open space or green space as currently configured. Twining Square lacks aesthetic appeal and is underutilized urban space.

As shown on Figure 1-2 in *Section 1.0, Purpose and Need*, the current intersection configuration is dominated by busy lanes of traffic, rendering pedestrian circulation both difficult and dangerous. The project intersection is located on a major commuter route, Pennsylvania Avenue, SE, in an urban environment, at its crossing with the local travel route of Minnesota Avenue, SE. The project intersection carries traffic to and from the bridges that cross the Anacostia River, as well as Minnesota Avenue, SE.

Proposed solutions to improve the intersection were developed as part of the *Great Streets Design Final Report*, which was developed as part of the District's Great Streets Initiative. The Great Streets Initiative was kicked off in 2005 as a multi-agency program that strategically uses public investments to improve local quality of life and attract private investments to communities. Several corridors were chosen to be a part of the Great Streets Initiative, including Pennsylvania Avenue, SE.

The program goals of the Great Streets Initiative are as follows:

1. Improve the quality of life in neighborhoods along the corridors, including public safety, physical appearance and personal opportunity;
2. Support local demand for goods and services through economic development;
3. Expand mobility choices and improve safety and efficiency of all modes of travel; and
4. Attract private investment through the demonstration of a public commitment to Great Street communities.

Three viable options, developed as part of a four-day design charrette held in July 2006 were developed to a concept level: (1) Modified Traffic Square Alternative, (2) Ellipse Alternative, and (3) Conventional Intersection Alternative.

ES.4. Alternatives

Multiple alternatives for the Pennsylvania and Minnesota Avenues, SE intersection were developed in accordance with the project objectives established to meet the project purpose and need. Three alternatives, including the No Build Alternative, are analyzed in detail in this EA.

i. No Build Alternative

Under the No Build Alternative, there would be no improvements to the project intersection and no land jurisdiction transfer from NPS to DDOT would occur. The intersection would continue to function as it does today. Existing traffic patterns, crosswalks, signalization, and sidewalks would remain unimproved.

While the No Build Alternative does not meet the purpose and need of the Proposed Action, it provides a basis for comparing the environmental consequences of the Build Alternatives.

ii. Proposed Action

The Proposed Action is to provide improvements to the Pennsylvania and Minnesota Avenues, SE intersection that includes a potential land transfer from NPS to DDOT. The land transfer would facilitate reconfiguration to the intersection to improve safety, mobility, and connectivity for pedestrians and motorists at the intersection in keeping with the District of Columbia's Great Streets Initiative. No private right-of-way would be impacted or acquired by the Proposed Action. *The open green space within Twining Square would remain parkland.*

Build Alternative 1 – Revised Square Alternative

Under Build Alternative 1, the intersection would be improved to create a “traffic square” concept, which would require all vehicles, with the exception of through-movements on Pennsylvania Avenue, SE, to go around the expanded central park area. Build Alternative 1 would require a jurisdictional land transfer from NPS to DDOT of approximately **1.44** acres to enable the proposed modifications to the intersection and consolidate the green space. Build Alternative 1 would provide more contiguous park area for residents and visitors to the area to use and enjoy. The northern park area would total approximately one acre and the southern park area would total approximately 0.5 acres of contiguous park area.

Build Alternative 1 improves the roadway alignment and configuration to promote traffic-calming, thereby improving safety for pedestrians and vehicles at the intersection. Under this alternative, the traffic signal configuration is simplified and the left-turning conflicts are removed. Pennsylvania Avenue, SE would bisect the center of the square, and turning movements would be directed around the perimeter of the “square.” This perimeter route acts to calm the traffic, similar to how a traffic circle works by allowing vehicles to enter and exit the square at locations identified by the intersecting streets. It would also reduce vehicular speeds by providing short, straight distances between tight radius turns, at the presumed four corners of the square.

Build Alternative 1 would reduce the interaction between pedestrians and vehicles, and would also improve the functionality of existing and new crosswalk facilities. The crosswalk alignments and refuge areas for pedestrians would be significantly enhanced; sidewalks and green space would be improved and green space frontage would be provided for local residences and businesses.

Build Alternative 2 – Conventional Intersection Alternative

Under Build Alternative 2, the intersection would be redesigned into a typical at-grade intersection with all vehicle turning movements permitted for all approaches, with the exception of 25th Street, which would remain a one-way street going southbound. Build Alternative 2 would require a jurisdictional land

transfer from NPS to DDOT of approximately **1.44** acres to enable the proposed modifications to the intersection and consolidate the green space. Build Alternative 2 would consolidate the two park parcels to the north of Pennsylvania Avenue and the two park parcels to the south of Pennsylvania in order to provide more contiguous park area for residents and visitors to use as green space. The northern park area would total approximately one acre and the southern park area would total approximately 0.4 acres of contiguous park area.

The Build Alternative 2 design would improve the existing split roadway system that currently contains two complex intersections by reducing multiple traffic movements into one signalized intersection. This alternative would provide for left-turn movements in all directions and increase the left-turn bay storage length for vehicles.

Build Alternative 2 sets forth two options for the *direction* of traffic *flow on L'Enfant Square, SE, located* to the north and west of the "square." The one-way *flow of traffic* would work operationally as follows:

Option 1) Traffic flows one-way to the west and south on L'Enfant Square SE. Commuter traffic could continue to cut-through the "square" to avoid the Pennsylvania/Minnesota Avenues, SE intersection and the right-turning vehicle/pedestrian conflict to the west of the square would remain; or

Option 2) Traffic flows one-way to the north and east on this roadway. Cut-through traffic would be minimized and the vehicle/pedestrian conflict would be reduced.

Build Alternative 2 would improve vehicle operations and reduce confusion at the complex intersection, *create more consolidated green space for visitors and residents to the area, improve multimodal connectivity and access, and support improved land use and community needs.*

ES.5. Preferred Alternative and Option

Following the public review period of the October 2013 EA and based on the project's purpose and need, as well as agency and public input, DDOT and FHWA identified the following as the preferred alternative and preferred option. A complete description of each alternative and option is provided in Section 2.2 of the Final EA. Responses to public and agency comments are provided in Appendix C, Agency Coordination and Public Involvement.

Build Alternative 2 – Conventional Intersection Alternative (Preferred Alternative)

The preferred alternative is Build Alternative 2, Conventional Intersection Alternative, which would improve the existing split roadway system that currently contains two complex intersections by reducing multiple traffic movements into one signalized intersection. This alternative would provide for left-turn movements in all directions and increase the left-turn bay storage length for vehicles. A jurisdictional land transfer of approximately 1.44 acres from NPS to DDOT would enable the proposed modifications to the intersection and the enhancement of green space.

Option 2 (Preferred Option)

The one-way flow of traffic on the L'Enfant Square, SE roadway in the north and east direction is the preferred option. Under this option, cut-through traffic would be minimized along the L'Enfant Square, SE residences and the vehicle/pedestrian conflict would be reduced. Option 2 maintains L'Enfant Square, SE as a one-lane roadway with on-street parking on both sides of the street.

The total cost of the Preferred Alternative and option will be approximately \$9,009,853. The duration of construction is anticipated to take approximately 18 to 24 months.

ES.6. Construction and Staging

Construction staging areas would be selected to protect environmental resources, to meet the needs of the contractor based on the construction phasing plans, and to minimize disruptions and safety hazards for pedestrians, bicyclists and motorists who utilize the intersection. Appropriate advance notification of construction and construction phasing to ensure the safest and most logical detours around the road and sidewalk segments under construction would occur. Scheduling of construction would be conducted with adherence to Title 20 of the District of Columbia Code of Municipal Regulations (DCMR). It is estimated that construction would take approximately 18 to 24 months.

Adequate construction techniques, including use of BMPs and LID strategies, would be adhered to so as to minimize the potential for impacts to the surrounding environment. Construction impacts are discussed within the appropriate environmental categories in *Section 4.0, Environmental Consequences*.

ES.7. Cumulative Impacts

Cumulative effects would result from the Build Alternative impacts to Road Network and Traffic and Archaeological Resources.

From a regional context, the incremental impact on the roadway network and traffic due to the Build Alternatives would be negligible given the inevitable increase in traffic volume and congestion in the Study Area due to natural factors such as population growth and migration into the District and nearby suburbs. Additionally, with plans to implement Phase 3 of the D.C. Streetcar project through the Study Area (likely by 2030), the increased availability of public transit options may help lessen future traffic congestion in the Study Area. As a result, the Build Alternatives, when added to other past, present and foreseeable actions would have a negligible cumulative effect on the road network and traffic.

The incremental impact to archaeological resources is small given that the area where the potential to recover historic or prehistoric archaeological resources exists is limited to the southern reservation (approximately 0.06 acres) of the Study Area. Phase IB/II testing of this small area is recommended prior to final design decisions and construction of either of the Build Alternatives. Due to the small area recommended for further testing and provided that the conditions stated in the *Section 106 Review Form* for archaeology are followed (see *Appendix E*), the cumulative effect on archaeological resources due to past, present or future projects, is expected to be negligible.

The impacts of the Build Alternatives, when added to other past, present and future projects outlined in this EA, would result in a net benefit to vegetation, future land use, zoning, economics and development, aesthetic and visual quality, health and safety, parks and recreation areas, and the bicycle and transportation network.

The Build Alternatives would have no long-term cumulative impacts to geology, soils and topography, farmland, ground water, surface water, floodplains, water quality, wetlands, navigable waters, wild and scenic rivers, coastal zone, aquatic or terrestrial organisms, wildlife, historic structures, cultural landscapes, paleontology, environmental justice, joint development, emergency services, schools, utilities and infrastructure, Indian Trust resources, Sacred Sites and ethnographic resources, transit, air quality, noise, hazardous waste and materials, and energy conservation.

ES.8. Summary of Impacts

A comparison of impacts associated with the alternatives evaluated in this EA is summarized in **Table ES.1**.

Table ES.1
Summary of Impacts

Resource	No Build Alternative	Build Alternative 1	Build Alternative 2
<i>Natural Resources</i>			
Geology and Topography	No impact.	No impact; minor grading on already disturbed topography.	
Soils	No impact.	Minor short-term adverse impacts from soil erosion during construction. Negligible long-term impacts.	
Farmland	No impact; no prime farmland soils within Study Area.	No impact; no prime farmland soils within Study Area.	
Ground Water	No impact to groundwater volume or quality.	Negligible short-term and long-term impacts; minimal net increase of pervious surface.	Negligible short-term and long-term impacts; minimal net decrease of pervious surface.
Surface Water	No impact.	No impact; no surface waters within Study Area.	
Floodplains	No impact; Study Area is not located within a floodplain.	No impact; Study Area is not located within a floodplain.	
Water Quality	No impact.	Minor short-term adverse impacts during construction due to potential release of sediments into stormwater runoff from soil disturbance. Negligible long-term impacts due to minimal net change in impervious surface area and distance to Anacostia River.	
Wetlands	No impact; no wetlands identified within project study area.	No impact; no wetlands identified within Study Area.	
Navigable Waters	No impact; no navigable waters present in project study area.	No impact; no navigable waters within Study Area (indirect impacts addressed under Water Quality).	
Wild and Scenic Rivers	No impact; no Wild and Scenic Rivers within project study area.	No impact; no Wild and Scenic Rivers within Study Area.	
Coastal Zone	No impact. The District does not have a designated Coastal Zone.	No impact; the District does not have a designated Coastal Zone.	
Aquatic Organisms	No impact.	No impact; no aquatic habitat within Study Area (indirect impacts addressed under Water Quality).	
Wildlife	No impact.	Negligible short-term impacts; impacts would be of short duration and well within natural fluctuations. Negligible long-term impacts due to the location of the site being entirely within previously disturbed and maintained landscapes.	
Rare, Threatened and Endangered Species	No impact.	No impact; no threatened or endangered species in Study Area.	
Vegetation	No impact.	Minor short-term adverse impacts during construction due to earth disturbance and potential impacts to several trees to accommodate design changes. Minor long-term benefit due to enhanced landscape and additional grass and tree cover.	

Table ES.1
Summary of Impacts

Resource	No Build Alternative	Build Alternative 1	Build Alternative 2
<i>Cultural Resources</i>			
Historic Structures	No impact.	Conditional No Adverse Effect.	Conditional No Adverse Effect.
Cultural Landscapes	No impact.	Any indirect effects, such as visual impacts to the landscape due to construction would be short-term and negligible with the use of BMPs. Long-term indirect effects would be negligible.	
Archaeology	No impact.	Conditional No Adverse Effect. Phase IB/II archaeological testing of an area in the southern reservation of intersection needed prior to final design and construction where an intact historic surface was identified during geoarchaeological survey.	
Paleontology	No impact.	No impact; no known paleontological resources exist in Study Area.	
<i>Socioeconomic Resources</i>			
Land Use	No impact.	Negligible short-term impacts may result from road closures during construction. Minor indirect long-term benefits to future land use.	Negligible short-term impacts may result from road closures during construction. <i>Minor indirect long-term benefits to future land use..</i>
Zoning	No impact.	No short-term impacts to zoning. Minor indirect long-term benefits to future zoning.	No short-term impacts to zoning. <i>Minor indirect long-term benefits to future zoning.</i>
Demography	No impact.	Minor short-term adverse impacts due to road closures during construction. Minor long-term beneficial impacts due to enhanced safety for residents in the Study Area.	Minor short-term adverse impacts due to road closures during construction. <i>Minor long-term benefits to demography.</i>
Environmental Justice	No impact.	Negligible short-term and long-term impacts.	
Economics and Development	Minor negative indirect impact in long-term due to missed revitalization opportunity.	Minor short-term adverse impacts to residents and businesses due to temporary road closures. Indirect minor long-term beneficial impacts.	Minor short-term adverse impacts to residents and businesses due to temporary road closures. <i>Minor indirect long-term benefits to economics and development.</i>
Joint Development	No impact.	No impact.	
Aesthetics and Visual Quality	No impact.	Minor short-term adverse visual impacts during construction. Long-term minor benefit to visual quality with more contiguous park area/ green space and new roadway infrastructure.	

Table ES.1
Summary of Impacts

Resource	No Build Alternative	Build Alternative 1	Build Alternative 2
Health and Safety	No direct impact. Long-term indirect impact due to existing safety issues remaining unresolved.	Negligible short-term impact while becoming familiar with new traffic patterns. Minor long-term benefits to vehicle and pedestrian safety at the intersection.	Negligible short-term impact while becoming familiar with new traffic patterns. <i>Minor long-term benefits to vehicle and pedestrian safety at the intersection.</i>
Community Resources	No impact.	Minor short-term adverse impacts due to maintenance of traffic, temporary lane closures during construction. Indirect long-term benefit to students, school faculty, or those attending places of worship who may utilize the intersection due to improved safety for vehicles and pedestrians.	
Emergency Services	No impact.	Minor short-term adverse impacts due to maintenance of traffic, temporary lane closures during construction. Negligible impact in the long term.	
Parks and Recreation Areas	No direct impact. Minor long-term indirect impact as park area would remain fragmented and unusable as park or recreation area.	Minor short-term adverse impacts during construction. Long-term minor benefit due to providing more contiguous parkland to be used for passive recreational activity.	
Utilities and Infrastructure	No impact.	Minor short-term adverse impacts to utilities if it is determined that they must be relocated due to construction. Consultation with utility companies and more detailed survey needed as design development advances. Negligible impact in the long term after project implementation.	
Indian Trust Resources	No impact.	No impact; no known Indian Trust Resources exist in Study Area.	
Sacred Sites and Ethnographic Resources	No impact.	No impact; no known Sacred Sites and Ethnographic Resources exist in Study Area.	
<i>Transportation</i>			
Bicycle and Pedestrian Network	No impact.	Minor short-term adverse impacts due to temporary detours during construction. Moderate long-term beneficial impacts to local users and commuters through the area.	Minor short-term adverse impacts due to temporary detours during construction. Minor long-term beneficial impacts to local users and commuters through the area.
Roadway Network and Traffic	No short-term impact. Minor long-term adverse impacts; conditions expected to worsen due to anticipated increase in traffic volume by 2040.	Minor short-term adverse impacts due to temporary closures during construction; detours and maintenance of traffic will be provided.	

Table ES.1
Summary of Impacts

Resource	No Build Alternative	Build Alternative 1	Build Alternative 2
<i>Transit</i>	No impact.	Minor short-term adverse impacts to WMATA bus service during construction and familiarization with new routes and bus stops. Long-term impacts would be negligible.	
<i>Air Quality</i>	No impact.	Short-term adverse impacts to air quality due to construction would be temporary and localized; BMPs will be used. Build Alternatives would not contribute to any violation of the NAAQS and meets the project level CO conformity requirements of 40 CFR 94.	
<i>Noise</i>	No short-term impacts. In the long term, due to the projected increase in traffic volume at this intersection, noise levels will increase by 2040 under the No Build Alternative.	Minor short-term adverse impacts during construction. 2040 design year build PM peak hour traffic would raise noise levels 0.2 to 3.1 dB. The same residences, park and daycare that would be exposed to noise levels that approach or exceed the NAC with the No Build, would also approach or exceed the NAC with either build alternative. It has been determined that noise mitigation is not feasible for this project.	
<i>Hazardous Waste and Materials</i>	No impact.	No impact.	
<i>Energy Conservation</i>	No impact.	No impact. Energy conserved through use of LID principles at project site.	
<i>Cost</i>	--	\$10,971,254	\$9,009,853

Source: HNTB Corporation, 2014.

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- Appendix E Section 106 Consultation and Cultural Resources Information
- Appendix F Traffic Analysis Report
- Appendix G Air Quality Report
- Appendix H Noise Technical Report

ACRONYMS AND ABBREVIATIONS

ACHP	American Council on Historic Preservation
AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
ANC	Advisory Neighborhood Commission
APE	Area of Potential Effect
AWI	Anacostia Waterfront Initiative
BMP	Best Management Practices
CAA	Clean Air Act of 1970
CAAA	1990 Clean Air Act Amendments
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFA	Commission of Fine Arts
CFR	Code of Federal Regulations
cfs	Cubic feet per second
CT	U.S. Census Bureau Census Tract
dBA	A-Weighted Sound Level-Decibels
DCMR	District of Columbia Code of Municipal Regulations
DC OP	DC Office of Planning
DC SHPO	DC State Historic Preservation Office
DDOE	District Department of the Environment
DDOT	District Department of Transportation
The District	District of Columbia
DMPED	Office of the Deputy Mayor of Economic Development
DO	Director's Order
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act of 1973

FEMA	Flood Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
FONSI	Finding of No Significant Impact
FWS	U.S. Fish and Wildlife Service
IPaC	Information, Planning, and Conservation System
LID	Low-Impact-Design
LOS	Level of Service
LRP	Long-Range Plan
LWCF	Land and Water Conservation Fund
MAC Study	<i>Middle Anacostia River Crossings Transportation Study (2005)</i>
MPO	Metropolitan Planning Organization
msl	Mean sea level
MWCOG	Metropolitan Washington Council of Governments
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NCPC	National Capital Planning Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
PEPCO	Potomac Electric Power Company
PM ₁₀	particulate matter less than or equal to 10 microns
PM _{2.5}	particulate matter less than or equal to 2.5 microns
PMP	District of Columbia Pedestrian Master Plan
RCRA	Resource Conservation and Recovery Act
SE	Southeast

SIP	State Implementation Plan
TIP	Transportation Improvement Program
TMDL	Total Maximum Daily Loads
TNM	Traffic Noise Model®
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USGS	U.S. Geological Survey
WIP	Watershed Implementation Plan
WMATA	Washington Metropolitan Area Transit Authority

1.0 PURPOSE AND NEED

The Federal Highway Administration (FHWA) in conjunction with the District Department of Transportation (DDOT) are proposing improvements to the Pennsylvania Avenue and Minnesota Avenue, Southeast (SE) intersection that would include the transfer of land jurisdiction from National Park Service (NPS) to DDOT. The land transfer would facilitate the proposed reconfiguration of this intersection, also known as the “Twining Square” area in Southeast Washington, DC. ***The open green space within Twining Square would remain parkland.*** This Environmental Assessment (EA) is being prepared by DDOT and the FHWA, in cooperation with the NPS, to fulfill the requirements of the National Environmental Policy Act of 1969 (NEPA). Specifically, this EA covers the proposed improvements to the intersection as initially identified by the District of Columbia’s Great Streets Initiative for improvements to Pennsylvania Avenue, SE as set forth in the 2007 *Great Streets Framework Plan* and the 2007 *Revitalization of Pennsylvania Avenue, SE for the Great Streets Initiative Concepts Design Final Report (Great Streets Design Final Report)*. This EA examines the potential impacts of the Proposed Action to this intersection and the surrounding environs.

This EA has been prepared in accordance with NEPA and implementing regulations, the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), the FHWA’s *Environmental Impact and Related Procedures* (23 CFR 771), FHWA *Technical Advisory Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (T6640.8A), NPS *Director’s Order #12: Conservation Planning, Environmental Impact Analysis, and Decision-making (DO-12)* and the *DO-12 Handbook*, and DDOT’s *Environmental Policy and Process Manual*. ***The FHWA and DDOT prepared an EA which was released for agency and public review on October 28, 2013. A public hearing was held on November 13, 2013. Subsequently, this Final EA has been prepared to address agency and public comments received, and identifies FHWA and DDOT’s Preferred Alternative after consideration of public and agency comments and based on the project’s purpose and need.***

As shown in **Figure 1-1**, the proposed project is located at the western end of the Pennsylvania Avenue, SE Great Streets corridor at the intersection of Pennsylvania Avenue, SE and Minnesota Avenue, SE, in the immediate vicinity of Twining Square, also referred to as L’Enfant Square in DDOT’s *Great Streets Framework Plan and Great Streets Design Final Report* (2007) for Pennsylvania Avenue, SE. As illustrated in **Figure 1-2**, the Study Area is a complex and congested intersection and actually consists of two separate signalized intersections that are separated by approximately 250 feet. The project intersection carries traffic to and from the bridges that cross the Anacostia River, as well as Minnesota Avenue, SE. The Proposed Action includes modifications to the intersection to improve safety, mobility, and connectivity for pedestrians and motorists. A land ***transfer from NPS to DDOT*** would be necessary, pending National Capital Planning Commission (NCPC) approval, to carry out the proposed intersection improvements. Proposed improvements would not impact any private right-of-way. ***The open green space within Twining Square would remain parkland.***

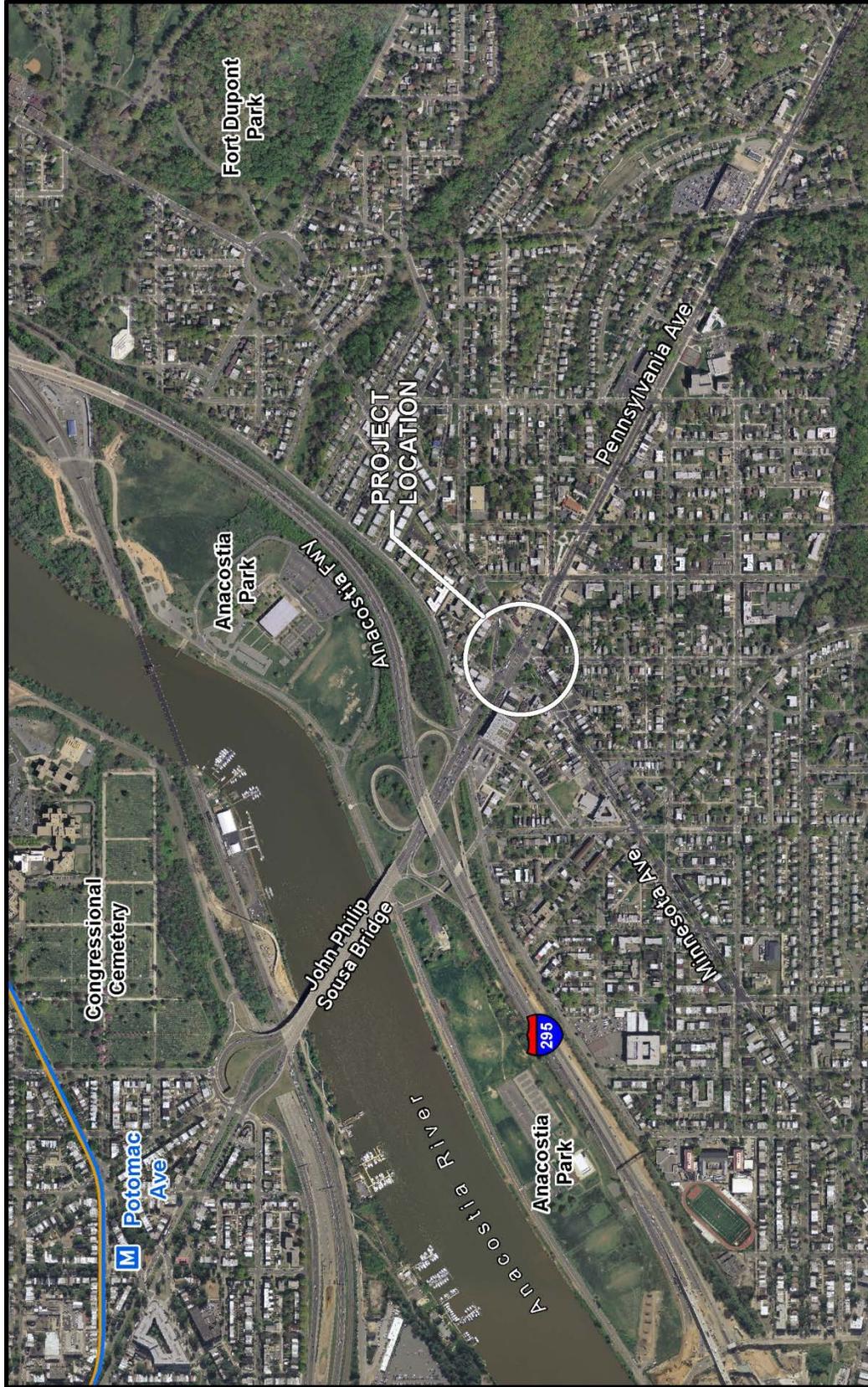
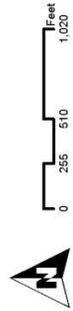


Figure 1-1
Project Location
Environmental Assessment



Prepared by: HNTB Corporation, 2013

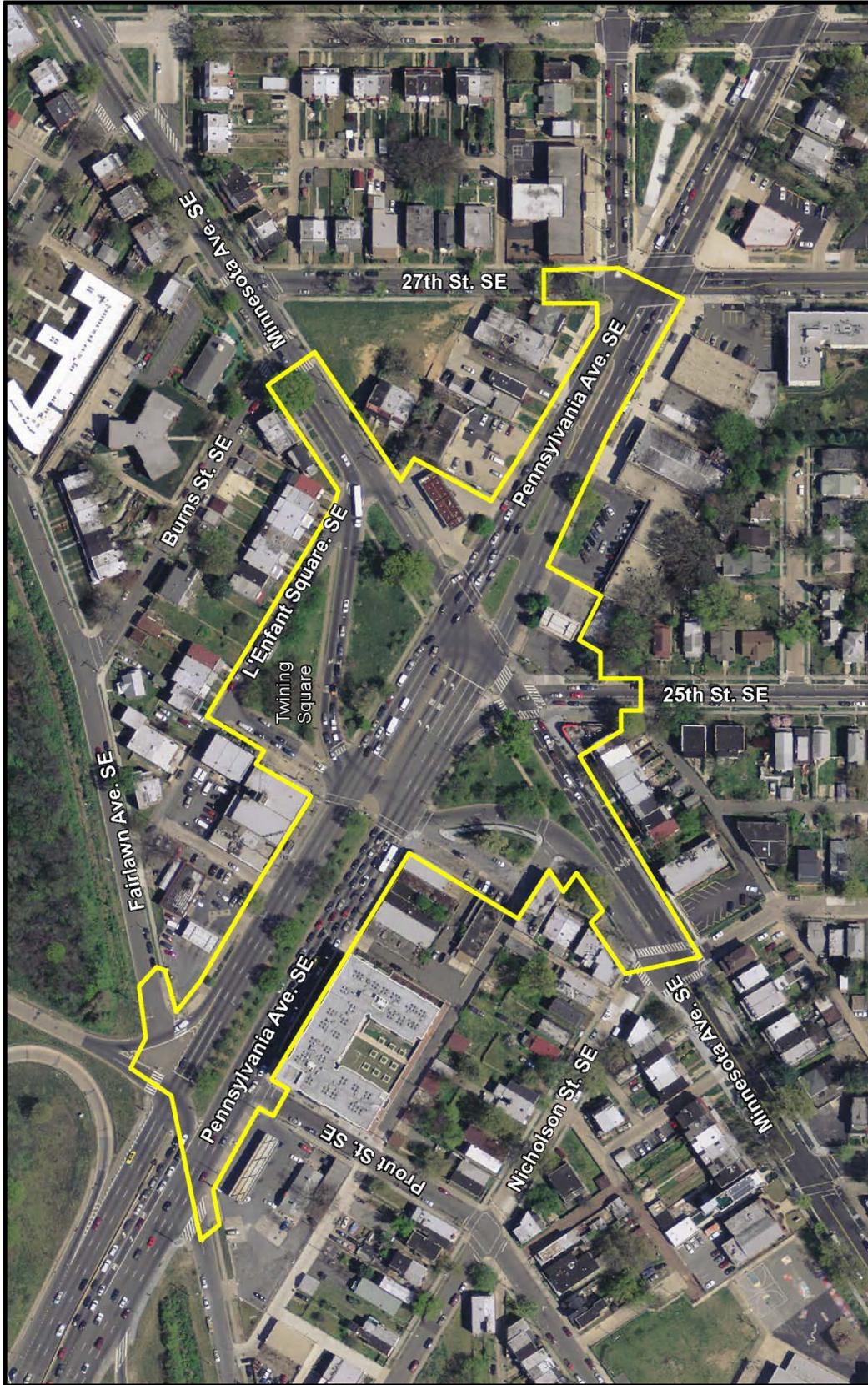


Figure 1-2
Study Area

Environmental Assessment

Sources: DC Office of the Chief Technology Officer (DC OCTO)

1.1 Purpose of the Proposed Action

The purpose of the Proposed Action is to provide transportation improvements to the Pennsylvania and Minnesota Avenues, SE intersection in keeping with the District of Columbia's Great Streets Initiative as set forth in the 2007 *Great Streets Framework Plan* and the *Great Streets Design Final Report*.

For additional information on the Great Streets Initiative principles, program goals, and applicability to the Study Area, see *Section 1.3, Project Overview* and *Appendix A, Great Streets Design Final Report*.

1.2 Needs for the Proposed Action

The need for the Proposed Action consists of the following:

- Improve pedestrian and vehicular safety;
- Create a consolidated, usable park space;
- Improve multimodal connectivity and access; and
- Support improved land use and community needs.

1.2.1 Improve Pedestrian and Vehicular Safety

The primary need for the Proposed Action is to improve safety for pedestrians and motorists using this intersection. The Pennsylvania and Minnesota Avenues/25th Street, SE intersection is a complex and congested intersection, which makes it difficult and dangerous to navigate for vehicles and pedestrians. The Study Area intersection consists of two separate signalized intersections that are separated by approximately 250 feet. The western intersection is Pennsylvania Avenue, SE and southbound Minnesota Avenue, SE and the eastern intersection is Pennsylvania Avenue, SE and northbound Minnesota Avenue/25th Street, SE. The intersections have a large number of pedestrian and vehicle "conflict points" under the existing configuration and there is not adequate vehicle storage space to accommodate the eastbound left turns. Compounding the safety issues at this intersection is the fact that motorists cut through the neighborhood streets in the communities surrounding this intersection in order to bypass the traffic congestion.

Vehicular Safety

The Pennsylvania and Minnesota Avenues, SE intersection has a high volume of accidents and injuries, as shown in **Table 1.1**, with a total of 123 reported crashes and 60 reported injuries during the most recent 3-year reporting period (2009-2011). As shown in **Table 1.2**, the majority of accidents (36%) occurred in the evening and overnight hours, between 6:30 PM and 7:30 AM, followed by the morning rush hour between 7:30 AM and 9:30 AM, which made up 18% of accidents. Seventy-six percent (76%) of accidents involved passenger cars while 11% involved trucks and 8% involved buses.¹

Table 1.1

**Accidents and Injuries -
Pennsylvania Ave. and Minnesota Ave, SE.**

	2009	2010	2011
Accidents	38	39	46
Injuries	18	15	27

Source: DDOT Accident Summary Report, 2009-2011.

Table 1.2

**Accidents Time of Day -
Pennsylvania Ave. and Minnesota Ave, SE.**

Time of Day	Accident	Percent
07:30 – 09:30	22	17.9%
09:30 – 11:30	10	8.1%
11:30 – 13:30	12	9.8%
13:30 – 16:00	19	15.4%
16:00 – 18:30	16	13.0%
18:30 – 07:30	44	35.8%

Source: DDOT Accident Summary Report, 2009-2011.

Along Pennsylvania Avenue, SE, crash data collected between 2009 and 2011 indicate that side swipes (31%), right-angle (20%), and rear-end collisions (18%) are the prevalent accident types.² As indicated from the accident summaries, the number of accidents can largely be attributed to the congestion of the roadway in the weekday-evening hours. In addition, the rear-end accidents are also a result of stop-and-go conditions. The side-swipe accidents can be attributed to vehicles changing lanes and aggressive driving, while the right-angle accidents largely occur due to congestion and frustration resulting in motorists taking chances to clear the intersection.³

Existing intersection geometries and signal phasing are factors contributing to crash occurrences at the intersection. Congested conditions during peak periods and excessively high vehicle speeds during off-peak periods are also contributing factors.⁴ Additionally, problems at the intersection are exacerbated by the lack of an interchange movement for motorists traveling from the Anacostia Freeway (I-295) southbound to Pennsylvania Avenue, SE westbound. This causes motorists to make frequent illegal traffic movements at this intersection. In order to reach Pennsylvania Avenue, SE westbound, motorists make illegal U-turns, or make a left turn on Minnesota Avenue, SE northbound followed by a left turn onto Minnesota Avenue southbound.⁵

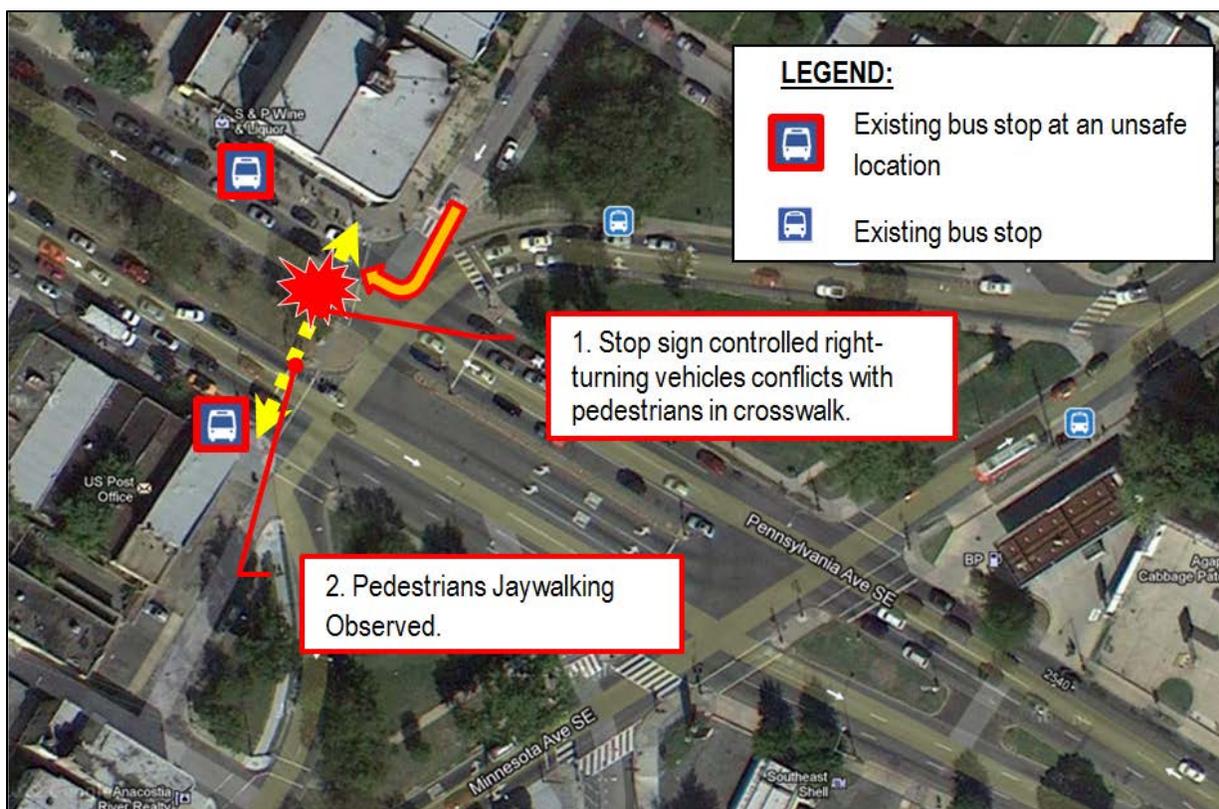
Pedestrian Safety

The intersection is heavily used by pedestrians commuting to and from work or using the bus stops at the intersection. During mid-week field observations January 8th through 10th, 2013, over 150 pedestrians were observed crossing Pennsylvania Avenue, SE. Pedestrians were observed using the west side crosswalk alone to access two heavily used bus stops on Pennsylvania Avenue, SE just west of Twining

Square during both the AM and PM peak hours. Many of the existing crosswalks at the intersection are inconvenient to use due to their locations and long crossing lengths. This discourages pedestrian use, and instead of using the signalized crosswalks provided, pedestrians crossing to and from bus stops and commercial properties choose an unmarked, but more direct route across the medians and lanes of traffic.

Additionally, although an Exclusive Pedestrian Walk Phase is provided in the signal timing to stop all vehicles and only allow pedestrians to cross Pennsylvania Avenue, SE, the vehicles from the unsignalized local driveway still attempt to make abrupt right turns between gaps of pedestrians. Pedestrians frequently jaywalk at this intersection and cross Pennsylvania Avenue, SE without waiting for a Walk indication in order to get to bus stops across the street. A review of the police crash records indicated that five pedestrians were injured at this intersection in the past three years (2010 to 2012); however during field observations during a one-hour AM peak period in March of 2013, three minor pedestrian/vehicle incidents were observed and dismissed without being reported to the police. See **Figure 1-3** for two of the major safety concerns involving pedestrians at the intersection.

Figure 1-3
Existing Safety Concerns for Pedestrians



Source: Google Maps (background aerial), 2013 and HNTB, 2013.

The District has seen an increasing trend in pedestrian-related crashes in recent years. On average, more than 670 pedestrian injuries occurred annually between 2000 and 2006 in the District. The existing intersection does not conform to the *District of Columbia Pedestrian Master Plan (PMP)* vision and goals for Washington, DC, which states, “Washington, DC will be a city where any trip can be taken on foot safely and comfortably, and where roadways equally serve pedestrians, bicyclists, transit users and

motorists.” The primary goals for the PMP include (1) reducing the number of pedestrians killed and injured in crashes with motor vehicles; and (2) to increase pedestrian activity by making walking a comfortable and accessible mode of travel throughout all parts of the District.⁶

The highest pedestrian accident locations along Pennsylvania Avenue, SE were evaluated for the *Great Streets Framework Plan* in 2007. 2002-2004 data showed that the highest number of pedestrian accidents (42 per year) occurred at the Pennsylvania and Minnesota Avenues, SE intersection, whereas other intersections averaged less than 16 pedestrian accidents per year.⁷ The same study determined that the highest concentration of people walking to the bus (over 1,500 per day) were in the blocks immediately adjacent to Minnesota Avenue, SE. Additionally, westbound bus pull-offs at Twining Square create considerable blockage of the travel lanes that lead to dangerous motorist and pedestrian movements.⁸ Between 2010 and 2012, the subject intersection ranked #45 out of 1,453 intersections with reported pedestrian/bicycle accidents in the District. (See **Table 1.3**).

Table 1.3

Pennsylvania and Minnesota Avenues, SE Intersection Statistics, 2010-2012

	Number
Total # of Intersections with Accidents Reported	1,453
Pennsylvania/Minnesota Ave, SE Intersection Ranking	#45
Number of Pedestrian/Cyclist Accidents	4
Number of Pedestrians Injured	5
Number of Cyclists Injured	--

Source: DDOT Correspondence, 2013.

1.2.2 Create a Consolidated, Usable Open Space

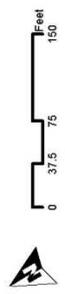
Currently, Twining Square (also referred to as L’Enfant Square in the *Great Streets Framework Plan*) is under the jurisdiction of the NPS. The park is fragmented by turn lanes and overburdened bus stops, rendering pedestrian circulation and use both difficult and dangerous. Roadways split the park space into traffic islands or pedestrian refuge areas, and available “green space” is disconnected between busy lanes of traffic. **Figure 1-4** provides an illustration of the project intersection with associated acreages of each of the NPS reservations in Twining Square that would be transferred to DDOT under the Proposed Action. ***U.S. Reservation 487*** consists of (clock-wise from top left): 0.27 acres, 0.49 acres, 0.34 acres and 0.06 acres of grassed area, totaling approximately ***1.16*** acres of park. Additionally, the roadway medians to the east and west of the intersection (***U.S. Reservations 487A, B, C, D and E***) total approximately ***0.28*** acres. These medians would also transfer to DDOT to accommodate the proposed design improvements. ***The open green space within Twining Square would remain parkland.***



LEGEND

- Existing Right of Way (ROW)
- Park Area / Green Space (1.44 approximate acres)

Figure 1-4
Approximate Park Area Acreage
Environmental Assessment



Source: HNTB Corporation, 2014

Given the availability of these fragments of green space at the intersection, the opportunity to consolidate the green space in the vicinity of the intersection is needed in order to make this land usable to the community. According to the *Great Streets Concept Design Report*, improvements that would consolidate the parkland in this intersection present great potential to create a "village green."⁹

In order to meet Great Streets Program goals along Pennsylvania Avenues, SE, proposed improvements at this intersection would integrate the park resources that exist today and would create *valuable* open space for the community that does not exist there today. This coincides with Guiding Principle #2 of the Great Streets Program, to "Refresh – Integrate and conserve natural resources, and create valuable open spaces."

1.2.3 Improve Multimodal Connectivity and Access

The street geometry and topography in this area make multimodal connectivity to and through Pennsylvania Avenue, SE difficult. The intersection is heavily used by buses. There are five bus stops that utilize this intersection, and there are twelve bus routes (32, 34, 36, 39, A11, B2, J13, K11, M6, V7, V8 and V9) using Pennsylvania Avenue, SE, five routes (B2, U2, V7, V8 and V9) on Minnesota Avenue, SE, and two (32 and 34) on 25th Street, SE. The nearest Metro train station, Potomac Avenue Station, is located one mile away to the west of the Study Area.

Access to bus stops at the subject intersection is difficult and dangerous for many pedestrians and bicyclists. The amount of transfers at the intersection leads to pedestrians and bicyclists traversing the intersection by the quickest route possible, often without attention to crosswalks or adherence to walk signals. Currently, the U2 route provides north-south service through the intersection. This service, however, operates at a low frequency. Transit users can effectively make the same trips as the U2 by transferring to and from the B2 route and the V7, V8 and V9 routes. Service is more frequent on these routes than the U2 so transit riders are more attracted to transferring than using the U2. It was noted in field observations that frequent transfers occur between the B2 route and V7, V8, V9 route. Bus stops for these routes are located on opposite sides of Pennsylvania Avenue, SE. Improvements are needed at the intersection to accommodate transit users' needs and to increase their ability to reach their destinations safely and easily.

Although sidewalks and crosswalks are present on both sides of Pennsylvania Avenue, SE near Minnesota Avenue, SE, bicyclists prefer to ride on the sidewalks rather than the roadway due to heavy vehicular traffic. The *District of Columbia Bicycle Master Plan* determined the roadways at the Study Area intersection to have a Bicycle Level of Service (LOS) E along Pennsylvania Avenue, SE and LOS D on Minnesota Avenue, SE and 25th Street, SE within the Study Area. The Plan also recommended Multi-Use Trail or Multi-Use Trail Connection and a Signed Bicycle Route on Pennsylvania Avenue at this intersection.¹⁰ Shared-use pathways (multi-use trails) provide a high quality walking and bicycling experience in an environment that provides separation from traffic. The Plan also identifies Twining Square (referred to as "L'Enfant Square in the Study/Pennsylvania and Minnesota Avenues, SE") as one of five key intersections in the District with complicated traffic patterns that need improved bicycle access.¹¹ The Study Area does not have any bicycle lanes and is not a signed bicycle route.

The Pennsylvania and Minnesota Avenues, SE intersection is along the proposed route planned for Phase 3 of the D.C. Streetcar. The Study Area is along the Streetcar Line proposed to run along Minnesota Avenue from around Bolling Air Force Base (AFB) to the Benning Road area.¹² D.C. Streetcar in this

area would connect neighborhoods to Minnesota Avenue/Benning Road, Twining Square, and Historic Anacostia commercial nodes. It would also connect to the Anacostia Waterfront Initiative (AWI) redevelopment areas and connect economically distressed neighborhoods not well served by Metro to the Minnesota Avenue Metro Station. Long range planning is ongoing for D.C. Streetcar with a broad, 30-year vision for the completion of the entire system. Needed improvements proposed in this EA to increase and improve connectivity and access for transit users and commuters would work in tandem with the D.C. Streetcar to further promote mobility for all modes of transportation and particularly for transit users and commuters. When combined with the D.C. Streetcar, improvements at this intersection would offer connections to and through the Study Area for a large number of transit users and commuters.

In order to meet Great Streets Program goals along Pennsylvania Avenue, SE, proposed improvements at this intersection would create opportunities to enhance connectivity along Pennsylvania Avenue, SE to other parts of the District and Maryland, along with greater access for pedestrians and transit users. This improvement also coincides with Guiding Principle #3 of the Great Streets Program, to “Move – Create a sustainable transportation network, with many travel options.”

1.2.4 Support Improved Land Use and Community Needs

Land use at the Pennsylvania and Minnesota Avenues, SE intersection is dominated by commercial land use and zoning with areas of low- and medium-density residential. The commercial establishments are automobile-oriented in nature with large building setbacks and no continuous building line. There are underutilized and vacant properties that contribute to the lack of aesthetic appeal and visual quality. Two gas stations dominate the northeast and southeast corners of the intersection; other commercial establishments provide a limited amount of retail goods and services. The primary function of the intersection as it exists today is to serve the significant volumes of traffic traveling through the corridor to and from employment cores to the northwest.

This intersection was identified in the *Great Streets Framework Plan* as one of the intersections having the greatest interaction between households and employment.¹³ Given this balance and the existing assets at the intersection, there is great potential to redevelop the area with higher-quality, neighborhood-serving retail, mixed with local-serving office space, and medium and high-density residential development. The reconfiguration of the intersection with significant attention to pedestrian comfort and safety would aid in improved pedestrian mobility along the corridor, allowing residents to walk to retail nodes with services that residents desire, such as coffee, drycleaners and boutique shops. The *Pennsylvania Avenue, SE Corridor Land Development Plan* suggests that developing two parks at Twining Square north and south of Pennsylvania Avenue (instead of the fragmented pieces of park land that exist currently) would act as green pockets intended to function as gathering spaces for surrounding communities. Enhancements would be targeted to increase pedestrian and bicycle use, and would be a driving factor in discouraging automobile-oriented retail pockets which are prolific in areas east of the Anacostia River. The availability of park land at this intersection provides an opportunity to create a significant Public Plaza (in the L’Enfant tradition), an attractant for retail and housing development.¹⁴

The area around Twining Square has great potential for redevelopment. Both the DC Office of Planning and the Office of the Deputy Mayor for Planning and Economic Development (DMPED) have identified this intersection for revitalization and growth. In order to facilitate redevelopment along the 2300 block of Pennsylvania Avenue, SE, DMPED has already acquired 2337 Pennsylvania Avenue, SE, which

borders the intersection to the west. Redevelopment in this area is intended to eliminate blight and provide quality neighborhood-serving retail for residents. DMPED intends to continue negotiations with private land owners to develop targeted properties. One of the outcomes of this DMPED investment is the potential to create jobs in the area and to increase retail options for the under-served corridor.¹⁵

In order to meet Great Streets Program goals along Pennsylvania Avenue, proposed improvements at this intersection would create opportunities to change the public and market perceptions of the area through streetscape, aesthetics and transportation improvements. The action is needed in order to create an environment capable of supporting and attracting community needs and creating an environment where residents and visitors want to live, work and play. This improvement corresponds with several of the Great Streets' guiding principles, including: Guiding Principle #1 of the Great Streets Program, "Energize – Strengthen businesses and other local institutions and services;" Guiding Principle #4, "Distinguish – Create streets with vibrant places that reflect local character;" and Guiding Principle #5, "Care – Increase community ownership and stewardship."¹⁶

1.3 Project Overview

1.3.1 Background

The need to improve the Pennsylvania and Minnesota Avenues, SE intersection has been reiterated through multiple studies, beginning with DDOT's 2003 *Pennsylvania Avenue, SE Transportation Study*. The original proposed plan called for bridging one road over the other and the construction of on and off ramps, most likely with the creation of a single point urban interchange (SPUI). While this modification would have increased the capacity of the intersection and enhanced circulation, there would have been visual impact due to the elevated road, which would have also divided the community. This plan was ultimately determined to be cost prohibitive.¹⁷

Following the *Pennsylvania Avenue, SE Transportation Study*, discussion of improvement to the intersection continued with the District's Great Streets Initiative. The Great Streets Initiative was kicked off in 2005 as a multi-agency program that strategically uses public investments to improve local quality of life and attract private investments to communities. Several corridors were chosen to be a part of the Great Streets Initiative, including Pennsylvania Avenue, SE. Proposed solutions to improve the Pennsylvania and Minnesota Avenues intersection (L'Enfant Square / Twining Square) were developed as part of the *Great Streets Framework Plan: Pennsylvania Avenue SE* (2007) and the *Great Streets Design Final Report* (2007) (see *Appendix A*).

The program goals of the Great Streets Initiative are as follows:

1. Improve the quality of life in neighborhoods along the corridors, including public safety, physical appearance and personal opportunity;
2. Support local demand for goods and services through economic development;
3. Expand mobility choices and improve safety and efficiency of all modes of travel; and
4. Attract private investment through the demonstration of a public commitment to Great Street communities.

The principles of the Great Streets Initiative include the following:

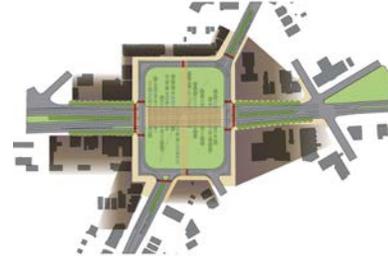
1. Energize – Strengthen businesses and other local services;
2. Refresh – Integrate nature and create valuable open spaces;
3. Move – Choices in how to travel;
4. Distinguish – Safe, vibrant places that reflect local character; and
5. Care – Increase community ownership and participation.

The entire Great Streets revitalization effort along Pennsylvania Avenue, SE covers two miles of construction, from 200 feet west of 27th Street (near the foot of the Sousa Bridge) to Southern Avenue, SE on the Maryland border and is focused on improvements to the public right of way and infrastructure. Located to the east of the Anacostia River, this section of Pennsylvania Avenue provides a gateway to the City's core. Its heavy use as a throughway for vehicle traffic has hindered the Avenue's ability to function as a node of activity or as a ceremonial gateway. Neighborhoods in the vicinity of this part of Pennsylvania Avenue include Hillcrest, Randle Heights, Anacostia, and Fort DuPont Park. Retail pockets are auto-oriented in character, and offer limited services. The corridor has several major parks (Fort Davis, Fort DuPont and Fort Stanton) and smaller pocket parks; however pedestrian access to the parks is hindered or restricted due to the heavily traveled, automobile-oriented Pennsylvania Avenue.

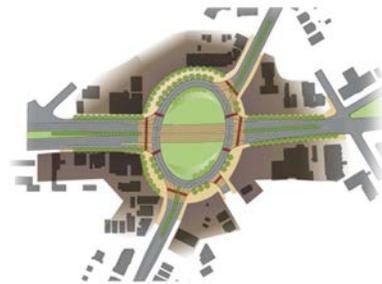
The concept design developed in the *Great Streets Concept Design Report* took into account previous studies, plans, and the efforts of the local community in developing the proposed concept designs. A four-day design charrette held in July 2006 resulted in the development of several alternatives, which were then evaluated and subsequently condensed down to three viable options for the Pennsylvania and Minnesota Avenues, SE intersection (concepts shown adjacent): (1) Modified Traffic Square, (2) Ellipse Design, and (3) Conventional Intersection. The three options were evaluated based on the detailed evaluation criteria set forth in the *Great Streets Framework Plan* and on input derived from the design charrette. The three options were then developed to a concept level, traffic analysis was performed, and urban design concepts were developed.

*Pennsylvania and Minnesota Aves SE
Improvement Preliminary Concepts*

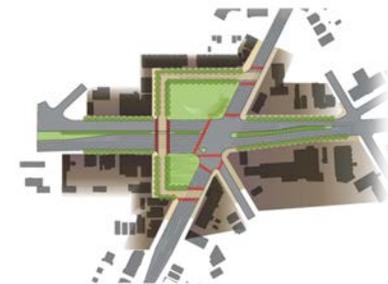
1) Modified Traffic Square



2) Ellipse Design



3) Conventional Intersection



Source: DDOT, 2006.

The Modified Traffic Square selected by the *Great Streets Framework Plan* would have impacted private right-of-way (three buildings) in the project vicinity and potentially required extensive environmental remediation due to the uses of the private properties (gas stations). Therefore, the Revised Square design was developed in order to avoid impacting private property, while maintaining the general concept of the Modified Traffic Square configuration, and carried forward as an alternative in this EA (see *Section 2.2.1, Build Alternative 1 – Revised Square*). The Conventional Intersection design developed as part of the *Great Streets Framework Plan* is also being carried forward as an alternative in this EA (see *Section 2.2.2, Build Alternative 2 – Conventional Intersection*).

Agency Relationships

The proposed project concept was a result of iterations of plans and studies conducted by the District and DDOT, along with other partnering agencies of the Great Streets Initiative. FHWA is the lead federal agency because FHWA funds will be contributed to this project. NPS and NCPC are cooperating agencies due to the Proposed Action, which necessitates an exchange of land jurisdiction between DDOT and NPS.

1.3.2 Description of Study Area

The Study Area is located at the western end of the Pennsylvania Avenue, SE Great Streets corridor at the intersection of Pennsylvania Avenue with Minnesota Avenue, SE, in the immediate vicinity of Twining Square, also referred to as L'Enfant Square in the *Great Streets Framework Plan*. Refer to Figure 1-2 for an illustration of the Study Area.

Roadway

The Pennsylvania and Minnesota Avenues, SE intersection is dominated by busy lanes of traffic, rendering pedestrian circulation both difficult and dangerous. The Study Area is located on a major commuter route, Pennsylvania Avenue, SE, in an urban environment, at its crossing with the local travel route of Minnesota Avenue, SE. The Proposed Action intersection carries traffic to and from the bridges that cross the Anacostia River, as well as Minnesota Avenue, SE.

The streets in the Proposed Action intersection are described below:

- Pennsylvania Avenue, SE is a median-separated Principle Arterial according to the DDOT Roadway Functional Classification and presently carries approximately 42,500 vehicles per day. It is one of the few major gateways used by motorists to reach downtown Washington, DC from the southeast region of DC east of the Anacostia River and Maryland.
- Minnesota Avenue, SE is as a Minor Arterial with average annual daily traffic (AADT) of 10,200 vehicles per day.
- 25th Street is a Minor Arterial with AADT of 5,800 vehicles per day. It is a one-way street going southbound within the Study Area.

The Study Area consists of two intersections:

- L'Enfant Square, SE at Pennsylvania Avenue, SE
 - Operates at a level of service (LOS) D during the AM and PM peak hours.

- Pennsylvania and Minnesota Avenues, SE
 - Operates at LOS B during the AM peak hour and LOS C in the PM peak hour.

Although the overall intersections currently operate with an acceptable level of service (A through D), approaches to the intersections range from LOS A to F. Currently the traffic signal configuration is confusing and there are left-turn traffic conflicts. See *Section 3.4, Transportation* for more detailed information about existing traffic conditions.

NPS Property

The Study Area includes NPS property, U.S. Reservation 487 (Twining Square), which includes four small park reservations fragmented by roadway. North of Pennsylvania Avenue, a cut-through roadway connects Minnesota Avenue southbound to Pennsylvania Avenue westbound, which bisects the northern part of the reservation. South of Pennsylvania Avenue, the southern reservation is also bisected by roadway that connects Pennsylvania Avenue eastbound to Minnesota Avenue southbound. Due to the intersection configuration, the four reservation parcels effectively function as traffic islands for pedestrians while crossing the street; the pieces of parkland are too small to function as true open space or green space as currently configured. Twining Square lacks aesthetic appeal and is underutilized urban space.

The grassed medians that bisect the Pennsylvania Avenue, SE roadway in the Study Area to the east and west of the intersection are also NPS property (*U.S. Reservations 487A, B, C, D and E*). The medians are functional, as they separate opposing traffic along Pennsylvania Avenue and serve as refuge areas for pedestrians crossing the street. Figure 1-4 provides an illustration of the NPS park reservations, the roadway medians and the approximate acreages of the individual parcels in the Study Area.

Purpose and Significance of the Park

Twining Square at the Proposed Action intersection is one of the Capitol Hill Parks, a collection of 59 triangles and squares owned by the NPS. As noted previously, Twining Square at this intersection is U.S. Reservation 487. (U.S. Reservation 336A is also known as “Twining Square” by some and lies a few blocks east of the Proposed Action intersection on Pennsylvania Avenue between 27th and 28th Streets, SE). Many of the avenues and streets east of the Anacostia River, including Pennsylvania Avenue east of the river, did not exist as of the 1901 City of Washington Southeast Quadrant map. The confusion as to what the official name of the park is occurred because during the 1920s and early 1930s, Twining Square was known as L’Enfant Square. In 1929, the Office of Public Buildings and Public Parks of the National Capital assumed jurisdiction over U.S. Reservation 487 at the intersection of Pennsylvania and Minnesota Avenues, SE via the March 29, 1929 request of the Commissioners of the District. In 1933, in accordance with the recommendation of the National Capital Park and Planning Commissions, U.S. Reservation 487 officially became “Twining Square” instead of “L’Enfant Square.” The name Twining Square was selected to honor the first military member of the District Commissioners, Major William Johnson Twining who served from 1878-1882.

The street along the northeast side of Twining Square is still known as L’Enfant Square, SE even though the park’s name was officially changed to Twining Square in 1933. The neighborhood to the north of Pennsylvania Avenue at the intersection is referred to as “Twining.”

Adjacent Land Uses

The land use adjacent to the intersection is a combination of medium-density residential (rowhouses) with a limited amount of retail services, occupying one- and two-story buildings, and park land (Twining Square). The predominant use of the intersection is small- to medium-size commercial, and includes two gas stations that occupy the high-profile corner locations at the northeast and southeast corners of the intersection. Many properties in the Study Area are underutilized or vacant. The intersection primarily functions to serve the significant volumes of traffic traveling through the corridor to and from employment cores to the northwest.

1.4 Project Objectives

To help develop the design concepts presented in this EA, the project team utilized the Great Streets Program principles while also taking into consideration agency and public comments, and the Study Area constraints. These objectives guided the project team throughout the planning and preliminary design to identify the most viable alternatives that best satisfy the Proposed Action's purpose and need. *Ultimately, after the public and agency review of the EA, these objectives helped FHWA and DDOT in identifying a Preferred Alternative to carry forward through design and construction.* The objectives for the Proposed Action are in line with the Great Streets Initiative Program Goals, as previously stated:

- Improve the quality of life in neighborhoods along the corridors, including public safety, physical appearance, and personal opportunity;
- Support local demand for goods and services through economic development;
- Expand mobility choices and improve safety, and efficiency of all modes of travel; and
- Attract private investment through the demonstration of a public commitment to Great Streets communities.

1.5 Design Considerations

Based on data collection and study, the project team considered a number of factors while refining the alternatives and options for the Pennsylvania and Minnesota Avenues, SE Intersection Improvements EA. A *Design Criteria Report* detailed such considerations leading to the formation of concepts that were either incorporated into the alternatives and options carried forward for detailed study or dismissed (See *Appendix B, Design Criteria Report*). The primary guidelines and standards used in preparing the alternative design concepts include the *DDOT Design and Engineering Manual* (2009), *AASHTO – A Policy on Geometric Design of Highways and Street* (2004 and 2011) and the *AASHTO Roadside Design Guide* (2011).

1.6 Relationship to Other Plans and Studies

The Proposed Action is consistent with the District's planning documents and projects, including the following:

1.6.1 Comprehensive Plan for the National Capital

The *Comprehensive Plan of the National Capital*, which was first adopted in 1984 and 1985 and is updated periodically, is a general policy document that provides overall guidance for future planning and development of the District. The plan is comprised of two parts, the District Elements and the Federal Elements, which are adopted by the DC Council and the NCPC, respectively.

The *Comprehensive Plan of the National Capital: District Elements* contains 11 citywide elements that provide goals, objectives and policies for land use issues that impact the whole city, e.g. transportation, environment, parks and open space, arts and culture. The Parks, Recreation and Open Space Element in the *District Comprehensive Plan* addresses the importance of open space for recreation, aesthetics, neighborhood character, and environmental quality and includes language on the creation of trails to better connect the city's open spaces and neighborhood. These include:

- Coordination between the District and the Federal government on park and open space planning and management;
- Providing additional recreational land and facilities in areas of the city that are currently underserved and in newly developing areas; and
- Maintaining, upgrading, and improving existing parks and recreation facilities as key features of successful neighborhoods in the District.

The NCPC adopted the *Comprehensive Plan for the National Capital: Federal Elements* on August 5, 2004. The Federal Parks and Open Space Element establishes policies to protect, enhance, and expand the region's parks and open space system, including trails.

1.6.2 Pennsylvania Avenue, SE Transportation Study

The *Pennsylvania Avenue, SE Transportation Study* was undertaken by DDOT with the intent to evaluate existing conditions on the major roadways in Southeast Washington, DC. These roadways include Pennsylvania Avenue, SE, Anacostia Freeway (I-295), Minnesota Avenue, Branch Avenue, Alabama Avenue, and Southern Avenue. The study evaluated the existing conditions of transportation in the Study Area and provided short-term and long-term recommendations, including options to improve the subject intersection.¹⁸

1.6.3 Middle Anacostia River Crossing Transportation Study

The *Middle Anacostia River Crossings Transportation Study* (MAC Study) was completed in 2005 by DDOT and the Anacostia Waterfront Initiative (AWI) to assess current and future needs regarding vehicular, transit, pedestrian, and bicycle mobility and safety. The study was developed from the Anacostia Waterfront Framework Plan (2003), and covered the area southeast of M Street and South Capitol Street, between Historic Anacostia and Pennsylvania Avenue and along Minnesota Avenue. The MAC Study recommends both near-term and mid-term improvements at the subject intersection due to the failing level of service and high accident rate.¹⁹

1.6.4 Great Streets Framework Plan: Pennsylvania Avenue, SE

The *Great Streets Framework Plan: Pennsylvania Avenue SE* was developed by the District and DDOT in 2005. The Great Streets multi-agency program identified corridors that are vital to local neighborhoods and are key to enhancing the District’s diversity and prosperity. Pennsylvania Avenue, SE was one of the identified corridors, and Twining Square (called L’Enfant Square in the Study) is named as one of three significant activity nodes along the corridor. The Plan recommends Minnesota Avenue be restored as a two-way street, consequently creating two softscape parks on either side of Pennsylvania Avenue, edged by retail and mixed use facilities. The Plan envisions that the parks would become major gathering spaces for the community, and that the Square would be furnished with benches and street lighting. Public art, dense tree cover, and landscape elements would reinforce the “green” boulevard feel visualized by the Plan.

1.6.5 District of Columbia Bicycle Master Plan

The *District of Columbia Bicycle Master Plan* was developed as a guide to establish high-quality bicycle facilities and programs in the District over the next 10 years. With anticipated population growth and little room to accommodate future growth in automobile lanes, the District’s transportation system must respond via other transportation modes, namely bicycling. In 2005, the District had 17 miles of bike lanes, 50 miles of bike paths, and 64 miles of bicycle routes. The Plan provides goals and recommendations based on an inventory of the District’s bicycle facilities.

The *Bicycle Master Plan* conducted a comprehensive roadway inventory to determine a Bicycle Level of Service (LOS) on many of DC’s streets. These results were used to help plan the bicycle route network. Routes with a LOS D or above, or with potential to be improved to this level, were selected. The Bicycle LOS model and associated roadway inventory were used to prioritize street improvements and identify potential for striping bike lanes and making other bicycle improvements. The Bicycle LOS in the Study Area is E (80 miles) along Pennsylvania Avenue, SE and D (188 miles) along Minnesota Avenue, SE and 25th Street, SE. Routes with a Level of Service D or above, or with the potential to be improved to this level, were selected. The Study Area does not have any bicycle lanes and is not a signed bicycle route.

Pennsylvania Avenue, SE in the Study Area is recommended for Proposed Multi-Use Trail or Multi-Use Trail Connection and as a Signed Bicycle Route.²⁰ Shared-use pathways (multi-use trails) provide a high quality walking and bicycling experience in an environment that provides separation from traffic. The Plan identifies Twining Square (referred to as L’Enfant Square in the Study/Pennsylvania and Minnesota Avenues, SE) as one of five key intersections with complicated traffic patterns that need improved bicycle access.²¹

1.6.6 Revitalization of Pennsylvania Avenue, SE for the Great Street Initiative Concept Design

The *Revitalization of Pennsylvania Avenue, SE for the Great Street Initiative Concept Design* was developed as part of the District’s Great Streets Initiative to remake Pennsylvania Avenue, SE into a “Signature Boulevard.” This report took into account all of the studies and planning that had been performed on Pennsylvania Avenue, SE prior, and presented specific design concepts for improvements to the Avenue, including to the intersection of Pennsylvania and Minnesota Avenues, SE at Twining Square. This Concept Design developed a comprehensive plan based on community input and sound

engineering study to satisfy the principles of the Great Streets Initiative. The *Revitalization of Pennsylvania Avenue, SE for the Great Street Initiative Concept Design* also involved numerous community meetings and charrettes, which ultimately resulted in the three alternatives for Twining Square that laid the groundwork for the alternatives being considered in this EA.

1.6.7 Pennsylvania Avenue, SE Corridor Land Development Plan

The *Pennsylvania Avenue SE Corridor Land Development Plan* was developed in 2008 by the District of Columbia Office of Planning (DCOP) to provide a framework and foundation to guide redevelopment of key sites along the corridor. The 2300 and 2500-2600 blocks of Pennsylvania Avenue, SE (referred to as “L’Enfant Square” in the Plan, but known here as Twining Square) were identified in the Plan as having unmet retail potential. Twining Square was identified as a sub-area, ripe for redevelopment by the 2008 Plan.

1.6.8 District of Columbia Pedestrian Master Plan

The District of Columbia Pedestrian Master Plan was developed in 2009 by DDOT to address pedestrian needs and issues in regards to pedestrian safety throughout the District. The vision of the Pedestrian Master Plan is to create “a city where any trip can be taken on foot safely and comfortably, and where roadways equally serve pedestrians, bicyclists, transit users and motorists.”²² An objective includes ensuring that all transportation development projects provide safe and convenient pedestrian facilities, including: new sidewalks, and improved access and safety at crossings, intersections and bus stops.

1.6.9 Pennsylvania and Potomac Avenues, SE Intersection Improvements

As part of the District’s Anacostia Waterfront Initiative (AWI) Program, DDOT is conducting an EA for proposed improvements at the Pennsylvania and Potomac Avenues, SE intersection to enhance safety at these street intersections for neighborhood pedestrians and transit users of the Potomac Avenue Metrorail Station and the numerous area bus stops. This project was originally proposed in the 2005 Middle Anacostia Crossings (MAC) Transportation Study as a mid-term improvement for enhancing the transportation network in the Middle Anacostia River region. The Pennsylvania and Potomac Avenues intersection is located approximately one mile west of the Study Area. ***DDOT will ensure coordination between these projects.***

1.6.10 Barney Circle and Southeast Boulevard Transportation Study

Also part of the AWI Program, DDOT is conducting an EA for proposed improvements at Barney Circle-Southeast Boulevard, ***which is approximately one mile west of the Study Area. The EA is being conducted*** to evaluate updated concept alternatives that were previously developed in the 2005 MAC Transportation Study, and ***includes*** new alternatives for the project to ensure that pedestrian safety and multi-modal transportation needs are included, as well as new or planned residential and economic development within the surrounding AWI Program area. ***Project concepts are still being finalized and public comments are being evaluated. DDOT will ensure coordination between these projects.***

1.7 Impact Topics Dismissed from Further Analysis

1.7.1 Geology and Topography

Geology

The Study Area is located entirely within the Coastal Plain physiographic province. The Coastal Plain is characterized by unconsolidated interleaved deposits of gravel, sand, silt, and clay, with the surface soils of the specific Study Area vicinity formed in reworked river terrace deposits from the Pliocene and Pleistocene.²³ It is not expected that geology would be disrupted because of the minor grading involved under the Build Alternatives. Therefore, this impact topic was dismissed from further analysis.

Geologic Hazards

There are no known geologic hazards in the Study Area; therefore, this topic was dismissed from further analysis.

Topography

The Study Area is located directly southeast of the Anacostia River on land characterized by a folding landscape of ridges and valleys. Topography in the Study Area is generally gradually sloped. Elevations in the Study Area range from a few feet above water level at the end of the Sousa Bridge to approximately 44 feet above mean sea level (msl) along Pennsylvania Avenue, SE, 200 feet west of its intersection with 27th Street, SE. The topography of the project site is gradually sloped, with elevations between approximately 28 to 38 feet above msl. The land adjacent to the south edge of the site slopes upward more rapidly to 80 feet above msl, forming the base of a ridge characteristic of the surrounding landscape. The land within the immediate Study Area where construction would occur is generally flat.

It is not expected that topography would be disrupted because of the minor grading involved under the Build Alternatives. Therefore, this impact topic was dismissed from further analysis.

Agricultural Lands, Prime, and Unique Farmland Soils

Federal agencies, as required by CEQ Guidance, must assess the effects of proposed actions on soils which are classified as prime or unique farmlands by the Natural Resources Conservation Service (NRCS). The soils mapped within the Study Area are not prime or unique farmland as defined by the U.S. Department of Agriculture and are not regulated by the Farmland Protection Policy Act. Similar to the Study Area, the majority of the soils surrounding the Study Area are mapped as Urban Land soils, which are not classified as prime farmland soil. In addition, the soils in the Study Area have been subjected to prior disturbances. Therefore, these topics were dismissed from further analysis.

1.7.2 Surface Water

The District is within the larger Middle Potomac-Anacostia-Occoquan Watershed.²⁴ Within this watershed, the Study Area drains to the Anacostia River (Waterbody ID DCANA00E_01 and DCANA00E_02). According to the EPA Watershed Assessment, the Anacostia River watershed is an impaired tidal freshwater estuary which drains an approximately 0.8 square mile area. The drainage area

consists of national and city park land, urban areas of residential and commercial, RFK Stadium and marinas.

While there are no surface waters within the Study Area, stormwater runoff from the Study Area ultimately enters tributaries which flow into the nearby Anacostia River. There would no noticeable impacts on surface waters as a result of the Alternatives; therefore, this impact topic was dismissed from further analysis. Impacts to surface waters as a result of construction and hazard of erosion are addressed under Water Quality.

1.7.3 Navigable Waters

There are no Waters of the U.S. in the Study Area. However, the Anacostia River is a Water of the U.S. within the vicinity of the Study Area. During storm events, runoff from the Study Area is transported into storm sewers, and ultimately into the tributaries and sewers which empty into the Anacostia River. There would no noticeable impacts on Navigable Waters as a result of the Alternatives; therefore, this impact topic was dismissed from further analysis. Impacts to the Anacostia River as a result of construction and hazard of erosion are addressed under Water Quality.

1.7.4 Coastal Zone

The District is not within a designated Coastal Zone and they have not developed a Coastal Zone Management Plan under the Coastal Zone Management Act. However, the District participates in the EPA's Chesapeake Bay Program, as well as operates its own District Bay Program. The District Bay Program focuses on the Anacostia and Potomac Rivers and Rock Creek, as they all drain into the Chesapeake Bay. The District implements a Watershed Implementation Plan (WIP), which outlines how the District will meet the requirements of the EPA issued Total Maximum Daily Loads (TMDLs).

Because the District, and thus the Study Area, is not within a Coastal Zone, this impact topic was dismissed from further analysis. Additionally, the Alternatives would not disrupt the progress of the Bay Program in cleaning up the District's waterways.

1.7.5 Floodplains

Executive Order No. 11988, "Floodplain Management" was issued in order to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practical alternative. The order was issued in furtherance of NEPA, the National Flood Insurance Act of 1968, and the Flood Disaster Protection Act of 1973.

The Study Area is not located within either a 100- or 500-year floodplain, as indicated by the Flood Insurance Rate Maps (FIRM), Community Panel Number 1100010030B(FEMA, 1985). The Study Area is located in Zone C, which indicates "Areas of minimal flooding."²⁵ Because the Study Area is not located within a floodplain, this topic was dismissed from further analysis.

1.7.6 Wetlands

In accordance with the 1987 U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual, wetlands are defined as "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.” Wetlands generally include swamps, marshes, bogs, and similar areas.

A review of the District Department of the Environment (DDOE) map showing known wetlands within the District indicates that there are no wetlands within the Study Area;²⁶ therefore, this topic was dismissed from further analysis.

1.7.7 Wild and Scenic Rivers

In 1968, Congress created the National Wild and Scenic Rivers System to preserve rivers with outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural, or other values in a free flowing condition.²⁷ Based on the National Wild and Scenic River Inventory, there are no surface waters within the vicinity of the Study Area that are designated as scenic rivers. Therefore, this topic was dismissed from further analysis.

1.7.8 Aquatic Organisms

The Study Area does not include waterways, and therefore does not include habitat which supports aquatic organisms. However, the Study Area is located approximately 0.3 miles to the east of the Anacostia River. Storm water runoff from the site flows into the Anacostia River, and thus the project site could indirectly impact aquatic organisms in the river and nearby streams/tributaries. Indirect impacts to aquatic organisms as a result of construction and hazard of erosion are addressed under Water Quality. Because the Study Area does not include habitat which supports aquatic organism, this impact topic was dismissed from further analysis.

1.7.9 Threatened and Endangered Species

In August 2012, a formal request was submitted to FWS via their Information, Planning, and Conservation System (IPaC) planning tool to request a list of threatened and endangered species in the project vicinity. Correspondence with FWS was received and there are no endangered or threatened species found within the vicinity of the Study Area. Additionally, FWS and DDOE were invited to an Interagency Meeting for this project and submitted no formal comments or concerns. Therefore, this topic was dismissed from further analysis. See *Appendix C, Agency Coordination and Public Involvement* for agency correspondence.

1.7.10 Paleontological Resources

The Study Area is located within the Coastal Plain physiographic province, although the Fall Line marking the transition into the Piedmont province is located in the western portion of the District. The Coastal Plain is characterized by unconsolidated interleaved deposits of gravel, sand, silt, and clay, with the surface soils of the specific Study Area vicinity formed in reworked river terrace deposits from the Pliocene and Pleistocene.²⁸

Soils within the area of potential effect (APE) have been recorded primarily as Urban land-Galestown complex, which is found in the western, central, and part of the northern sections of the APE.²⁹ The northern and eastern edges of the APE are reported as Keyport-Urban land complex. Small segments of Sassafras-Urban land complex and Christiana-Urban land complex are found along the southern edge of

the APE. The overlying gravel stratum of the Coastal Plain which dates to the Cretaceous period could potentially contain fossils such as dinosaur bones and petrified trees; however no known paleontological resources exist within the Study Area. Therefore, this topic was dismissed from further analysis. However, if such resources were uncovered during construction, work would be halted and a study conducted.

1.7.11 Indian Trust Resources

Secretarial Order 3175, *Departmental Responsibilities for Indian Trust Resources* (established by the U.S. Department of the Interior) requires consultation with the recognized tribal government, with jurisdiction over the trust property, to which a proposed action may potentially impact. The federal Indian Trust responsibility is a legal obligation by the United States to protect tribal lands, assets, resources and treaty rights. It also represents a duty to carry out the mandates of federal law with respect to American Indian and Alaskan Native tribes. There are no known Indian Trust Resources within the vicinity of the Study Area, nor are there lands held in trust by the Secretary of the Interior for the benefit of American Indians or Alaskan Tribes. Therefore, this topic was dismissed from further analysis.

1.7.12 Sacred Sites

Secretarial Order 3206, *American Indian Tribal Rights, Federal-Tribal Trust Responsibilities and the Endangered Species Act*, was issued by the Secretaries of the Interior and Commerce pursuant to the Endangered Species Act of 1973 (ESA), the Federal-tribal trust relationship and other Federal laws. This Order clarifies the responsibilities of agencies when actions taken under authority of the ESA, and associated implementing regulations, affect, or may affect, Indian lands, tribal trust resources, or the exercise of American Indian tribal rights. This Order further recognizes the trust responsibility and treaty obligations of the United States toward Indian tribes and tribal members and its government-to-government relationship in dealing with tribes. No American Indian sacred sites are known to exist within the Study Area. Therefore, this topic was dismissed from further analysis.

1.7.13 Ethnographic Resources

An ethnographic resource, as defined by the NPS, is any “site, structure, object, landscape or natural resource feature assigned traditional legendary, religious, subsistence or other significance in the cultural system of a group traditionally associated with it.”³⁰ No known ethnographic resources exist within the Study Area. Therefore, this topic was dismissed from further analysis.

1.7.14 Hazardous Waste/Materials

Hazardous wastes and materials are regulated by the Resource Conservation and Recovery Act (RCRA) and by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), commonly known as Superfund. Based on an EPA review of District superfund sites, there are no superfund sites within the Study Area or the vicinity of the Study Area.

Based on a review of the EPA EnviroMapper for Envirofacts Data Warehouse, properties within or adjacent to the Study Area which are listed as having waste discharge include: Highland Cleaners, Earl Scheib, Inc., Williams Garage, Otis Auto Repair, and Sunoco Service Station (adjacent to west end of the Study Area at the intersection of Pennsylvania and Prout Streets, SE). There are two gas stations, a BP

and a Shell, located across the street from each other at the east side of the intersection of Pennsylvania and Minnesota Avenues, SE. All gas stations within and adjacent to the Study Area are listed as having underground storage tanks.

The proposed transfer of land jurisdiction and reconfiguration of the intersection would not result in disturbance to any of the known existing waste discharge facilities or underground storage tanks. Therefore there are no anticipated impacts to hazardous waste or materials and this topic was dismissed from further analysis. In the event that suspected hazardous materials or potentially contaminated materials are encountered during construction activities, contractors would be directed to stop work until further assessment occurs.

1.7.15 Energy Conservation

The energy currently consumed at the intersection is generally electric power and gas from the residential and commercial uses in the area, as well as energy to power street lights and traffic lights. The proposed development would incorporate Low-Impact-Design (LID) Principles wherever possible to create a more sustainable and integrated environment. Energy can be conserved at the project intersection by attempting to reduce the heat island effect associated with urban areas. This would be accomplished by maximizing plantings in the open space areas and roadway medians and by using light colored paving surfaces where possible. Light colored concrete or asphalt can be used in areas such as pedestrian walkways through intersections and bikeways. Therefore, there are no anticipated impacts to energy consumption and this topic was dismissed from further analysis.

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2.0 PROPOSED ACTION AND ALTERNATIVES

NEPA requires that federal agencies explore a range of reasonable alternatives. The range of alternatives considered reflects the type of Proposed Action and the potential for environmental impact. Since the Proposed Action would remain within DDOT and NPS right-of-way and there are no unresolved conflicts concerning available resources, only two Build Alternatives are being carried forward in addition to the No Build Alternative. 40 CFR Part 1502.14 requires that a No Build Alternative be considered as part of the environmental review process.

Section 2.3, Alternatives Eliminated from Consideration, provides a discussion of the alternatives considered, but ultimately dismissed from detailed analysis. FHWA and DDOT, in cooperation with NPS, explored and evaluated the following alternatives in detail:

- No Build Alternative
- Build Alternative 1 – Revised Square Alternative
- Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

2.1 No Build Alternative

Consideration of the No Build Alternative is required by NEPA per CEQ Regulations. This alternative serves as a basis of comparison with other alternatives considered for detailed analysis. Under the No Build Alternative, no land jurisdiction exchange between NPS and DDOT would occur. The intersection would continue to function as it does today. Existing traffic patterns, crosswalks, signalization, and sidewalks would remain unimproved. Of the approximately 1.5 acres of green space/grassed area in the Study Area, approximately **1.44** acres of this area is owned and maintained by the NPS and would remain under NPS jurisdiction under the No Build Alternative; the remaining acreage (approximately 0.1 acres) is DDOT right-of-way (grassed sidewalk buffer areas) and would remain under DDOT jurisdiction. See **Figure 2-1** for an illustration of the existing condition of the intersection, which is the same as the No Build Alternative.

While the No Build Alternative does not meet the purpose and need of the Proposed Action, it provides a basis for comparing the environmental consequences of the Proposed Action Alternatives.

2.2 Proposed Action

The Proposed Action is to provide improvements to the Pennsylvania and Minnesota Avenues, SE intersection to improve safety, mobility, and connectivity for pedestrians and motorists at the intersection in keeping with the District's Great Streets Initiative. The Proposed Action would include a transfer of land jurisdiction from NPS to DDOT, as may be agreed upon by covenant with stipulations between the agencies following meetings and coordination. The land exchange is necessary to facilitate reconfiguration of the intersection. No private right-of-way would be impacted or acquired by the Proposed Action. *The open green space within Twining Square would remain parkland.*

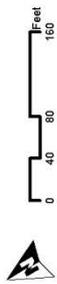


LEGEND

- Existing Right of Way (ROW)
- Park Area / Green Space

Figure 2-1
No Build Alternative (Existing Condition)

Environmental Assessment



Source: HNTB Corporation, 2014

2.2.1 Build Alternative 1 - Revised Square Alternative

Under Build Alternative 1, the intersection would be improved to create a “traffic square” concept, which would require all vehicles, with the exception of through-movements on Pennsylvania Avenue, SE, to go around the expanded central park area. Build Alternative 1 would include a jurisdictional land transfer from NPS to DDOT of approximately **1.44** acres to enable the proposed modifications to the intersection. Build Alternative 1 would consolidate the two park parcels to the north of Pennsylvania Avenue and the two park parcels to the south of Pennsylvania Avenue in order to provide more contiguous park area for residents and visitors to use as green space. The northern park area would total approximately one acre of contiguous park area and the southern park area would total approximately 0.5 acres of contiguous park area. The traffic medians to the east and west of the intersection currently owned by NPS would also transfer to DDOT in order to accommodate proposed improvements (approximately **0.28** acres). See **Figure 2-2** for an illustration of Build Alternative 1 – Revised Square Alternative.

Build Alternative 1 would improve the roadway alignment and configuration to promote traffic-calming thereby improving safety for pedestrians and vehicles at the intersection. Under this alternative, the traffic signal configuration is simplified and the left-turning conflicts are removed. Pennsylvania Avenue, SE would bisect the center of the square, and turning movements would be directed around the perimeter of the “square.” This perimeter route acts to calm the traffic, similar to how a traffic circle works, by allowing vehicles to enter and exit the square at locations identified by the intersecting streets. It would also reduce vehicular speeds by providing short, straight distances between tight radius turns, at the presumed four corners of the square.

Build Alternative 1 would maintain most of the intersecting street connections near their current locations; the exception is that 25th Street, SE would no longer connect to the Pennsylvania/Minnesota Avenues, SE intersection. This eliminates a connection that is proximate to other connections. With this change, to turn onto 25th Street, traffic would enter the “square” at L’Enfant Square, SE and follow the square around until exiting onto 25th Street, SE. This new movement would have a minimal impact on the residential neighborhood.

In this alternative, L’Enfant Square, SE to the north of the square would be widened to three lanes from the existing one lane to accommodate the traffic traveling around the square. As a result, on-street parking would only be maintained on the north side of the street, adjacent to residences. A grassed median between the sidewalk and the on-street parking to the north of the square (along L’Enfant Square, SE) is proposed to provide additional buffer for residences from the roadway.

Build Alternative 1 would reduce the interaction between pedestrians and vehicles, and would also improve the functionality of existing and new crosswalk facilities. The crosswalk alignments and refuge areas for pedestrians would be significantly enhanced; sidewalks and green space would be improved and green space frontage would be provided for local residences and businesses. ***Following comments received from the Washington Metropolitan Area Transit Authority (WMATA) on the October 2013 EA, a pedestrian bulb-out was included in the Build Alternative 1 design at the bus stop at westbound Pennsylvania Avenue, SE with L’Enfant Square, SE, to shorten pedestrian crossing distance, protect parked vehicles, and reduce traffic impact caused by bus pullovers.***

Summary

Build Alternative 1 includes the following key traffic improvements:

- Prohibit left turning movements on Pennsylvania **Avenue**, SE in the center of the square and require all turning vehicles to circulate around the square;
- Prohibit left turns from both directions of Minnesota Avenue, SE on to Pennsylvania Avenue, SE, directing all traffic to circulate around the square, and reduce vehicular conflicts with pedestrians on the crosswalks;
- Expand L'Enfant Square, SE to three lanes on the north side of the square and combine with southbound Minnesota Avenue, SE, providing parking spaces for residents and retail patrons along the north side of the street along the residences only;
- Expand L'Enfant Square, SE to two lanes on the south side of the square and realign the roadway to add the connection to northbound Minnesota Avenue and 25th Street, SE;
- Add wider sidewalks and additional crosswalks to provide safe and convenient access for pedestrians; and
- Add traffic signal control at the new south intersection (south of Minnesota Avenue, SE and 25th Street, SE) to improve traffic flow.

Build Alternative 1 would meet the purpose and need for the Proposed Action in promoting the principles set forth in the District's Great Streets Initiative. Build Alternative 1 would improve pedestrian and vehicular safety, create a usable park space, improve multimodal connectivity and access, and support improved land use and community needs.

2.2.2 Build Alternative 2 - Conventional Intersection Alternative (*Preferred Alternative*)

Under Build Alternative 2, the intersection would be redesigned into a typical at-grade intersection with all vehicle turning movements permitted for all approaches, with the exception of 25th Street, which would remain a one-way street going southbound. Build Alternative 2 would include a jurisdictional land transfer from NPS to DDOT of approximately **1.44** acres to enable the proposed modifications to the intersection and consolidate the green space. Build Alternative 2 would consolidate the two park parcels to the north of Pennsylvania Avenue and the two park parcels to the south of Pennsylvania in order to provide more contiguous park area than exists today for residents and visitors to the area.

The northern park area would total approximately one acre and the southern park area would total approximately 0.4 acres of contiguous park area. The traffic medians to the east and west of the intersection currently owned by NPS would also transfer to DDOT in order to accommodate proposed improvements (approximately **0.28** acres). See **Figure 2-3** for an illustration of Build Alternative 2 – Conventional Intersection Alternative.

The Build Alternative 2 design would improve the existing split roadway system that currently contains two complex intersections by reducing multiple traffic movements into one signalized intersection. This alternative would provide for left-turn movements in all directions and increase the left-turn bay storage length for vehicles. Under Build Alternative 2, the roadway that bisects the northern section of Twining

Square (southbound Minnesota Avenue, SE) would be shifted to realign the roadway. The existing western intersection (L'Enfant Square, SE/SB Minnesota Avenue at Pennsylvania Avenue, SE) in the square would be eliminated and the central, grassed median along Pennsylvania Avenue would be extended; a crosswalk with a pedestrian-activated traffic signal would also be provided at this location to allow safe crossing for pedestrians.

Build Alternative 2 maintains the one-lane roadway along L'Enfant Square, SE that exists currently, including the on-street parking on both sides of the street on L'Enfant Square, SE to the north of the "square." This alternative has the potential to reduce the traffic volume adjacent to the residences along L'Enfant Square, SE depending on which way traffic flows along this roadway stretch. Build Alternative 2 has two options for the movement of one-way traffic on L'Enfant Square, SE, located to the north and west of the "square." The one-way movement would work operationally as follows:

Option 1) Traffic flows one-way to the west and south on L'Enfant Square, SE. Commuter traffic could continue to cut-through the "square" to avoid the Pennsylvania/Minnesota Avenues, SE intersection and the right-turning vehicle/pedestrian conflict to the west of the square would remain; or

Option 2) Traffic flows one-way to the north and east on this roadway. Cut-through traffic would be minimized and the vehicle/pedestrian conflict would be reduced. ***Option 2 is the Preferred Option selected to be implemented in conjunction with the Preferred Alternative.***

Following the review of comments received during the October 2013 EA review period, the project team reevaluated the pedestrian crossing at the east side of the intersection (Pennsylvania and Minnesota Avenue) and determined that an extended median in the roadway between the east- and west-bound lanes of Pennsylvania Avenue, SE that will allow a "break" for pedestrians crossing the street within the crosswalk is feasible and is therefore included in the Final EA. This will effectively reduce the uninterrupted crossing length and provide a more pedestrian-friendly crosswalk. Additionally, the crosswalk at the western intersection of Pennsylvania Avenue, SE with L'Enfant Square, SE is improved to provide a shorter, continuous crossing length across the westbound lanes of traffic. Currently the crosswalk crosses the westbound lanes at an angle. Crosswalk markings will also be improved and the traffic signal timing will be adjusted to accommodate the crossing time required for pedestrians.

Summary

The Preferred Alternative, Build Alternative, includes the following key traffic improvements:

- Minnesota Avenue, SE would become a five-lane roadway through the intersection;
- A new left turn bay on westbound Pennsylvania Avenue, SE would be provided for quick access to southbound Minnesota Avenue and 25th Street, SE;
- ***On L'Enfant Square, SE, traffic would flow one-way to the north and east to minimize cut-through traffic and reduce right-turn conflict between vehicles and pedestrians;***
- ***Wider sidewalks and improved crosswalks would be added to provide safe and convenient access for pedestrians; and***

- Bulb-outs at multiple intersection corners would be added to shorten pedestrian crossing distance, protect parked vehicles, and reduce traffic impact caused by bus pullovers.

Build Alternative 2 would improve vehicle operations and reduce confusion at the complex intersection, create more consolidated park space for visitors and residents to the area, ***improve multimodal connectivity and access, and support improved land use and community needs. Therefore Build Alternative 2 would meet the purpose and need for the Proposed Action. Build Alternative 2 – Conventional Intersection Alternative is the Preferred Alternative for the Proposed Action.***

A cost estimate summary is presented in **Table 2.1**. Detailed cost estimates for the Build Alternatives are presented in **Appendix D, Construction Cost Estimate and Schedule**.



LEGEND

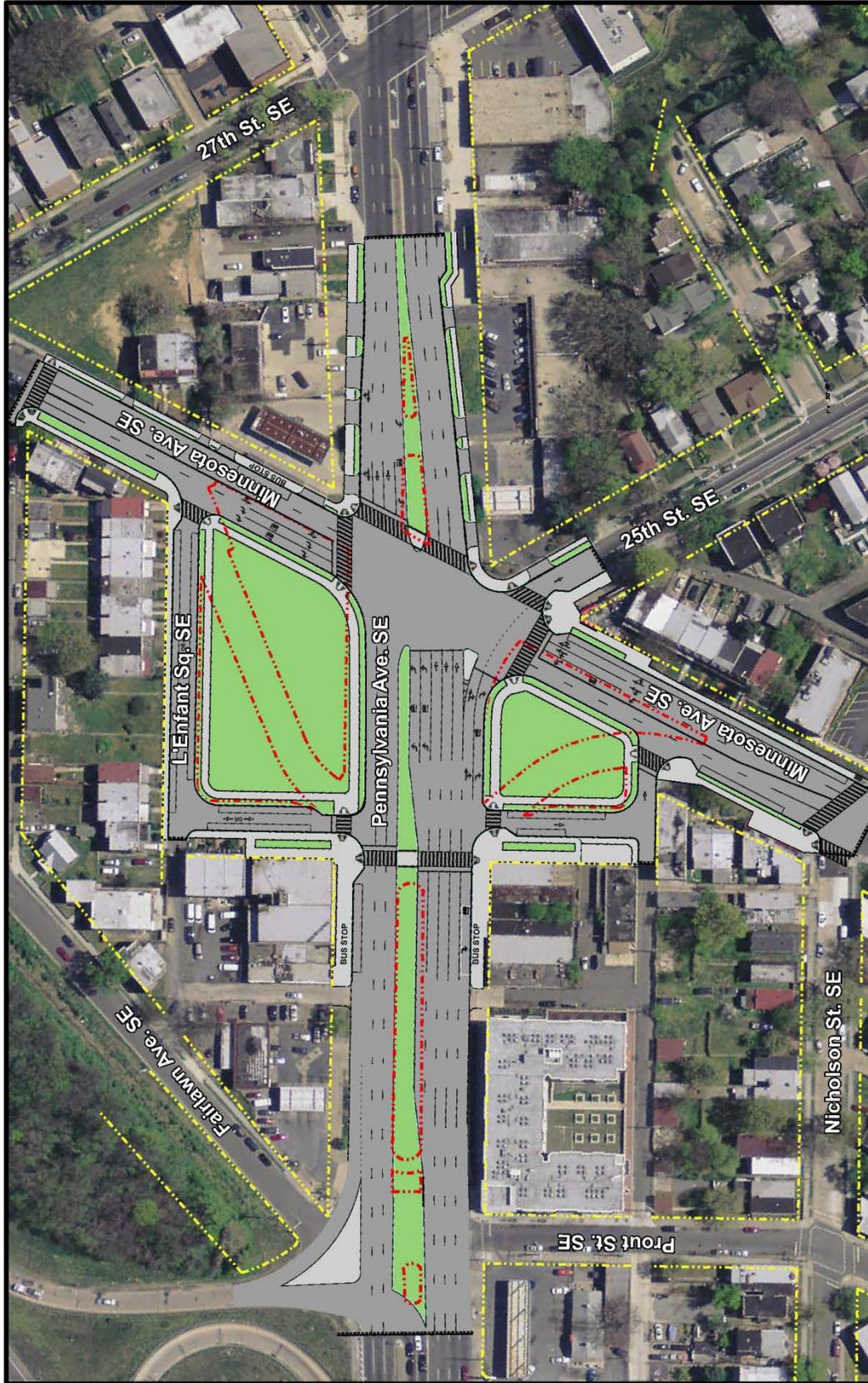
- - - - - Existing Right of Way (ROW) to remain
- - - - - Proposed Transfer of Jurisdiction - NPS to DDOT (1.44 acres)
- Proposed Park Area / Green Space



Figure 2-2
Build Alternative 1 - Revised Square

Environmental Assessment

Source: HNTB Corporation, 2014



LEGEND

- Existing Right of Way (ROW) to remain
- Proposed Transfer of Jurisdiction - NPS to DDOT (1.44 acres)
- Proposed Park Area / Green Space

Figure 2-3
Build Alternative 2 - Conventional Intersection

Environmental Assessment



Source: HNTB Corporation, 2014

Table 2.1

Build Alternatives Cost Summary

COST ESTIMATE ITEMS	Alternative 1 - Revised Square			Alternative 2 - Conventional Intersection			
	UNITS	QUANTITY	UNIT COST	AMOUNT	QUANTITY	UNIT COST	AMOUNT
1 Demolition							
2 Roadway							
3 Miscellaneous Items (Sidewalk, Driveway, Landscape, etc.) ¹							
A Sidewalk / Trail Area (exposed aggregate sidewalk)	SF	43,100	\$ 8.50	\$ 366,350	38,900	\$ 8.50	\$ 330,650
B Driveway Entrance	SF	5,100	\$ 7.00	\$ 35,700	5,600	\$ 7.00	\$ 39,200
C Bus Pad	SF	1,860	\$ 14.00	\$ 26,040	2,550	\$ 14.00	\$ 35,700
D Grassed or Landscape Area	SF	70,000	\$ 1.50	\$ 105,000	67,700	\$ 1.50	\$ 101,550
E Granite Curb & PCC Gutter	LF	4,600	\$ 57.00	\$ 262,200	4,550	\$ 57.00	\$ 259,350
F Granite Curb	LF	3,050	\$ 50.00	\$ 152,500	1,800	\$ 50.00	\$ 90,000
G PCC Wheelchair/Bicycle Ramp	Each	39	\$ 1,000.00	\$ 39,000	24	\$ 1,000.00	\$ 24,000
4 Traffic Signals							
5 Miscellaneous Costs ²							
Drainage and Stormwater Management				\$ 1,552,536			\$ 1,299,498
Erosion and Sediment Control	60.0%			\$ 129,378			\$ 108,292
Utility Adjustments and Relocations	5.0%			\$ 776,268			\$ 649,749
Street Lighting	40.0%			\$ 1,035,024			\$ 866,332
Signing and Pavement Marking	10.0%			\$ 258,756			\$ 216,583
Grading and Earthwork	15.0%			\$ 388,134			\$ 324,875
Landscapecap/Tree Removal	5.0%			\$ 129,378			\$ -
Concept Level Contingency ³	25.0%			\$ 1,714,259			\$ 1,407,790
Maintenance of Traffic ⁴	25.0%			\$ 1,714,259			\$ 1,407,790
Mobilization ⁴	10.0%			\$ 685,703			\$ 563,116
				TOTAL AMOUNT \$ 10,971,254			TOTAL AMOUNT \$ 9,009,853

Source: HNTB Corporation, 2013.

¹ Include measurable incidental items such as sidewalk, driveway aprons, grassed or landscaped areas, curb and gutter, etc. These measured items differ between the alternatives based on the actual quantity shown in each alternative.

² Include allowances for items that are generally needed but not shown nor measurable on the concept alternatives. These items include drainage items, utility adjustments, earthwork, lighting, etc. These costs are estimated based on a percentage of the measurable construction items at approximate typical overall project costs for similar type projects.

³ Contingency for unidentified items and reflects the level of development of the plans. As the design develops, the contingency percentage will decrease as the confidence factor of the hard costs increase.

⁴ Mobilization and MOT costs are also added as percentage of construction cost to reflect average percentage of project costs for similar type projects.

Note: The costs shown in this estimate represent an estimate of probable costs prepared in good faith and with reasonable care. HNTB has no control over the costs of construction labor, materials, or equipment, nor over competitive bidding or negotiating methods and does not make any commitment or assume any duty to assure that bids or negotiated prices will not vary from this estimate.

2.3 Alternatives Eliminated from Consideration

Throughout the concept development process and agency and public input, several intersection alternatives were considered and dismissed because they were not practical and/or feasible or were not consistent with the project objectives or purpose and need. The following is a discussion of concepts that are not recommended for detailed engineering or analysis, but were considered in the planning process.

2.3.1 Modified Square Alternative

The Modified Square Alternative concept was developed as part of the District's Great Streets Initiative in 2006-2007 and is the basis for the Revised Square Alternative being carried forward. This alternative would create a "traffic square" concept, requiring all vehicles to go around the perimeter of the square with the exception of the Pennsylvania Avenue through-movements. The Modified Square Alternative maintains most of the intersecting street connections near their current locations; the exception is that 25th Street SE would no longer connect to the Pennsylvania/Minnesota Avenues intersection. With this change, 25th Street, SE would be converted into a two-way street. As with the Revised Square Alternative, the Modified Square would also reduce the interaction between pedestrians and vehicles and improve safety at the intersection. This alternative would also require a jurisdictional land exchange between NPS and DDOT and would result in more contiguous park area/green space.

The Modified Square design has a greater central area (larger contiguous park area to the north and south of Pennsylvania Avenue, SE) which would require the taking of private right-of-way (ROW) from the existing gas stations and other businesses located at this intersection. Impacted businesses would include the Shell/Food Mart property at the southeast corner of the intersection (Pennsylvania and 25th Street, SE), the BP gas station at the northeast corner of the intersection (Pennsylvania and Minnesota Avenues, SE) and the two commercial walk-up eateries (Mario's Pizza House and AC Take-Out Chicken) in the southwest quadrant of the Minnesota Avenue, SE and 25th Street SE intersection.

The ROW acquisition of the lands belonging to the existing businesses would result in the closure of at least one of the gas stations, and could potentially necessitate the taking of the whole properties. As part of the ROW acquisition of the two gas stations, environmental site assessments would be needed to investigate the underground storage tanks or other possible contaminants associated with the gas station activities. Should there be any leakage from these tanks, there could be significant remediation measures that would be required prior to proceeding with the project. The cost of ROW and relocation alone for this alternative was estimated to be \$4.3 million (2006 dollars). Additionally, should any remediation efforts be required, significant additional costs and delays would be likely.

Given the potential economic impacts associated with displacing existing businesses and impacting private ROW, the potential environmental impacts due to gas station contaminants and the high costs associated with this alternative, the Modified Square Alternative is not considered feasible and was dismissed from detailed study.

2.3.2 Ellipse Alternative

The Ellipse Alternative concept was also developed as part of the District's Great Streets Initiative in 2006-2007. This alternative would function as a traffic circle but would also maintain the through-

movement for vehicles on Pennsylvania Avenue, SE. The Ellipse Alternative would maintain connections to all intersection roadways and would result in frontage changes to several properties, which would provide wider sidewalks and landscape areas. This alternative would also require a jurisdictional land exchange between NPS and DDOT.

With the design of the Ellipse Alternative, this configuration would require acquisition of three private properties and relocation assistance for four businesses that would be displaced at the intersection. Impacted businesses would include the Shell/Food Mart property at the southeast corner of the intersection (Pennsylvania Avenue and 25th Street, SE) and the two commercial walk-up eateries (Mario's Pizza House and AC Take-Out Chicken) at the 25th Street, SE and Minnesota Avenue, SE intersection. There would also be ROW required from the BP gas station at the northeast corner of the intersection (Pennsylvania and Minnesota Avenues, SE). The cost of ROW and relocation alone for this alternative was estimated to be \$3.2 million (2006 dollars). Additionally, as with the Modified Square Alternative, there is a high likelihood for environmental impacts and necessary remediation under the Ellipse Alternative due to the impacts to existing gas station properties.

Given the potential economic impacts associated with displacing existing businesses and impacts to private ROW, the potential environmental impacts due to gas station contaminants and the high costs associated with this alternative, the Ellipse Alternative is not considered feasible and was dismissed from detailed study.

2.4 Construction and Staging

Construction staging areas would be selected to protect environmental resources, to meet the needs of the contractor based on the construction phasing plans, and to minimize disruptions and safety hazards for pedestrians, bicyclists and motorists who utilize the intersection.

Construction would be phased in such a way as to provide the safest and most logical detours around the road and sidewalk segments under construction. Notifications would be used to alert users in advance of any closures or detours required for construction. Notifications may include electronic signage, postings to the DDOT and FHWA websites and social network pages, and emails to interested parties identified during the scoping process.

It is recommended that work on the main intersection roads of Pennsylvania Avenue and Minnesota Avenue, SE, be done during off-peak traffic hours to minimize disruptions to traffic. As detailed in Title 20 of the District of Columbia Code of Municipal Regulations (DCMR), construction is allowed Monday through Saturday from 7 am to 7 pm without any special permits. Any construction scheduled outside of these times would require obtaining an after-hours permit.³¹ It is estimated that construction would take approximately 18 to 24 months. The construction schedule is included in *Appendix D, Construction Cost Estimate and Schedule*.

Adequate construction techniques, including use of BMPs and LID strategies, would be adhered to so as to minimize the potential for impacts to the surrounding environment. Construction impacts are discussed within the appropriate environmental categories in *Section 4.0, Environmental Consequences*.

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3.0 AFFECTED ENVIRONMENT

3.1 Natural Resources

3.1.1 Soils

Given the development history of the Study Area, most of the Study Area is expected to represent completely or partially disturbed soil sequences. The current use of land is roadway, sidewalk, and dry, grassed open space. The soil types in this area have only fair potential for landscaping because of droughtiness. Soils occurring in the Study Area include Urban land-Galestown complex, Keyport-Urban land complex, Sassafras-Urban land complex and Christiana-Urban land complex. The Urban land-Galestown complex is the most common soil, which is found in the western, central, and part of the northern sections of the Study Area.³² The northern and eastern edges of the Study Area are reported as Keyport-Urban land complex. Small segments of Sassafras-Urban land complex and Christiana-Urban land complex are found along the southern edge of the Study Area. See **Figure 3-1** for an overview of the Study Area soils.

- **Urban land- Galestown complex (UmB).** Urban land- Galestown complex represents areas where roughly 70 percent of the soil surface is covered with impervious surfaces, with smaller areas of graded and reworked Galestown series soils exposed. The 1976 District soil survey notes that roughly 5 percent of Urban land-Galestown mapping units are relatively undisturbed Galestown soils. Galestown soils developed out of old marine deposits of sand and found on uplands and terraces along the Coastal Plain. They are generally deep and somewhat excessively drained. The typical profile includes a thick two-layer A Horizon of loamy sand over a very thick, coarse loamy sand B Horizon. The substratum is generally more than three feet below the surface.
- **Christiana-Urban land complex (CfC).** Christiana series soils are deep, well drained soils formed in silty material deposited over older clay deposits.³³ They are generally found on well-dissected uplands, and within the Study Area are reported as part of the Christiana-Urban land complex, where roughly 40 percent of the area is covered with impervious surfaces, 20 percent consists of reworked or graded Christiana series soils, and 20 percent consists of relatively undisturbed Christiana series soils. The remaining 20 percent includes a mixture of associated soil series and areas of eroded Christian series soils where the clayey subsoil is exposed. The typical profile for Christiana series soils includes a thin silt loam A Horizon over a two-layer subsoil. In its upper layer, the subsoil is a heavy yellowish brown silt loam, but changes to a red silty clay within a foot of the surface.

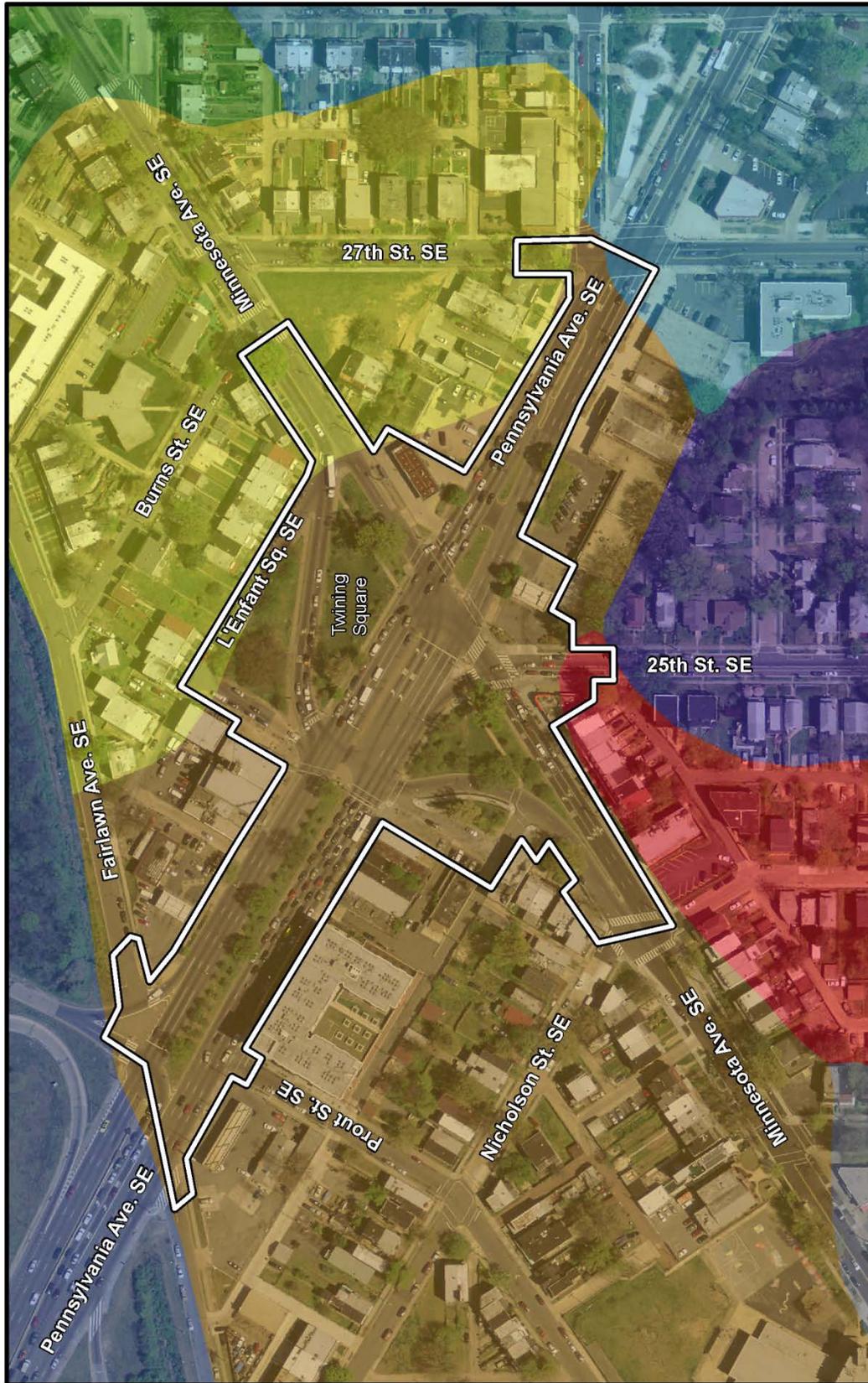


Figure 3-1
Study Area Soils
 Environmental Assessment

Sources: DC Office of the Chief Technology Officer (DC OCTO)
 USDA, Natural Resources Conservation Service

0 50 100 200 Feet

LEGEND

- Study Area
- Christiana-Urban land complex, 0 to 8 percent slopes
- Christiana-Urban land complex, 8 to 15 percent slopes
- Keyport-Urban land complex, 0 to 8 percent slopes
- Keyport-Urban land complex, 8 to 15 percent slopes
- Sassafras-Urban land complex, 8 to 15 percent slopes
- Udorthents, smoothed
- Urban land-Galestown complex, 0 to 8 percent slopes
- Urban land-Keyport complex, 0 to 8 percent slopes

- **Keyport-Urban land complex (KmC).** Keyport soils are generally deep, moderately well drained soil developed in silty material over older clay deposits. They are typical found in lower settings in the Coastal Uplands. Areas in the Study Area which are reported as Keyport- Urban land complex consists of strongly slopes areas where roughly 40 percent of the area is covered with impervious surfaces, 20 percent consists of reworked or graded Keyport series soils, and 20 percent consists of relatively undisturbed Keyport series soils. The remaining 20 percent includes a mixture of associated soil series and areas of severely eroded Keyport series soils where the grey clayey subsoil is exposed. The typical soil profile for Keyport series soils includes a thin silt loam A Horizon, and a thick, multi-layered subsoil which is dominated by clay within a foot of the surface due to erosion deflation.
- **Sassafras-Urban land complex (SgC).** Sassafras series soils are deep, well drained soils formed in marine sediments, and found on side slopes and ridges tops in upland settings.³⁴ Sassafras series soils reported within the Study Area are included in Sassafras- Urban land complex mapping units where roughly 40 percent of the mapping unit is impervious surfaces, 20 percent is disturbed Sassafras series soils, 20 percent is undisturbed Sassafras series soils, and 20 percent consists of associated soils types. Typical soil profiles in strongly sloped areas of Sassafras soils consists of a sandy loam A Horizon less than a foot thick, over a multi-layer subsoil which approached two feet in thickness. Subsoil grades from sandy loam to sandy clay loam and back.

3.1.2 Water Resources

Groundwater

Groundwater in the vicinity of Pennsylvania and Minnesota Avenues, SE occurs within poorly consolidated sand and gravel aquifers of the Coastal Plain Physiographic Province. The Coastal Plain is characterized by unconsolidated interleaved deposits of gravel, sand, silt, and clay, with the surface soils in the vicinity of the Study Area formed in reworked river terrace deposits from the Pliocene and Pleistocene, as well as Potomac Group soils from the Cretaceous.³⁵ The Potomac Group is the oldest layer of the Coastal Plain deposits and consists of mostly silty clays with interbedded sand and gravel.³⁶ The Coastal Plain can be divided into six regional aquifers which are separated by four regional confining units that slow the vertical flow of groundwater. Groundwater in the District is not used as a potable water source.

Water Quality

While there are no surface waters within the Study Area, stormwater runoff from the Study Area ultimately enters tributaries which flow into the nearby Anacostia River. Due to its urbanized character, the Anacostia River has become highly degraded and thus the focus of restoration efforts by the District.

The 1972 Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977, is a national policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters; enhance the quality of water resources; and to prevent, control, and abate water pollution. Based on review of 2010 EPA water quality assessments, the Anacostia River is impaired for Protection of Human Health related to Consumption of Fish and Shellfish and for Secondary Contact Recreation and Aesthetic Enjoyment, both upstream and downstream of the project Study Area. These impairments are likely

caused by oxygen depletion in the water, as well as the presence of trash and other debris. A probable source contributing to impairment is urban-related stormwater runoff which brings oil and grease into the Anacostia River.

3.1.3 Wildlife

The Endangered Species Act of 1973 (ESA) provides for the conservation of species which are listed as endangered or threatened. The ESA is implemented by the U.S. Fish and Wildlife Service (FWS), who manages land and freshwater species, and by the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS), who manages marine species.

Terrestrial Organisms

The District provides habitat to a variety of wildlife species which are accustomed to urban conditions and frequent human disturbances. Common wildlife in the District include deer, raccoons, squirrels, chipmunks, frogs, salamanders, turtles, snakes, bats, ducks and a range of bird species.

Migratory Birds

The Study Area is located within the Atlantic Flyway, an important pathway for migratory birds traveling along the Atlantic coast and through parts of the Washington, D.C. area. Migratory bird species are known to utilize the Chesapeake Bay during their migration to feed, rest, winter and breed during the spring. Ospreys are a common migratory bird found in the Anacostia River watershed. They are known to nest high on trees or on lower platforms, such as the concrete pilings beneath the South Capitol Street Bridge.³⁷ In 2011, ospreys caused a stop-work order, as the birds had built a nest atop a construction crane being used on the Anacostia Riverwalk Trail.³⁸ The Study Area is within the Anacostia River watershed. However, it does provide any habitat for migratory birds, such as mature forests, wetlands or immediate proximity to the river corridor. The Study Area likely supports a limited population of birds, small mammals, reptiles and amphibians. Wildlife found in the Study Area are those that are able to adapt to the urban landscape.

3.1.4 Vegetation

The Study Area includes the 25th Street, SE intersection with Minnesota Avenue, the green space area designated as Twining Square, and two small cut-through/side streets designated as L'Enfant Square, SE. The primary vegetative areas within the Study Area are roadside and urban lawn, with low growing plants and trees. The NPS park land at the intersection, U.S. Reservation 487, is divided into four reservations totaling approximately 1.2 acres of grassed park property with interspersed trees throughout. The NPS medians in the Study Area are also grassed with interspersed street trees (approximately 0.24 acres). Based on an engineering survey of Pennsylvania Avenue, SE, there are approximately 15 trees in the northern reservation (north of Pennsylvania Avenue) and approximately 18 trees in the southern reservation (south of Pennsylvania Avenue). According to the D.C. Street Trees Map by Casey Trees®, Willow oak trees and Thornless honeylocust trees are both found in the vicinity of the Pennsylvania and Minnesota Avenues, SE intersection.³⁹

Twining Square does not function as green space or as a visitor destination; the intersection is urban in nature, and is primarily used by commuters and residents as a through-way, rather than as a destination.

3.2 Cultural Resources

3.2.1 Historical Context

The following present a narrative of the development history of the Study Area, based on historic maps that were available for review. See *Appendix E, Section 106 Consultation and Cultural Resources Information (Cultural Resources)* for additional information, details and historic maps.

Based on a reconstruction of early land grants prepared as part of an archival study prepared for adjacent Anacostia Park, the present Study Area appears to have been primarily within “Green’s Purchase,” acquired by Luke Green in 1668.⁴⁰ Green’s Purchase was likely subdivided into smaller tenancies and periodically transferred, and subsequently sold off as smaller parcels in the late eighteenth and early nineteenth centuries.

The first available cartographic source which depicted detail on the south side of the Anacostia River is Boschke’s 1861 topographic map of Washington, DC. Based on the features indicated on this map, the Study Area was largely surrounded by undeveloped or rural land at that time. Although, there is what appears to be a small structure and orchard present in the southern section of the Study Area, while a second structure was present outside the northwest Study Area extension.

Anacostia Road, a precursor to present day Minnesota Avenue, was clearly well established by 1861. The less detailed picture provided by the 1879 Hopkins *Atlas of 15 Miles Around Washington* suggests that the orchard property belonged to Elizabeth Howard, while the structure off the northwestern Study Area extension belonged to Henry Naylor, one of eight structures that he is depicted as owning in the Study Area vicinity. One of those eight is the additional structure, built along the Anacostia-Bladensburg Road between 1861 and 1879, now visible within the southern portion of the Study Area. Another important development in the vicinity of the Study Area was the establishment of the Alexandria Branch of the B&O Railroad alignment passing to the west of the Study Area.

Additional detailed information available on the 1888 USCGS topographic sheets for the District indicates that both mid-nineteenth century structures within the Study Area, and the Howard orchard, survived into the last part of the nineteenth century. This highly detailed and accurate map also indicates that the present Study Area included a deeply incised stream valley filled with marsh, and bordered by a sand dune or possibly elevated fill along the subsequent alignment of the Pennsylvania Avenue extension. During this period a new Pennsylvania Avenue bridge was under construction, and plans were underway to develop the area south of the proposed Pennsylvania Avenue extension as Twining City. Overall, the topographic sheets indicated that the immediate Study Area vicinity remained rural, with large segments of woodland to the east.

Many of the avenues and streets east of the Anacostia River, including Pennsylvania Avenue did not exist as of 1901 but were proposed. By 1903 the Study Area vicinity was actively being developed as a suburb of the District, fully subdivided but only partially developed. The 1903 Baist *Real Estate Atlas of Surveys of Washington* indicated that neither of the mid-nineteenth century structures survived the extension of Pennsylvania Avenue and the development of the Twining City subdevelopment. Several modern elements within the Study Area are present on this source. The most significant is the depiction of L’Enfant Circle, although it is indicated as a perfect square reservation with a circular road exchange

within it, a configuration which is not supported by any other cartographic source reviewed during this historical context research. Most of the present lot configuration is also present on this source. However, very few structures had been constructed prior to 1903, and the handful of primarily wooden structures was restricted to the area south and west of the Study Area. Only one structure, in Lot 1 of Square 5560, appears to fall within the Study Area, and that may be an artifact of the georeferencing distortion.

Based on the sequence of Baist Real Estate Atlases, subsequent development of the Study Area vicinity was relatively slow but consistent. Prior to 1913, development was only present south of Pennsylvania Avenue. In 1913, a single structure was present along the north of Pennsylvania Avenue, and a small handful of frame structures had been completed along the south side of Burns Street on lots backing onto the square. See *Appendix E, Cultural Resources* to view the complete Historic Context Report with historic maps.

Review of the Baist series indicated that the park land reservation was established early in the twentieth century as an irregular rectangle which remained stable into the 1940s.

In the 1920s and early 1930s, Twining Square was known as L'Enfant Square. In 1929, the Office of Public Buildings and Public Parks of the National Capital assumed jurisdiction over Reservations 487 A, B, C and D (Twining Square and the adjacent medians) at the intersection of Pennsylvania and Minnesota Avenues, SE via the March 29, 1929 request of the Commissioners of the District. In 1933, in accordance with the recommendation of the National Capital Park and Planning Commissions, U.S. Reservation 487 officially became "Twining Square" instead of "L'Enfant Square." The name Twining Square was selected to honor the first military member of the District Commissioners, Major William Johnson Twining who served from 1878-1882.

Fewer mid-twentieth century cartographic resources were identified during the archival research. Aerial photographs from 1949, 1951, 1957, and 1963 were examined but provided little useful information about the interior of the Study Area beyond documenting the construction of access lanes within the reservation. Land transfer to and from the DC Commissioners modified the reservation space in 1938 (along the outer edges, Land Order 487), and again prior to 1949 to construct the internal access lanes (recorded in 1951, Land Order 463). A 1954 Baist map suggests that redevelopment was underway in the Study Area vicinity at that time, as the three early twentieth century frame structures on the south side of Burns Street had been removed to make room for a row of brick rowhouses. The structures previously present on either side of Pennsylvania Avenue east of Minnesota Avenue were also demolished in the mid-twentieth century, and service stations were constructed in their place.

Subsequent disturbance from the 1970s to present is more difficult to track, as few archival sources were readily available for review and most late twentieth century maps do not identify specific building footprints. Aerial photographs suggest redevelopment of the northeastern corner of Fairlawn and Pennsylvania Avenue between 1957 and 1963, the northeast corner of the Pennsylvania Avenue and Minnesota Avenue sometime between 1963 and 1980, and the northeastern corner of Fairlawn and Pennsylvania Avenue was again redeveloped between 1963 and 1980. The northeastern corner of Fairlawn and Pennsylvania Avenue is outside but adjacent to the Study Area, but the redeveloped lot on the northeastern corner of Pennsylvania and Minnesota extends into the Study Area.

**It is important to note that Build Alternative 1 – Revised Square Alternative is often referred to as the “Modified Square Alternative” in the cultural resources reports and correspondence.*

Area of Potential Effects (APE)

Direct and an Indirect Areas of Potential Effect (APE) were developed using a composite of the Build Alternatives considered for this project. Both the alternatives carried forward and the alternatives dismissed from further consideration were included in the development of the APE. **Figure 3-2** delineates the APE-Direct, which is equivalent to the Study Area. The APE-Direct was approved by the DC State Historic Preservation Office (SHPO) in April of 2011. The archaeological APE is restricted to the APE-Direct due to proposed ground disturbing activities.

The APE-Direct presently consists of a sloped streetscape, with the northern and southern extensions up Minnesota Avenue, SE and the eastern extension up Pennsylvania Avenue, SE rising in elevation, while the western extension has a very gentle slope down. Development is primarily commercial along Pennsylvania Avenue and the southern portion of Minnesota Avenue, while the northern extension of Minnesota Avenue and the other cross streets consist of residential development.

The historic architectural and history APE, also known as the APE-Indirect is based upon a site visit and line-of-sight survey. The Architectural APE-Indirect, illustrated in **Figure 3-3**, was delineated to include the full parcel of all structures adjacent to the APE-Direct, and includes one building beyond the APE-Direct (Pennsylvania Avenue, Minnesota Avenue, and 25th Street, and Pennsylvania Avenue and Fairlawn Avenue). A detailed description and photographs of the current visual conditions within the APE-Indirect are provided in *Appendix E*. The APE-Indirect was approved by the DC SHPO in April of 2011.

3.2.2 Historic Structures

Through research and coordination with the DC SHPO, it was determined that three buildings are eligible for the National Register of Historic Places (NRHP) for purposes of compliance with Section 106 of the National Historic Preservation Act (NHPA) for this project. These properties include the Morton’s Department Store Building at 2324 Pennsylvania Avenue, SE; the Highland Theater Building at 2523 Pennsylvania Avenue, SE; and the Little Tavern Building at 2537 Pennsylvania Avenue, SE. The Little Tavern Building was demolished in 2012 and there are currently no buildings or structures that occupy the lot. **Figure 3-4** provides the locations of these structures within the APE-Indirect. See *Appendix E* for a description and photographs of the historic structures.

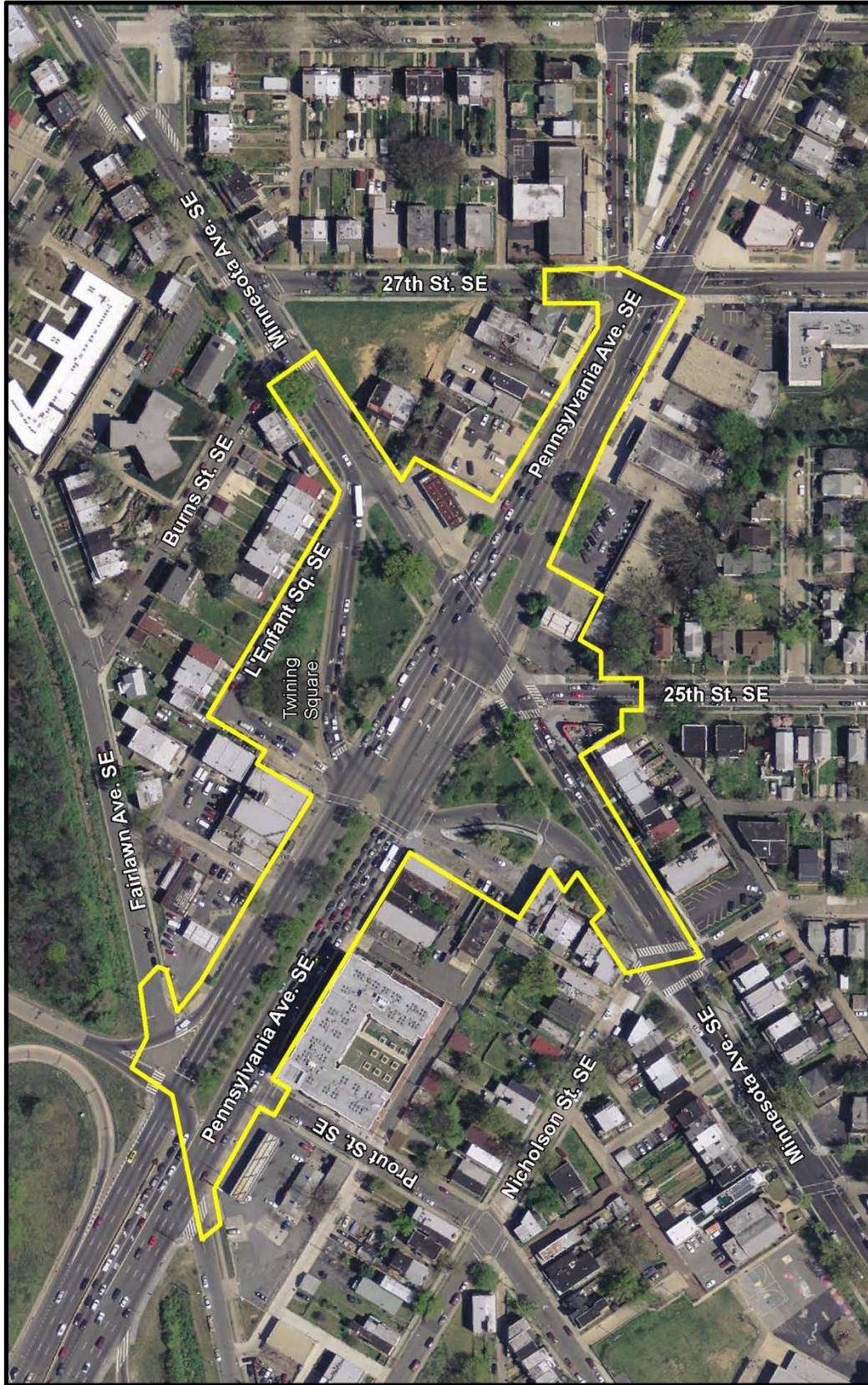
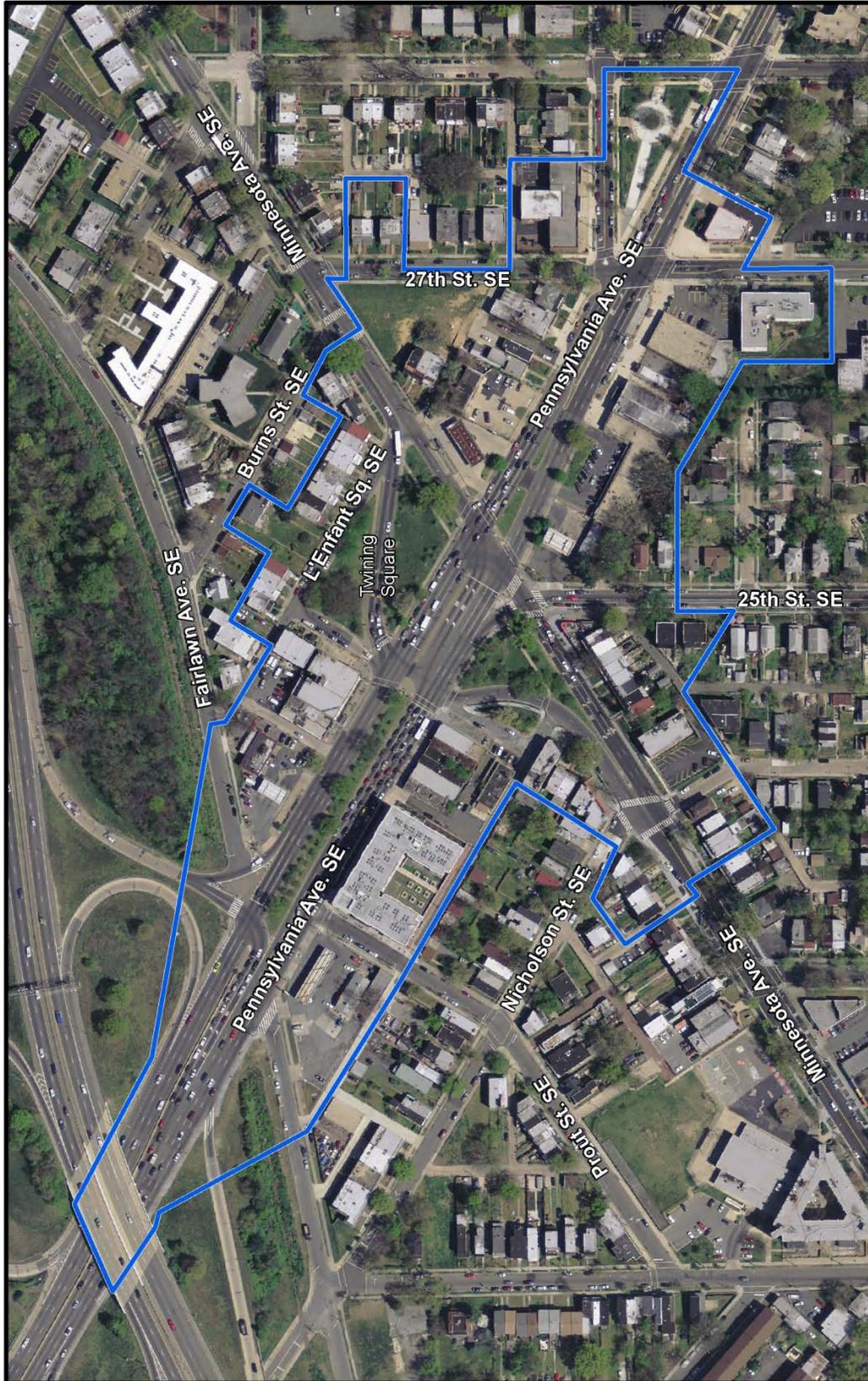


Figure 3-2
Direct APE

Environmental Assessment

Sources: DC Office of the Chief Technology Officer (DC OCTO)



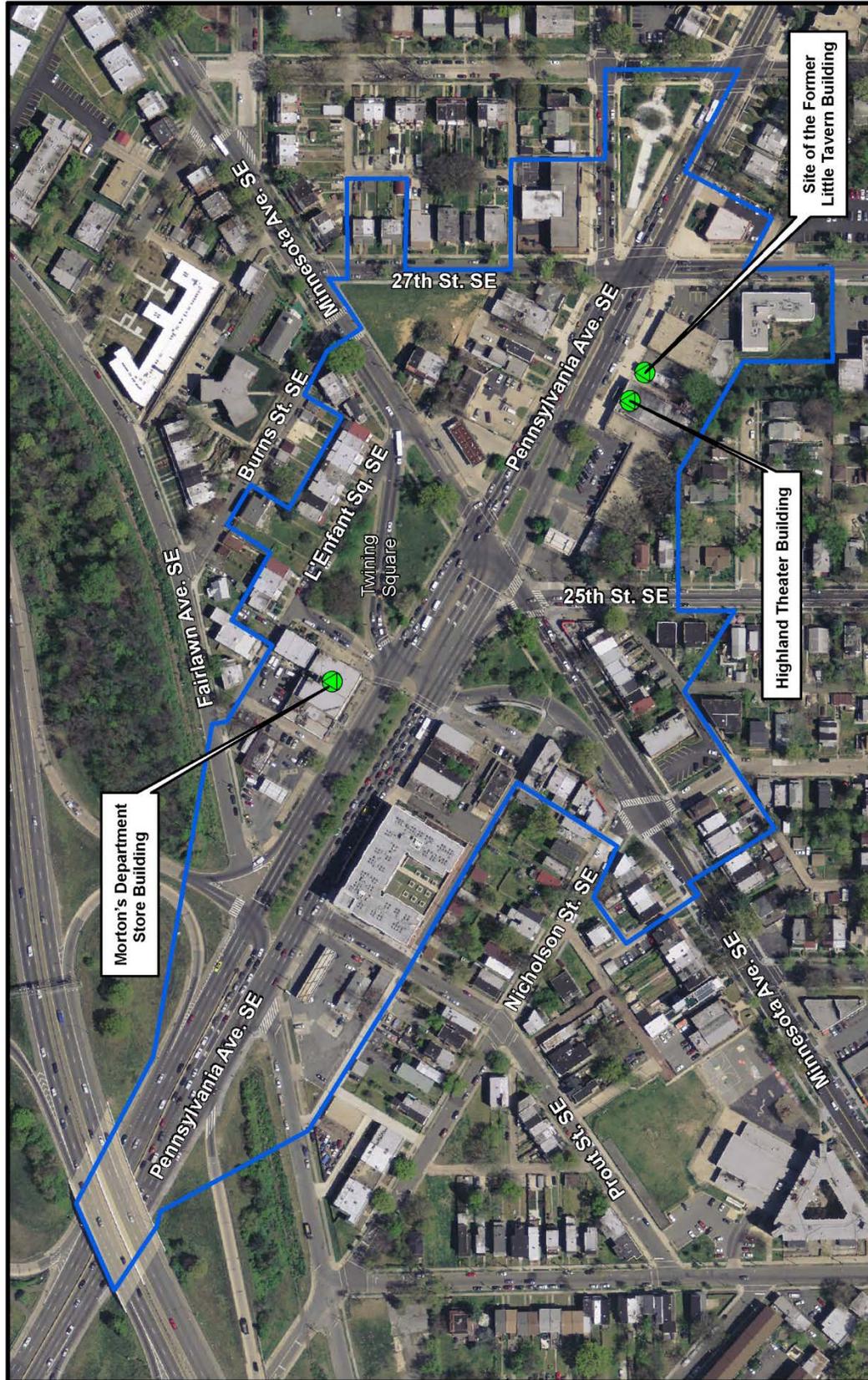
LEGEND

Indirect APE (Architectural Resources Study Area)

Figure 3-3
Indirect APE

Environmental Assessment

Sources: DC Office of the Chief Technology Officer (DC OCTO)

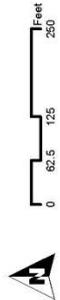


LEGEND

- Indirect APE (Architecture Only)
- Property Eligible for Listing on National Register of Historic Places

Figure 3-4
Properties Eligible for the National Register of Historic Places

Environmental Assessment



Sources: DC Office of the Chief Technology Officer (DC OCTO), DC Office of Zoning

3.2.3 Cultural Landscapes

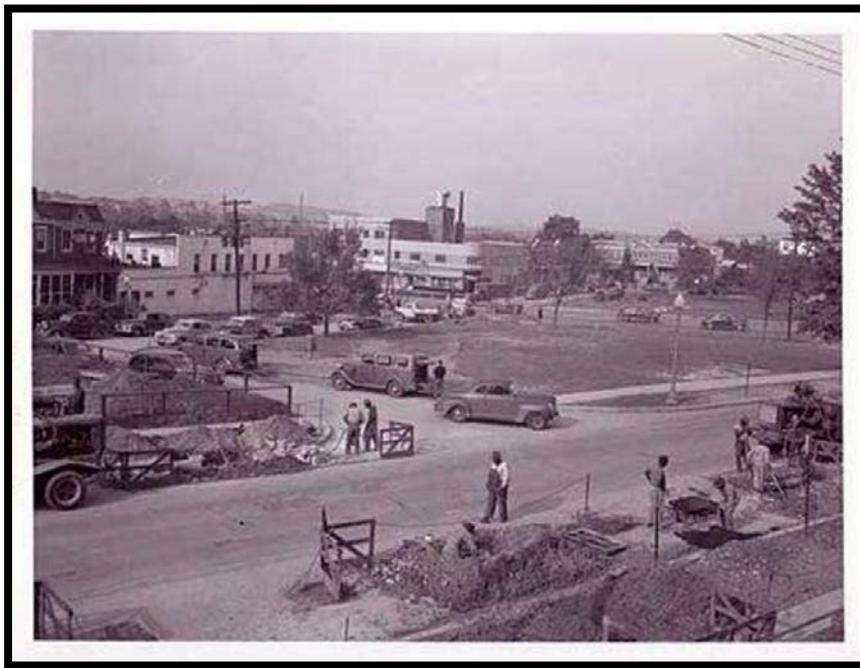
Cultural landscapes reflect the relationship between what is natural and what is man-made. According to *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*, a cultural landscape is “a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein) associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.”⁴¹

DDOT and NPS provided historic landscape photographs for review of cultural landscapes in the Study Area. The NPS photographs were associated with the 1938 Land Order transferring the outer north and western portions of the reservation to the District Commissioners. These included copies of three photographs, two dated 1929, taken looking from Pennsylvania Avenue across each portion of the reservation. Although the photographs were blurred, it was possible to get a sense of open space to the north of the reservation and wooded area to the south of the reservation.

Three photographs from the mid-1940s are shown below. The oldest, dated 1945, captures the southern reservation, looking northwest from a point on Minnesota Avenue near the Nicholson Street intersection (**Photo 1**). Both portions of the reservation appear to be essentially devoid of trees. The other two photographs, dated 1947 shows views east and west along Pennsylvania Avenue. **Photo 2** is the view looking west along Pennsylvania Avenue, presumably from the roof or upper floors of a multi-story structure, looking across a tree-less reservation and commercial development on Pennsylvania Avenue. The front entrances of both Minnesota Avenue service stations are visible. **Photo 3** is the corresponding view looking east along Pennsylvania Avenue from a point west of the Fairlawn intersection, again documenting the essentially commercial nature of development in this area. Neither portion of the reservation is visible in this photograph.

Photo 1

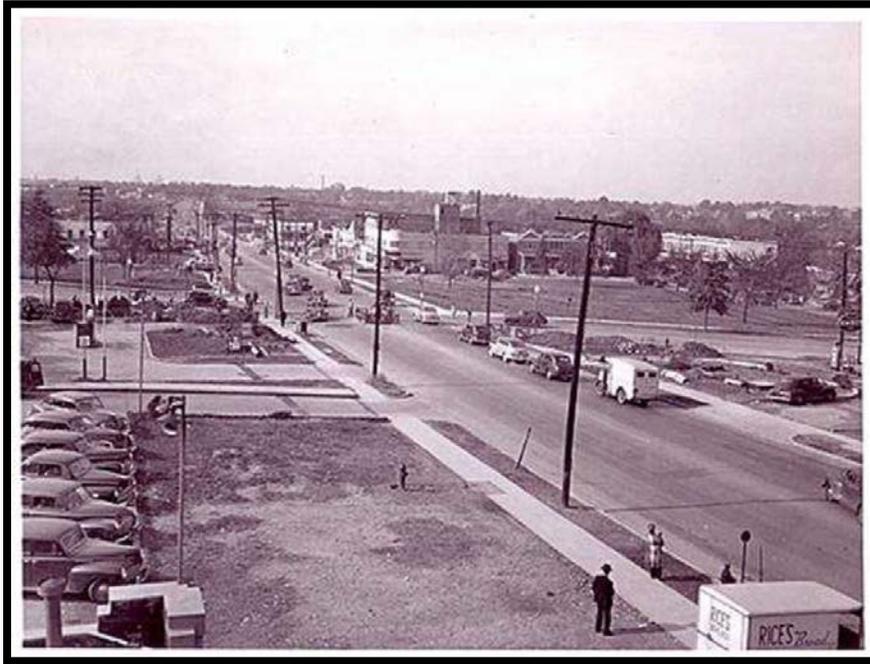
1945 Photograph looking northwest across the southern portion of Reservation 487



Photograph courtesy of DDOT.

Photo 2

1947 Photograph looking along Pennsylvania Avenue



Photograph courtesy of DDOT.

Photo 3

1947 View looking east along Pennsylvania Avenue



Photograph courtesy of DDOT.

3.2.4 Archaeology

Thorough assessments of potential for both prehistoric and historic archaeological resources are included in the *Archaeological Assessment of Potential for the Proposed Pennsylvania Avenue and Minnesota Avenue Land Exchange and Intersection Improvements Project* in *Appendix E*. Below is a summary of findings.

The APE lends itself to four primary divisions based on the character of current conditions, further discussed below: the northern reservation (green space north of Pennsylvania Avenue); the southern reservation (bifurcated green space south of Pennsylvania Avenue); the area of new ROW acquisition (only applied to alternatives dismissed from further consideration); and areas under existing roadbed. Because the Build Alternatives carried forward (Build Alternatives 1 and 2) would not require any new ROW acquisition, that part of the discussion is not discussed further. However, the area of new ROW acquisition is included in the *Archaeological Assessment of Effects Report* in *Appendix E*.

Based on archival research and coordination with the DC SHPO City Archaeologist, it was determined that an archaeological investigation was needed for the Proposed Action. Geoarchaeological coring was conducted in November 2012 to assess the soils and landscapes available to prehistoric populations, as well as the extent of historic impacts accrued since the initiation of European settlement over 300 years ago. Investigations were directed toward examinations and analyses of soil and geomorphic features for indications of landscape stability, buried surface levels, deposit types, and environmental conditions relating to human utilization of a landscape. The Geoprobe borings were made at selected locations determined on the basis of historic mapping showing a wetland northeast of Pennsylvania Avenue and apparent uplands to the southwest. Three borings were made on each side of Pennsylvania Avenue, and approximate locations of the borings are shown in **Figure 3-5**. The associated report, *Geoarchaeological Interpretations in the Vicinity of the Intersection of Pennsylvania and Minnesota Avenues in the Anacostia Section of Washington, D.C.* and the findings of the investigation are included in *Appendix E, Cultural Resources*.

The Northern Reservation

Overall, the northern reservation appeared to have little potential for archaeological resources. Based on the most accurate detailed map available (the 1888/1892 topographic plate), the area north of Pennsylvania Avenue consisted primarily of marsh prior to infilling for the late nineteenth-early twentieth century development of the Twining City subdivision. Based on the 1888 topographic sheet, this stream valley was deeply cut suggesting removal of considerable amounts of soil and reflected a deep erosion environment prior to inundation. Once flooded, there was little likelihood of human occupation. As such, no further cultural resources consideration in this area appears warranted.

Geoarchaeological coring confirmed that the northern reservation is too poorly drained for occupation; the wetland north of Pennsylvania Avenue would likely have been an attractive draw throughout the Holocene era. Probably altered by a century or more of agricultural run-off and then intentionally filled, the wetland identified on a historic map is still present, but now lies as much as 15 feet below the modern surface.

Figure 3-5
Boring Locations and Study Area Superimposed on 1892 Map



Source: EAC/Archaeology, Inc., 2011.

The Southern Reservation

The southern reservation was considered a zone of high potential for prehistoric resources, as well as historic resources associated with nineteenth century residences. Subsequent establishment of the right turn lane which bisects the reservation represents a substantial source of disturbance, but does not appear to have affected the entire reservation. Utility disturbance in this area appears to have been restricted to the early twentieth century, and consisted of one or at most two alignments established prior to 1913, when excavation would have consisted of less destructive manual labor. By 1921, maps indicate a marked preference for utility placement under the adjacent street beds, which may have minimized subsequent disturbance in this area.

Geoarchaeological coring found that, as would be expected in such an urban setting, the upland south of Pennsylvania Avenue has been variably disturbed. Consequently, although this ancient landscape would have been well suited for occupation, it has only very limited prospects for early cultural resources.

Areas under Existing Roadbeds

This area includes the Pennsylvania and Minnesota Avenue roadbeds, and small connecting segments of 25th and 27th Streets, as well as the Twining Square access roads (both internal and external). Most of these pass over areas of high potential, but archival documentation indicates that the Pennsylvania Avenue, Minnesota Avenue, and 25th Street roadbeds had all been substantially disturbed by the mid and late twentieth century preference for placing utilities under them. Three of the four Twining Square access roads pass exclusively over areas considered to have little potential for intact resources due to prior stream scrubbing and erosion, and the final southern internal access road was tested with the southern reservation area. No information about prior disturbance under 27th Street was found during the archival research, but as project impacts in this area would appear to be largely cosmetic changes to blend into the proposed new Pennsylvania Avenue configuration, no testing was warranted at this location.

3.3 Socioeconomic Resources

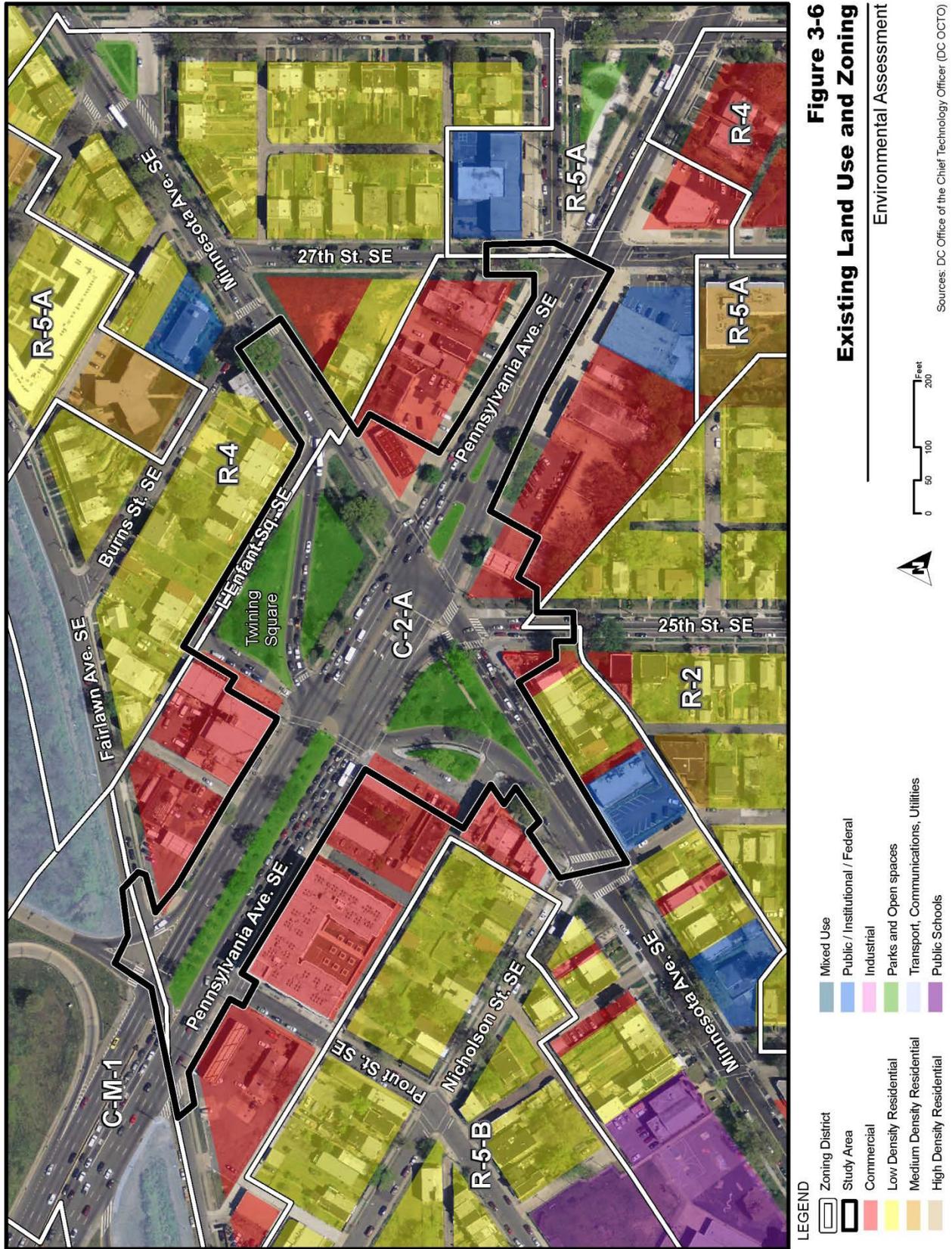
3.3.1 Land Use

Land use designations within the Study Area were determined using the *District of Columbia Generalized Land Use Layer*. Land use within the Study Area is designated as commercial, parks and open space and low- and medium- density residential. Commercial land uses line Pennsylvania Avenue, SE on both sides of the street within the Study Area and at all of the intersection corners. Low density residential land use is found on Minnesota Avenue, SE and to the north of L'Enfant Square, SE (north of Twining Square). The parks and open space land use consists of Twining Square and the center medians on Pennsylvania Avenue. Public/Institutional/Federal land uses are interspersed throughout the area. See **Figure 3-6** for land use designations within the Study Area.

Neighborhoods in the vicinity of the project Study Area include Hillcrest, Randle Heights, Anacostia, and Fort DuPont Park. Retail pockets are auto-oriented in character, and offer limited services. The corridor has several major parks (Fort Davis, Fort DuPont and Fort Stanton) and smaller pocket parks; however pedestrian access to the parks is hindered or restricted due to the heavily traveled, automobile-oriented Pennsylvania Avenue, SE.

3.3.2 Zoning

The District of Columbia Office of Zoning *District of Columbia Zoning Map*⁴² identifies the subject intersection and its immediate surroundings to the east and west along Pennsylvania Avenue and to the south on Minnesota Avenue as Zone C-2-A, which permits low density development, including office employment centers, shopping centers, medium-bulk mixed use centers, and housing. The residences just north of the square, lining L'Enfant Square, SE (street) are zoned R-4, which permits matter-of-right development of single-family residential uses (including detached, semi-detached, row dwellings, and flats), churches and public schools with minimum lot widths, etc.⁴³ Commercial, parks and open space, and low density residential are predominant in the Study Area. 2300 Pennsylvania Avenue, a block west of the intersection, is zoned as a C-2-A active Planned Unit Development (PUD). Zoning classifications are shown on Figure 3-6.



3.3.3 Demography

The Study Area is adjacent to or located within three Census tracts (CTs): 77.09, 76.01 and 76.04, shown in **Figure 3-7**. These CTs are bordered to the northwest by the Anacostia River, to the west by Fort DuPont and Pope Branch Park, and to the south by Good Hope Rd SE and Alabama Ave SE. Census data was gathered for the three CTs and for the District. Figure 3-7 also illustrates the relevant Census block groups. Employment and income information is only available at the CT level; therefore block group information is only referenced for population and race.

Table 3.1 provides the population in the Study Area by CT, including population change from 1980 to 2010 as compared to population trends in the average CT in the District. Population in the Study Area has declined in the last three decades, but much less so between 2000 and 2010 than the previous decades. The average District CT declined in population in the 1980s and 1990s, but reversed this trend between 2000 and 2010 with a 5 percent increase in population.

Based on 2010 U.S. Census Bureau data, the predominant race within the Study Area is Black or African American. **Table 3.2** shows the demography for the CTs and the District. The CTs within the Study Area have over 96% minority populations, as compared to the District which has a 65% minority population. As shown on **Table 3.3**, the block groups range from 96 to 99% minority.

Based on 2010 Demographic Profile Data, the median age of the population of the District is 33.8 years. The median age of the populations in the CTs adjacent to the Study Area is between 40 and 44 years. Percent of the population in the Study Area receiving a high school diploma has improved in the last few decades, as shown by the drop in percent of persons without a high school degree, shown in **Table 3.4**. This trend is consistent with the average District CTs.



Figure 3-7
Project Area U.S. Census Tracts / Block Groups
Environmental Assessment

Sources: DC Office of the Chief Technology Officer (DC OCTO), U.S. Census Bureau

Table 3.1
Change in Population in the Study Area (1980-2010)

	1980	1990	2000	2010	% Change ('80-'90)	% Change ('90-'00)	% Change ('00-'10)
CT 77.09	2,594	2,367	2,031	2,007	-8.8%	-14%	-1.2%
CT 76.01	5,893	5,226	4,572	4,355	-11%	-13%	-4.7%
CT 76.04	4,642	4,410	3,764	3,644	-5%	-15%	-3.2%
Avg all CTs in District	3,566	3,391	3,196	3,362	-4.9%	-5.7%	5.2%

Source: Neighborhood Info DC (U.S. Census 2010), 2012.

Table 3.2
Study Area Demography by Census Tract

Subject		CT 77.09		CT 76.01		CT 76.04		District of Columbia	
		Estimate	%	Estimate	%	Estimate	%	Estimate	%
Total Population		2,007	100	4,355	100	3,644	100	601,723	100
Not Hispanic or Latino	White	29	1.9	124	3.2	127	4.1	209,464	38.5
	Black or African American	1,884	94.5	4,075	94.4	3,387	93.6	301,053	50.7
	American Indian & Alaska Native	7	0.4	6	0.2	9	0.3	1,322	0.3
	Asian	3	0.1	21	0.5	10	0.3	20,818	3.5
	Native Hawaiian and Other Pacific Islander	0	0	0	0	1	0	216	0.1
	Other Race	8	1.3	4	0.2	4	0.4	1,451	4.1
	Two or More Races	29	1.7	64	1.6	47	1.4	12,650	2.9
Hispanic or Latino		47	2.3	61	1.4	59	1.6	54,749	9.1
Total Minority		1,978	98.6	4,231	97.2	3,517	96.5	392,259	65.2

Source: U.S. Census Bureau, 2010.

Table 3.3
Study Area Demography by Block Group

Subject	CT 77.09				CT 76.01				CT 76.04		
	BG 1		BG 2		BG 1		BG 2		BG 1		
	Estimate	%	Estimate	%	Estimate	%	Estimate	%	Estimate	%	
Total Population	1,239	100	768	100	645	100	665	100	1,058	100	
Not Hispanic or Latino	White	16	1.3	13	1.7	24	3.7	25	3.8	20	1.9
	Black or African American	1,161	93.7	723	94.1	586	90.9	630	94.7	1,004	94.9
	American Indian & Alaska Native	4	0.3	3	0.4	2	0.3%	2	0.3	3	0.3
	Asian	3	0.2	0	0	3	0.5	2	0.3	1	0.1
	Native Hawaiian and Other Pacific Islander	0	0	0	0	0	0	0	0	0	0
	Other Race	2	0	6	0.8	0	0	0	0.0	0	0
	Two or More Races	22	1.8	7	0.9	16	2.5	4	0.6	16	1.5
Hispanic or Latino	31	2.5	16	2.1	14	2.2	2	0.3	14	1.3	
Total Minority	1,223	98.7	755	98.3	621	96.3	640	96.2	1,038	98.1	

Source: U.S. Census Bureau, 2010.

Table 3.4
Persons without a High School Diploma in the Study Area (1980-2010)

	Number				As a percent of population			
	1980	1990	2000	2005-2009	1980	1990	2000	2005-2009
CT 77.09	43	38	30	25	1.7%	1.6%	1.5%	1.2%
CT 76.01	42	33	32	18	0.7%	0.6%	0.7%	0.4%
CT 76.04	31	20	17	12	0.7%	0.5%	0.5%	0.3%
Avg all CTs in District	33	27	22	15	0.9%	0.8%	0.7%	0.4%

Source: Neighborhood Info DC (U.S. Census 2010), 2012.

3.3.4 Environmental Justice

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” directs agencies to address environmental and human health conditions in minority and low-income communities so as to avoid the disproportionate placement of any adverse effects from federal policies and actions on these populations. In order to identify potential disproportionate impacts associated with the proposed action, the following steps must be taken:

1. Identify the potentially affected population within the Study Area.
2. Characterize the Study Area population with respect to minorities and low-income populations.
3. Determine potentially significant adverse impacts of the alternatives.
4. Evaluate the potential for disproportionately high and adverse impacts on minority or low-income populations in the Study Area.

EO 12898 does not define the terms “minority” or “low-income.” However, guidance provided by the CEQ describes these terms in the context of an Environmental Justice (EJ) analysis. The following definitions taken from the CEQ guidance are unique to EJ analysis and were used to identify minority and low-income populations living near the LOD:

Minority Individual. A Minority Individual is classified by the U.S. Census Bureau as belonging to one of the following groups: American Indian or Alaskan Native, Asian or Pacific Islander, Black (not of Hispanic Origin), and Hispanic. Minority Populations – According to the CEQ guidelines, should be identified where either (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

Low-income Population. Low-income populations are identified where individuals have incomes below the U.S. Department of Health and Human Services poverty guidelines. A low-income population is either a group of low-income individuals living in proximity to one another or a set of individuals who share common conditions of environmental exposure or effect.

Adapted from CEQ’s *Environmental Justice Under the National Environmental Policy Act*, the threshold for further analysis is met in either of the following cases:

- Census block groups where the minority or low-income population in the Census block group equals or exceeds 50 percent of the population in that Census block group.
- Census block groups where the percentage of the minority or low-income population is at least 10 percent higher than the minority or low-income population percentage for the District of Columbia.
- Impacts to Census block groups meeting the EJ threshold have the potential to be disproportionately borne by minority or low-income populations. The EJ analysis performed for this project focuses on these areas. No further EJ impact analysis is performed on the areas not meeting the EJ threshold.

Based on the demographics of the surrounding Census tracts (CTs) and block groups, there are minority populations within the Study Area. The minority population exceeds 50 percent of the population of the Census block groups. The Census block group and CT populations in the Study Area range from 96 to 99 percent minority. These minority populations are 10+ percent higher than the minority population of the District (approx. 65%). Specifically, the Black or African American population in the Study Area CTs and block groups is significantly higher in proportion to the total population of Black or African Americans in the District.

The percent of population with low income is not available at the Census block level, however the economic data by CT is provided in *Section 3.3.5, Economics and Development*. Families and individuals below the poverty line do not exceed 50 percent of the population total in any of the adjacent CTs. Families and individuals below the poverty line are lower than the District average for CTs 76.01 and 76.04 and is less than 10 percent higher than the District average in CT 77.09. Although no CTs were found to meet the threshold for low-income populations, this does not rule out the possibility of Census blocks meeting this threshold.

3.3.5 Economics and Development

The median household income in the District is \$61,835.⁴⁴ The median household incomes for the CTs surrounding the project Study Area are all below the median for the District. CT 77.09 has a median household income which is less than half that of the District. With regard to the poverty rate, the District has a median of 18.2 percent of individuals below the poverty line. Percentages for the CTs around the project Study Area are similar, with CT 76.01 and 76.04 slightly lower at 17.2 and 17.3 percent, respectively, and CT 77.09 slightly higher at 18.9 percent. **Table 3.5** shows the economic data for the CTs and the District.

Table 3.5
Study Area Economic Data

Subject	CT 77.09	CT 76.01	CT 76.04	District
Median Household Income (\$)	28,490	40,681	51,074	61,835
Families below the poverty line (%)	0.0 ¹	7.1	11.0	13.9
Individuals below the poverty line (%)	18.9	17.2	17.3	18.2

Notes: ¹ Unavailable. Census data also provides a margin of error for each statistic. CT 77.09 has 0.0 +- 12.7% of families below the poverty line.

Source: 2011 ACS Demographic and Housing Estimates (2007-2011) 5 Year Estimates.

DMPED has plans to facilitate development along the 2300 block of Pennsylvania Avenue, SE. This block is within the project Study Area and is located immediately west of Twining Square. The District aims to help implement the goals of the Great Streets Initiative by redeveloping this key corridor to eliminate blight, provide quality neighborhood-serving retail and potential job creation. DMPED has already acquired 2337 Pennsylvania Avenue, SE. The next steps in development will be to negotiate with private land owners on the 2300 block in order to develop the properties.⁴⁵

3.3.6 Aesthetics and Visual Quality

Visibility of a proposed action to viewers from public places determines the visual influence a project may have on its surroundings. The viewshed of a project depends on the scale of the project, its proposed location and the topography of the area. Resources that may have a greater sensitivity within any Study Area include land at higher topography.

The Study Area includes the 25th Street, SE intersection with Minnesota Avenue, the green space area designated as Twining Square, and two small cut-through/side streets designated as L'Enfant Square, SE. The Study Area is currently a mixture of residential rowhouses and 1- to 2-story commercial structures, and includes businesses such as gas stations and walk-up eateries. Roadway, traffic signals, underutilized properties and auto-oriented commercial uses currently dominate the intersection. "Twining Square" does not function as green space or as a visitor destination and is not visually appealing as it exists today. The intersection is urban in nature, and is primarily used by commuters and residents as a through-way, rather than as a destination.

There are no views toward any of the District's significant monuments or vistas from the Study Area. Line of sight is truncated in the northwest portion of the Study Area by the artificial berms constructed to carry I-295 over Pennsylvania Avenue. From this overpass, the visual boundary runs southeast towards Fairlawn Avenue, passing over the elevated CSX tracks, and crossing Fairlawn Avenue at its intersection with the western extension of the L'Enfant Square, SE roadway. Beyond this point on Fairlawn Avenue, line of sight is either interrupted or occluded by other structures fronting Pennsylvania Avenue and Fairlawn Avenue.

3.3.7 Health and Safety

The primary concerns with health and safety in the Study Area are related to vehicular and pedestrian safety due to traffic operations. Although air quality is a regional issue, it is not of concern to human health and safety at the intersection. Congested urban roads tend to be the principal cause of carbon monoxide (CO) pollution at intersections such as Pennsylvania Avenue and Minnesota Avenue. Air quality modeling for a CO-hot spot analysis in the Study Area shows that the 1-hour and 8-hour CO concentrations do not exceed either the 1-hour (35 ppm) or 8-hour (9 ppm) National Ambient Air Quality Standards (NAAQS). See *Section 3.5, Air Quality* for a full discussion of air quality in the Study Area. Additionally, there are no known hazardous wastes, contamination sites, or leaking underground storage tank sites or landfills in the Study Area impacting human health and safety.

The safety issues at the Pennsylvania and Minnesota Avenues, SE intersection are related to traffic operations. The intersection is a safety hazard for pedestrians, bicyclists and motorists. The unsafe conditions are a result of the existing intersection configuration, which lead to unsafe traffic and pedestrian movements. Traffic congestion, poor design and visibility, insufficient storage area for vehicles, frequent bus stops, and multiple intersection connections all make this intersection confusing to navigate and generate unsafe conditions for vehicles and pedestrians. Compounding the safety issues at this intersection is the fact that motorists cut through the neighborhood streets in the communities surrounding this intersection in order to bypass the traffic congestion.

Vehicular Safety

The Pennsylvania and Minnesota Avenues, SE intersection has a high volume of accidents and injuries, as discussed in *Section 1.2.1* of the Purpose and Need. A total of 123 reported crashes and 60 reported injuries occurred at this intersection during the most recent 3-year reporting period (2009 to 2011).

Along Pennsylvania Avenue, SE, crash data collected between 2009 to 2011 indicate that side swipes (31%), right-angle (20%), and rear-end collisions (18%) are the prevalent accident types at this intersection.⁴⁶ As indicated from the accident summaries, the number of accidents can largely be attributed to the congestion of the roadway in the weekday-evening hours. In addition, the rear-end accidents are also a result of stop-and-go conditions. The side-swipe accidents can be attributed to vehicles changing lanes and aggressive driving, while the right-angle accidents largely occur due to congestion and frustration resulting in motorists taking chances to clear the intersection.⁴⁷

Existing intersection geometries and signal phasing are factors contributing to crash occurrences at the intersection. Congested conditions during peak periods and excessively high vehicle speeds during off-peak periods are also contributing factors.⁴⁸ Additionally, problems at the intersection are exacerbated by the lack of an interchange movement for motorists traveling from the Anacostia Freeway (I-295) southbound to Pennsylvania Avenue, SE westbound. This causes motorists to make frequent illegal traffic movements at this intersection. In order to reach Pennsylvania Avenue, SE westbound, motorists make illegal U-turns, or make a left turn on Minnesota Avenue, SE northbound followed by a left turn onto Minnesota Avenue southbound.⁴⁹

Pedestrian Safety

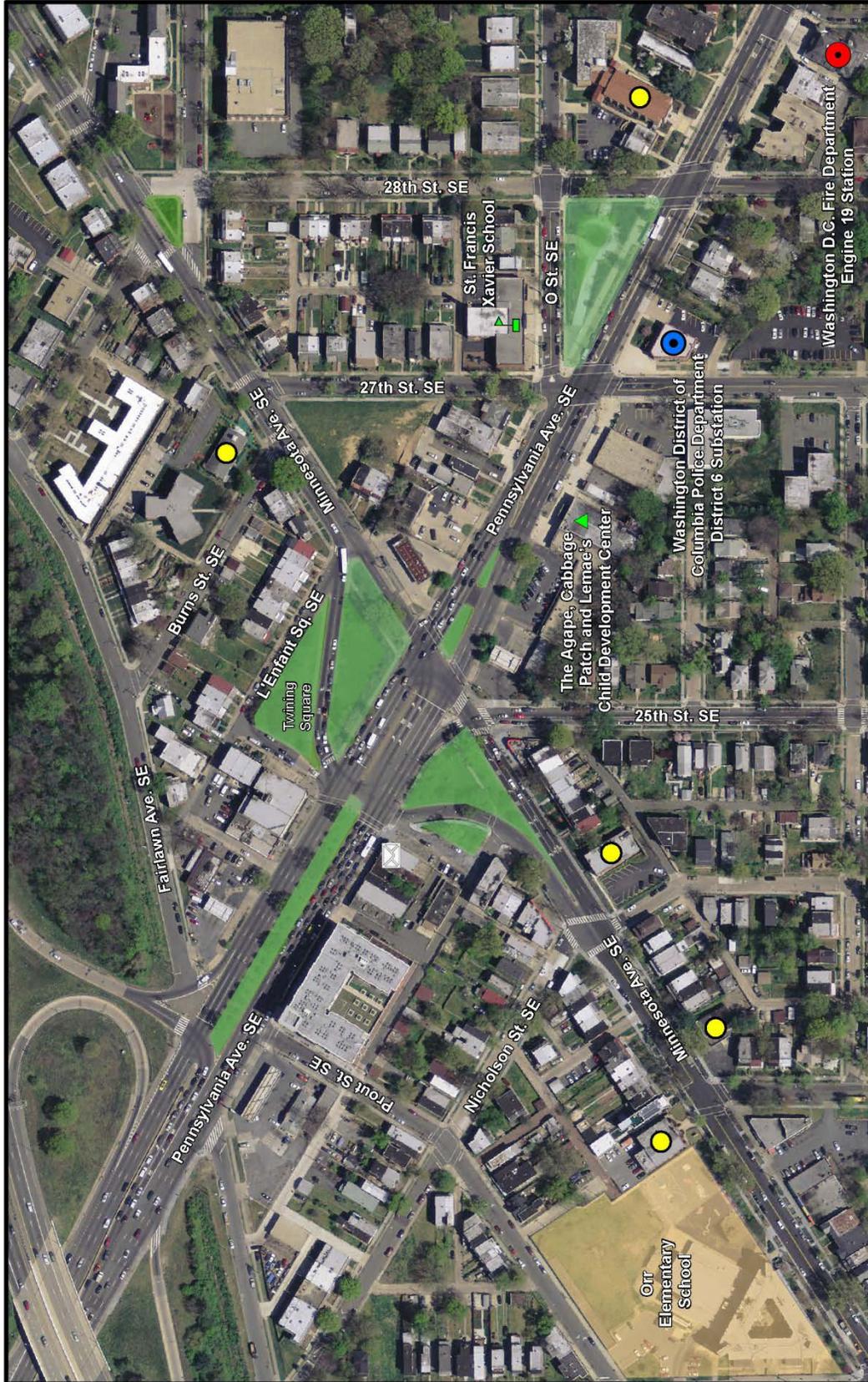
The intersection is heavily used by pedestrians commuting to and from work or using the bus stops at the intersection. Many of the existing crosswalks at the intersection are inconvenient to use due to placement and long crossing length. This discourages pedestrian use, and instead of using the signalized crosswalks provided, pedestrians crossing to and from bus stops and commercial properties choose unmarked, more direct routes across the medians and busy lanes of traffic. The intersection has a large number of pedestrian and vehicle “conflict points” under the existing configuration. Pedestrians frequently jaywalk at this intersection and cross Pennsylvania Avenue, SE without waiting for a Walk indication in order to get to bus stops across the street. A review of the police crash records indicated that five pedestrians were injured at this intersection in the past three years (2010 to 2012). However, during field observations of a one-hour AM peak period in March of 2013, three minor pedestrian/vehicle incidents were observed and dismissed without being reporting to the police.

3.3.8 Community Resources

Figure 3-8 illustrates community resources, including nearby emergency response centers, places of worship and schools.

Emergency Response

The Study Area is within the District’s Sixth Police District. The Sixth Police District substation is located at 2701 Pennsylvania Avenue, SE, one block east on Pennsylvania Avenue from the intersection with Minnesota Avenue, SE. The annual rate of reported crime in the Sixth District has remained steady

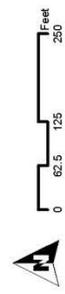


LEGEND

- Park
- Public School
- Private School
- Daycare
- Police Station
- Fire Station
- U.S. Post Office
- Place of Worship

Figure 3-8
Community Resources

Environmental Assessment



Sources: DC Office of the Chief Technology Officer (DC OCTO), U.S. Census Bureau

over the past five years, with 4,627 crimes in 2007 and 4,684 crimes in 2011. These trends are consistent with the steady crime rates throughout the District in the 2007 to 2011 timeframe.⁵⁰

Fire and rescue services for the Study Area are provided by the District Fire and Emergency Medical Services Department. The closest emergency medical station is located at 2813 Pennsylvania Avenue, SE, and houses the Engine Company 19.⁵¹

Schools

Schools closest to the Study Area include Orr Elementary School and St. Francis Xavier Catholic School. Orr Elementary School is located at 2200 Minnesota Avenue, SE, approximately 0.2 miles south of the Study Area. St. Francis Xavier is located at 2700 O Street SE, approximately two blocks from the Study Area. Additional schools within the vicinity of the Study Area include Randle Highlands Elementary School and Howard Road Academy, both located east on Pennsylvania Avenue, SE.

The Agape, Cabbage Patch and Lemae's Child Development Center daycare is located less than a block from the project intersection at 2533 Pennsylvania Avenue, SE.

Places of Worship

There are several places of worship located within the vicinity of the Study Area. The places of worship closest to the Study Area include Grace Memorial Baptist Church and Emmanuel Church of God-Christ. Grace Memorial Baptist Church is located at 2407 Minnesota Ave, S.E., less than 0.1 miles south of the intersection with Pennsylvania Ave, S.E. Emmanuel Church of God-Christ is located at 2600 Minnesota Ave, S.E., approximately 0.1 miles north of the intersection with Pennsylvania Ave, S.E. Additional places of worship within the vicinity of the Study Area include: Galilee Baptist Church, Second St. James Baptist Church and St. Francis Xavier Church.

Parks and Recreation Areas

Twining Square is located in the Study Area and is integral to the project intersection of Pennsylvania and Minnesota Avenues, SE. Twining Square is one of the Capitol Hill Parks, a collection of 59 triangles and squares owned by the NPS. "Twining Park" is the name given to the small parks owned by the NPS along Pennsylvania Avenue, SE, between Minnesota Avenue and 28th Street. As noted previously, Twining Square at this intersection is U.S. Reservation 487. U.S. Reservation 336A is also known as "Twining Square" by some and lies a few blocks east of the project intersection on Pennsylvania Avenue between 27th and 28th Streets SE. For more history of Twining Square, see *Section 1.3.2, Description of Study Area*.

The existing NPS-owned land in the Study Area does not operate as a park or recreation area and is not actively managed, with the exception of periodic mowing. NPS currently maintains the median of Pennsylvania Avenue at this intersection, as well as the park land at the intersection. The park land is fragmented by roadway, which results in the park land being used primarily as traffic islands for pedestrians crossing the streets.

Additional Resources

A U.S. Post Office is located at 2341 Pennsylvania Avenue, SE, at the southern corner of the intersection with L'Enfant Square, SE.

3.3.9 Utilities and Infrastructure

Most of the utilities at the intersection are located under the existing roadbeds of Pennsylvania and Minnesota Avenues SE, and the presence of a 72" sewer cutting northwest to southeast through the northern reservation suggests at least one major utility runs underneath the Twining Square park area as well. Archival research shows that extensive utility placement occurred around this intersection during the early 20th century. **Figure 3-9** provides an illustration of utilities in the Study Area, including electric, storm/water, gas, telephone and sewer lines.

District of Columbia Water and Sewer Authority (DC Water)

DC Water maintains and operates the water and sewer system throughout the District. Water distributed to the District is treated to meet or exceed all water quality standards at the USACE Washington Aqueduct treatment plant. The plant treats water from Great Falls on the Potomac River, which is then sold to DC Water for distribution. The DC Water system includes 1,300 miles of water pipelines where water is conveyed to the homes and businesses in the District.⁵²

The existing storm and sanitary sewer system is a combined sewer system (CSS) in one-third of the District and is a municipal separate storm sewer system (MS4) in two-thirds of the District, including the project Study Area.⁵³ An MS4 includes two independent systems: one system to convey sanitary sewage from homes and businesses and one system to convey storm water. In the Study Area, the storm water runoff enters the storm water system and discharges into the Anacostia River. Sewage enters the sanitary sewer system, is treated at the Blue Plains Wastewater Treatment Plant and the treated wastewater is then discharged into the Potomac River. The Anacostia River is under tidal influence and therefore, the DDOE does not require water quantity control. Storm and sewer lines exist throughout the project intersection and run mostly parallel to the street network. As previously indicated, there is a 72" sewer main that runs west along Pennsylvania Avenue up to the Minnesota Avenue intersection, and then cuts northwest to southeast through the northern reservation.

Washington Gas

Washington Gas provides natural gas to customers in the District, Maryland and Virginia. Underground gas utility lines are located in the Study Area. The gas lines appear to run primarily beneath roadway along the major streets in the Study Area with connections to most residences and businesses.

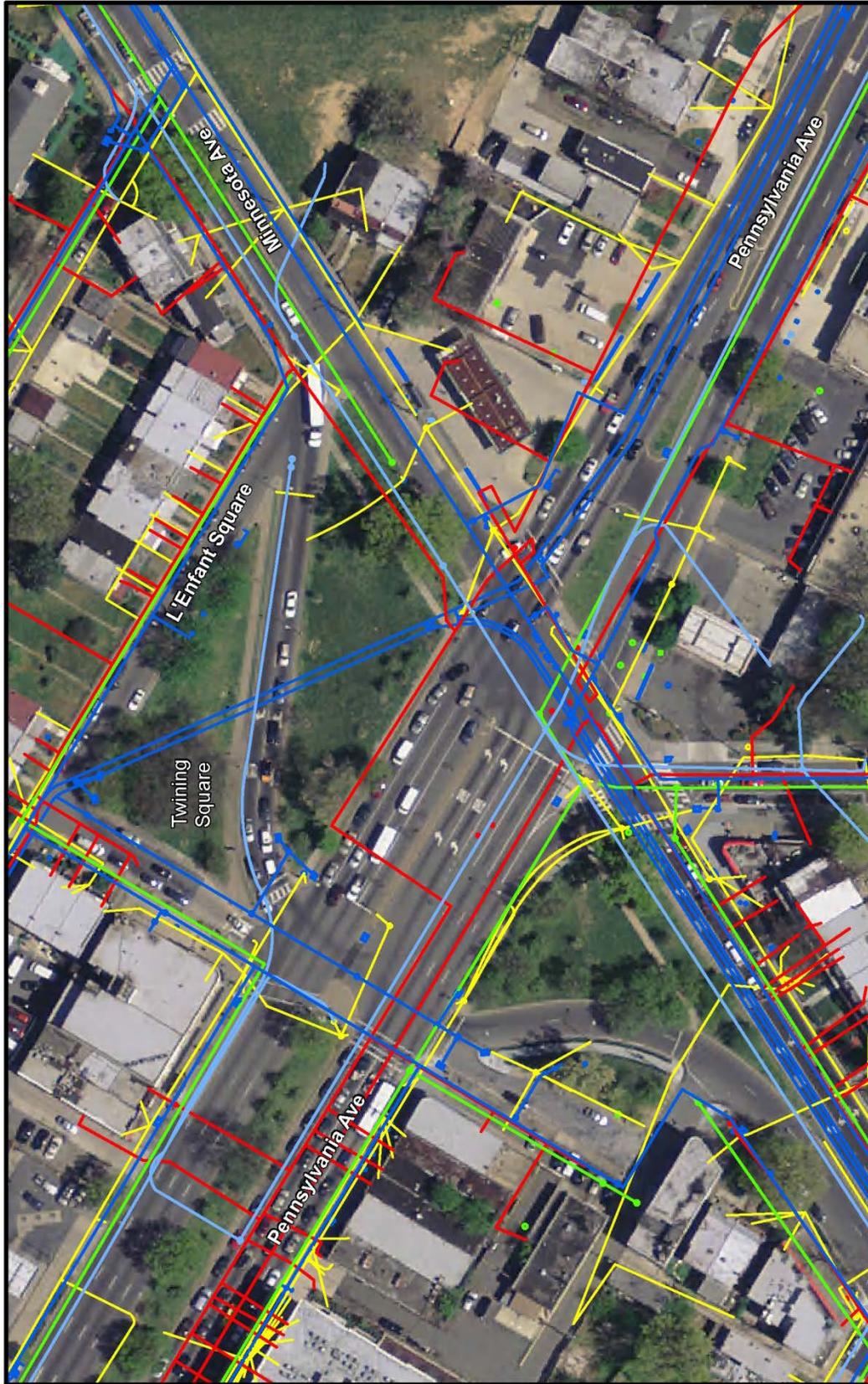
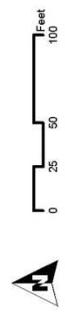


Figure 3-9
Utilities

Environmental Assessment



Sources: DC Office of the Chief Technology Officer (DC OCTO), DC Survey, 2008

WMATA

Typically, WMATA utilities are present in the right-of-way because of the Metro rail stations. Although, WMATA operates several Metrobus routes along Pennsylvania Avenue, SE, there are no Metro rail stations within the Study Area. The closest Metro station is the Potomac Avenue Metro Station, which is approximately 1.3 miles north of the Study Area at the intersection of Pennsylvania and Potomac Avenues, SE. Other nearby Metro stations are approximately two miles away (Anacostia Metro and Congress Heights on the green line and Benning Road on the blue line). ***There are no bus shelters in the study area associated with WMATA operations. WMATA bus stop poles, which are considered WMATA infrastructure, are located at each bus stop with information attached for bus users.*** During the interagency meeting on September 6, 2012, WMATA noted that the project intersection is often used as a “lay-by area” where buses pull over and wait when they are running ahead of schedule. Transit operations are discussed in *Section 3.4.3, Transit*.

PEPCO

Potomac Electric Power Company (PEPCO) provides electric service to the District, including the Study Area. Power lines and utility poles connect to each of the buildings in the Study Area and run along Pennsylvania Avenue, SE on both sides of the street. Utility poles do not run through Twining Square parkland; however, they do border much of the park area. Traffic lights are also served by electricity in the Study Area.

3.4 Transportation

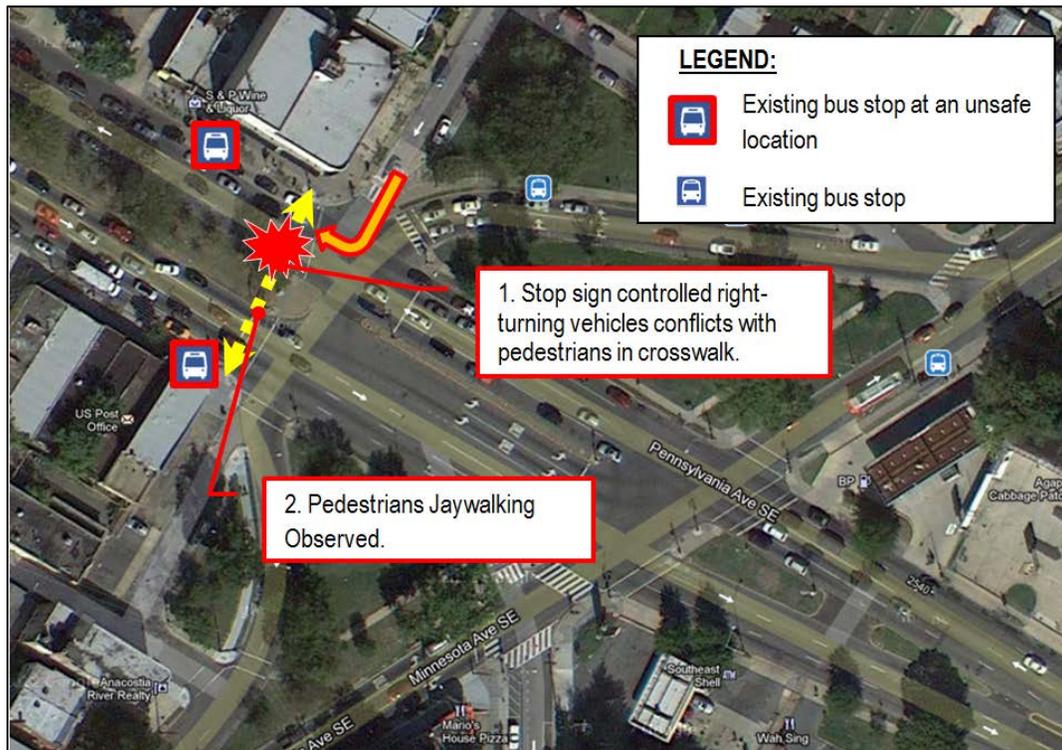
3.4.1 Pedestrian and Bicycle Network

Pedestrian Network

As shown in **Figure 3-10**, there are two heavily used bus stops on Pennsylvania Avenue, SE just west of the square. During mid-week field observations January 8th through 10th, 2013, over 150 pedestrians were observed crossing Pennsylvania Avenue, SE. The pedestrians were observed using the west side crosswalk alone to access two heavily used bus stops on Pennsylvania Avenue, SE just west of Twining Square during both the AM and PM peak hours. The numbers below correspond to Figure 3-10 to identify two of the primary dangerous behaviors associated with the pedestrians crossing at this location during field observation:

1. Although an Exclusive Pedestrian Phase is provided in the signal timing to stop all vehicles and only allow pedestrians to cross Pennsylvania Avenue, the vehicles from the unsignalized local driveway still attempt to make abrupt right turns between gaps of pedestrians; any vehicle failing to finish the turn must suddenly stop, forcing vehicles behind to stop suddenly as well. Field observations found that in a one-hour period during the morning peak hour, three minor scratches involving pedestrians were seen and dismissed without reporting to the police.
2. It was observed that some pedestrians jaywalked to cross Pennsylvania Avenue, SE without waiting for a Walk indication, in order to get to the bus stop across the street. A review of the police crash records indicated that five pedestrians were injured at this intersection in the past three years (2011 to 2013).

Figure 3-10

Existing Safety Concerns for Pedestrians

Source: Google Maps and HNTB, 2013.

Bicycle Network

For bicyclists, field observations were conducted and safety records were reviewed. The following observations were noted:

1. The majority of cyclists currently use the sidewalks and crosswalks on the south side of Pennsylvania Avenue, SE, for two main reasons:
 - a. The vehicular traffic is heavy during peak hours and bicyclists feel more comfortable riding on sidewalks rather than in the roadway⁵⁴;
 - b. Although sidewalks and crosswalks are present on both sides of Pennsylvania Avenue near Minnesota Avenue, SE, bicyclists prefer to ride on the south side because continuous sidewalk and curb-cuts on the north side at the area west of the northbound I-295 on-ramp are not available.
2. No major bicyclist safety concerns were identified in the field observation or from the accident history.

3.4.2 Roadway Network

The study intersection is located on a major commuter route, Pennsylvania Avenue, SE, in an urban environment at its crossing with the local travel route of Minnesota Avenue, SE. To assess the traffic impacts to the surrounding area, the adjacent intersections to the subject intersection were also included in the traffic analysis. For detailed methodology, data collection methods, traffic volume development, and traffic simulation model calibration techniques, refer to *Appendix F, Traffic Analysis Report*.

The streets included in the Study Area are described as follows:

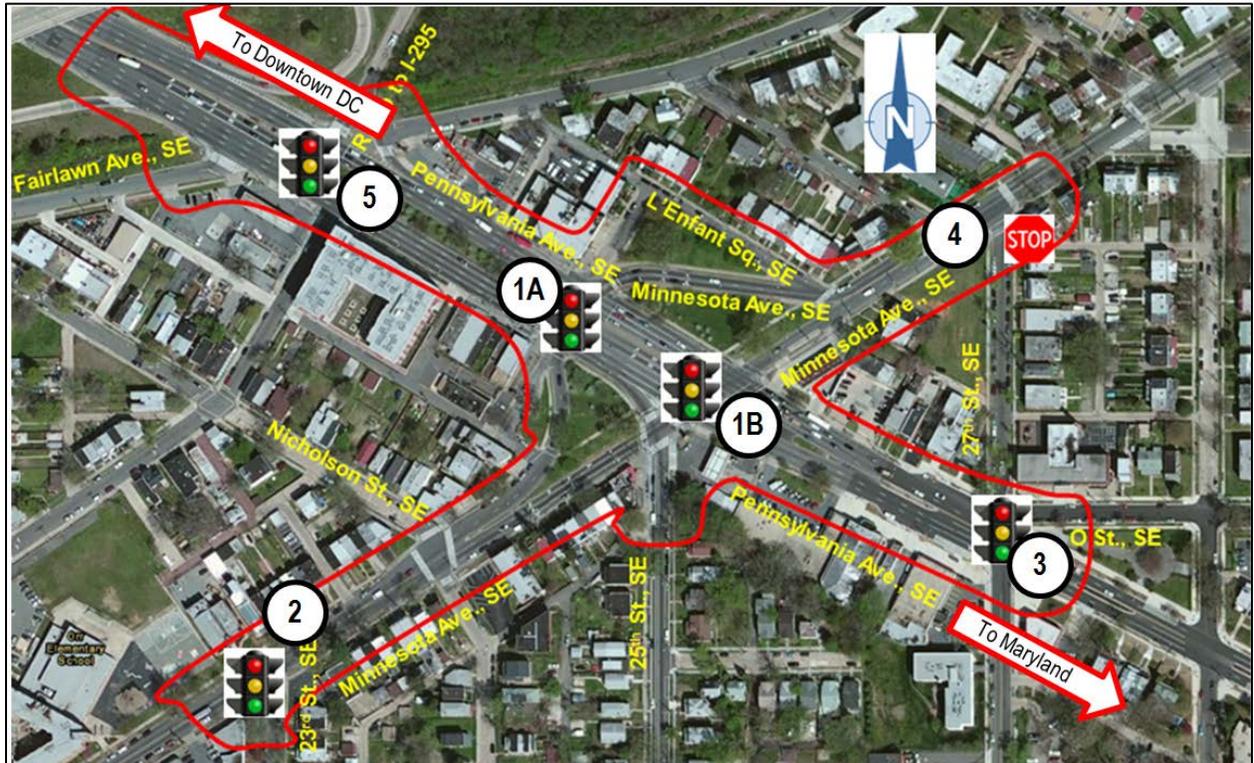
- Pennsylvania Avenue, SE is a median-separated Principle Arterial according to the DDOT Roadway Functional Classification and presently with an average annual daily traffic (AADT) of 42,500 vehicles per day. It is one of the few major gateways used by motorists to reach Downtown Washington, DC from Southeast DC east of the Anacostia River and Maryland.
- Minnesota Avenue, SE is as a Minor Arterial with AADT of 10,200 vehicles per day.
- 25th Street, SE is a Minor Arterial with AADT of 5,800 vehicles per day. It is a one-way street going southbound within the Study Area.

The intersections in the Study Area are provided in **Table 3.6** and shown in **Figure 3-11**. Note that Intersection Numbers 2 through 5 in the table are intersections adjacent to the subject intersection (1A and 1B) that would not be modified by any of the Build Alternatives; however, nearby impacts to these adjacent intersections due to each of the Build Alternatives are considered in this EA.

Table 3.6
List of Intersections in the Study Area

ID	Intersection	Traffic Control
1A	Pennsylvania Ave. and Minnesota Ave., SE West	Signalized
1B	Pennsylvania Ave. and Minnesota Ave., SE East	Signalized
2	Minnesota Ave. and 23rd St., SE	Signalized
3	Pennsylvania Ave., 27th St. and O St., SE	Signalized
4	Minnesota Ave. and 27th St., SE	Un-signalized
5	Pennsylvania Ave., I-295 N.B. On Ramp and Fairlawn Ave., SE	Signalized

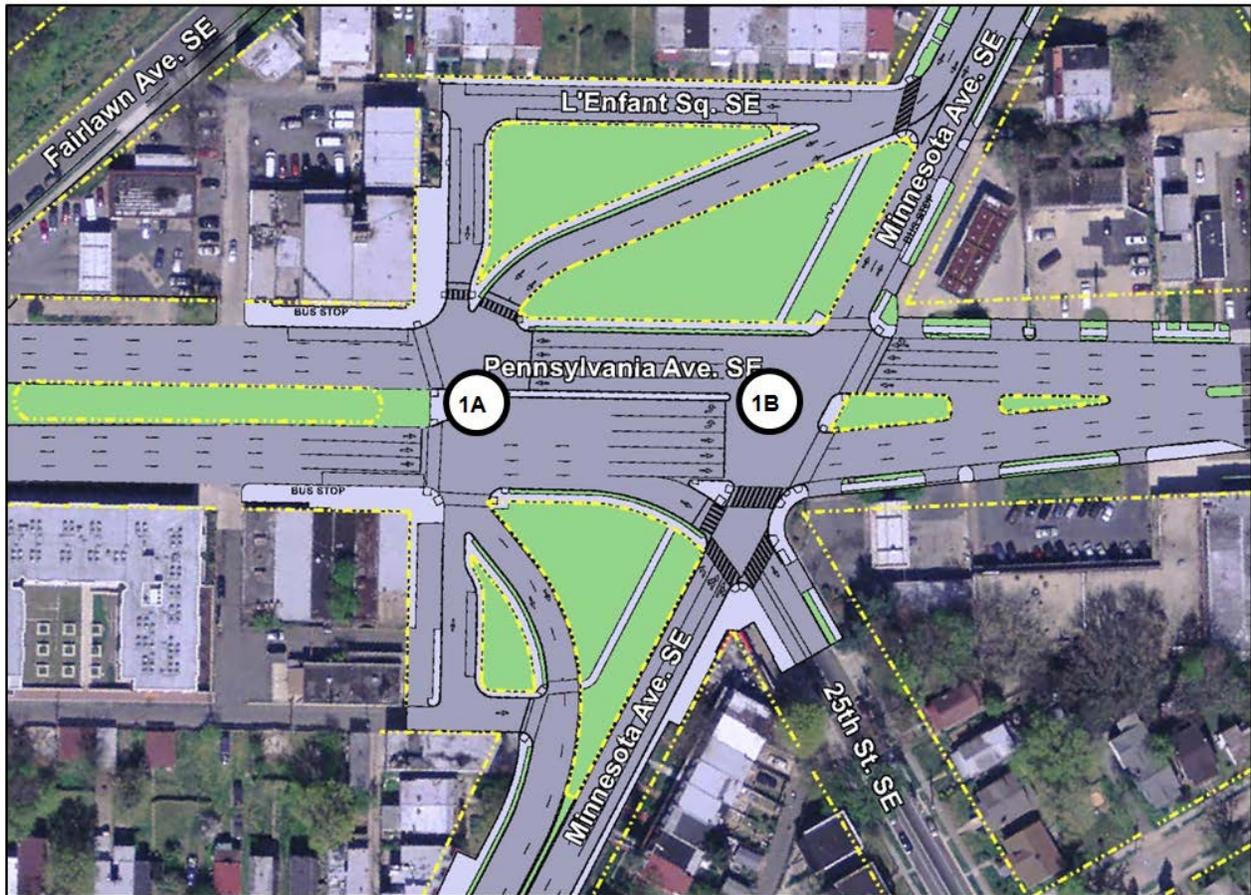
Figure 3-11
Study Area for Traffic Impact Analysis



Source: Background aerial image from ESRI.

In the existing configuration, shown in **Figure 3-12**, Pennsylvania Avenue, SE is a two-way street with a concrete median; it has three or four travel lanes in each direction with two added lanes at the left turn onto northbound Minnesota Avenue. Minnesota Avenue is a two-way undivided street south of Nicholson Street and north of L'Enfant Square, SE. Within the Study Area, the NPS-owned park area separates Minnesota Avenue, SE into two one-way streets and this forms two signalized intersections on Pennsylvania Avenue, SE (1A and 1B). L'Enfant Square, SE is a one-lane, one-way street with on-street parking on both sides, providing access to the local residences and shops; it joins the west Pennsylvania Avenue, SE and Minnesota Avenue, SE intersection (1A), however it is not controlled by any traffic signals – only right turns are allowed and they are controlled by a Stop sign.

Figure 3-12
Existing Roadway Configuration



Source: HNTB, 2014.

Existing Condition Traffic Analysis

Delays and LOS

A key metric used in assessing traffic operations is Level of Service (LOS). LOS is an estimate of the performance efficiency and quality of an intersection or roadway as established by the *Highway Capacity Manual (HCM)*⁵⁵ methodology. The HCM methodology measures the degree of delay at intersections using a letter scale from A to F, “A” being the free flow condition and “F” being the total gridlock. LOS D or better is desirable for urban corridors.

For signalized intersections, **Table 3.7** provides the LOS scales and their descriptions.

Table 3.7
Level of Service Definitions

LOS	Vehicular Delay	Description
A	< 10 sec/veh	Desirable - free flow
B	10 – 20 sec/veh	Desirable - nearly free flow
C	20 - 35 sec/veh	Desirable - stable traffic flow
D	35 – 55 sec/veh	Acceptable - unstable traffic flow
E	55 – 80 sec/veh	Congestion - operation at capacity
F	> 80 sec/veh	Gridlock - over capacity

Source: Transportation Research Board, *Highway Capacity Manual*, 2000.

The traffic delay and LOS results are presented in **Tables 3.8** and **3.9** and discussed in this section.

In the existing year, all intersections operate at an acceptable level of service during the AM peak hour, except the Pennsylvania Avenue and 27th Street intersection (Intersection ID 3) operates at LOS E, slightly below the threshold of LOS D (55.0 sec/veh). The peak travel direction, northwest Pennsylvania Avenue towards Downtown DC operates at LOS B, except at 27th Street.

Table 3.8
Traffic Delay and LOS Results – Existing AM

ID	INTERSECTION	APPROACH	EXISTING			
			APPROACH		INTERSECTION	
			DELAY	LOS	DELAY	LOS
1A	L'Enfant Sq & Pennsylvania Ave	SWB	287.5	F	39.5	D
		SWR (L'Enfant Sq.)	0.4	A		
		SEB	12.6	B		
		NWB	12.4	B		
1B	Pennsylvania Ave & Minnesota Ave	SEB	18.4	B	18.4	B
		NWB	19.5	B		
		NEB	14.1	B		
		SWB	-			
1C*	L'Enfant Sq South & Minnesota Ave NB	NET	-		-	
		SEL				
2	Minnesota Ave & 23rd St	EB	4.5	A	10.8	B
		WB	4.0	A		
		NB	29.3	C		
3	Pennsylvania Ave & 27th St	WB	101.1	F	59.4	E
		NB	108.1	F		
		SEB	14.4	B		
		NWB	57.1	E		
4	Minnesota Ave & 27th St	NB	10.4	B	0.9	A
		NEB	0.0	A		
		SWB	0.0	A		
5	Pennsylvania Ave & NB 295 Ramp	SEB	24.9	C	23.4	C
		NWB	23.0	C		

Note: * Intersection 1C only exists in the Revised Square Alternative.

Source: HNTB, 2013.

In the existing year, all intersections in the Study Area operate at a LOS D or better during the PM peak hour. The southwest bound approach at Intersection 1A experiences heavy delay and operates at an LOS F during both AM and PM conditions. The peak travel direction during the PM rush hour is southeast on Pennsylvania Avenue, and operates at LOS C or better.

Table 3.9
Traffic Delay and LOS Results – Existing PM

ID	INTERSECTION	APPROACH	EXISTING			
			APPROACH		INTERSECTION	
			DELAY	LOS	DELAY	LOS
1A	L'Enfant Sq & Pennsylvania Ave	SWB	186.2	F	35.2	D
		SWR (L'Enfant Sq.)	0.2	A		
		SEB	27.9	C		
		NWB	4.2	A		
1B	Pennsylvania Ave & Minnesota Ave	SEB	3.6	A	24.8	C
		NWB	73.0	E		
		NEB	49.3	D		
		SWB	-			
1C*	L'Enfant Sq South & Minnesota Ave NB	NET	-		-	
		SEL				
2	Minnesota Ave & 23rd St	EB	4.7	A	8.1	A
		WB	4.4	A		
		NB	29.0	C		
3	Pennsylvania Ave & 27th St	WB	57.1	E	17.3	B
		NB	51.8	D		
		SEB	10.8	B		
		NWB	19.9	B		
4	Minnesota Ave & 27th St	NB	14.7	B	1.1	A
		NEB	0.0	A		
		SWB	0.0	A		
5	Pennsylvania Ave & NB 295 Ramp	SEB	5.8	A	7.3	A
		NWB	11.9	B		

Note: * Intersection 1C only exists in the Revised Square Alternative.

Source: HNTB, 2013.

Queues

Table 3.10 provides the queuing analysis results on key movements at the intersections for the existing condition in the AM peak hour at the Pennsylvania and Minnesota Avenues, SE intersection.

Table 3.11 provides the queuing analysis results on key movements at the intersections for the existing condition in the PM peak hour. In the PM peak hour, similar queue results were found.

Table 3.10
Queuing Analysis Results (in Feet) – Existing AM

ID	Intersection	Direction	Existing
1A	L'Enfant Sq & Pennsylvania Ave	SWT	~333
		SET	165
		NWT	619
1B	Pennsylvania Ave & Minnesota Ave	SEL	136
		SET	5
		NWL	-
		NWT	338
		NEL	~102
		NET	0
		SWL	-
		SWT	-

Note: ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

Source: HNTB, 2013.

Table 3.11
Queuing Analysis Results (in Feet) – Existing PM

ID	Intersection	Direction	Existing
1A	L'Enfant Sq & Pennsylvania Ave	SWT	~314
		SET	775
		NWT	79
1B	Pennsylvania Ave & Minnesota Ave	SEL	179
		SET	12
		NWL	-
		NWT	250
		NEL	172
		NET	170
		SWL	-
		SWT	-

Note: ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

Source: HNTB, 2013.

Travel Times

Travel time, the amount of time it takes for a motorist to travel from point A to point B, is a direct reflection of motorist experience. Existing travel times are shown in **Tables 3.12** and **3.13**.

Table 3.12
Existing Travel Times (in Minutes) – AM

From	To	Movement	Existing
Penn Ave/295NB Ramp	Minn Ave/27th St	EBL	2.6
Penn Ave/295NB Ramp	Penn Ave/27th St	EBT	1.8
Penn Ave/295NB Ramp	Minn Ave/23rd St	EBR	2.3
Penn Ave/295NB Ramp	Minn Ave/25th St	EBR	1.8
Penn Ave/27th St	Penn Ave/295NB Ramp	WBT	1.3
Penn Ave/27th St	Minn Ave/23rd St	WBR	1.0
Minn Ave/23rd St	Penn Ave/295NB Ramp	NBL	6.1
Minn Ave/23rd St	Minn Ave/27th St	NBT	3.8
Minn Ave/23rd St	Penn Ave/27th St	NBR	4.3
Minn Ave/23rd St	Minn Ave/25th St	NBR	3.7
Minn Ave/27th St	Minn Ave/25th St	SBL	4.4
Minn Ave/27th St	Minn Ave/23rd St	SBT	4.5
Minn Ave/27th St	Penn Ave/295NB Ramp	SBR	4.9

Source: HNTB, 2013.

Table 3.13
Existing Travel Times (in Minutes) – PM

From	To	Movement	Existing
Penn Ave/295NB Ramp	Minn Ave/27th St	EBL	3.4
Penn Ave/295NB Ramp	Penn Ave/27th St	EBT	3.4
Penn Ave/295NB Ramp	Minn Ave/23rd St	EBR	4.2
Penn Ave/295NB Ramp	Minn Ave/25th St	EBR	4.1
Penn Ave/27th St	Penn Ave/295NB Ramp	WBT	2.2
Penn Ave/27th St	Minn Ave/23rd St	WBR	1.8
Minn Ave/23rd St	Penn Ave/295NB Ramp	NBL	2.3
Minn Ave/23rd St	Minn Ave/27th St	NBT	2.4
Minn Ave/23rd St	Penn Ave/27th St	NBR	3.2
Minn Ave/23rd St	Minn Ave/25th St	NBR	2.4
Minn Ave/27th St	Minn Ave/25th St	SBL	3.0
Minn Ave/27th St	Minn Ave/23rd St	SBT	3.0
Minn Ave/27th St	Penn Ave/295NB Ramp	SBR	1.8

Source: HNTB, 2013.

3.4.3 Transit

Currently there are twelve bus routes (32, 34, 36, 39, A11, B2, J13, K11, M6, V7, V8 and V9) using Pennsylvania Avenue, five routes (B2, U2, V7, V8 and V9) on Minnesota Avenue and two (32 and 34) on 25th Street in the Study Area, as shown in **Figure 3-13**. While not shown on Figure 3-13, bus route 39 is an express bus route that runs along Pennsylvania Avenue. The nearest Metro station is the Potomac Avenue Station which is located one mile to the west of the Study Area.

Figure 3-13

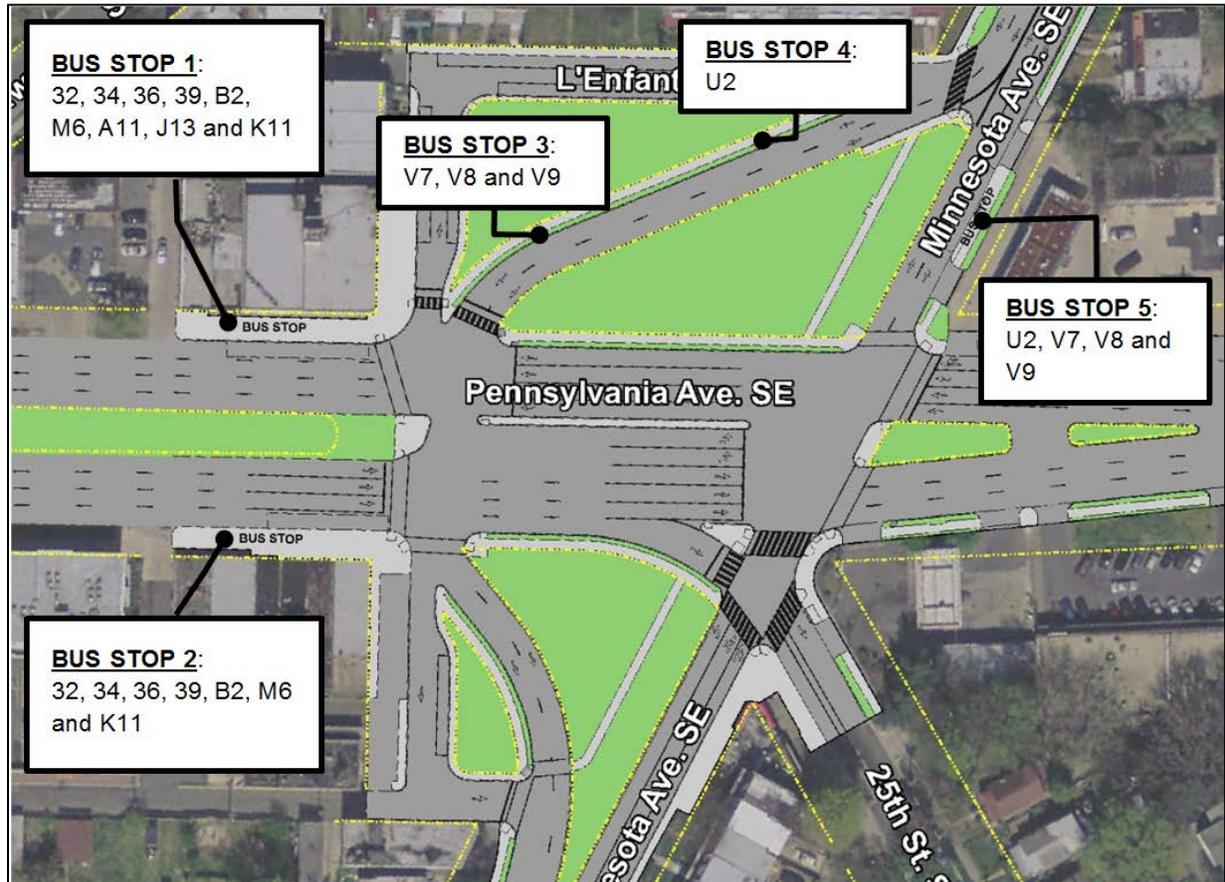
Bus Routes within the Study Area and the Vicinity



Source: Washington Metropolitan Area Transit Authority website www.wmata.com, 2013.

Figure 3-14 shows the five existing bus stops within the Study Area. Bus Stops 1 and 2 are located on Pennsylvania Avenue, SE west of L'Enfant Square, SE; Bus Stops 3 and 4 are on southbound Minnesota Avenue, SE between the two NPS-owned park spaces north of Pennsylvania Avenue, SE; and Bus Stop 5 is on northbound Minnesota Avenue, SE north of Pennsylvania Avenue, SE. *The existing bus shelters in District right-of-way belong to Clear Channel, under a franchise agreement. WMATA bus stop poles are located at each bus stop with information attached for bus users.*

Figure 3-14

Bus Stops in the Existing Condition

Source: HNTB, 2014.

3.5 Air Quality

3.5.1 Criteria Pollutants

The Federal Clean Air Act of 1970 established the National Ambient Air Quality Standards (NAAQS) (Table 3.14). These standards were established by the United States Environmental Protection Agency (EPA) to protect public health, safety, and welfare from known or anticipated effects of sulfur dioxide (SO₂), particulate matter (PM₁₀, 10-micron in diameter and smaller along with PM_{2.5}, 2.5 micron in diameter and smaller), carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), and lead (Pb). EPA refers to these pollutants as the “criteria” pollutants.

Table 3.14
National Ambient Air Quality Standards (NAAQS)

Pollutant	Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	Primary	8 – Hour	9 ppm	Not to be exceeded more than once per year
		1 – Hour	35 ppm	
Lead (Pb)	Primary and secondary	Rolling 3-Month Average	0.15 µg/m ³ (1)	Not to be exceeded
Nitrogen Dioxide (NO ₂)	Primary	1 – Hour	100 ppb ⁵⁾	98th percentile, averaged over 3 years
	Primary and secondary	Annual Mean	53 ppb ⁽²⁾	Annual Mean
Ozone (O ₃)	Primary and secondary	8 – Hour	0.075 ppm ⁽³⁾	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particulate Matter (PM _{2.5})	Primary	Annual	12 µg/m ³	annual mean, averaged over 3 years
	Secondary	Annual	15 µg/m ³	annual mean, averaged over 3 years
	Primary and secondary	24-hour	35 µg/m ³	98th percentile, averaged over 3 years
Particulate Matter (PM ₁₀)	Primary and secondary	24-hour	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxides (SO ₂)	Primary	1-hour	75 ppb ⁽⁴⁾	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

(1) Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

(2) The official level of the annual NO₂ standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.

(3) Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, EPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard (“anti-backsliding”). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.

(4) Final rule signed June 2, 2010. The 1971 annual and 24-hour SO₂ standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

Source: <http://www.epa.gov/air/criteria.html>, accessed May 29, 2013.

The primary pollutants from motor vehicles are unburned hydrocarbons, NO_x, CO, and particulates. Hydrocarbons (HC) and nitrogen oxides (NO_x) can combine in a complex series of reactions catalyzed by sunlight to produce photochemical oxidants such as ozone and NO₂. Because these reactions take place over a period of several hours, maximum concentrations of photochemical oxidants are often found far downwind of the precursor sources. Ozone and NO₂ are regional problems.

Carbon monoxide is a colorless and odorless gas which is the product of incomplete combustion, and is the major pollutant from gasoline fueled motor vehicles. CO is a localized air quality issue.

Particulate matter includes both airborne solid particles and liquid droplets. These liquid particles come in a wide range of sizes. PM₁₀ particulates are coarse particles, such as windblown dust from fields and unpaved roads. PM_{2.5} particulates are fine particles generally emitted from activities such as industrial and residential combustion and from vehicle exhaust. Particulates from transportation can be a localized issue when a project is determined to be a project of air quality concern for either PM₁₀ or PM_{2.5} emissions.

An exceedance of the NAAQS pollutant level does not necessarily constitute a violation of the standard. Some of the criteria pollutants (including CO) are allowed one exceedance of the maximum level per year, while for other pollutants criteria levels cannot be exceeded. Violation criteria for other pollutants are based on past recorded exceedances. Table 3.14 lists the allowable exceedances for the EPA criteria pollutants.

3.5.2 Attainment Designations

The Clean Air Act Amendments (CAAA) of 1977 and 1990 required all states to submit to the EPA a list identifying those air quality regions, or portions thereof, which meet or exceed the NAAQS or cannot be classified because of insufficient data. Portions of air quality control regions which are shown by monitored data or air quality modeling to exceed the NAAQS for any criteria pollutant are designated “nonattainment” areas for that pollutant. The CAAA also established time schedules for the states to attain the NAAQS.

States that have nonattainment areas are required to prepare State Implementation Plans (SIP) that lay out a plan to show how the state will improve the air quality to attain the NAAQS. Both new and improvement highway projects must be contained in the area’s Long-Range Plan (LRP) and Transportation Improvement Program (TIP). The Metropolitan Washington Council of Governments (MWCOG) along with the District of Columbia and the states of Maryland and Virginia are responsible for preparing the LRP and TIPs. Once the Metropolitan Planning Organizations (MPO) has completed the LRP and TIP, they are submitted to the FHWA for review and approval according to the requirements of the CAAA and related implementation regulations.

The Study Area is located within the National Capital Interstate Air Quality Control Region (AQCR #47). This AQCR includes the District of Columbia, Maryland, and Virginia Intrastate Air Quality Control Region. The District of Columbia is currently in attainment status for 4 of the 7 criteria pollutants (Pb, NO₂, PM₁₀ and SO₂); re-classified from nonattainment to maintenance for CO; and has been classified as being in nonattainment for the 1997 and 2008 8-hour ozone, and the 1997 PM_{2.5} standards.

3.5.3 Existing Conditions

The results of the CO microscale air quality modeling for existing conditions were analyzed as part of the air quality analysis conducted for the EA. The maximum 1-hour CO concentrations in the existing condition (2012) are 4.8 ppm, and the maximum 8-hour CO concentrations are 3.8 ppm. The 1-hour concentrations include a background concentration of 2.9 ppm and the 8-hour concentrations include a background concentration of 2.5 ppm. These concentrations do not exceed either the 1-hour (35 ppm) or 8-hour (9 ppm) NAAQS.

Refer to *Appendix G, Air Quality Report* for detailed air quality analysis and results.

3.6 Noise

3.6.1 Noise Model and Analysis

The FHWA's Procedures for Abatement of Highway Traffic Noise and Construction Noise is presented in the Code of Federal Regulations, Title 23 Part 772 (23 CFR 772). This regulation, plus other guidance documents written to explain the regulation, sets forth the process for performing a traffic noise analysis. The process includes the following:

- Identify existing and proposed land uses in the Study Area;
- Determine existing noise levels either:
 - through modeling, or
 - noise measurements with concurrent classification counts of vehicles passing the noise monitoring site;
- Validate predicted noise levels through comparison between measured and predicted levels;
- Model future design year traffic noise levels which will yield the worst hourly traffic noise on a regular basis (PM peak hour noise levels);
- Identify locations that would be exposed to a noise impact based upon the Noise Abatement Criteria (NAC) as presented in **Table 3.15**;
- Model noise abatement measures to mitigate the predicted design year traffic noise impacts; and
- Modeling must be performed with FHWA's most recent version of the Traffic Noise Model® (TNM).

DDOT's Noise Policy is the District's tool for implementing 23 CFR 772. The NAC, which is presented in 23 CFR 772, establishes the noise abatement criteria for various land uses. The noise level descriptor used is the equivalent sound level, L_{eq} , defined as the steady state sound level which, in a stated time period (usually one hour), contains the same sound energy as the actual time-varying sound.

Table 3.15
Noise Abatement Criteria (NAC) – Hourly A-Weighted Sound Level-Decibels (dBA)

Activity Category	Activity Criteria $L_{eq}(h)$	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	Exterior	Residential
C	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, daycare centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	N/A	N/A	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	N/A	N/A	Undeveloped lands that are not permitted.

Source: “District of Columbia Department of Transportation Noise Policy,” District Department of Transportation, July 11, 2011.

Noise abatement measures are considered when the predicted noise levels approach or exceed those values shown for the appropriate activity category in Table 3.15, or when the predicted traffic noise levels substantially exceed the existing noise levels. DDOT has defined the approach value as being 1 dBA less than the noise levels shown in Table 3.11. DDOT has defined an increase over existing noise levels of 10 decibels or more as being substantial.

TNM[®] is FHWA’s “computer program for highway traffic noise prediction and analysis.”⁵⁶ The following parameters are used in this model to calculate an hourly $L_{eq}(h)$ at a specific receiver location:

- Distance between roadway and receiver;
- Relative elevations of roadway and receiver;
- Hourly traffic volume in light-duty (two axles, four tires), medium-duty (two axles, six tires), and heavy-duty (three or more axles) vehicles;
- Vehicle speed;
- Ground absorption; and
- Topographic features, including retaining walls and berms.

The Pennsylvania Avenue/Minnesota Avenue Study Area consists of medium-density residential, retail, and recreational areas. The criteria stated in Table 3.15 will help to determine whether or not the Proposed Action will impact uses throughout the corridor.

3.6.2 Noise Measurements

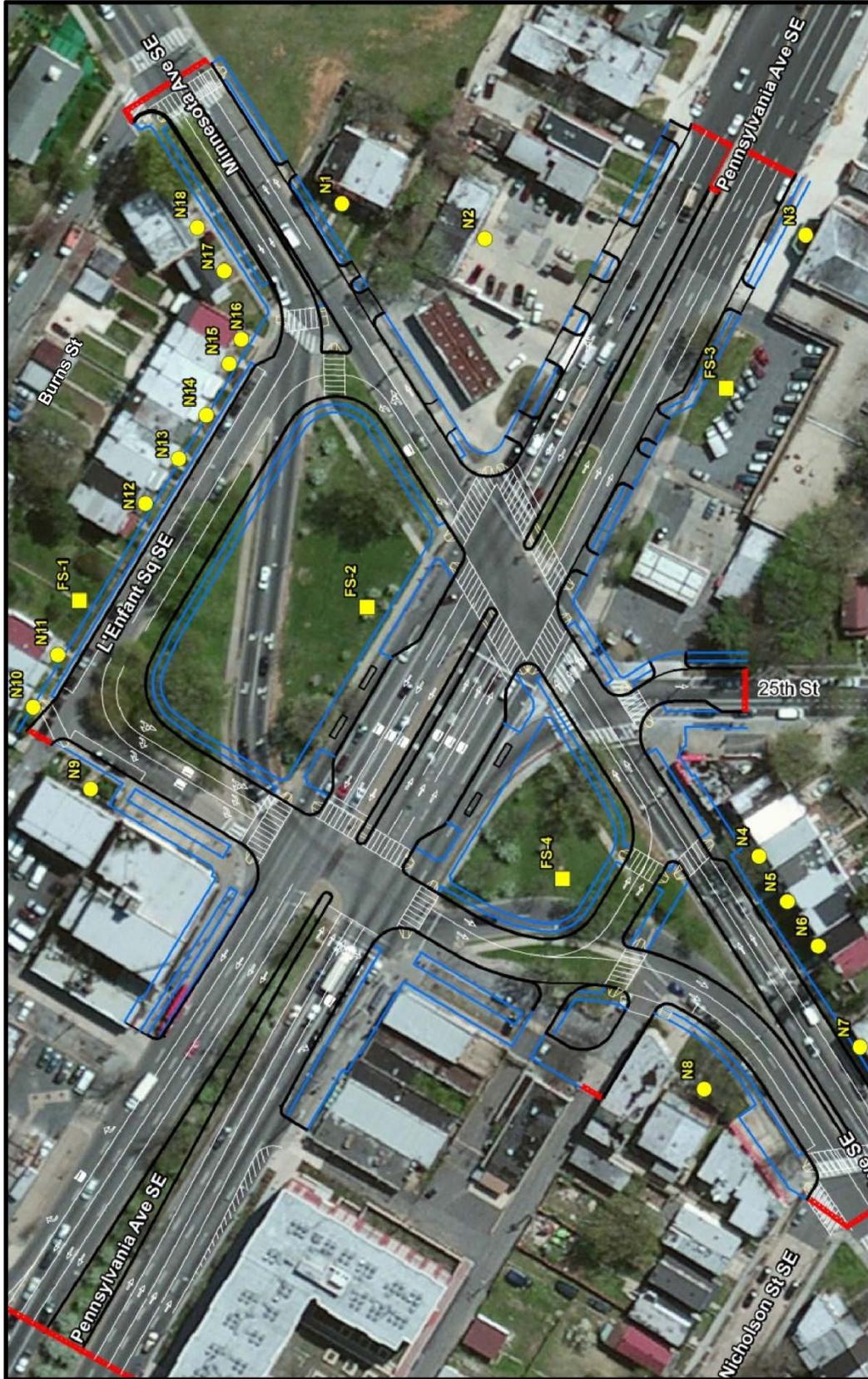
Existing noise level measurements were conducted on March 21, 2013 at four representative sites in the Study Area. A 20-minute measurement was taken at each site. The measurements were made in accordance with FHWA and DDOT guidelines using an integrating sound level analyzer meeting ANSI and IEC Type 1 specifications. Traffic counts were taken at each site, concurrent with the noise measurements. Traffic data were obtained at all the field sites. **Table 3.16** contains observed traffic data, a site description, date, start time and duration of the noise measurements. The measurement locations were selected adjacent to the proposed alignments. The noise measurement sites and modeled noise receiver locations are shown on **Figure 3-15** and **Figure 3-16**. The field data sheets are presented in *Appendix H, Noise Technical Report*.

**Table 3.16
Measured Existing Noise Levels**

Field Site #	Site Description	Date	Start Time	Duration (minutes)	Traffic ⁽¹⁾					Noise Level, dBA L _{eq} (h)	
					Roadway	A ^a	MT ^b	HT ^c	Buses ^d		Speed (mph)
FS-1	Vacant lot on north side of L'Enfant Square SE between 2404 and 2420 L'Enfant Square SE.	3/21/2013	8:00 AM	20	L'Enfant Square WB	84	0	0	0	5 to 15	61.5
FS-2	Twining Square, 27 ft. north to L'Enfant Square, 29 ft. south to WB Pennsylvania Avenue, 109 ft. west to 54 ft. to SB Minnesota Avenue.	3/21/2013	8:30 AM	20	Pennsylvania Avenue (EB and WB); Minnesota Avenue (SB)	1,330	17	25	23	15 to 40	73.1
FS-3	Terrace next to sidewalk, 30 ft. to EB Pennsylvania Avenue, 76 ft. to north corner of 2529 Pennsylvania Avenue.	3/21/2013	9:00 AM	20	Pennsylvania Avenue (EB and WB)	931	21	14	6	25 to 35	71.1
FS-4	NPS reservation area. Surrounded by L'Enfant Square SE and SB Minnesota Avenue, south of Pennsylvania Avenue, 16 ft. east of L'Enfant Square SE, 38 ft. west of SB Minnesota Avenue.	3/21/2013	9:30 AM	20	Pennsylvania Avenue (EB); Minnesota Avenue (NB and SB); L'Enfant Square SB	629	18	22	17	20 to 35	69.7

Note: (1) Vehicle counts classified as follows:
a. Autos (A) defined as vehicles with 2-axes and 4-tires.
b. Medium trucks (MT) defined as vehicles with 2-axes and 6-tires.
c. Heavy trucks (HT) defined as vehicles with 3 or more axes.
d. Buses defined as vehicles carrying more than 9 passengers.

Source: HNTB Corporation, March 2013.



LEGEND

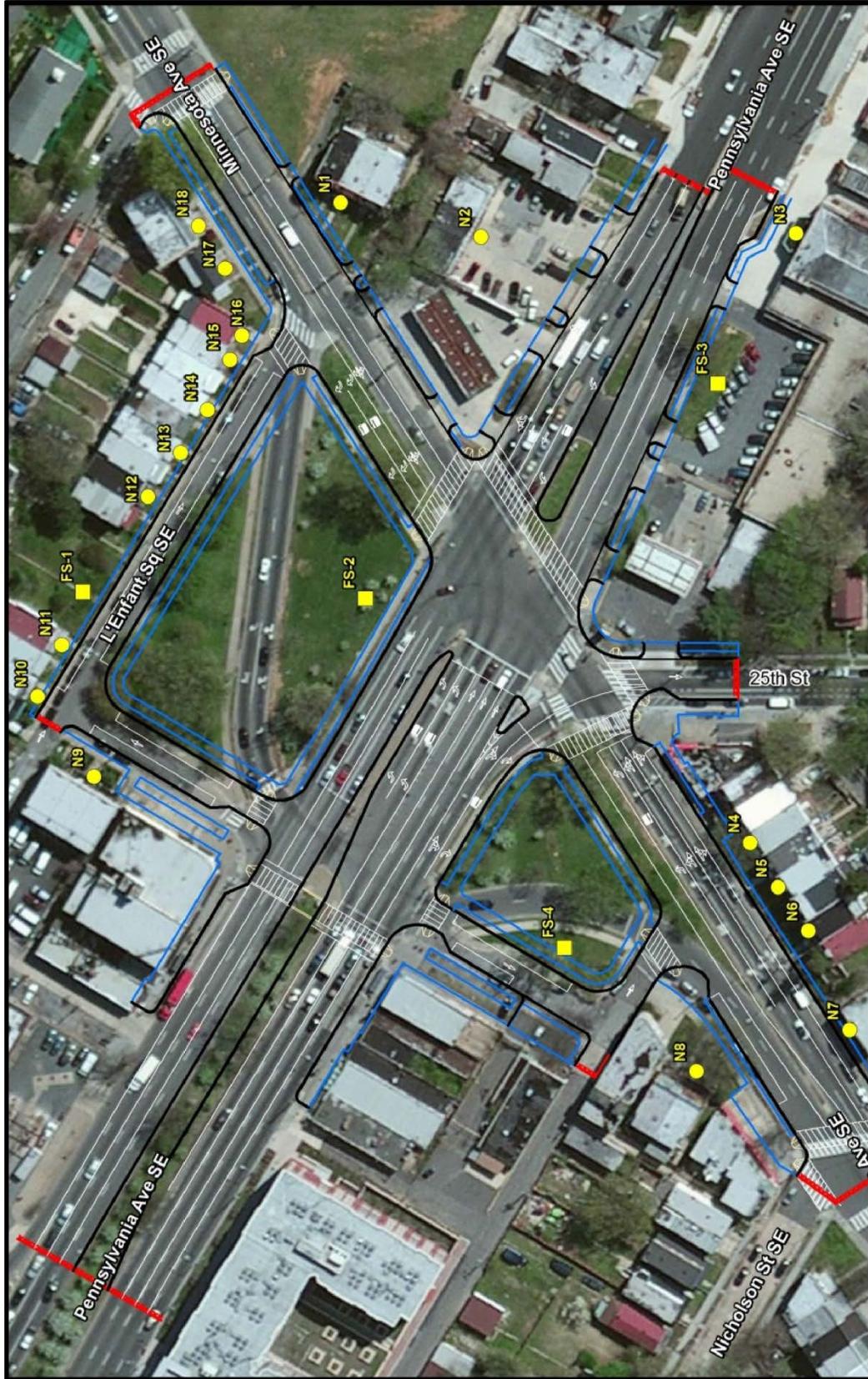
- Field Measurement Site
- Noise Modeling Site

Figure 3-15
Noise Receiver Map - Revised Square Alternative

Environmental Assessment



Source: HNTB Corporation, 2013



LEGEND

- Field Measurement Site
- Noise Modeling Site

Figure 3-16
Noise Receiver Map - Conventional Intersection Alternative

Environmental Assessment



Source: HNTB Corporation, 2013

Measured vs. Modeled

TNM[®] 2.5 was used to validate the predicted noise levels through comparison with the measured and predicted noise levels. Traffic was counted and classified concurrently with each noise measurement by vehicle type: cars, medium trucks, heavy trucks, and buses. Traffic counts, concurrent with the noise measurements, were taken at four measurement sites. The traffic data from the four sites were used in the model. The site by site comparison is presented in **Table 3.17**. All four field site modeled data compared within 0-3 dB of the measured noise levels. This represents reasonable correlation since the human ear can barely distinguish a 3 dBA change in the $L_{eq}(h)$ noise level in the urban environment.

Table 3.17
Comparison of Measured and Modeled Noise Levels

Field Site	Noise Level, dBA $L_{eq}(h)$		Difference in Noise Level, dBA $L_{eq}(h)$ (Modeled Minus Measured)
	Measured	Modeled	
FS-1	61.5	63.8	2.3
FS-2	73.1	72.2	-0.9
FS-3	71.1	68.1	-3.0
FS-4	69.7	69.0	-0.7

Source: HNTB Corporation, March 2013.

Modeled Existing PM Peak Hour Noise Levels

Existing (2012) PM peak hour noise levels at the 16 residential locations, which represents 35 dwelling units, would range from 63.8 to 69.0 dBA $L_{eq}(h)$. The noise levels at the category C locations would range from 67.4 to 71.1 dBA $L_{eq}(h)$. The interior noise level at the category D location, N7, would be 41.1 dBA. As shown in Table 4.12, the noise levels at 25 of the 35 dwelling units are presently approaching or exceeding 67 dBA, as are the noise levels in the park and at the daycare.

4.0 ENVIRONMENTAL CONSEQUENCES

According to CEQ guidelines (40 CFR Sections 1500-1508), “the determination of a significant impact is a function of both context and intensity.” Significance of an action is analyzed within the setting of the action, or context, including regional, local, and site-specific. Intensity refers to the severity of an impact which is analyzed in terms of type, quality, and sensitivity of a particular resource. The appropriate class of environmental documentation is determined by the level of significance, which is established through impact analysis of each resource. As stated in 40 CFR 1508.27, the analysis of significance as used in NEPA requires consideration of both the context and intensity of an action:

(a) Context: This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant.

(b) Intensity: This refers to the severity of impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluating intensity:

- Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.
- The degree to which the proposed action affects public health or safety.
- Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.
- The degree to which the effects on the quality of the human environment are likely to be highly controversial.
- The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.
- The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.
- Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.
- The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.
- The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.
- Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.
- Intensity durations are provided throughout the analysis for negligible, minor, moderate, and major impacts. Beneficial impacts are addressed qualitatively.
- Long-term and short-term durations are defined for each impact category.

Impact thresholds are established for each environmental category to assist in classifying the level of impact as it relates to each resource. The thresholds for this EA were developed with attention to the guidance on developing impact thresholds in NPS' *Technical Assistance Manual: Compliance with the National Environmental Policy Act and 106 of the National Historic Preservation Act* (2009). These thresholds are developed using: existing literature, existing standards (e.g. state water quality standards), consultation with subject matter experts, consultation with other agencies, and scientists' best professional judgment.

4.1 Natural Resources

4.1.1 Soils

The DDOE reviews and approves all construction and grading plans for compliance with the DC Erosion and Sedimentation Control Act of 1977, as amended (D.C. Law 2-23, 24 DCR 792 (July 22, 1977)). Inspections are conducted to make sure that control devices are constructed at construction sites in accordance with approved plans. The District program also investigates erosion, drainage, and related complaints and works to resolve any issues.

Impacts to soils are assessed for each alternative based on investigations of the current conditions of the Study Area.

Impact Thresholds

Negligible: The effects to soils would be at or below the lower levels of detection. Any effects to soils would be slight.

Minor: The effects to soils would be detectable and areas of affected soil would be relatively small. Mitigation may be needed to offset adverse effects and would be relatively simple to implement and likely be successful.

Moderate: The effect on soil would be readily apparent and result in a change to the soil character over a relatively wide area. Mitigation measures would be necessary to offset adverse effects and likely be successful.

Major: The effect on soil would be readily apparent and substantially change the character of the soils over a large area. Mitigation measures to offset adverse effects would be needed, extensive, and their success could not be guaranteed.

Duration: **Short-term** – Recovers in less than three years; **Long-term** – Takes more than three years to recover.

No Build Alternative

The No Build Alternative would not include construction or disturbance to the Study Area. Therefore, there would be no short or long-term impacts to soils at the site.

Build Alternative 1 – Revised Square Alternative

Under Build Alternative 1, there would be a net increase of approximately 0.09 acres of parkland compared to the No Build Alternative. The net increase in parkland would positively impact soils and geology in the Study Area as there would be an increase in usable soils. The majority of land within the Study Area has been previously graded and paved over from the construction and maintenance of the existing roadway at the intersection, and is expected to represent completely or partially disturbed soil sequences. The soil would support grass and other landscaping materials with the Build Alternative 1 as the area does today.⁵⁷ Minimal grading and filling would be required as the area is generally flat and has limited elevation change. Adequate construction techniques would be adhered to so as to not increase the potential for soil erosion and loss of topsoil during construction. Therefore, Build Alternative 1 would have negligible long-term impacts to soils and would only present minor short-term adverse impacts resulting from soil erosion during construction. Based on the analysis summarized above, the impacts to soil do not meet the CEQ criteria for either context or intensity; therefore these impacts do not rise to a level of “significance” as defined by CEQ.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

Under Build Alternative 2, there would be a net decrease of approximately 0.02 acres of parkland. The majority of land within the Study Area has been previously graded and paved over from the construction and maintenance of the existing roadway at the intersection. Build Alternative 2 would result in similar impacts as described for Build Alternative 1. Therefore, Build Alternative 2 would have negligible long-term impacts to soils and may only present minor short-term adverse impacts resulting from soil erosion during construction. The impacts to soil do not meet the CEQ criteria for either context or intensity; therefore these impacts do not rise to a level of “significance” as defined by CEQ.

4.1.2 Water Resources

Impact Thresholds

Negligible: Impacts are chemical, physical, or biological effects that would not be detectable, well below water quality standards or criteria, and within historical or desired water quality conditions.

Minor: Impacts (chemical, physical, or biological effects) would be detectable but well below water quality standards or criteria and within historical or desired water quality conditions.

Moderate: Impacts (chemical, physical, or biological effects) would be detectable but at or below water quality standards or criteria; however, historical baseline or desired water quality conditions would be temporally altered.

Major: Impacts (chemical, physical, or biological effects) would be detectable and frequently altered from the historical baseline or desired water quality conditions; chemical, physical, or biological water quality standards or criteria would temporarily be slightly and singularly exceeded.

Duration: **Short-term** – Following treatment, recovery would take less than 1 year; **Long-term** – Following treatment, recovery would take longer than 1 year.

No Build Alternative

Groundwater

The No Build Alternative does not include additional impervious surface. Therefore no impacts to local groundwater recharge, groundwater volume or quality would occur as a result of the No Build Alternative.

Water Quality

The No Build Alternative includes no construction and no change in impervious surfaces. Stormwater runoff volumes would not change from existing conditions and therefore, there would be no impacts to water quality due to runoff in the vicinity of the Study Area.

Build Alternative 1 – Revised Square Alternative

Build Alternative 1 includes removing the impervious roadways which bisect the NPS-owned parcels on either side of Pennsylvania Avenue, SE. Build Alternative 1 includes recommendations to use pervious pavement and unit pavers wherever possible, including the pedestrian walkways and bus stops. Build Alternative 1 would include planted medians between the Pennsylvania Avenue, SE roadway and the pedestrian pathways that run parallel to the roadway which will help to absorb additional rainwater and stormwater runoff. Although landscape design has not been finalized, continuous tree zones would also help to absorb rainwater and storm water runoff.

The existing storm and sanitary sewer system is a municipal separate storm sewer system (MS4) in the Study Area. As is the case currently, during storm events, rainfall runoff and surface pollutants would transport into the adjacent storm water system, and ultimately into the tributaries and storm water system that empty into the Anacostia River. The Anacostia River is under tidal influence and therefore, DDOE does not require water quantity control. Additionally, stormwater quantity control would not be required because less than a 10% increase in impervious pavement area is anticipated (approximate net increase of 0.09 acres of parkland).

The proposed and existing storm sewer systems that would receive additional flows from the project site may be evaluated for pipe capacity and hydraulic grade energy with the starting backwater conditions where there are riverine or confluences with the combined system. Connections and computations to larger sewers and the combined system would be reviewed by DC Water and coordinated with the *Combined Sewer System Long Term Control Plan*.

Groundwater

Impacts to groundwater recharge are unlikely. The net increase in pervious surface would be beneficial to groundwater recharge; however, any short-term or long-term impacts to groundwater recharge are expected to be negligible due to the minimal increase in pervious surface (0.09 acres) compared to the No Build Alternative. Based on the analysis summarized above, impacts to groundwater do not meet the CEQ criteria for either context or intensity; therefore these impacts do not rise to a level of “significance” as defined by CEQ.

Water Quality

Build Alternative 1 would include the removal of existing roadways that bisect the Twining Square park land, as well as reconfiguration of the intersection. Minor short-term adverse impacts to water quality may result during construction due to soil disturbance and potential clearing of vegetation. BMPs would be used during construction in accordance with DDOE and District standards to avoid increased soil erosion. This would help to prevent an increase in storm water runoff volume that could degrade water quality in the nearby tributaries and Anacostia River. The net increase in pervious surface (0.09 acres) under Build Alternative 1 would be beneficial to surface water; however, it is anticipated to have negligible impacts to surface water in the long term given the small change in storm water runoff volumes. Storm water quality requirements will be based on providing water quality improvements for the pavement areas within the project site. This requirement will be met using a variety of BMP facilities and LID strategies such as DDOT/DC Water quality control structures and other features. Therefore, long-term impacts to water quality are expected to be negligible. Impacts to water quality do not meet the CEQ criteria for either context or intensity; therefore these impacts do not rise to a level of “significance” as defined by CEQ.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

The impacts to water resources from Build Alternative 2 development would be similar under both Build Alternative 1 and Build Alternative 2. The primary difference would be the slight difference in impervious surface in the Study Area. Build Alternative 2 would result in a net decrease of *approximately* 0.02 acres of pervious surface compared to the No Build Alternative, *however any changes in stormwater runoff would be negligible given the minimum difference. Build Alternative 2 would include planted medians between the Pennsylvania Avenue, SE roadway and the pedestrian pathways that run parallel to the roadway which will help to absorb additional rainwater and stormwater runoff. Although landscape design has not been finalized, continuous tree zones would also help to absorb rainwater and stormwater runoff.*

Groundwater

Impacts to groundwater recharge are unlikely. Build Alternative 2 would result in a net decrease of approximately 0.02 acres of pervious surface in the Study Area. Any short-term or long-term impacts to groundwater recharge are expected to be negligible due to the minimal decrease in pervious surface compared to the current Study Area. Impacts to groundwater do not meet the CEQ criteria for either context or intensity; therefore these impacts do not rise to a level of “significance” as defined by CEQ.

Water Quality

Build Alternative 2 would include the removal of existing roadways that bisect the Twining Square park land, as well as reconfiguration of the intersection. Minor short-term adverse impacts to water quality may result during construction due to soil disturbance and potential clearing of vegetation. BMPs would be used during construction in accordance with DDOE and District standards to avoid increased soil erosion. This would help to prevent an increase in storm water runoff volume that could degrade water quality in the nearby tributaries and Anacostia River. The net decrease in pervious surface under Build Alternative 2 (0.02 acres) is anticipated to have negligible impacts to surface water quality in the long term given the minimal change in pervious surface. Stormwater quality requirements will be based on providing water quality improvements for the pavement areas within the project site. This requirement

will be met using a variety of BMP facilities and LID strategies such as DDOT/DC Water quality control structures and other features. Therefore, long-term impacts to water quality are expected to be negligible. Impacts to water quality do not meet the CEQ criteria for either context or intensity; therefore these impacts do not rise to a level of “significance” as defined by CEQ.

4.1.3 Wildlife

Impact Thresholds

Negligible: There would be no observable or measurable impacts to native species, their habitats, or the natural processes sustaining them. Impacts would be well within natural fluctuations.

Minor: Impacts would be detectable, but they would not be expected to be outside the natural range of variability of native species’ populations, their habitats, or the natural processes sustaining them. Mitigation measures, if needed to offset adverse effects, would be simple and successful.

Moderate: Breeding animals of concern are present; animals are present during particularly vulnerable lifestages, such as migration or juvenile stages; mortality or interference with activities necessary for survival can be expected on an occasional basis, but is not expected to threaten the continued existence of the species in the Study Area. Impacts on native species, their habitats, or the natural processes sustaining them would be detectable, and they could be outside the natural range of variability. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful.

Major: Impacts on native species, their habitats, or the natural processes sustaining them would be detectable, and they would be expected to be outside the natural range of variability. Key ecosystem processes might be disrupted. Loss of habitat might affect the viability of at least some native species. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be guaranteed.

Duration: **Short-term** – Recovers in less than 1 year; **Long-term** – Takes more than 1 year to recover.

No Build Alternative

The No Build Alternative includes no construction. Therefore, there would be no impacts to wildlife or wildlife habitat under the No Build Alternative.

Build Alternative 1 – Revised Square Alternative

Due to the urban nature of the Study Area, and the fact that the proposed development under Build Alternative 1 would be located entirely within previously disturbed or maintained landscapes, no impacts to wildlife or wildlife habitat are anticipated. Additionally, the Study Area does not include habitat favored by migratory birds. Therefore, any short-term or long-term impacts to terrestrial organisms would be negligible as there would be no observable or measurable impacts to native species, their habitats, or the natural processes sustaining them. Impacts would be of short duration and well within natural fluctuations. Impacts to wildlife do not meet the CEQ criteria for either context or intensity; therefore these impacts do not rise to a level of “significance” as defined by CEQ.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

Impacts to wildlife or wildlife habitat under Build Alternative 2 would be negligible, as discussed under the Build Alternative 1 analysis. Impacts to wildlife do not meet the CEQ criteria for either context or intensity; therefore these impacts do not rise to a level of “significance” as defined by CEQ.

4.1.4 Vegetation

The project intersection right-of-way is currently owned by DDOT and NPS; the majority of the vegetative land in the Study Area is owned by NPS, known as Twining Square in the Study Area. Management of NPS lands is guided by numerous congressional acts and executive orders, including the 1916 Organic Act which created the NPS and the General Authorities Act of 1970 which established the management of the national park system.

While the NPS currently owns and operates the vegetative open space within the Study Area, the land jurisdiction could transfer to DDOT if the Proposed Action is implemented. Therefore, the impacts to the vegetation in these areas would be coordinated and discussed with NPS; however development and maintenance of the vegetated areas would be under DDOT if the transfer of jurisdiction is approved.

Impact Thresholds

Negligible: No native vegetation would be affected or some individual native plants could be affected as a result of the alternative, but there would be no effect on native species populations. The effects would be on a small scale and no species of special concern would be affected.

Minor: The alternative would affect some individual native plants and would also affect a relatively minor portion of that species’ population. Mitigation to offset adverse effects, including special measures to avoid affecting species of special concern, could be required and would be effective.

Moderate: The alternative would affect some individual native plants and would also affect a sizeable segment of the species’ population and over a relatively large area. Mitigation to offset adverse effects could be extensive, but would likely be successful. Some species of special concern could also be affected.

Major: The alternative would have a considerable effect on native plant populations, including species of special concern, and affect a relatively large area in and out of the park. Mitigation measures to offset the adverse effects would be required, extensive, and success of the mitigation measures would not be guaranteed.

Duration: **Short-term** - Recovers in less than three years; **Long-term** - Takes more than three years to recover.

No Build Alternative

Under the No Build Alternative, there would be no development to the Study Area and no disturbance to the existing vegetation. The intersection configuration would remain as it is, with the fragmented green spaces on both sides of Pennsylvania Avenue, SE continuing under ownership of the NPS. The No Build Alternative would not result in impacts to vegetation in the Study Area.

Build Alternative 1 – Revised Square Alternative

The reconfiguration of the intersection would include the conversion of the roadways, which fragment the currently NPS-owned reservations, into green space. The existing street trees and vegetation would be preserved where possible. Pending final design, an estimated six or seven trees may be removed to accommodate additional roadway to the north of the square, and one or two trees may need to be removed due to the roadway configuration to the south of the square. Street trees line the roadway median to the west of the square; the proposed design of Build Alternative 1 may require removal of one or two trees near the intersection where the median width is reduced to accommodate a wider sidewalk and bus stop area across the street. Upon project implementation, DDOT would develop a landscape plan and provide the appropriate vegetation to replace any trees removed. Additionally, LID principles would be applied to the development and the existing tree canopy in the Study Area would be preserved and enhanced wherever possible to maximize pavement shading.

Short-term minor adverse impacts to vegetation may occur during construction as soils are disturbed and trees potentially impacted during the intersection development. BMPs would be used during construction to minimize soil erosion and impacts to vegetation. Although there is not a substantial amount of additional park area or vegetation being added under Build Alternative 1, the consolidation of the green space and potential for enhanced landscape design would result in minor long-term benefits under this alternative. Changes to the intersection under Build Alternative 1 would provide the opportunity to enhance the green space as usable park area for residents and visitors to this intersection. Given the analysis and use of BMPs, the impacts to vegetation do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

As discussed in *Section 4.8, Mitigation*, landscaping and replacement of trees will be conducted in accordance with the DDOT Design and Engineering Manual.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

Build Alternative 2 would result in similar impacts to vegetation, as described under Build Alternative 1. Depending on final design of the intersection, six or seven trees in the northern reservation may need to be removed to accommodate pedestrian pathways. Three trees in the southern reservation may be impacted by roadway development under Build Alternative 2, and three to four trees may be impacted to accommodate the pedestrian pathway in the southern reservation. As with Build Alternative 1, short-term minor adverse impacts may occur to vegetation during construction and would be mitigated by using BMPs. The overall consolidation of green space and potential for enhanced landscape design under this Alternative would result in minor long-term benefits. Given the analysis and use of BMPs, the impacts to vegetation do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

4.2 Cultural and Historic Resources

In this EA, impacts to historic structures, cultural landscapes, and archaeological resources are described in terms of intensity, duration, context, and type, which is consistent with the CEQ regulations for implementing NEPA. These impact analyses are intended to comply with the requirements of both the NEPA and Section 106 of the NHPA. In accordance with the Advisory Council on Historic Preservation’s (ACHP) regulations implementing Section 106 (36 CFR Part 800, Protection of Historic Properties),

impacts to historic structures, cultural landscapes, and archaeological resources were identified and evaluated by (1) determining the area of potential effects; (2) identifying cultural resources present in the area of potential effects that are either listed in or eligible to be listed in the NRHP; (3) applying the criteria of adverse effect to affected cultural resources either listed in or eligible to be listed in the NRHP; and (4) considering ways to avoid, minimize, or mitigate adverse effects. To assist in the assessment, FHWA and DDOT consulted with the DC SHPO with regards to the APE (direct and indirect), cultural resources present, and the potential effects on historic properties.

Under the Advisory Council's regulations, a determination of either adverse effect or no adverse effect must be made for affected NRHP eligible or listed cultural resources. An adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the National Register (e.g., diminishing the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association). Adverse effects also include reasonably foreseeable effects of the Preferred Alternative that would occur later in time, be farther removed in distance, or be cumulative (36 CFR 800.5, Assessment of Adverse Effects).

As stated in 36 CFR §800.5(a)(1), "[A]dverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative." An alternative is considered to have the potential for *direct* effects if it alters the property or its character defining features in a manner that diminished is integrity, or its ability to convey its significance. An alternative is considered to have the potential for *indirect* effects if it may result in long-term deterioration, or if it has the potential to alter views from nearby historic resources. A detailed *Archaeological Assessment of Potential* has been prepared for the Pennsylvania and Minnesota Avenues, SE intersection (see *Appendix E*); this EA summarizes the findings of this report.

The determination of effect as made by FHWA for purposes of Section 106 for the project would be no adverse effects on either historic properties or archeological resources.

**Note that Build Alternative 1 – Revised Square Alternative is often referred to as the “Modified Square Alternative” in the cultural resources reports and correspondence.*

4.2.1 Historic Structures

Impact Thresholds

For a historic district or structure to be listed on the NRHP, it must possess significance (the meaning or value ascribed to the historic district or structure), and the features necessary to convey its significance must have integrity. For purposes of analyzing potential impacts on historic districts and structures, the thresholds of change for the intensity of an impact are defined as follows:

Negligible: The impact is at the lowest level of detection with neither adverse nor beneficial consequences. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Minor: Adverse impact: Alteration of a pattern(s) or feature(s) of a historic district or structure listed on or eligible for the NRHP would not diminish the integrity of a character-defining feature(s) or the overall integrity of the historic property. For purposes of Section 106, the determination would be *no adverse effect*.

Moderate: Adverse impact: The impact would alter a character-defining feature(s) of a historic district or structure and diminish the overall integrity of that feature(s) of the historic property. For purposes of Section 106, the determination of effect would be *adverse effect*, but one that could be fairly easily avoided, minimized, or mitigated through an Agreement Document.

Major: Adverse impact: The impact would alter character-defining feature(s) of the historic district or structure and severely diminish the integrity of that feature(s) and the overall integrity of the historic property. For purposes of Section 106 the determination of effect would be *adverse effect* and would present serious difficulty to avoid, minimize, or mitigate through an Agreement Document.

Duration : Short-term – Impacts are equivalent to the period of construction; *Long-term* – Impacts last beyond the period of construction.

No Build Alternative

Under the No Build Alternative, there would be no reconfiguration of roadway in the Study Area and no disturbance to the existing buildings or resources. Therefore, the No Build Alternative would have no direct or indirect effects on nearby historic properties eligible for listing in the NRHP such as the Morton’s Department Store Building, the Highland Theater Building, or the lot previously occupied by the Little Tavern Building; no historic structures are listed in the NHRP in the Study Area.

Build Alternative 1 – Revised Square Alternative

Build Alternative 1 would include the reconfiguration of roadway into a traffic square concept that would require all turning vehicles to go around the expanded center park area. Build Alternative 1 does not include the acquisition or use of any buildings, structures or properties; therefore there would be no direct effects on nearby historic properties eligible for listing in the NRHP.

Any changes to the view from nearby buildings would not be substantially changed from the No Build Alternative and would not impact the historic identity of those eligible buildings; therefore long-term indirect effects would be negligible. The improvements to the intersection would not diminish the integrity of the structures and would not jeopardize the eligibility of the structures for the NRHP. Any indirect effects, such as visual impacts due to construction would be short-term and negligible with the use of BMPs. Noise and vibration BMPs would be used during construction to minimize any disturbance to nearby businesses and residences during construction.

FHWA determined that Build Alternative 1 will have a “No Adverse Effect” on historic resources in the project area. DCSHPO concurred with this determination and stated that because of its proposed design, the Build Alternative 1 would reestablish Twining Square to its original and historical shape. The effects on historic structures do not meet the CEQ criteria for either context or intensity, and would not rise to a level of “significance” as defined by CEQ.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

Under Build Alternative 2, the intersection would be reconfigured into a typical, at-grade intersection. The impacts to historic structures from Build Alternative 2 would be similar to Build Alternative 1.

FHWA determined that Build Alternative 2, the Preferred Alternative will have a “No Adverse Effect” on historic resources in the project area. DCSHPO concurred with this determination and stated that because of its proposed design, the Build Alternative 2 would reestablish Twining Square to its original and historical shape. The effects on historic structures do not meet the CEQ criteria for either context or intensity, and would not rise to a level of “significance” as defined by CEQ.

4.2.2 Cultural Landscape

Impact Thresholds

For an historic district, structure, or cultural landscape to be listed in the NRHP, it must possess significance and the features which convey its significance must have integrity. For purposes of evaluating potential impacts on historic districts and structures, the thresholds of change are defined as follows:

Negligible: The impact is at the lowest level of detection with neither adverse nor beneficial consequences. For Section 106 of the NHPA, the determination of effect would be *no adverse effect*.

Minor: Adverse Impact: - Alteration of the patterns or features of a historic district or structure would not diminish the integrity of the character-defining features or the overall integrity of the historic property. For Section 106, the determination would be *no adverse effect*.

Moderate: Adverse Impact: - The project would alter the character-defining features of the historic district or structure and diminish the integrity of the features of the historic property. The determination of effect for Section 106 would be an adverse effect, but one that could be avoided, minimized or mitigated.

Major: Adverse Impact: - The project would alter the character-defining features of the historic district or structure and severely diminish the integrity of the features and the overall integrity of the historic property. For purposes of Section 106, the determination of effect would be *adverse effect* and the effects would be difficult to avoid, minimize or mitigate.

*Duration : **Short-term*** – Impacts are equivalent to the period of construction; ***Long-term*** – Impacts last beyond the period of construction.

No Build Alternative

Under the No Build Alternative, there would be no reconfiguration of roadway in the Study Area and no disturbance to the existing cultural landscape. Therefore the No Build Alternative would have no direct or indirect effects on cultural landscapes in the Study Area vicinity.

Build Alternative 1 – Revised Square Alternative

Build Alternative 1 would result in the reconfiguration of the roadway and park area at the intersection; however the existing cultural landscape consisting of an urban mix of commercial and residential development with roadway and park area within the intersection would remain the same. Build Alternative 1 would not impact any businesses or residential uses in the area and would maintain a similar amount of park area and roadway, however the park area would be more contiguous than it is currently. Any long-term effects to the cultural landscape in the vicinity of the intersection would be negligible. Any adverse short-term visual impacts to the cultural landscape due to construction would be or short

duration and negligible. Based on the analysis summarized above, impacts to cultural landscapes do not meet the CEQ criteria for either context or intensity, and would not rise to a level of “significance” as defined by CEQ.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

Build Alternative 2 would also reconfigure the roadway and park area in the intersection; impacts to the cultural landscape would be negligible similar to Build Alternative 1. Any adverse short-term visual impacts to the cultural landscape due to construction would be negligible. Based on the analysis summarized above, impacts to cultural landscapes do not meet the CEQ criteria for either context or intensity, and would not rise to a level of “significance” as defined by CEQ.

4.2.3 Archaeological Resources

Based on archival research and coordination with the DC SHPO City Archaeologist, it was determined that archaeological investigations were needed for the Proposed Action. Geoarchaeological coring was conducted in November of 2012 to determine whether intact soil columns are present in the Study Area and would need subsequent archaeological testing. The associated report, *Geoarchaeological Interpretations in the Vicinity of the Intersection of Pennsylvania and Minnesota Avenues in the Anacostia Section of Washington, D.C.* and the findings of the investigation are included in *Appendix E, Cultural Resources*. Note that Build Alternative 1 – Revised Square Alternative is often referred to as the “Modified Square Alternative” in the cultural resources reports and correspondence.

Impact Thresholds

Impacts to archaeological sites occur when proposed alternatives result in complete or partial destruction of the resource, and are equivalent to a loss of integrity as defined in Section 106 of NHPA. In determining the appropriate impact threshold, both the extent to which the proposed alternative results in a loss of integrity and the degree to which losses can be compensated by mitigating activities, including preservation or data recovery, are considered. Only those resources considered significant for listing in the NRHP are protected by federal regulations. Resources are eligible for listing in the NRHP if they meet one or more eligibility criteria (for archaeological site, generally Criterion D, having the potential to provide information important to history or prehistory) and if they possess integrity.

For the analysis of impacts to archaeological resources, the determination of the intensity of an impact is based on the foreseeable loss of integrity to known or potential resources. The analysis considers only the direct impacts of construction-related activities as the facility should have no ground-disturbing activities and no additional effects upon archaeological resources under any of the alternatives under consideration upon completion of construction. However, all impacts are considered long term, in that the impact to an archaeological resource will last past the period of construction. The definition of impact thresholds used in this analysis are:

Negligible: The lowest level of detection that would have neither adverse nor beneficial impacts. The determination of effect for Section 106 of NHPA would be no adverse effect.

Minor: Disturbance of archeological resources will result in little, if any, loss of site integrity. The determination of effect for Section 106 of NHPA would be no adverse effect.

Moderate: Site disturbance will result in a loss of integrity and a partial loss of the character-defining features and information potential that form the basis of the site's NRHP eligibility. Mitigation is accomplished by a combination of archaeological data recovery and in-place preservation. The determination of effect for Section 106 of NHPA would be an adverse effect.

Major: The disturbances result in a loss of site integrity to the extent that the resource is no longer eligible for listing in the NRHP. The site's character-defining features and information potential are lost to the extent that archeological data recovery is the primary form of mitigation. The determination of effect for Section 106 of NHPA would be an adverse effect.

Beneficial: Beneficial impacts can occur when an archaeological site is stabilized in its current condition to maintain its existing level of integrity or when an archaeological site is preserved in accordance with the Secretary of Interior's Standards for the Treatment of Historic Properties. The determination of effect for Section 106 of NHPA would be *no adverse effect*.

Duration: **Short-term** – Impacts last for the duration of construction-related activities; **Long-term-** Impacts last beyond the proposed construction activities. All impacts to archaeological sites are considered long-term impacts.

No Build Alternative

Under the No Build Alternative, there would be no ground disturbance and no impact to archaeological resources within the APE-Direct.

Build Alternative 1 – Revised Square Alternative

Project activities under Build Alternative 1 would result in ground disturbance including removal of existing pavement and sidewalks, construction of new traffic lanes and sidewalks, relocation of traffic control signals, street lights, landscaping and utilities. The northern and southern reservations, as well as the area under existing roadway would be disturbed during construction of the Revised Square.

It is not anticipated that any archaeological resources would be impacted by Build Alternative 1 in the northern reservation or in areas under existing roadbeds, as they appear to have little potential for archaeological resources. The potential for impacts to archaeology under Build Alternative 1 would be to the southern reservation.

The southern reservation is considered a zone of high potential for prehistoric resources, as well as historic resources associated with nineteenth century residences. Further archaeological investigation is recommended in the southern reservation area within the APE-Direct (Figure 3-2). Therefore Phase IB/II testing of this small area is recommended prior to final design decisions and construction of the proposed improvements.

FHWA determined that Build Alternative 1 will have a “No Adverse Effect” on archeological resources in the project area. DCSHPO concurred with this determination and stated that DDOT will continue consultation with the DC SHPO on the project if there are any changes to the project footprint as the designs are finalized and for treatment of any NRHP eligible archaeological resources that may be potentially identified during the Phase IB/II testing. The effects on archeological resources do not meet the CEQ criteria for either context or intensity, and would not rise to a level of “significance” as defined by CEQ.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

As with Build Alternative 1, the northern and southern reservations, and area under the existing roadway would all be disturbed by the construction of Build Alternative 2. *FHWA determined that Build Alternative 2 (the Preferred Alternative) will have a “No Adverse Effect” on archeological resources in the project area. DCSHPO concurred with this determination and stated that DDOT will continue consultation with the DC SHPO on the project if there are any changes to the project footprint as the designs are finalized and for treatment of any NRHP eligible archaeological resources that may be potentially identified during the Phase IB/II testing. The effects on archeological resources do not meet the CEQ criteria for either context or intensity, and would not rise to a level of “significance” as defined by CEQ.*

4.2.4 Cultural Resources Summary

No cultural landscapes exist in the Study Area and therefore would not be impacted by the Build or No Build Alternatives. No impacts would occur to any cultural resources with the No Build Alternative since no construction would occur.

It is anticipated that the proposed changes will not diminish the integrity of location, design, setting materials, workmanship, feeling or association for historic resources in the project vicinity; therefore, FHWA has determined that the preferred alternative for the improvements to the Pennsylvania Avenue and Minnesota Avenue SE intersection will have “no adverse effect”, as defined in 36 CFR 800, on the referenced historic properties and archaeological resources. Prior to implementation of the project, FHWA and DDOT will ensure the following:

- *DDOT will conduct a Phase IB/II/archaeological testing of an area within Res. 487 near the Phase IA geoarchaeological boring # 4, where an intact historic surface was identified at approximately 0.7 feet below ground surface (see attached map). The Phase IB/II/archaeological study would be used to determine whether intact landforms are present within the limit of disturbance, including landforms currently covered by the existing road.*
- *DDOT will continued consultation with the SHPO on the project if there are any changes to the project footprint as the designs are finalized and for treatment of any NRHP-eligible archaeological resources identified during Phase IB/II testing; and*
- *DDOT will complete the archaeological reporting requirement for the project, following the District and federal guidelines, curation of resulting collections, records, images, and geospatial data. If unanticipated archeological discoveries are encountered during any activity associated with this undertaking, DDOT will continue consultation with DC HPO on measures to avoid or mitigate the potential adverse impacts to these resources.*
- *Should unanticipated archaeological discoveries be encountered during any activity associated with this undertaking, DDOT will contact DC SHPO Archaeologist for further guidance.*

Based on a letter to DDOT (see Appendix E of the Final EA), DC SHPO concurred with the FHWA determination that the project will have “No Adverse Effect” on historic properties and archeological resources as defined by 36 CFR 800. Based on these findings, the effects on cultural resources do not meet the CEQ criteria for either context or intensity, and would not rise to a level of “significance” as defined by CEQ.

4.3 Socioeconomic Resources

Impact Thresholds

The following thresholds were used to determine the magnitude of effects to the socioeconomic environment.

Negligible: Little or no noticeable change in economic activity, employment and income levels, or population migration or immigration.

Minor: Local changes in economic activity, employment and income levels, or population migration or immigration.

Moderate: Regional changes in overall economic activity, employment and income levels, or population migration or immigration.

Major: Widespread, significant changes in overall economic activity, employment and income levels, or population migration or immigration.

Duration: **Short-term** – Effects last one year or less; **Long-term** – Effects last longer than a year.

4.3.1 Land Use

The potential for impacts to land use was evaluated based on the potential for implementation of the Build Alternatives to result in changes to land use.

No Build Alternative

The No Build Alternative would result in the parcels of Twining Square located within the Study Area (U.S. Reservation 487) remaining under the ownership of the NPS and the roadway remaining under DDOT right-of-way. No short-term impacts would occur because no construction would occur at the intersection and no direct impacts to land use would occur under the No Build Alternative.

It is unknown whether the No Build Alternative (keeping the intersection as it is today) would impact any potential land use decisions by the District. However, the No Build Alternative would not improve the intersection in furtherance of the Great Streets Initiative and would not serve as a catalyst for positive land use change at the intersection in the long term. The No Build Alternative would have no impact on future land use at the intersection.

Build Alternative 1 – Revised Square Alternative

Build Alternative 1 is consistent with the District's planning documents, aligning with the *Great Streets Framework Plan – Pennsylvania Avenue, SE*, and the *Revitalization of Pennsylvania Avenue, SE for the Great Initiative Concept Design*. As a result of Build Alternative 1, the NPS land parcels (U.S. Reservation 487 *and 487 A, B, C, D and E*) would transfer to DDOT. This land transfer would facilitate the reconfiguration of the intersection to improve safety, mobility, and connectivity for pedestrians and motorists at the intersection in keeping with the District's Great Streets Initiative. No private right-of-way would be impacted or acquired by the implementation of Build Alternative 1.

The land uses in the Study Area would not change as a result of Build Alternative 1 and would be only temporarily affected during construction by road closures to reconfigure the intersection. The proposed intersection improvements would not affect any land uses directly. However, Build Alternative 1 could indirectly affect future land use in the long term by functioning as a catalyst for redevelopment. As part of the Great Streets Initiative, improvements to this intersection would work toward the project mission to revitalize the District's Great Streets, which could ultimately lead to attracting new investment in the community. Indirect impacts to land use would be minor and beneficial given the potential to generate local changes in land use and economic activity. Land use impacts in the short term would be negligible during construction. The impacts to land use do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of "significance" as defined by CEQ.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

As a result of Build Alternative 2, the NPS owned land parcels (U.S. Reservation 487 *and* 487 A, B, C, D *and* E) would transfer to DDOT. This land transfer would facilitate the reconfiguration of the intersection. The land uses surrounding the Study Area would not be directly impacted as a result of Build Alternative 2 and would be only temporarily affected during construction by road closures to reconfigure the intersection. *Given the proposed aesthetic enhancements, improved safety, and the operational improvements proposed as part of the Preferred Alternative based on agency and public input received on the EA and given the selection of Option 2 as the Preferred Option, this alternative has the potential to indirectly affect future land use positively in the long term.* Land use impacts under Build Alternative 2 would be negligible and temporary during construction. The impacts to land use do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of "significance" as defined by CEQ.

4.3.2 Zoning

No Build Alternative

There would be no change in zoning and therefore no impact to zoning under the No Build Alternative.

Build Alternative 1 – Revised Square Alternative

Implementation of Build Alternative 1 includes *transfer* of NPS land *jurisdiction to* DDOT to facilitate reconfiguration of the intersection; however no changes to zoning in the vicinity of the project would result due to Build Alternative 1. As with Land Use, in the long term, the proposed improvements could influence zoning decisions in the future indirectly if the intersection improvements serve as a catalyst for economic development in the Study Area. There would be no direct impacts to zoning in the short term or long term as a result of Build Alternative 1. The current zoning in most of the Study Area, Zone C-2-A, encompasses a wide range of land uses, including office employment centers, shopping centers, medium-bulk mixed use centers, and housing. Just north of the square, lining L'Enfant Square, SE (street) is zoned R-4, which permits a range of single-family residential uses (including detached, semi-detached, row dwellings, and flats), churches and public schools. Because the existing zoning classifications are inclusive of many land use types, it is unlikely that any rezoning would be necessary in the Study Area. However, a potential benefit to Build Alternative 1 is the furtherance of economic development and local investment in the area; therefore, zoning may change over time as there is growth and changeover in local economic activity. It is anticipated that any indirect impacts to zoning as a result of Build Alternative 1 would be minor and beneficial given the potential to generate local changes in land use and economic

activity. No impacts to zoning would occur in the short term. The impacts to zoning do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

Implementation of Build Alternative 2 also includes *transfer* of NPS land *jurisdiction to* DDOT to facilitate reconfiguration of the intersection; however no changes to zoning in the vicinity of Build Alternative 2 would directly result from the alternative. ***No impacts to zoning would occur in the short term.*** The impacts to zoning do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

4.3.3 Demography

No Build Alternative

Under the No Build Alternative, the reconfigured intersection would not be constructed and existing conditions would remain unchanged. Therefore, there would be no impact to demography in the Study Area.

Build Alternative 1 – Revised Square Alternative

Build Alternative 1 would be constructed within existing DDOT right-of-way and with the *transfer* of NPS land *jurisdiction*. Community residents and commuters through the area would be temporarily impacted by road closures during construction to reconfigure the project intersection under Build Alternative 1. Closures at the intersection could require traffic to be re-routed, bus stops to be relocated, and may require changes to on-street parking during construction; however temporary impacts due to construction is not expected to eliminate access to any residences or businesses in the Study Area. Short term impacts under Build Alternative 1 would be minor.

Build Alternative 1 would not result in any displacement or relocation of populations, nor would it affect access to residences or businesses within the Study Area in the long term. Travel patterns for residents and users of the intersection would be modified by Build Alternative 1 for motorists making a left turn from Pennsylvania Avenue heading northbound onto Minnesota Avenue. These motorists will no longer be able to make a direct left turn onto Minnesota Avenue and will have to make a right turn at L’Enfant Square, SE/ Minnesota Avenue and circumvent the “square” to travel northbound on Minnesota Avenue. The left-turn movement was eliminated to remove conflicts between vehicles and crossing pedestrians. Although this new travel pattern could increase travel time for residents and commuters traveling by car, the proposed travel patterns improve motorist *safety* by reducing left-turn conflicts and reducing confusion at the intersection. Other pedestrian improvements will benefit the local population, such as new, shorter crosswalks to reduce the time walking in the street to enhance safety. Expanded sidewalks at the southwest and northwest corners of Pennsylvania Avenue, SE and L’Enfant Square, SE would also minimize the conflict between pedestrians waiting at the bus stop and bicyclists traveling on the sidewalk.

The L’Enfant Square, SE roadway to the north of the “square” would be increased to three lanes and would remove the one-hour on-street parking that exists today on the south side of the street. The residential (Zone 7 permit) on-street parking on the north side of the street nearest to the residences would

remain. A grassed strip is proposed between the sidewalk and the on-street parking as an additional buffer between the roadway and the houses.

Three of the five WMATA bus stops in the Study Area would likely need to be permanently relocated to locations near their current locations to accommodate the proposed intersection configuration. The change would be needed to accommodate safe bus movement through the intersection. See *Section 4.4.3, Transit* for more detailed discussion of changes to transit users due to Build Alternative 1. The potential bus stop relocations would work in tandem with the revised intersection configuration to improve safety for transit riders using this intersection. Importantly, the proposed travel patterns and changes to bus stop locations are critical to improving pedestrian and bicyclist safety at this intersection, as well as the safety of transit riders and park users. Impacts to demography due to Build Alternative 1 would therefore be minor and beneficial.

Additionally, due to the proposed aesthetic enhancements under this alternative, along with improved accessibility and mobility to and through the area, Build Alternative 1 has the potential to generate investment in the community and to attract quality retail and jobs. This would result in indirect impacts to demography that would be minor and beneficial, defined by local changes in economic activity, and employment and income levels. Therefore the impact is minor in context and intensity, and does not rise to a level of “significance” as defined by CEQ.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

As with Build Alternative 1, during construction, Build Alternative 2 would require traffic to be re-routed, bus stops to be relocated, and may require changes to on-street parking during construction; however temporary impacts due to construction are not expected to eliminate access to any residences or businesses in the Study Area. Short term impacts under Build Alternative 2 would be minor.

Build Alternative 2 maintains the available street parking along L’Enfant Square, SE to the north of the “square” and has the potential to reduce the traffic volume adjacent to those residences, depending on which way traffic flows along this roadway stretch. Build Alternative 2 has two options for the movement of one-way traffic to the north and west of the “square” on L’Enfant Square, SE. Option 1 would maintain the traffic flow in a one-way direction to the west and south on L’Enfant Square, SE. Commuter traffic could continue to cut-through the “square” to avoid the Pennsylvania/Minnesota Avenues, SE intersection and the right-turning vehicle/pedestrian conflict to the west of the square would remain. Option 2 would change traffic flow to one-way to the north and east on this roadway. Cut-through traffic would be minimized and the vehicle/pedestrian conflict would be reduced, which would be a benefit to residents living on L’Enfant Square SE. ***Option 2 is the preferred option selected to be implemented in conjunction with the Preferred Alternative.***

As with Build Alternative 1, WMATA bus stops in the Study Area would likely be permanently relocated. Two of the bus stops would be relocated near their current locations. The change would be needed to accommodate safe bus movement through the intersection. See *Section 4.4.3, Transit* for more detailed discussion of changes to transit users due to Build Alternative 2. The potential bus stop relocations would work in tandem with the revised intersection configuration to improve safety for transit riders using this intersection. ***Given the proposed aesthetic enhancements and operational improvements proposed as part of the Preferred Alternative based on agency and public input received on the EA and given the selection of Option 2 as the Preferred Option, this alternative has the potential***

to generate investment in the community and to attract quality retail and jobs. This would result in indirect impacts to demography that would be minor and beneficial, defined by local changes in economic activity, and employment and income levels. Therefore the impact is minor in context and intensity, and does not rise to a level of “significance” as defined by CEQ.

4.3.4 Environmental Justice

No Build Alternative

Under the No Build Alternative, the reconfigured intersection would not be constructed and existing conditions would remain unchanged. Therefore, the No Build Alternative would result in no impacts to low-income or minority populations.

Build Alternative 1 – Revised Square Alternative

As described in *Section 3.3.4, Environmental Justice*, Executive Order (EO) 12898, “Federal Actions to Address Environmental Justice in Minority and Low-Income Populations” requires federal agencies to take appropriate and necessary steps to identify and address disproportionately high and adverse human health or environmental effects of their actions on minority and low-income communities or populations, and directs federal agencies not discriminate on the basis of race, color, or national origin.

Section 3.3.4, Environmental Justice identified a high percent of minority residents in the Study Area vicinity; Census tracts (CTs) and block groups in the vicinity of the Study Area have between 96 and 99% minority populations.

Potential construction impacts would have the greatest effect on the residential population bordering L’Enfant Square, SE and along Minnesota Avenue, SE, adjacent to construction areas. These residential areas consist of rowhouses and single-family homes. The construction impacts on nearby residents would not be considered a disproportionately high or adverse impact due to the fact that Build Alternative 1 cannot avoid construction along these streets in order to improve the project intersection, and other residents and workforce populations near the Study Area, regardless of income and race, would experience the same construction impacts. Short-term air quality and noise level impacts may occur during construction; however the impacts would be temporary and would not disproportionately affect low income or minority populations, as all alternatives involve the same percentage of minority population.

Under Build Alternative 1, there would be minor short-term adverse impacts to WMATA bus service along the Study Area corridor during some construction periods at the intersection. Three of the five bus Stops would need to be relocated to locations near their current locations to accommodate the new intersection configuration; however the proposed relocation of bus stops would be very close to the existing stops. Impacts would also be minor in the short term as adjustments to new bus stop locations are made by bus users at the intersection. However, long-term impacts after project implementation are anticipated to be negligible. The impacts on nearby residents of relocating bus stops would not be considered a disproportionately high or adverse impact on low-income or minority populations due to the fact that all residents and workforce populations in the vicinity of the Study Area would be affected by any bus stop changes needed for the implementation of Build Alternative 1.

Under Build Alternative 1, there would be many long-term improvements to the Study Area that would benefit the community, including low income and minority populations. These benefits include: improved intersection design and efficiency; increased mobility; improved safety for all modes of travel; and improved physical appearance including the availability of a larger open park space.

While Study Area residents include low-income and minority populations, these populations would not experience disproportionately high and adverse effects resulting from Build Alternative 1 or any of the associated construction activities. Therefore, short-term and long-term impacts would be negligible under Build Alternative 1. The impacts to environmental justice do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

NPS, DDOT and other cooperating agencies actively solicited public participation as part of the planning process and gave equal consideration to all input from persons regardless of age, race, income status, or other socioeconomic or demographic factors. Public scoping was initiated with a comment period via the Internet in the Fall of 2012. Additionally, information was distributed to local residents and businesses, and a presentation with project information was given at an Advisory Neighborhood Commission (ANC) 7B Meeting on May 16, 2013 to solicit citizen feedback. Prior public participation was extensive for the Great Streets Project, and is discussed in the *Scoping* section of this EA.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

As with Build Alternative 1, while Study Area residents include low-income and minority populations, these populations would not experience disproportionately high and adverse effects resulting from Build Alternative 2 or any of the associated construction activities. For the reasons listed under Build Alternative 1, Build Alternative 2 would also result in negligible short and long-term impacts to minority or low-income populations in the Study Area. The impacts to environmental justice do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

4.3.5 Economics and Development

No Build Alternative

Under the No Build Alternative, the reconfigured intersection would not be constructed and no acquisition of NPS lands would occur. Therefore, the No Build Alternative would not directly impact existing economics and development. However, the No Build Alternative would not help revitalize the intersection in furtherance of the Great Streets Initiative and would not serve as a catalyst for new development and jobs at the intersection in the long term. Therefore, the No Build Alternative could indirectly have minor adverse impacts to economics and community revitalization in the long term.

Build Alternative 1 – Revised Square Alternative

The economic and social characteristics of the residential areas or businesses in and surrounding the project intersection, including the NPS-owned land could be temporarily impacted by road closures to reconfigure the project intersection under Build Alternative 1. Closures at the intersection could require traffic to be re-routed; however temporary impacts due to construction are not expected to eliminate access to any businesses, attractions, or residential areas in the Study Area. Impacts to economics and development in the short term during construction would be minor.

Build Alternative 1 is based on the Great Streets Initiative Concept Design which supports local demand for goods and services through economic revitalization. In the long term, the NPS and DDOT exchange of land jurisdiction and intersection improvements may have a positive influence in the Study Area due to a potential increase in economic activity for businesses resulting from various improvements proposed as part of the Great Streets Initiative. According to the 2008 Market Assessment in the Pennsylvania Avenue, SE Corridor Development Plan, Twining Square (L'Enfant Square) is “the natural location for the largest retail concentration...given the strong visibility and access created by the intersection of Pennsylvania and Minnesota Avenue, to the proximity to I-295, and its role as a gateway to the east side of the River neighborhoods.”⁵⁸ Build Alternative 1 would enhance the appeal and quality of the area which could help attract retail and jobs. Indirect impacts to economics and development would therefore be minor and beneficial, defined by local changes in economic activity, employment and income levels, or population migration or immigration. The impacts to economics and development are minor in context and intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

As with Build Alternative 1, short-term closures at the intersection could require traffic to be re-routed, however temporary impacts due to construction is not expected to eliminate access to any businesses, attractions, or residential areas adjacent to Pennsylvania and Minnesota Avenues, SE. Impacts to economics and development in the short term during construction would be minor. *Given the proposed aesthetic enhancements and improvements proposed as part of the Preferred Alternative based on agency and public input received on the Draft EA, and given the selection of Option 2 as the Preferred Option, this alternative has the potential to enhance the appeal and quality of the area and thereby generate investment in the community and to attract quality retail and jobs. Indirect impacts to economics and development would therefore be minor and beneficial, defined by local changes in economic activity, employment and income levels, or population migration or immigration. The impacts to economics and development are minor in context and intensity;* therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

4.3.6 Joint Development

No Build Alternative

There are no existing or proposed joint development projects in the Study Area; therefore, the No Build Alternative would have no impact on joint development.

Build Alternative 1 – Revised Square Alternative

Economic development plans are ongoing along the 2300 Block of Pennsylvania Avenue, SE immediately west of Twining Square. The District aims to help implement the goals of the Great Streets Initiative by redeveloping this key corridor to eliminate blight, provide quality neighborhood-serving retail and potential job creation. These economic development plans are not “joint development” projects and there are no joint development projects in the Study Area. Therefore Build Alternative 1 would have no impact on joint development in the short term or long term. The impacts to joint development do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

As under Build Alternative 1, there are no existing or proposed joint development projects in the Study Area; therefore Build Alternative 2 would have no impact on joint development in the short term or long term. The impacts to joint development do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

4.3.7 Aesthetics and Visual Quality

NEPA requires the examination of environmental impacts of a Federal proposed action including those associated with visual and aesthetic quality.

No Build Alternative

Under the No Build Alternative, there would be no development to the Study Area and no changes to the existing visual quality or aesthetics in the Study Area. The intersection configuration would remain as it is, with the fragmented green spaces on both sides of Pennsylvania Avenue, SE continuing under ownership of the NPS. The No Build Alternative would not result in impacts to aesthetics or visual quality in the Study Area.

Build Alternative 1 – Revised Square Alternative

Build Alternative 1 involves primarily changes at ground level and there are no significant views or vistas in the vicinity of the Study Area. It is anticipated that indirect visual effects/changes in view in the long term would be limited to those areas directly fronting the streets involved and from the traffic lanes of the roadway in the vicinity of the intersection. The only anticipated above ground element, the relocation and improvement of traffic control lights, represents a restricted visual change. Build Alternative 1 is compatible with the existing environment and could potentially improve aesthetics and visual quality in the area in the long term. The project was designed to create a place of distinction in keeping with the goals of the Great Streets Improvement Project, and would provide more contiguous parkland and new roadway infrastructure. Therefore, impacts to aesthetic and visual quality in the immediate Study Area vicinity would be minor and beneficial in the long term as a result of Build Alternative 1. Minor short-term adverse impacts to views may occur within the intersection during construction while the area temporarily is used as a construction site, but the impacts would be of limited duration. Therefore, the impact is minor in context and intensity and does not rise to a level of “significance” as defined by CEQ.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

Build Alternative 2 design changes would result in a typical at-grade intersection, new grass and additional green space. Therefore as with Build Alternative 1, implementation of Build Alternative 2 would result in minor short-term adverse impacts on views during construction, but in the long term, would result in minor beneficial aesthetic and visual quality impacts. Therefore, the impact is minor in context and intensity and does not rise to a level of “significance” as defined by CEQ.

4.3.8 Health and Safety

No Build Alternative

The No Build Alternative would have no direct impact on health in the community. However, without the exchange of land jurisdiction between NPS and DDOT and implementation of design improvements and operations at the intersection, the vehicular and pedestrian safety issues would not be addressed. Therefore, the No Build Alternative would result in minor long-term negative impacts on safety of the pedestrians and motorists in the Study Area because existing safety issues would not be resolved.

Build Alternative 1 – Revised Square Alternative

Improved signage, traffic-calming measures, and relocated crosswalks with more effective crossing signals would improve visibility and operations at the Pennsylvania and Minnesota Avenues, SE intersection. Therefore Build Alternative 1 would result in safer navigation of the intersection for pedestrians and motorists. Pedestrian and bicycle safety would improve and vehicle-pedestrian conflicts would be reduced as a result of improvements under Build Alternative 1. Improvements would increase bicycle and pedestrian safety in the Study Area due to geometry upgrades and traffic management measures, including new bulb-outs, sidewalk expansion, crosswalk configuration, traffic movement restrictions and traffic signalization. For example, Build Alternative 1 would prohibit left turn movements from southbound L’Enfant Square, SE and northbound Minnesota Avenue, SE into the center of the square and would control the southbound right-turning vehicular traffic from L’Enfant Square, SE by traffic signals to minimize the existing vehicle-pedestrian conflicts. The improvements would also result in improved access to bus stops and other destinations at the intersection. For a complete list of improvements to the pedestrian and bicycle network, see *Section 4.4.1, Bicycle and Pedestrian Network*.

General motorists would be prohibited from making left turns from both directions on Pennsylvania and Minnesota Avenues and would be forced around the square; however, emergency response vehicles would be permitted to make all turns at this intersection. Autoturn™ simulation determined that the Build Alternative 1 design provides ample room for emergency vehicles to safely navigate the turns at the intersection.

Americans with Disabilities Act (ADA)-compliant ramps and sidewalks would be provided and/or improved in the Study Area where they do not exist currently, which would encourage pedestrians’ use of these safety features. Build Alternative 1 would also consolidate park area that would be larger, more accessible and safer than the existing medians for pedestrian and visitor use

Under Build Alternative 1, the improvements to the intersection would result in minor beneficial impacts to health and safety in the long term in the local area. Short-term impacts would be negligible; motorists, pedestrians, bicyclists and transit users that frequently use the intersection may need to become familiar with new traffic patterns; however, this period would be of short duration. Therefore, the impact is minor in context and intensity and does not rise to a level of “significance” as defined by CEQ.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

Build Alternative 2 does not reduce traffic speed for pedestrian use, however, it would improve the intersection operationally for motorists since visibility would likely improve and confusion would be reduced. Changes to the intersection to improve pedestrian safety include new bulb-outs, shorter

crosswalks in some locations, and enhanced traffic signalization. In *the original Build Alternative 2 design*, the crosswalk across Pennsylvania Avenue, SE connecting Minnesota Avenue, SE to the north and south of the eastside intersection *was* a long crossing distance for pedestrians. *It was initially determined that* due to the turning radius needed to make a left turn on Pennsylvania Avenue from southbound Minnesota Avenue, a median or refuge area to break up the crosswalk *was not feasible*. *However, following the review of public and agency comments received on the Draft EA, the project team reevaluated the pedestrian crossing at the east side of the intersection (Pennsylvania and Minnesota Avenue) and determined that an extended median in the roadway between the east- and west-bound lanes of Pennsylvania Avenue, SE that will allow a “break” for pedestrians crossing the street within the crosswalk is feasible and is therefore included in the Final EA. This will effectively reduce the uninterrupted crossing length and provide a more pedestrian-friendly crosswalk. Additionally, the crosswalk at the western intersection of Pennsylvania Avenue, SE with L’Enfant Square, SE is improved to provide a shorter, continuous crossing length across the westbound lanes of traffic. Currently the crosswalk crosses the westbound lanes at an angle. Crosswalk markings will also be improved and the traffic signal timing will be adjusted to accommodate the crossing time required for pedestrians.*

Additionally, Option 2 (Preferred Option) is designed to reduce the traffic volume adjacent to the residences along L’Enfant Square, SE since cut-through traffic would be minimized along L’Enfant Square, SE. Option 2 (Preferred Option) eliminates right turns from southbound L’Enfant Square, SE onto Pennsylvania Avenue, SE westbound, significantly reducing vehicle-pedestrian conflicts and improving safety.

Impacts to emergency services would be similar to Build Alternative 1. Autoturn™ was used to confirm that emergency vehicles could navigate the intersection with Build Alternative 2 design as well.

Given the improvements made to pedestrian facilities following the October 2013 EA comment period and the selection of Option 2 as the Preferred Option, Build Alternative 2 (Preferred Alternative) would result in improvements to the intersection that would result in minor beneficial impacts to health and safety in the long term in the local area. Short-term impacts would be negligible; motorists, pedestrians, bicyclists and transit users that frequently use the intersection may need to become familiar with new traffic patterns; however, this period would be of short duration. Therefore, the impact is minor in context and intensity and does not rise to a level of “significance” as defined by CEQ.

4.3.9 Community Resources

No Build Alternative

Emergency Response

Under the No Build Alternative, the reconfigured intersection would not be constructed and existing conditions would remain. The No Build Alternative would have no impact on emergency response services in the Study Area.

Schools

Under the No Build Alternative, the reconfigured intersection would not be constructed and existing conditions would remain, therefore the No Build Alternative would have no direct impact on schools in the Study Area. The intersection and vehicular and pedestrian safety issues would remain unchanged.

Parks and Recreation Areas

The No Build Alternative would have no direct impact on NPS land in the Study Area; the NPS reservations would remain under NPS jurisdiction and would not transfer to DDOT as they would under the Build Alternatives. In the long-term, the No Build Alternative would result in indirect, minor adverse impacts since the parcels would remain fragmented by the current intersection configuration and provide no recreational purpose to the community.

Places of Worship

Under the No Build Alternative, the reconfigured intersection would not be constructed and existing conditions would remain, therefore the No Build Alternative would have no direct impact on places of worship in the Study Area. The intersection and vehicular and pedestrian safety issues would remain unchanged.

Build Alternative 1 – Revised Square Alternative

Emergency Services

Under Build Alternative 1, turns for general motorists would be prohibited from making left turns from both directions on Pennsylvania and Minnesota Avenues and would be forced around the square; however emergency response vehicles would be permitted to make all turns at this intersection. Autoturn™ simulation was used in order to ensure that emergency vehicles (fire trucks) would be able to make the proposed turns (new turning radii) at the intersection. The two closest fire stations to the project site, Engine Company 19 and 8 are both operating with Seagrave 1250 gallons per minute (gpm) pumper trucks.⁵⁹ As a conservative estimate, the vehicle used to confirm the turning radii in the simulation was a Simon Duplex AS 110 Ladder Truck, which has a longer overall body length and longer wheelbase than the trucks being used by the nearby fire stations. The simulation determined that the Build Alternative 1 design provides ample room for emergency vehicles to navigate the turns at the intersection.

The roadway width for vehicles traveling westbound straight through the intersection on Pennsylvania Avenue would be reduced from 4 lanes to 3 lanes within the square, and the designated left-turn lanes traveling eastbound on Pennsylvania Avenue (turning north onto Minnesota Avenue) would be removed under Build Alternative 1. However the number of lanes and lane widths are maintained to the east and west of the intersection.

During periods of construction, emergency vehicles may be forced to take alternate routes to avoid temporary closures at this intersection; therefore minor short-term impacts for emergency services may result. DDOT would work with emergency services to inform them of any closures and to help develop maintenance of traffic routes. Impacts would be negligible in the long term.

Schools

Build Alternative 1 would have no direct impact on schools in the Study Area. The reconfigured intersection under Build Alternative 1 would improve vehicular and pedestrian safety concerns, which would benefit students and school faculty who may utilize the intersection when traveling to and from school. Minor short-term adverse impacts during construction may occur as students and faculty may be re-routed temporarily; long-term impacts would be beneficial and minor in the local area.

Parks and Recreation Areas

Under Build Alternative 1, the reconfigured intersection would include removal of the roadways which bisect the NPS-owned reservations on either side of Pennsylvania Avenue, SE. The result would be consolidated green space which would promote park area continuity. Under current conditions, the green space is fragmented and is not sufficient for recreational use by the community. Build Alternative 1 would benefit the community by providing more contiguous green space to be used as park space for passive recreational activity. In the long term, Build Alternative 1 would result in a minor beneficial impact to park operations and management in the local area because the Study Area would be less fragmented and easier to maintain for mowing and any other maintenance functions. Additionally the new, larger areas of green space and reduced travel speeds around the “square” would improve visitors’ ability to use the parks for activities. Build Alternative 1 would include minor short-term adverse impacts to the park area during construction. The impacts would be limited to the period of construction.

Places of Worship

Build Alternative 1 would have no direct impact on places of worship in the Study Area. The reconfigured intersection under Build Alternative 1 would improve vehicular and pedestrian safety concerns, which would benefit those who may utilize the intersection when traveling to and from places of worship. Minor short-term adverse impacts during construction may occur as pedestrians and motorists may be re-routed temporarily; long-term impacts would be beneficial and minor in the local area.

Summary

The impacts to community resources do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

Emergency Services

Impacts to emergency services would be similar to Build Alternative 1. Autoturn™ was used to confirm that emergency vehicles could navigate the intersection with Build Alternative 2 design as well. During periods of construction, emergency vehicles may be forced to take alternate routes to avoid temporary closures at this intersection; therefore minor short-term impacts for emergency services may result. DDOT would work with emergency services to inform them of any closures and to help develop maintenance of traffic routes. Impacts would be negligible in the long term.

Schools

Build Alternative 2 would have no direct impact on schools in the Study Area. The reconfigured intersection under Build Alternative 2 would improve some traffic operations for motorists using this intersection, which would benefit students and school faculty who may utilize the intersection when walking or driving to and from school. Minor short-term adverse impacts during construction may occur as students and faculty may be re-routed temporarily; long-term impacts would be beneficial and minor in the local area.

Parks and Recreation Areas

Under Build Alternative 2, the reconfigured intersection would include removal of the roadways which bisect the NPS-owned reservations on either side of Pennsylvania Avenue, SE. The result would be consolidated green space which would promote park area continuity. Under current conditions, the green space is fragmented and is not sufficient for recreational use by the community. Build Alternative 2 would enhance the park and recreation areas by providing more contiguous green space. Overall impacts to park and recreation areas under Build Alternative 2 would be minor and beneficial in the long term due to the addition of contiguous park space. Build Alternative 2 would result in minor short-term adverse impacts to the park area during construction.

Places of Worship

Build Alternative 2 would have no direct impact on places of worship in the Study Area. The reconfigured intersection under Build Alternative 2 would improve some traffic operations for motorists using this intersection, which would benefit those who may utilize the intersection when traveling to and from places of worship. Minor short-term adverse impacts during construction may occur as pedestrians and motorists may be re-routed temporarily; long-term impacts would be negligible.

Summary

The impacts to community resources do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

4.3.10 Utilities and Infrastructure

The differences in utility design between the Build Alternatives are negligible. Either design would involve the relocation of overhead facilities as the intersection is approached. It appears that the grade would be similar in either design, as would the drainage design.

No Build Alternative

Under the No Build Alternative, there would be no disturbance to the Study Area. Therefore, there would be no impacts to utilities located in the Study Area.

Build Alternative 1 – Revised Square Alternative

In Build Alternative 1, utility poles would have to be moved back to accommodate the intersection improvements. Existing overhead services from the pole lines to the buildings would have to be reworked, as well as the connection from pole to pole at the intersection corners.

Underground utility lines, including storm drains, sewer drains, electric, gas and telephone lines are located throughout the project intersection. Implementation of Build Alternative 1 would require consultation with all utility companies in order to determine the exact locations and depths to the utilities in the project intersection. There is potential for minor short-term impacts to utilities if utility lines need to be relocated due to construction or changes to the intersection layout. However, long-term impacts after project implementation are anticipated to be negligible. The impacts to utilities and infrastructure do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ. A more detailed survey, including subsurface utility locating and mapping would be performed as design development advances.

Impacts to WMATA (transit) infrastructure are addressed in *Section 4.4, Transportation*.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

Impacts to utilities under Build Alternative 2 would be negligible in the long term and could be minor in the short term if utility line relocation is necessary, similar to those described under Build Alternative 1. The impacts to utilities and infrastructure do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

4.4 Transportation

Impact Thresholds

The following thresholds were used to determine the magnitude of impacts on transportation.

Negligible: Any change to travel time, convenience, or benefit would not be perceptible or would be barely perceptible by roadway, bicycle and pedestrian, or transit users.

Minor: The change to travel time, convenience, or benefit would be noticeable to a small number of roadway, bicycle and pedestrian, or transit users; however, the effect would be slight.

Moderate: The resulting change in travel time, convenience, or benefit would be noticeable for a large number of roadway, bicycle and pedestrian, or transit users.

Major: There would be a substantial and highly noticeable change in travel time, convenience, or benefit for a large number of roadway, bicycle and pedestrian, or transit users.

Duration: **Short-term** – Effects would be immediate during implementation of the alternative; **Long-term** – Effects would persist, following implementation of the alternative.

4.4.1 Bicycle and Pedestrian Network

Methodology

A qualitative analysis was performed for the bicycle and pedestrian network at the subject intersection to identify deficiencies of the current configuration based on the existing field observations and discuss the improvements proposed by the Build Alternatives.

No Build Alternative

Under the No Build Alternative, no transfer of jurisdiction between NPS and DDOT would occur and no improvements would be made to the existing intersection configuration. This would result in continuation of the existing pedestrian and bicycle safety issues, inefficiencies, and dangerous interaction with vehicles at the intersection. Pedestrians and bicyclists would continue using existing sidewalks and crosswalks that are available or navigating the intersection illegally by jaywalking, for example.

The No Build Alternative would have minor short-term and long-term adverse impacts to the bicycle and pedestrian network due to continuing safety issues and inefficient bicycle and pedestrian infrastructure.

Build Alternative 1 – Revised Square Alternative

Pedestrian and bicycle safety were given high priority in Build Alternative 1 and vehicle-pedestrian conflicts were reduced as much as possible. Build Alternative 1, shown in **Figure 4-1**, would have the following pedestrian and bicyclist improvements (numbers correspond to the figure):

1. A new short crosswalk would be provided in the center of the square for pedestrians to cross Pennsylvania Avenue, SE;
2. Left turn movements from southbound L'Enfant Square, SE and northbound Minnesota Avenue, SE into the center of the square would be prohibited to eliminate conflicts between vehicles and crossing pedestrian;
3. The southbound right-turning vehicular traffic from L'Enfant Square, SE would be controlled by traffic signals to minimize the existing vehicle-pedestrian conflict;
4. New short crosswalks would replace the existing two-step crosswalks on northbound Minnesota Avenue, SE and southbound L'Enfant Square, SE to reduce the time walking in the street therefore enhance safety;
5. The expanded sidewalks at the southwest and northwest corners of Pennsylvania Avenue, SE and L'Enfant Square, SE would minimize the conflict between pedestrians waiting at the bus stop and bicyclists traveling on the sidewalk; and
6. Sidewalks would be expanded along the north side of Pennsylvania Avenue, SE to the northeast of the intersection to maintain 10' shared use path for bicycle and pedestrian convenience to and through the intersection.
7. *Crosswalk at the west intersection of Pennsylvania Avenue, SE with L'Enfant Square, SE would be improved to provide a shorter, continuous crossing length across the westbound lanes of traffic. Currently the crosswalk crosses the westbound lanes at an angle.*
8. *Following comments received from the Washington Metropolitan Area Transit Authority (WMATA) on the October 2013 EA, a pedestrian bulb-out was included in the Build Alternative 1 design at the bus stop at westbound Pennsylvania Avenue, SE with L'Enfant Square, SE, to shorten pedestrian crossing distance, protect parked vehicles, and reduce traffic impact caused by bus pullovers.*

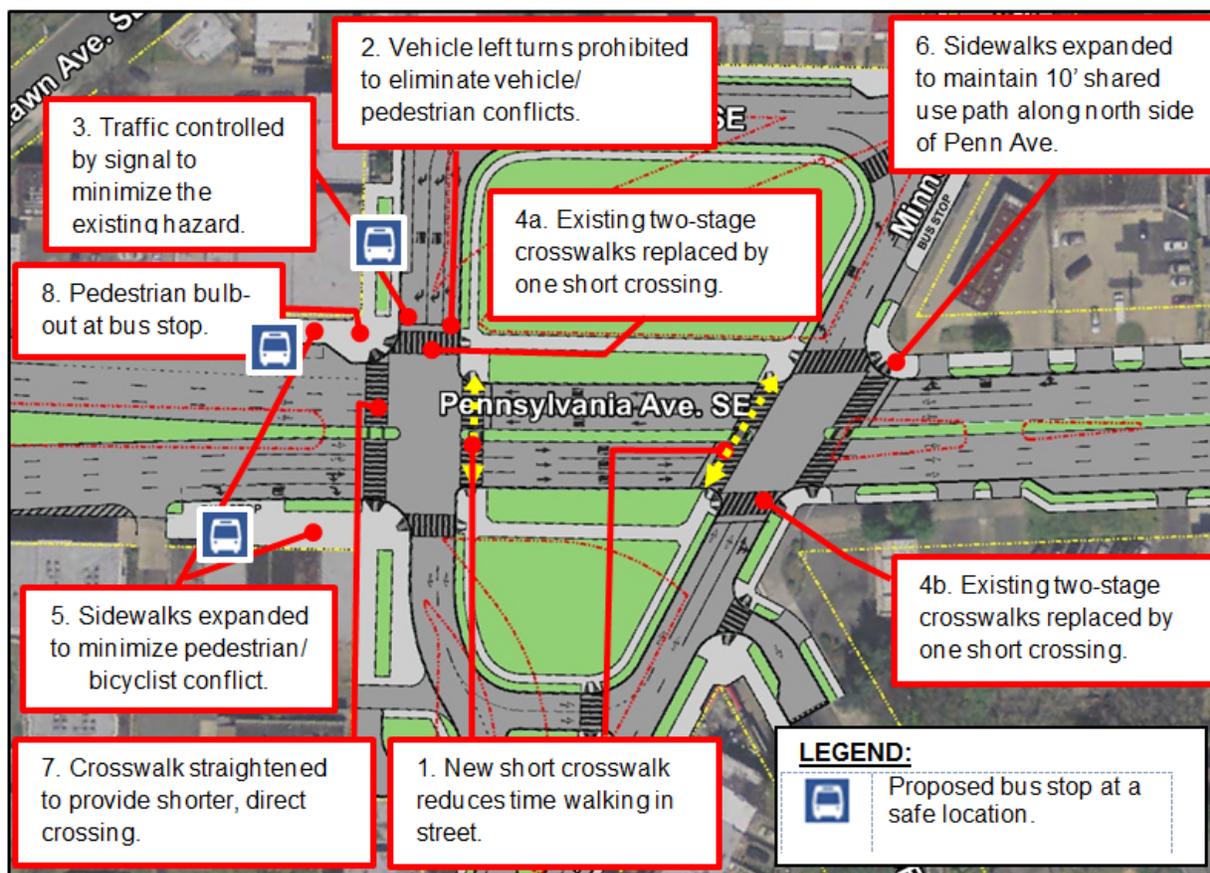
During construction, temporary disruption would occur to users of the intersection; however, detour routes and alternate paths would be dedicated during this time. In general, the intersection would be

improved with minimal disruption and ample mitigation to offset any negative effects; therefore, Build Alternative 1 would have negligible short-term impacts on the bicycle and pedestrian network.

In the long term, the Build Alternative 1 improvements would benefit the bicycle and pedestrian network in the Study Area due to geometry upgrades and traffic management measures, including new bulb-outs, sidewalk expansion, crosswalk configuration, traffic movement restrictions and traffic signalization. The improvements would also result in improved access to bus stops and other destinations at the intersection. Therefore, Build Alternative 1 would have moderate long-term beneficial impacts to the pedestrian and bicycle network both for local residents and for commuters to and through the Study Area, which would have noticeable benefits for a large number of intersection users. This includes benefits for the local community, including residents, visitors, and commuters through the Study Area. The impacts to the bicycle and pedestrian network do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

Figure 4-1

Pedestrian and Bicycle Improvements – Build Alternative 1



Source: HNTB Corporation, 2014.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

Build Alternative 2, shown in **Figure 4-2**, would improve pedestrian and bicyclist safety in the following ways (numbers correspond to figure):

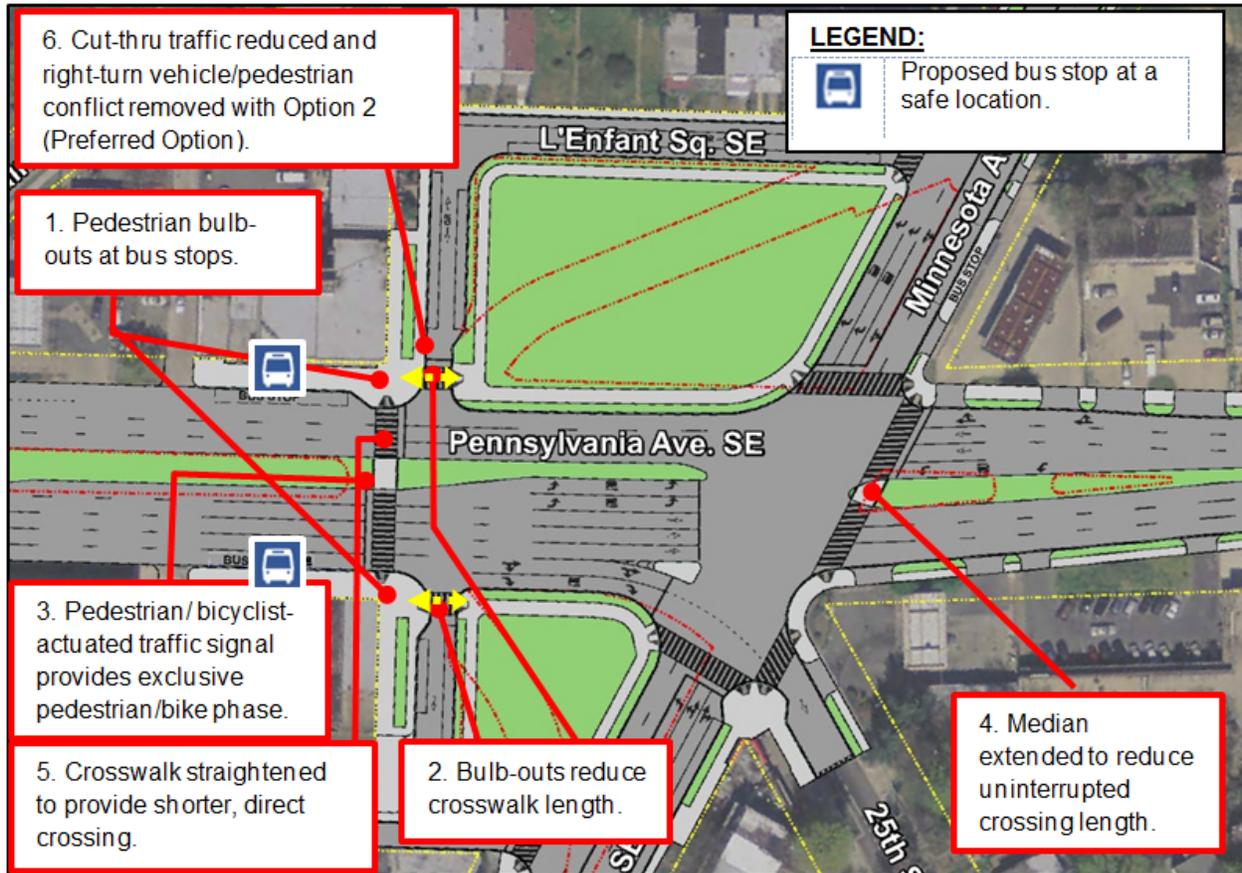
1. Proposed bulb-outs would provide exclusive bus bays that eliminate interruption to traffic on travel lanes and allow safe boarding and alighting for passengers;
2. Proposed bulb-outs will shorten the crosswalk therefore reduce the time that pedestrian walk in street; and
3. A proposed pedestrian/bicyclist activated traffic signal at the crosswalk would provide exclusive walk time for pedestrians and bicyclists to safely cross Pennsylvania Avenue without vehicular traffic conflict.
4. *Following comments received on October 2013 EA, the center median was extended to provide a more pedestrian-friendly crosswalk and reduce uninterrupted crossing length following comments received on the October 2013 EA.*
5. *Crosswalk at the west intersection of Pennsylvania Avenue, SE with L'Enfant Square, SE would be improved to provide a shorter, continuous crossing length across the westbound lanes of traffic. Currently the crosswalk crosses the westbound lanes at an angle.*
6. *Option 2 (Preferred Option) minimizes cut-through traffic and reduces right-turn conflict between vehicles and pedestrians because vehicle traffic will flow one-way to the north and east on L'Enfant Square, SE.*

During construction, temporary disruption would occur to users of the intersection; however, detour routes and alternate paths would be dedicated during this time. In general, the intersection would be improved with minimal disruption and ample mitigation to offset any negative effects; therefore, Build Alternative 2 would have negligible short-term impacts on the bicycle and pedestrian network.

In the long term, the Build Alternative 2 improvements would provide an overall benefit to the bicycle and pedestrian network in the Study Area over the No Build Alternative. Changes to the intersection to improve the pedestrian network include new bulb-outs, shorter crosswalks in some locations, and enhanced traffic signalization. *During the October 2013 EA review period, the project team reevaluated the pedestrian crossing at the east side of the intersection (Pennsylvania and Minnesota Avenue) and determined that an extended median in the roadway between the east- and west-bound lanes of Pennsylvania Avenue, SE that will allow a "break" for pedestrians crossing the street within the crosswalk is feasible. This will effectively reduce the uninterrupted crossing length and provide a more pedestrian-friendly crosswalk. Additionally, the crosswalk at the western intersection of Pennsylvania Avenue, SE with L'Enfant Square, SE is improved to provide a shorter, continuous crossing length across the westbound lanes of traffic. Currently the crosswalk crosses the westbound lanes at an angle. Crosswalk markings will also be improved and the traffic signal timing will be adjusted to accommodate the crossing time required for pedestrians. Additionally, with the selection of Option 2 as the Preferred Option, cut-through traffic will be minimized and the right-turn conflict between vehicles and pedestrians will be reduced.*

Given the improvements for pedestrians and bicyclists, Build Alternative 2 would have minor beneficial impacts in the long term to the pedestrian and bicycle network. The impacts to the bicycle and pedestrian network do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of "significance" as defined by CEQ.

Figure 4-2

Pedestrian and Bicycle Improvements – Build Alternative 2

Source: HNTB Corporation, 2014.

4.4.2 Roadway Network and Traffic

Methodology

This study analyzes traffic operations during AM and PM peak hours when vehicular and pedestrian traffic reach the highest levels and most accidents occur. It is important to capture these study periods, as it represents the most intense period of use for the Study Area. Based on the data and field observations, the peak hours of traffic are identified as 7:30-8:30 AM in the morning and 4:30-5:30 PM in the evening.

Per FHWA and DDOT requirements, the following years were included in the analysis for all alternatives:

- 2012 (Existing Year)
- 2015 (Opening Year)
- 2040 (Future Design Year)

Table 4.1 summarizes the scenarios included in the analysis.

Table 4.1
List of Scenarios included in the Traffic Analysis

Scenario	Analysis Year					
	2012		2015		2040	
	AM	PM	AM	PM	AM	PM
Existing Condition	X	X	-	-	-	-
No Build Alternative	-	-	X	X	X	X
Build Alternative 1 - Revised Square	-	-	X	X	X	X
Build Alternative 2 - Conventional Intersection	-	-	X	X	X	X

Notes: X : included in the analysis.
 - : not included in the analysis.

Source: HNTB Corporation, 2013.

As described previously in *Section 3.4.2, Roadway Network*, Intersection ID's 2 through 5 are intersections that are adjacent to the project intersection that would not be modified by any of the Build Alternatives. However, nearby impacts to these adjacent intersections due to each of the Build Alternatives were considered in the evaluation of alternatives for this EA.

To evaluate and compare the vehicular traffic operations of all alternatives, the following measures of effectiveness (MOE's) were selected for this study:

- Intersection Delay
- Intersection Level of Service (LOS)
- Approach Delay
- Approach LOS
- Queues on key approaches
- Travel times

Per FHWA guidance⁶⁰, traffic simulation was used to model, analyze and compare the traffic operations of the alternatives. Synchro software (version 8.0) was used to model and analyze the traffic signal operations including delays, LOS and queues. VISSIM software (version 5.3) was used to provide the travel time results.

For more detailed methodology, data collection methods, traffic volume development, and traffic simulation model calibration techniques, refer to *Appendix F, Traffic Analysis Report*. The peak hour turning movement volumes used in the EA are also presented in *Appendix F*.

No Build Alternative

Vehicular Delays and LOS

LOS is an estimate of the performance efficiency and quality of an intersection or roadway as established by the *Highway Capacity Manual (HCM)*⁶¹ methodology. The HCM methodology measures the degree of delay at intersections using a letter scale from A to F, A being the free flow condition and F being the total gridlock. LOS D or better is desirable for urban corridors.

2015 AM

As shown in **Table 4.2**, the No Build Alternative would operate at an acceptable LOS for the project intersections (1A and 1B) during the 2015 AM peak hour.

The adjacent intersections (2 through 5) would operate at acceptable levels with the exception of the Pennsylvania Avenue and 27th Street (ID 3), the intersection just east of the project intersection, which would operate at LOS F due to increased traffic.

2040 AM

As shown in **Table 4.3**, the increased traffic demand in 2040 would cause the LOS to deteriorate to LOS F from LOS D in 2015 at the L'Enfant Square, SE and Pennsylvania Avenue (1A) intersection under the No Build Alternative. The No Build alternative would experience delay at nearly 158 sec/veh at LOS F. The east side intersection (1B) in the No Build Alternative would operate adequately at LOS C.

Of the adjacent intersections, Pennsylvania and 27th Street (ID 3) would continue to operate at LOS F and the Pennsylvania Avenue and northbound 295 Ramp (ID 5) to the west of the project intersection would deteriorate to LOS F as well. The other two adjacent intersections would operate at A or B.

2015 PM

In 2015, shown in **Table 4.4**, all intersections in the No Build Alternative would operate at an acceptable LOS D or better.

2040 PM

In 2040, shown in **Table 4.5**, the increased traffic volumes would cause the two signals (1A and 1B) at Pennsylvania Avenue at Minnesota Avenue and L'Enfant Square, SE to deteriorate to LOS F in the No Build Alternative.

The adjacent intersections (2 through 5) would operate at acceptable levels with the continued exception of the Pennsylvania Avenue and 27th Street (ID 3), the intersection just east of the project intersection, which would operate at LOS F with 144.6 sec/veh delay.

Vehicular Queues

Tables 4.6 and 4.7 show the queuing analysis results on key movements at the intersections for all three alternatives in the AM and PM peak hours.

AM Peak Hour

During the AM peak hour, the northwest bound Pennsylvania Avenue carries heavy commuter traffic towards the District. In the 2015 AM, the longest queue is traveling northwest with 667 feet. Queues at the intersection 2015 in the AM are slightly longer than the existing condition (2012).

PM Peak Hour

In the PM peak hour, similar queue results were found. The longest average queue length in the PM is 804 feet traveling in the southeast direction at the L'Enfant Square, SE and Pennsylvania Avenue (1A) intersection in 2015 and greater than 1,970 feet at the same intersection in the southeast direction in 2040.

Vehicular Travel Times

Travel time, the amount of time it takes for a motorist to travel from point A to point B, is a direct reflection of motorist experience. Therefore it is a critical and effective measure when comparing the traffic impact of alternatives. The AM and PM peak hour results of travel time analysis for the Build Alternatives and the existing condition are shown in **Tables 4.8 and 4.9** respectively.

AM Peak Hour

Under the No Build Alternative, travel times at the intersection would remain similar to existing conditions, ranging from 1 minute traveling from Pennsylvania Avenue and 27th Street to Minnesota Avenue and 23rd Street to 6.3 minutes traveling from Minnesota Avenue and 23rd St to Pennsylvania Avenue and the I-295 northbound Ramp in the AM. Travel times increase in 2040, but show a similar pattern to 2015.

PM Peak Hour

Similar to the AM comparison, in the PM peak hour, the travel times are similar to existing conditions (2012), and range from 1.8 minutes traveling from Pennsylvania Avenue and 27th St to Minnesota Ave and 23rd St to 4.8 minutes traveling from Pennsylvania Avenue and the 295 northbound Ramp to Minnesota Avenue and 23rd St. in 2015. Travel times increase in the 2040 No Build Alternative in the PM, but show similar patterns to 2015.

Summary of No Build Alternative

Under the No Build Alternative, the roadway configuration and traffic operational characteristics would remain unchanged from the existing condition, as shown in Figure 3-12 above.

In the opening year (2015), the No Build Alternative would operate adequately (LOS D or better) at the intersections of Pennsylvania at Minnesota Avenues and L'Enfant Square, SE. In 2040, due to the increased traffic demand, the No Build Alternative would operate at an undesirable LOS F at the Pennsylvania Avenue at L'Enfant Square intersection (1A) with heavy congestion. In general, vehicular delays and queue lengths would increase due to projected increases in traffic volumes.

The No Build Alternative would have no short-term impacts because no construction would occur at the intersection. As traffic congestion and back-ups build in the future due to projected increases in volume, deteriorating conditions would occur on the roadway network and traffic under the No Build Alternative.

As a result, the No Build Alternative would result in long-term minor adverse impacts to the roadway network and traffic; changes in travel time would be noticeable to motorists.

Build Alternative 1 – Revised Square Alternative

The intersections modeled in Build Alternative 1 are illustrated on **Figure 4-3**.

Figure 4-3

Key Traffic Intersections Analyzed – Build Alternative 1



Source: HNTB Corporation, 2014.

Vehicular Delays and LOS

2015 AM

As shown in Table 4.2, all three intersections (1A, 1B and 1C) in Build Alternative 1 would operate at an LOS B or C.

The four adjacent intersections (2 through 5) would operate similarly under all Build Alternatives; as with the No Build Alternative, Pennsylvania Avenue and 27th Street, the intersection just east of the subject intersection, would operate at LOS F due to increased traffic.

2040 AM

As shown in Table 4.3, the increased traffic demand in 2040 would cause the LOS to deteriorate to LOS F at the L'Enfant Square, SE and Pennsylvania Avenue (1A) intersection under Build Alternative 1, with a 116 sec/veh delay, which is slightly better than the 2040 No Build Alternative (158 sec/veh). The east intersection (1B) and south intersection would operate adequately at LOS D and C, respectively.

The LOS at the adjacent intersections would be the same as the No Build Alternative; Pennsylvania/27th Street (ID 3) would continue to operate at LOS F and the Pennsylvania Avenue and northbound 295 Ramp (ID 5) to the west of the subject intersection would deteriorate to LOS F as well. The other two adjacent intersections would operate at A or B.

2015 PM

In 2015, as shown in Table 4.4, all intersections in Build Alternative 1 would operate at an acceptable LOS C or better.

2040 PM

In 2040, as shown in Table 4.5, Build Alternative 1 would reduce the delays as compared to the No Build Alternative at the east signal (1B) from 105 sec/veh under the No Build in 2040 to 62 sec/veh and improve the LOS from F to E. The west intersection (1A) would operate at LOS F, as with the No Build Alternative.

The adjacent intersections (2 through 5) would operate at acceptable levels with the continued exception of the Pennsylvania Avenue and 27th Street (ID 3), the intersection just east of the subject intersection, which would operate at LOS F.

Vehicular Queues

Tables 4.6 and 4.7 compare the queuing analysis results on key movements at the intersections for all alternatives analyzed for the AM and PM peak hours, respectively.

AM Peak Hour

During the AM peak hour, the northwest bound Pennsylvania Avenue carries heavy commuter traffic towards the District. Compared to the No Build Alternative, Build Alternative 1 would have longer queues at the Pennsylvania Avenue and northbound Minnesota Avenue intersection (1B). This increase is attributed to the rerouted traffic around the square in Build Alternative 1 that would significantly increase the volumes on the northeast bound approach. Additional green signal time would have to be taken away from the northwest bound traffic on Pennsylvania Avenue to meet the traffic demand of Minnesota Avenue. The queue on westbound Pennsylvania Avenue could be almost 760 feet long in 2015, reaching the 27th Street intersection, and would be even longer in 2040 AM.

PM Peak Hour

Similar queue results were found in the PM peak hour as the AM peak, however, the increase would not be as large as in the AM peak hour. Build Alternative 1 would have an average queue length of 64 feet in 2015, which would not reach the I-295 northbound ramp intersection. Some average queue lengths are reduced under Build Alternative 1 as compared to the No Build Alternative.

Vehicular Travel Times

The AM and PM peak hour results of travel time analysis for all alternatives analyzed and the existing condition are shown in Tables 4.8 and 4.9, respectively.

AM Peak Hour

In the AM peak hour, more than half of all approaches would take longer than the No Build Alternative because all left-turning vehicles would be required to go around the square to reach their destinations. Travel times under Build Alternative 1 range from 1.1 minutes traveling from Pennsylvania Avenue and 27th St to Minnesota Avenue and 23rd St to 7.1 minutes traveling from Minnesota Avenue and 23rd St to Pennsylvania Avenue and the I-295 northbound ramp in 2015. Travel times increase in 2040, but results show a similar pattern to 2015.

PM Peak Hour

Similar to the AM comparison, in the PM peak hour, the travel times would increase with Build Alternative 1 for most approaches, especially for northbound Minnesota Avenue traffic which could see travel times as high as 10 minutes due to the high volumes and congestion in the square. Travel times typically increase from 2015 and 2040.

Summary of Build Alternative 1 – Revised Square Alternative

Under Build Alternative 1, the intersection would operate adequately (LOS D or better) in the opening year 2015. As with the No Build Alternative, due to increased traffic demand, this alternative would operate at an undesirable LOS F at the Pennsylvania and L’Enfant Square, SE intersection (1A) with heavy congestion in 2040. Compared to the No Build Alternative, Build Alternative 1 would cause longer queues on Pennsylvania at Minnesota Avenues, SE in the peak travel direction during AM and PM peak hours, and would increase travel times on most vehicular trips due to traffic being re-routed around the square.

During construction, temporary disruption could occur to vehicles using the intersection; however detour routes and alternate routes would be dedicated during this time, which help to offset impacts. It is anticipated that the intersection could be improved without major disruptions to commuters either through re-routing vehicles or by implementing the project in phases. Build Alternative 1 would have minor short-term impacts on the roadway network and traffic for short durations during construction. Maintenance of traffic assumptions are included in *Section 4.8, Mitigation Measures*. Potential Maintenance of Traffic plans for Build Alternative 1 are included in *Appendix F, Traffic Analysis*.

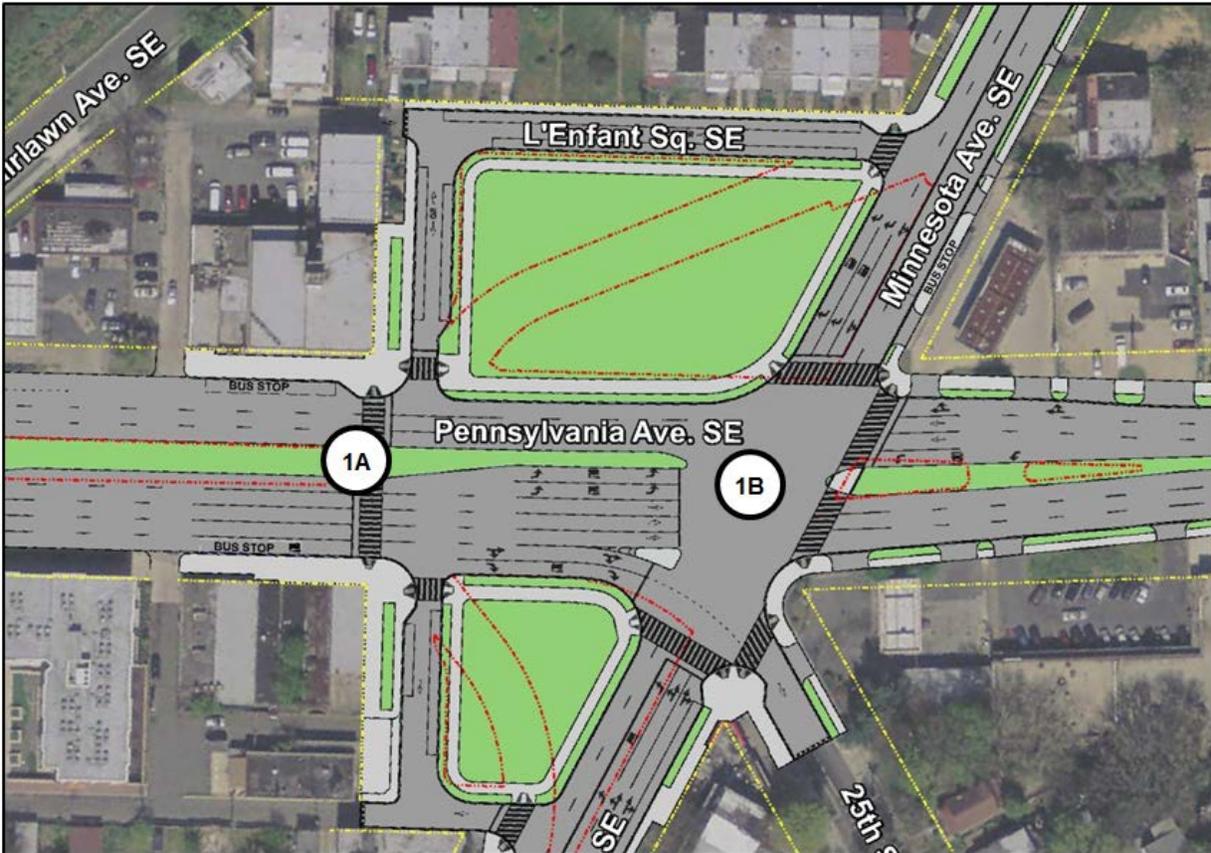
In the long term, Build Alternative 1 would result in minor adverse impacts to the roadway network and traffic due to the increase in queue length and vehicle trip time due to the design improvements and the traffic being re-routed around the square; changes in travel time would be noticeable to motorists. Build Alternative 1 is intended to slow down traffic and minimize interaction between vehicles and pedestrians. Although the technical findings of the traffic analysis show adverse impacts to the intersection by 2040 for LOS, queue lengths and travel times, the intended benefits at this intersection align with the Purpose and Need for the project. The impact to the roadway network and traffic is minor in context and intensity and therefore does not rise to a level of “significance” as defined by CEQ.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

The intersections modeled in Build Alternative 2 are illustrated on **Figure 4-4**.

Figure 4-4

Key Traffic Intersections Analyzed – Build Alternative 2



Source: HNTB Corporation, 2014.

Vehicular Delays and LOS

2015 AM

As shown in Table 4.2, the Pennsylvania and Minnesota Avenues, SE intersection (1B) would deteriorate to LOS F under Build Alternative 2 in the 2015 AM, as all movements would be accommodated at the reconfigured Pennsylvania Avenue and Minnesota Avenue intersection. The new pedestrian activated signal (1A) would operate at LOS A.

The four adjacent intersections (2 through 5) would operate similarly to the No Build Alternative, Pennsylvania Avenue and 27th Street, the intersection just east of the subject intersection, would operate at LOS F due to increased traffic.

2040 AM

As shown in Table 4.3, the LOS would deteriorate to an unacceptable LOS E with a 58 sec/veh delay at the L'Enfant Square, SE and Pennsylvania Avenue (1A) intersection and LOS F with a 274 sec/veh delay

at the Pennsylvania and Minnesota Avenues, SE intersections (1B), which is worse than under the No Build and Build Alternative 1, which would operate at LOS D or C, respectively, at the same intersection.

LOS at the adjacent intersections would be the same as the No Build Alternative; Pennsylvania Avenue and 27th Street (ID 3) would continue to operate at LOS F and the Pennsylvania Avenue and northbound 295 Ramp (ID 5) to the west of the subject intersection would deteriorate to LOS F as well. The other two adjacent intersections would operate at A or B.

2015 PM

In 2015, shown in Table 4.4, all intersections in Build Alternative 2 would operate at an acceptable LOS D or better.

2040 PM

In the 2040 PM, as shown in Table 4.5, Build Alternative 2 would eliminate the heavy delays at the west signal (1A) by moving all vehicular traffic to the east side signal (1B). The west signal (1A) would operate at LOS A and the east signal (1B) would remain LOS F with comparable delays to the No Build Alternative; however, all four approaches at the east side signal (1B) would experience LOS F, while there is only one approach at LOS F in the No Build Alternative.

The adjacent intersections (2 through 5) would operate at acceptable levels with the continued exception of the Pennsylvania Avenue and 27th Street (ID 3), the intersection just east of the project intersection, which would operate at LOS F.

Vehicular Queues

Tables 4.6 and 4.7 compare the queuing analysis results on key movements at the intersections for all alternatives for the AM and PM peak hours, respectively.

AM Peak Hour

During the AM peak hour, the northwest bound Pennsylvania Avenue, SE carries heavy commuter traffic towards the District. Compared to the No Build Alternative, Build Alternative 2 would have longer queues at the Pennsylvania Avenue and northbound Minnesota Avenue intersection (1B). This increase can be attributed to the fact that all traffic crossing Minnesota Avenue, SE would be rerouted to one intersection (1B); this would cause higher demand on all approaches and more delays and queues in all directions. The westbound Pennsylvania Avenue queue could be over 1,000 feet long in 2015 and reach the 28th Street intersection, and would be slightly longer in 2040.

PM Peak Hour

Similar queue results were found in the PM peak hour as the AM peak hour, however, the increase would not be as large as in the AM peak hour. Build Alternative 2 would have an average queue length of 562 feet in 2015, greater than the Revised Square and No Build Alternatives, but would still not reach the I-295 northbound ramp intersection. Some average queue lengths are reduced under this alternative as compared to the No Build Alternative.

Vehicular Travel Times

The AM and PM peak hour results of travel time analysis for all alternatives and the existing condition are shown in Tables 4.8 and 4.9, respectively.

AM Peak Hour

Under Build Alternative 2 in the AM peak hour, most approaches in 2015 would experience shorter travel times than under the No Build Alternative due to simplified design configuration. Travel times range from 1.4 minutes traveling from Pennsylvania Avenue and 27th Street to Pennsylvania Avenue and I-295 northbound Ramp to 4.7 minutes traveling from Minnesota Avenue and 27th Street to Minnesota Avenue and 23rd Street in 2015. However, in 2040, over half of the travel times are longer with Build Alternative 2 than with the No Build Alternative.

PM Peak Hour

Similar to the AM comparison, in the PM peak hour, in 2015, Build Alternative 2 would reduce travel times for most approaches. However in 2040, this alternative would cause longer travel times than under the No Build Alternative for most approaches.

Summary of Build Alternative 2 – Conventional Intersection Alternative

Under Build Alternative 2, the intersection would experience heavy congestion (LOS F) in the AM peak period at the Pennsylvania and Minnesota Avenues, SE intersection (1B). By 2040, due to increased traffic demand, this alternative would continue to operate at undesirable LOS F at the east intersection (1B). Compared to the No Build Alternative, Build Alternative 2 would cause longer queues on Pennsylvania Avenue at Minnesota Avenue, SE in the peak travel direction during AM and PM peak hours. In the 2015 PM, travel times would be reduced as compared to the No Build Alternative for the majority of trips under this alternative; however in the 2040 PM, the travel times are comparable to the No Build Alternative.

During construction, temporary disruption could occur to vehicles using the intersection; however detour routes and alternate routes would be dedicated during this time, which help to offset impacts. It is anticipated that the intersection could be improved without major disruptions to commuters either through re-routing vehicles or by implementing the project in phases. Build Alternative 2 would have minor short-term impacts on the roadway network and traffic for short durations during construction. Maintenance of Traffic assumptions are included in *Section 4.8, Mitigation Measures*.

In the long term, Build Alternative 2 would result in minor adverse impacts to the roadway network and traffic; changes in travel time would be noticeable to motorists. Queues lengths during the AM and PM peak hours in 2040 would be longer than the No Build Alternative, and by 2040, travel times would also be comparable to the No Build Alternative. The impact to the roadway network and traffic is minor in context and intensity and therefore does not rise to a level of “significance” as defined by CEQ.

Table 4.2

Traffic Delay (in Second/Vehicle) and LOS Results – 2015 AM

ID	INTERSECTION	2015 NO BUILD			2015 REVISED SQUARE			2015 CONV. INTERSECTION						
		APPROACH		INTERSECTION	APPROACH		INTERSECTION	APPROACH		INTERSECTION				
		DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS			
1A	L'Enfant Sq. & Pennsylvania Ave	SWB	295.2	F	40.7	D	74.7	E	25.7	C	-	-	0.1	A
		SWR (L'Enfant Sq.)	0.4	A			-	-			-	-		
		SEB	12.7	B			14.2	B			0.1	A		
		NWB	13.1	B			4.8	A			0.2	A		
		SEB	18.6	B			4.2	A			46.8	D		
1B	Pennsylvania Ave & Minnesota Ave	NWB	20.2	C	19.1	B	23.9	C	23.4	C	97.1	F	117.5	F
		NEB	15.5	B			35.2	D			124.4	F		
		SWB	-	-			-	-			292.4	F		
		NET	-	-			19.9	B			18.8	B		
1C*	L'Enfant Sq South & Minnesota Ave NB	SEL	-	-	-	-	17.4	B	10.8	B	-	-	-	-
		EB	4.6	A			4.6	A			4.6	A		
2	Minnesota Ave & 23rd St	WB	4	A	10.8	B	4	A	10.8	B	4	A	10.8	B
		NB	29.3	C			29.3	C			29.3	C		
		WB	367	F			367	F			367	F		
3	Pennsylvania Ave & 27th St	NB	158.1	F	86.3	F	158.1	F	86.6	F	158.1	F	86.1	F
		SEB	14.3	B			15.8	B			13.3	B		
		NWB	62.2	E			62.2	E			62.2	E		
		NB	10.4	B			10.4	B			10.4	B		
4	Minnesota Ave & 27th St	NEB	0	A	0.9	A	0	A	0.9	A	0	A	0.9	A
		SWB	0	A			0	A			0	A		
		SEB	26	C			26	C			26	C		
5	Pennsylvania Ave & NB 295 Ramp	NWB	27.4	C	26.6	C	32.2	C	29.6	C	34.5	C	31.1	C
		SEB	26	C			26	C			26	C		

Note: * Intersection 1C only exists in the Revised Square Alternative.

Source: HNTB Corporation, 2013.

Table 4.3

Traffic Delay (in Second/Vehicle) and LOS Results – 2040 AM

ID	INTERSECTION	APPROACH	2040 NO BUILD						2040 REVISED SQUARE						2040 CONV. INTERSECTION									
			APPROACH		INTERSECTION		APPROACH		INTERSECTION		APPROACH		INTERSECTION		APPROACH		INTERSECTION							
			DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS						
1A	L'Enfant Sq & Pennsylvania Ave	SWB	932.9	F	158.1	F	296.5	F	115.9	F	-	-	58.4	E	-	-	-	-						
		SWR (L'Enfant Sq.)	1.3	A			-	-			-	-			-	-	-	-	-	-	-			
		SEB	14.2	B			19.5	B			0.1	A			80.4	F	47.7	D	153.1	F	309.1	F	696.1	F
		NWB	17.6	B			18.9	B			4.4	A			70.5	E	23.3	C	48.6	D	274.1	F	-	-
		SEB	29.7	C			4.4	A			70.5	E			23.3	C	48.6	D	274.1	F	-	-	-	-
1B	Pennsylvania Ave & Minnesota Ave	NWB	21.8	C	32.7	C	21.7	C	23.4	C	21.7	C	274.1	F	21.7	C	274.1	F						
		NEB	70.7	E			23.3	C			23.3	C			23.3	C								
		SWB	-	-			-	-			-	-			-	-								
1C*	L'Enfant Sq South & Minnesota Ave NB	NET	-	-	-	-	25.4	C	-	-	25.4	C	-	-	25.4	C	-	-						
		SEL	-	-			-	-			-	-			-									
2	Minnesota Ave & 23rd St	EB	6.2	A	12	B	6.2	A	12	B	6.2	A	12	B	6.2	A	12	B						
		WB	5.9	A			5.9	A			5.9	A			5.9	A								
		NB	30.4	C			30.4	C			30.4	C			30.4	C								
3	Pennsylvania Ave & 27th St	WB	404.5	F	103.5	F	404.5	F	103.7	F	404.5	F	102.6	F	404.5	F	102.6	F						
		NB	178.9	F			178.9	F			178.9	F			178.9	F								
		SEB	14.7	B			15	B			10.7	B			10.7	B								
		NWB	89.7	F			89.7	F			89.7	F			89.7	F								
		NB	11.2	B			11.2	B			11.2	B			11.2	B								
4	Minnesota Ave & 27th St	NEB	0	A	0.6	A	0	A	0.6	A	0	A	0.6	A	0	A	0.6	A						
		SWB	0	A			0	A			0	A			0	A								
		SEB	59.1	E			59.1	E			59.1	E			59.1	E								
5	Pennsylvania Ave & NB 295 Ramp	NWB	128.6	F	101.9	F	140.3	F	109.2	F	136.5	F	106.9	F	136.5	F	106.9	F						
		SEB	59.1	E			59.1	E			59.1	E			59.1	E								

Note: * Intersection 1C only exists in the Revised Square Alternative.

Source: HNTB Corporation, 2013.

Table 4.4

ID	INTERSECTION	APPROACH	2015 NO BUILD						2015 REVISED SQUARE						2015 CONV. INTERSECTION					
			APPROACH		INTERSECTION		APPROACH		INTERSECTION		APPROACH		INTERSECTION		APPROACH		INTERSECTION			
			DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS		
1A	L'Enfant Sq & Pennsylvania Ave	SWB	193.9	F	37	D	51	D	33.2	C	-	-	0.3	A						
		SWR (L'Enfant Sq.)	0.2	A			-	-												
		SEB	29.6	C			36.6	D			0.4	A								
		NWB	4.2	A			1.9	A			0.1	A								
		SEB	3.6	A			3.6	A			33.1	C								
1B	Pennsylvania Ave & Minnesota Ave	NWB	73.6	E	25	C	8.8	A	24.2	C	38.5	D	45.2	D						
		NEB	49.6	D			65.9	E			78.6	E								
		SWB	-	-			-	-			91.8	F								
		NET	-	-			39.3	D			27.7	C								
1C*	L'Enfant Sq South & Minnesota Ave NB	SEL	-	-	-	-	22.3	C	-	-	-	-	-	-						
		EB	4.7	A	4.7	A	4.7	A	4.7	A	4.7	A	8.1	A						
2	Minnesota Ave & 23rd St	WB	4.5	A	8.1	A	4.5	A	8.1	A	4.5	A	8.1	A						
		NB	29	C			29	C			29	C								
		WB	57.1	E			57.1	E			57.1	E								
3	Pennsylvania Ave & 27th St	NB	52	D	17.8	B	52	D	19	B	52	D	13.1	B						
		SEB	11.5	B			13.3	B			4.4	A								
		NWB	20.1	C			20.1	C			20.1	C								
		NB	14.9	B			14.9	B			14.9	B								
4	Minnesota Ave & 27th St	NEB	0	A	1.1	A	0	A	1.1	A	0	A	1.1	A						
		SWB	0	A			0	A			0	A								
		SEB	5.9	A			5.9	A			5.9	A								
5	Pennsylvania Ave & NB 295 Ramp	NWB	12.1	B	7.4	A	25.3	C	10.7	B	35.4	D	13.2	B						
		SEB	5.9	A			5.9	A			5.9	A								

Note: * Intersection 1C only exists in the Revised Square Alternative.

Source: HNTB Corporation, 2013.

Table 4.5

Traffic Delay (in Second/Vehicle) and LOS Results – 2040 PM

ID	INTERSECTION	APPROACH	2040 NO BUILD						2040 REVISED SQUARE						2040 CONV. INTERSECTION					
			APPROACH		INTERSECTION		APPROACH		INTERSECTION		APPROACH		INTERSECTION		APPROACH		INTERSECTION			
			DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS		
1A	L'Enfant Sq. & Pennsylvania Ave	SWB	160.2	F	176.3	F	53.9	D	170.4	F	-	-	1.4	A						
		SWR (L'Enfant Sq.)	0.2	A			-	-			-	-								
		SEB	247.7	F			245.3	F			2	A								
		NWB	7.7	A			3.1	A			0	A								
		SEB	11.5	B			41.5	D			104.3	F								
1B	Pennsylvania Ave & Minnesota Ave	NWB	328.7	F	105.3	F	8.6	A	61.7	E	151.9	F	119.4	F						
		NEB	46.4	D			172.2	F			179	F								
		SWB	-	-			-	-			103.2	F								
		NET	-	-			36.9	D			29.1	C								
		SEL	-	-			27.1	C			-	-								
2	Minnesota Ave & 23rd St	EB	4.2	A	7.6	A	4.2	A	7.6	A	4.2	A	7.6	A						
		WB	5.2	A			5.2	A			5.2	A								
		NB	28.8	C			28.8	C			28.8	C								
		WB	55.8	E			61.1	E			61.1	E								
		NB	83.7	F			106.2	F			106.2	F								
3	Pennsylvania Ave & 27th St	SEB	205.5	F	144.6	F	205.8	F	147.4	F	205.8	F	147.4	F						
		NWB	39.7	D			39.6	D			39.6	D								
		NB	34.3	D			34.3	D			33.8	D								
		NEB	0	A			0	A			0	A								
		SWB	0	A			0	A			0	A								
4	Minnesota Ave & 27th St	SEB	14.4	B	16.6	B	14.4	B	23.1	C	14.4	B	30.1	C						
		NWB	23.3	C			49.4	D			77.1	E								
		NB	3.9	A			3.9	A			3.9	A								
		NEB	0	A			0	A			0	A								
		SWB	0	A			0	A			0	A								

Note: * Intersection 1C only exists in the Revised Square Alternative.

Source: HNTB Corporation, 2013.

Table 4.6

Queuing Analysis Results (in Feet) – AM

ID	INTERSECTION	DIRECTION	EXISTING	2015			2040		
				NO BUILD	REVISED SQ.	CONV. INT.	NO BUILD	REVISED SQ.	CONV. INT.
1A	L'Enfant Sq.	SWT	~333	~344	~328	-	~857	~1165	-
	&	SET	165	169	151	-	243	257	-
	Pennsylvania Ave	NWT	619	667	73	106	842	~113	~1538
1B		SEL	136	138	-	~176	~194	-	~216
		SET	5	6	25	99	9	29	150
	Pennsylvania Ave	NWL	-	-	-	5	-	-	4
	&	NWT	338	360	758	~1037	363	~1009	~1114
	Minnesota Ave	NEL	~102	~109	-	~316	~481	-	~559
		NET	0	1	280	191	55	323	~308
		SWL	-	-	-	128	-	-	~372
1C*	L'Enfant Sq. South &	NET	-	-	191	-	-	263	-
	Minnesota Ave NB	SEL	-	-	39	-	-	150	-

Note: * Intersection 1C only exists in the Revised Square Alternative.
 ~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Source: HNTB Corporation, 2013.

Table 4.7

Queuing Analysis Results (in Feet) – PM

ID	INTERSECTION	DIRECTION	EXISTING	2015			2040		
				NO BUILD	REVISED SQ.	CONV. INT.	NO BUILD	REVISED SQ.	CONV. INT.
1A	L'Enfant Sq	SWT	~314	~323	260	-	~279	241	-
	&	SET	775	804	845	-	~1970	~2016	-
	Pennsylvania Ave	NWT	79	80	13	0	154	38	73
1B		SEL	179	180	-	288	359	-	~579
		SET	12	13	64	562	~1149	~1179	~1298
	Pennsylvania Ave	NWL	-	-	-	4	-	-	4
	&	NWT	250	256	101	293	~733	186	~805
	Minnesota Ave	NEL	172	175	-	193	135	-	~192
		NET	170	173	~417	197	134	~624	~184
		SWL	-	-	-	~208	-	-	~265
1C*	L'Enfant Sq South &	NET	-	-	236	-	-	180	-
	Minnesota Ave NB	SEL	-	-	420	-	-	574	-

Note: * Intersection 1C only exists in the Revised Square Alternative.
 ~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Source: HNTB Corporation, 2013.

Table 4.8
Travel Time Analysis Results (in Minutes) – AM

FROM	TO	EXISTING	2015			2040		
			NO BUILD	REVISED SQ.	CONV. INT.	NO BUILD	REVISED SQ.	CONV. INT.
Penn Ave/ 295NB Ramp	Minn Ave/ 27th St	2.6	2.6	3.0	4.3	4.5	7.5	7.1
Penn Ave/ 295NB Ramp	Penn Ave/ 27th St	1.8	1.8	1.8	1.8	3.3	4.3	3.8
Penn Ave/ 295NB Ramp	Minn Ave/ 23rd St	2.3	2.3	3.1	2.2	3.9	8.1	4.0
Penn Ave/ 295NB Ramp	Minn Ave/ 25th St	1.8	1.8	3.0	1.6	3.3	7.5	3.6
Penn Ave/ 27th St	Penn Ave/ 295NB Ramp	1.3	1.3	1.2	1.4	1.3	1.4	1.5
Penn Ave/ 27th St	Minn Ave/ 23rd St	1.0	1.0	1.1	1.5	1.1	1.1	1.4
Minn Ave/ 23rd St	Penn Ave/ 295NB Ramp	6.1	6.3	7.1	3.2	7.0	9.1	6.4
Minn Ave/ 23rd St	Minn Ave/ 27th St	3.8	4.1	4.6	2.1	4.5	5.2	4.4
Minn Ave/ 23rd St	Penn Ave/ 27th St	4.3	4.6	5.0	2.4	5.2	5.2	5.2
Minn Ave/ 23rd St	Minn Ave/ 25th St	3.7	3.8	4.0	1.8	4.0	4.0	4.3
Minn Ave/ 27th St	Minn Ave/ 25th St	4.4	4.1	3.2	4.1	5.5	5.5	3.9
Minn Ave/ 27th St	Minn Ave/ 23rd St	4.5	4.3	3.5	4.7	5.6	5.7	4.5
Minn Ave/ 27th St	Penn Ave/ 295NB Ramp	4.9	5.0	3.9	4.0	5.7	5.4	3.6

Source: HNTB Corporation, 2013.

Table 4.9
Travel Time Analysis Results (in Minutes) – PM

FROM	TO	EXISTING	2015			2040		
			NO BUILD	REVISED SQ.	CONV. INT.	NO BUILD	REVISED SQ.	CONV. INT.
Penn Ave/ 295NB Ramp	Minn Ave/ 27th St	3.4	3.9	7.9	2.9	5.2	6.7	5.2
Penn Ave/ 295NB Ramp	Penn Ave/ 27th St	3.4	3.9	5.4	2.2	5.4	4.9	5.5
Penn Ave/ 295NB Ramp	Minn Ave/ 23rd St	4.2	4.8	8.1	2.6	5.9	6.7	5.0
Penn Ave/ 295NB Ramp	Minn Ave/ 25th St	4.1	4.6	8.0	2.2	5.3	6.5	4.7
Penn Ave/ 27th St	Penn Ave/ 295NB Ramp	2.2	2.2	1.3	1.9	3.2	1.8	2.6
Penn Ave/ 27th St	Minn Ave/ 23rd St	1.8	1.8	1.2	1.4	2.6	1.2	1.8
Minn Ave/ 23rd St	Penn Ave/ 295NB Ramp	2.3	2.3	11.1	2.4	2.3	11.1	3.2
Minn Ave/ 23rd St	Minn Ave/ 27th St	2.4	2.6	10.9	1.9	2.1	10.3	2.3
Minn Ave/ 23rd St	Penn Ave/ 27th St	3.2	3.2	11.6	2.5	2.7	10.5	3.1
Minn Ave/ 23rd St	Minn Ave/ 25th St	2.4	2.3	10.4	1.7	1.6	10.1	1.9
Minn Ave/ 27th St	Minn Ave/ 25th St	3.0	3.3	1.8	2.5	2.8	2.2	4.1
Minn Ave/ 27th St	Minn Ave/ 23rd St	3.0	3.2	2.3	3.0	2.6	2.6	4.5
Minn Ave/ 27th St	Penn Ave/ 295NB Ramp	1.8	1.8	2.2	1.3	2.0	2.2	1.9

Source: HNTB Corporation, 2013.

4.4.3 Transit

No Build Alternative

The No Build Alternative would have no impact on transit operations or the public's ability to use transit in the Study Area. No changes to the configuration of the intersection or traffic movements would occur; all five bus stops and the existing bus routes would remain at their current locations. See Figure 3-14 in *Section 3.4.3, Transit, in Section 3.0, Affected Environment*.

Build Alternative 1 – Revised Square Alternative

As shown in **Figure 4-5**, Bus Stop 1 and Bus Stop 5 would remain at their existing locations. ***A bulb-out would be added to Bus Stop 1 to accommodate buses using this bus stop.*** Bus Stop 2, located just west of the intersection on eastbound Pennsylvania Avenue, SE, would have to be pulled back farther west of the Pennsylvania Avenue and L'Enfant Square intersection to ensure enough space for buses to change lanes and continue traveling eastbound on Pennsylvania Avenue, SE. ***As noted in comments received from WMATA during the October 2013 EA comment period, special signage and roadway markings will be needed at Bus Stop 2 in order to allow the buses to move from the curbside lane to the left lanes to travel straight through the intersection.***

Bus Stop 3 and Bus Stop 4 would also have to be moved to new locations due to their existing location along the cut-through road north of the square (and Pennsylvania Avenue, SE), which would be removed and filled in with park land under Build Alternative 1. All three bus routes that Bus Stop 3 serves, V7, V8 and V9, use the cut-through road from Minnesota Avenue, SE to turn right at Pennsylvania Avenue, SE; therefore Bus Stop 3 could be relocated on L'Enfant Square, SE near Pennsylvania Avenue, SE headed westbound.

The only route **Bus** Stop 4 serves (U2) continues southbound on Minnesota Avenue, SE through the intersection. Due to the reconfiguration with Build Alternative 1, **Bus** Stop 4 could be relocated further back, just prior to entering the intersection at the corner of Minnesota Avenue, SE and L'Enfant Square, SE so that U2 buses would not have to cross two lanes in a short distance to continue straight through the intersection. ***All bus stops in the Study Area will be designed in accordance with WMATA's guidelines for the Design and Placement of Transit Stops (2009). DDOT will continue to coordinate with WMATA through final planning and design in terms of special signage and roadway markings that will be needed as a result of the intersection improvements. Build Alternative 1 currently provides the minimum bus zone length and minimum landing area offset distance required by WMATA's Design and Placement of Transit Stops (2009) manual.***

Following comments received from WMATA during the October 2013 EA comment period, AutoTURN™ analysis was conducted for transit bus operations throughout the intersection to ensure that bus movements could be accommodated safely through the intersection. DDOT determined that the design of Build Alternative 1 can sufficiently accommodate all bus transit movements needed through the intersection.

Under Build Alternative 1, there would be minor short-term impacts to WMATA bus service along the Study Area corridor as a result of construction at the intersection. Three of the five Bus Stops would need to be relocated to locations near their current locations to accommodate the new intersection

configuration. WMATA would have to adjust their bus routes to accommodate these minor bus stop relocations and bus routes would have to be adjusted to account for the revised intersection design and operations. *Therefore*, impacts would be minor in the short term as adjustments to bus routes and bus stop locations are being made by WMATA bus drivers and bus users at the intersection. However, long-term impacts after project implementation are anticipated to be negligible. The impacts to transit do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

Figure 4-5

Possible Bus Stop Locations – Build Alternative 1



Source: HNTB Corporation, 2014.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

As shown in **Figure 4-6**, Bus Stops 1, 2 and 5 would remain at their existing locations under Build Alternative 2. A bulb-out would be added to Bus Stop 1 to accommodate buses using this bus stop.

Bus Stop 3 and Bus Stop 4 would have to be moved to new locations due to their existing location along the cut-through road north of the square (and Pennsylvania Avenue, SE), which would be removed and

filled in with park land under Build Alternative 2. All three bus routes that Bus Stop 3 serves, V7, V8 and V9, use the cut-through road from Minnesota Avenue, SE to turn right at Pennsylvania Avenue, SE; therefore Bus Stop 3 could be relocated to Minnesota Avenue, SE, just prior to the right-turn onto Pennsylvania Avenue, SE.

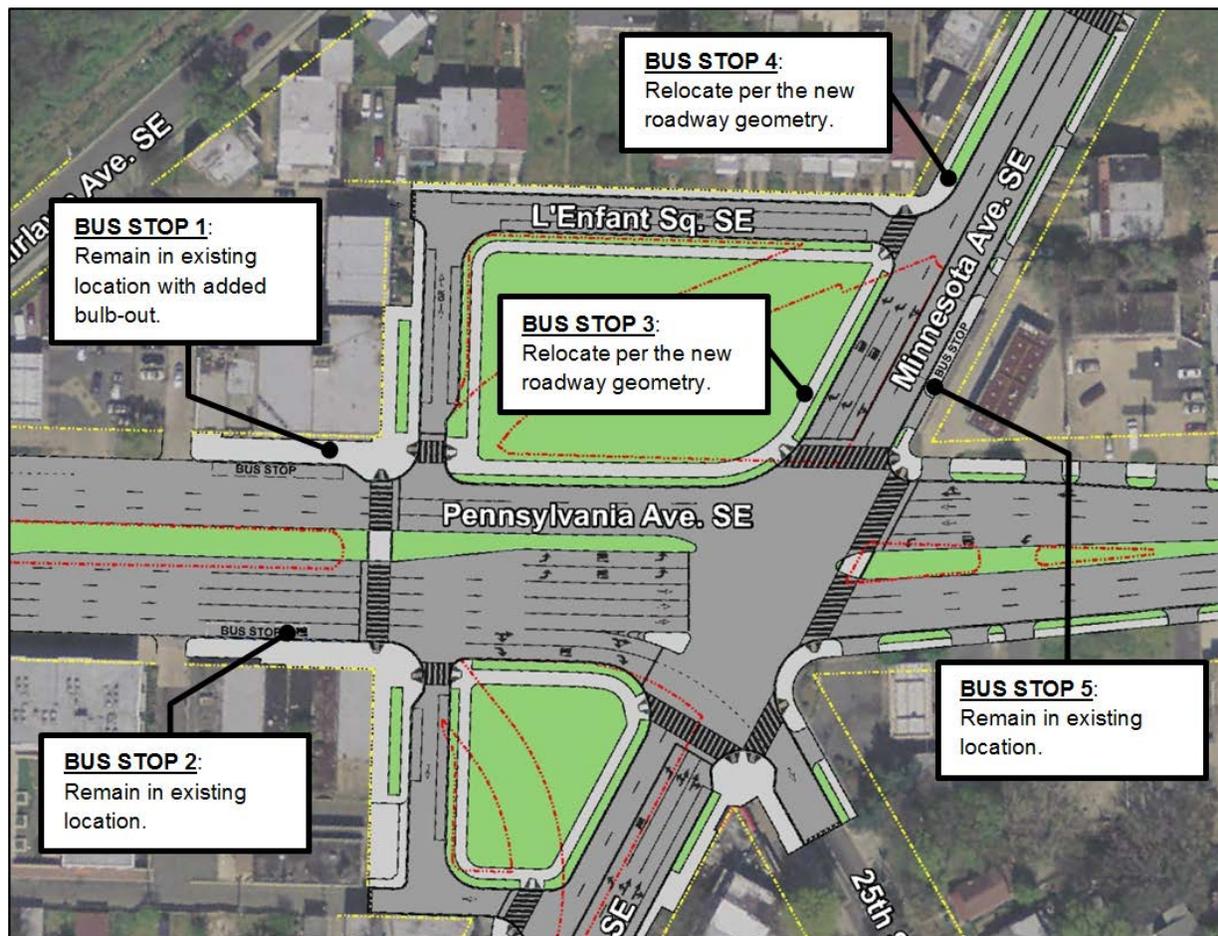
The only route **Bus** Stop 4 serves (U2) continues southbound on Minnesota Avenue, SE through the intersection. Due to the reconfiguration under Build Alternative 2, **Bus** Stop 4 could be relocated to Minnesota Avenue, SE, just prior to entering the north side of the intersection at the corner of Minnesota Avenue, SE and L'Enfant Square, SE and would then have to move to the far left lane to continue southbound on Minnesota Avenue.

Following comments received from WMATA during the October 2013 EA comment period, AutoTURN™ analysis was conducted for transit bus operations throughout the intersection to ensure that bus movements could be accommodated safely through the intersection. DDOT determined that the design of Build Alternative 2 can sufficiently accommodate all bus transit movements needed through the intersection. Additionally, Build Alternative 2 (Preferred Alternative) was modified following the October 2013 EA based on input received about the long crossing length at the east side of the intersection. The center median was therefore extended to the west to provide a pedestrian refuge area between the east- and westbound travel lanes. DDOT confirmed that the WMATA transit buses are able to make this turn as well.

All bus stops in the Study Area will be designed in accordance with WMATA's guidelines for the Design and Placement of Transit Stops (2009). DDOT will continue to coordinate with WMATA through final planning and design in terms of special signage and roadway markings that will be needed as a result of the intersection improvements. Build Alternative 2 (Preferred Alternative) currently provides the minimum bus zone length and minimum landing area offset distance required by WMATA's Design and Placement of Transit Stops (2009) manual.

As with Build Alternative 1, impacts to the bus routes and bus stops would be minor in the short term during construction. Impacts would also be minor in the short term as adjustments to bus routes and bus stop locations are made by WMATA bus drivers and bus users at the intersection. However, long-term impacts after project implementation are anticipated to be negligible. The impacts to transit do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of "significance" as defined by CEQ.

Figure 4-6

Possible Bus Stop Locations – Build Alternative 2

Source: HNTB Corporation, 2014.

4.5 Air Quality

The air quality analyses addresses the results of a CO-hot-spot analysis for the existing condition (2012) and No-Build (2015 and 2040), along with the Build Alternatives (2015 and 2040), comparing the results to the NAAQS. The proposed opening year is 2015 and the design year is 2040. The analysis also presents a discussion on ozone, PM_{2.5}, and Mobile Source Air Toxics (MSATs).

Refer to *Appendix G, Air Quality Report* for detailed air quality analysis and results.

Impact Thresholds

The following thresholds were used to determine the magnitude of effects to the air quality environment:

Impact: An impact would result if the alternative would contribute to a violation of the NAAQS or result in any increase in MSAT emissions.

Duration: **Short-term** – Impact would be a result of construction emissions; **Long-term** – Impact would be a result of a change in emissions due to the fully constructed alternative.

4.5.1 Regional Conformity

Regional level transportation conformity is addressed through the approval of the LRP and the TIP. *The Air Quality Conformity Update of the 2012 Constrained Long Range Plan and The Fy2013-2018 Transportation Improvement Program* for the Washington Metropolitan Region was published on March 20, 2013. The Pennsylvania Avenue/Minnesota Avenue Great Streets Improvements project is identified as TIP ID: 2743 in the Constrained LRP. The project does not appear in the *Air Quality Conformity Update* since only projects that are “regionally significant” are listed and specifically modeled.⁶² However, emissions from all projects are included in the regional emissions analysis.⁶³

4.5.2 Project Level Conformity

Project level conformity analysis evaluates whether there are air quality impacts on a smaller scale than an entire nonattainment or maintenance area. It relates a project to the NAAQS on a more localized basis. The project level analyses address the results of a CO hot-spot analysis for the existing condition (2012) and No Build Alternative (2015 and 2040), along with the Revised Square and Conventional Intersection Build Alternatives (2015 and 2040), comparing the results to the NAAQS. The proposed opening year is 2015 and the design year is 2040. The analysis also presents a discussion on ozone and PM_{2.5}.

4.5.3 CO Hot-Spot (Microscale) Analysis

CO emissions are greatest from vehicles operating at low speeds and prior to complete engine warm-up (within approximately eight minutes of starting). Congested urban roads, therefore, tend to be the principal problem areas for CO. Because the averaging times associated with the CO standards are relatively short (1 and 8 hours), CO concentrations can be modeled using simplified “worst-case” meteorological assumptions. Modeling is also simplified considerably by the stable, non-reactive nature of CO.

4.5.4 Methodology

The CO hot-spot analysis followed the modeling guidelines presented in EPA’s “Guideline for Modeling Carbon Monoxide from Roadway Intersections”⁶⁴ and EPA’s “Using MOVES in Project-Level Carbon Monoxide Analyses.”⁶⁵ The EPA’s MOVES2010b (MOVES) and EPA’s approved CAL3QHC 2.0 (CAL3QHC)⁶⁶ computer models were used to analyze vehicular emissions and the hourly dispersion of CO adjacent to the intersection of Pennsylvania and Minnesota Avenues, SE. Traffic and emissions for the existing (2012) condition, No Build (2015 and 2040), and the anticipated first year of operation (2015) and design year (2040) for the two Build alternatives were modeled. EPA’s MOVES2010b was used to develop vehicular emission rates. MWCOG provided District specific input variables for MOVES.⁶⁷

CAL3QHC is a pollutant dispersion-modeling program for predicting pollutant concentrations from motor vehicles under free-flow conditions, or in the vicinity of roadway intersections. Peak traffic volumes and average operating speeds from the traffic analysis Synchro 8 Reports were used to analyze the intersection.⁶⁸ Thirty-one (31) air quality receptors, A1 – A31, were placed 10 feet away from the edge of pavement, at the stop line paralleling the traffic lanes and at 82 foot intervals as shown in **Figures 4-7, 4-8, and 4-9**. Two of the 31 receptors were located at the nearest entry doors to daycare facilities along Pennsylvania Avenue, southeast of the intersection of Pennsylvania Avenue, SE and Minnesota Avenue, SE. In accordance with EPA procedure, average speeds for each link were used to develop the

CO emission factors with MOVES. Worst-case meteorological variables and an urban background CO concentration obtained from U.S. EPA AirData for the monitoring site at 420 34th Street N.E. were used in the CAL3QHC model. The 1-hour and 8-hour background concentration were the highest second maximum values at the three CO monitoring sites in the District for 2012.

4.5.5 Impact Assessment

No Build Alternative

The maximum 1-hour CO concentrations were 4.4 ppm for the 2015 No Build Alternative and 5.7 ppm for the 2040 No Build Alternative. The maximum 8-hour CO concentrations were 3.6 ppm for the 2015 No Build Alternative, and 4.5 ppm for the 2040 No Build Alternative. The 1-hour concentrations include a background concentration of 2.9 ppm and the 8-hour concentrations include a background concentration of 2.5 ppm.

Under the No Build Alternative, no changes to the Study Area would occur and there would be no impacts in the short term or long term.

Build Alternative 1 – Revised Square Alternative

Under Build Alternative 1, as shown in **Table 4.10**, the maximum 1-hour CO concentrations were 5.7 ppm in 2015 and 4.9 ppm in 2040. The maximum 8-hour CO concentrations, shown in **Table 4.11**, were 4.5 ppm in 2015 and 3.9 ppm in 2040. The 1-hour concentrations include a background concentration of 2.9 ppm and the 8-hour concentrations include a background concentration of 2.5 ppm. The results of the CO microscale air quality modeling indicates that none of these concentrations at the 31 receptors modeled exceed either the 1-hour (35 ppm) or 8-hour (9 ppm) NAAQS under Build Alternative 1.

Construction of Build Alternative 1 would likely take place over two construction seasons. During each construction season there would be localized increased emissions from construction equipment and particulate emissions from construction activities. Particulate emissions, whether from construction equipment diesel exhaust or dust from the construction activities, will be controlled as well as possible. Contractors will follow all DDOT Standard Construction Specification Sections that address the control of construction equipment exhaust or dust during construction. Impacts to air quality due to construction would be temporary and localized. Even though construction mitigation measures are not required, appropriate BMPs will be used to reduce engine activity or reduce emissions per unit or operating time. See *Section 4.8, Mitigation* for additional information on air quality mitigation measures.

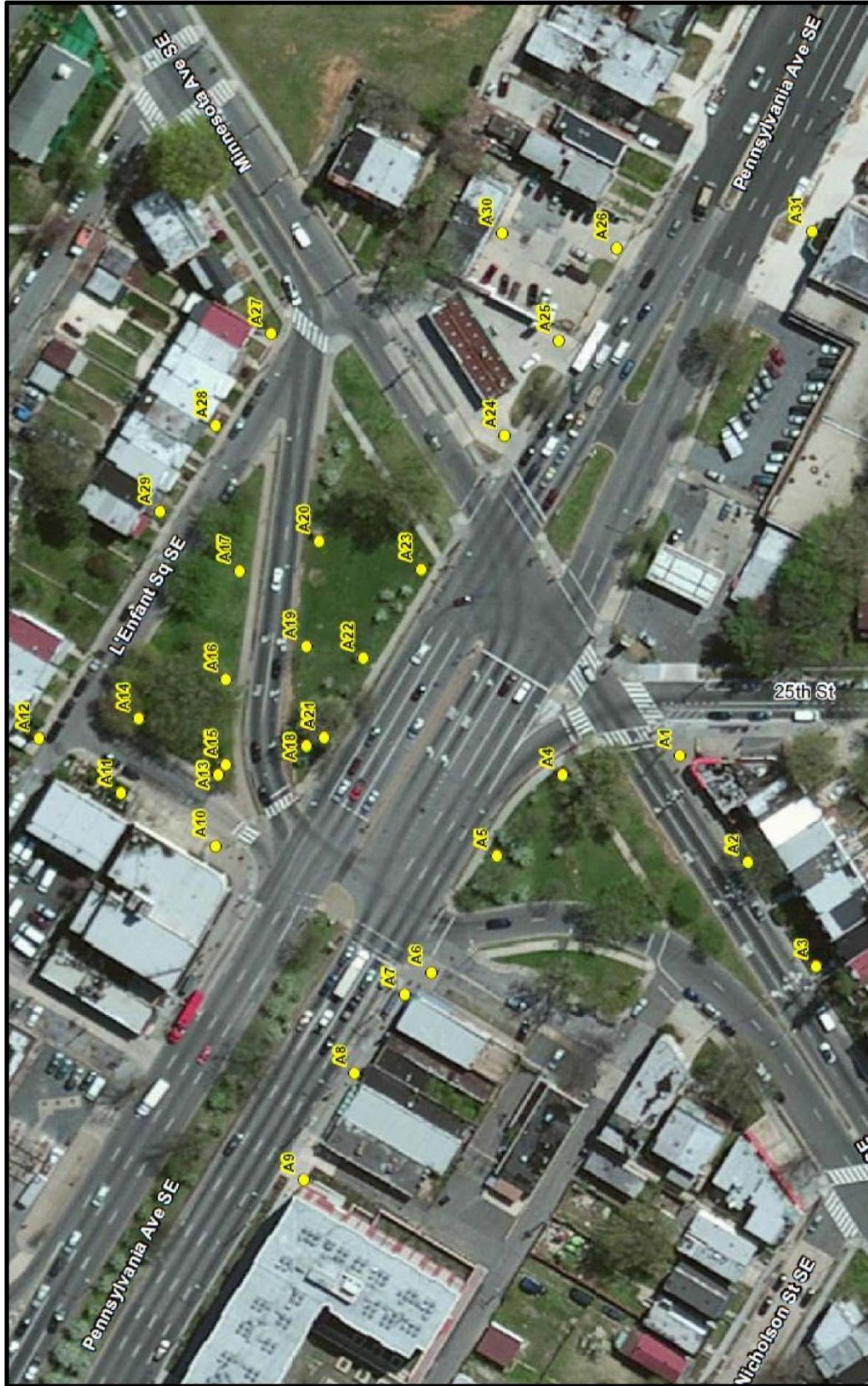
Based on the air quality analysis completed for Build Alternative 1, the Proposed Action would not contribute to any violation of the NAAQS and meets the project level CO conformity requirements of 40 CFR 94.

Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

Under Build Alternative 2, the maximum 1-hour CO concentrations, shown in **Table 4.10**, were 4.8 ppm in 2015 and 5.8 ppm in 2040. The maximum 8-hour CO concentrations, shown in **Table 4.11**, were 3.8 ppm in 2015 and 4.5 ppm in 2040. The 1-hour concentrations include a background concentration of 2.9 ppm and the 8-hour concentrations include a background concentration of 2.5 ppm. The results of the CO microscale air quality modeling indicate that none of these concentrations at the 31 receptors modeled exceed either the 1-hour (35 ppm) or 8-hour (9 ppm) NAAQS under Build Alternative 2.

Short-term impacts during construction under Build Alternative 2 would be similar to Build Alternative 1.

Based on the air quality analysis completed for Build Alternative 2, the Proposed Action would not contribute to any violation of the NAAQS and meets the project level CO conformity requirements of 40 CFR 94.



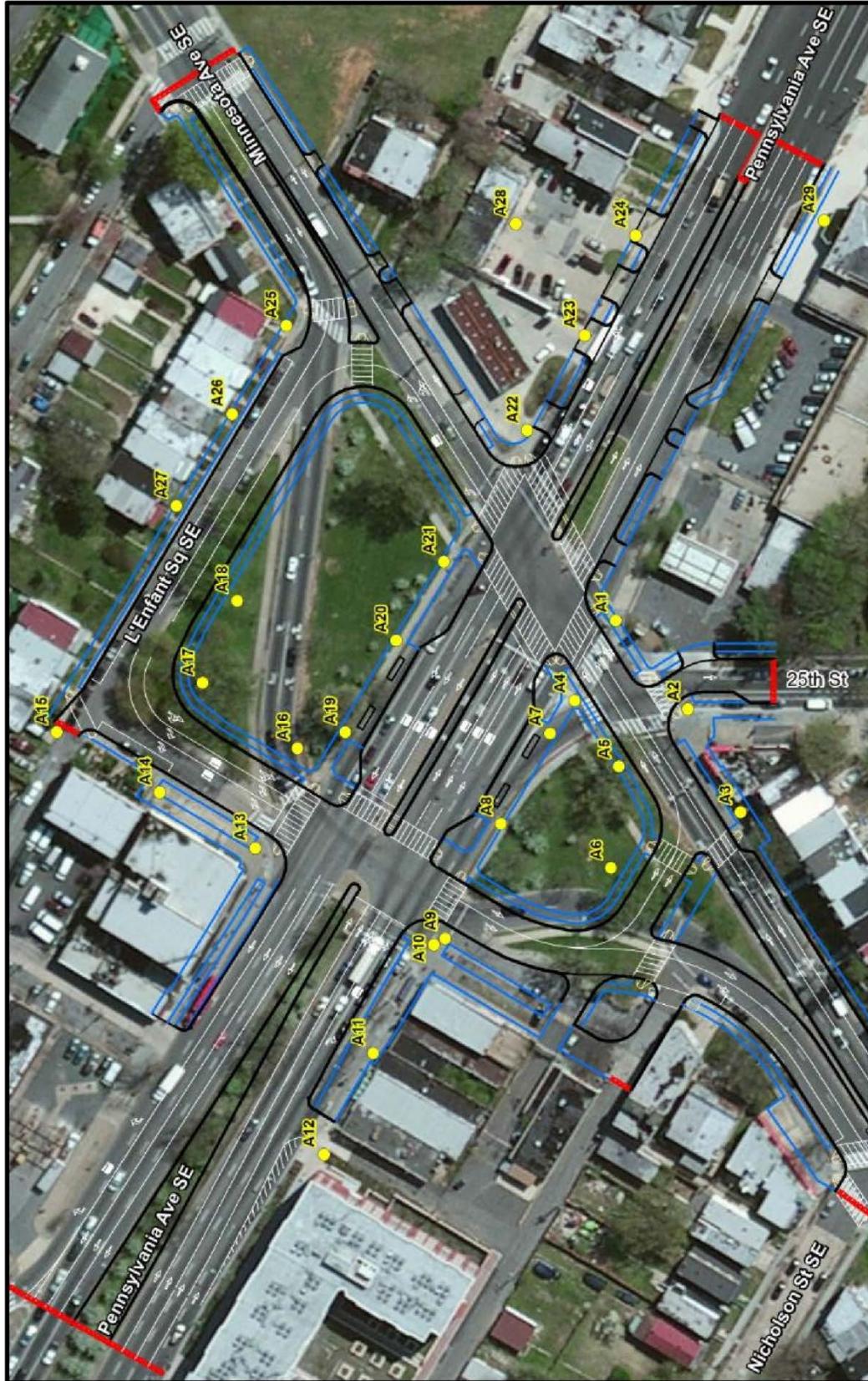
LEGEND

● Air Receptor Location



Figure 4-7
CO Hot Spot Analysis – No Build Alternative
Environmental Assessment

Sources: HNTB Corporation, 2013



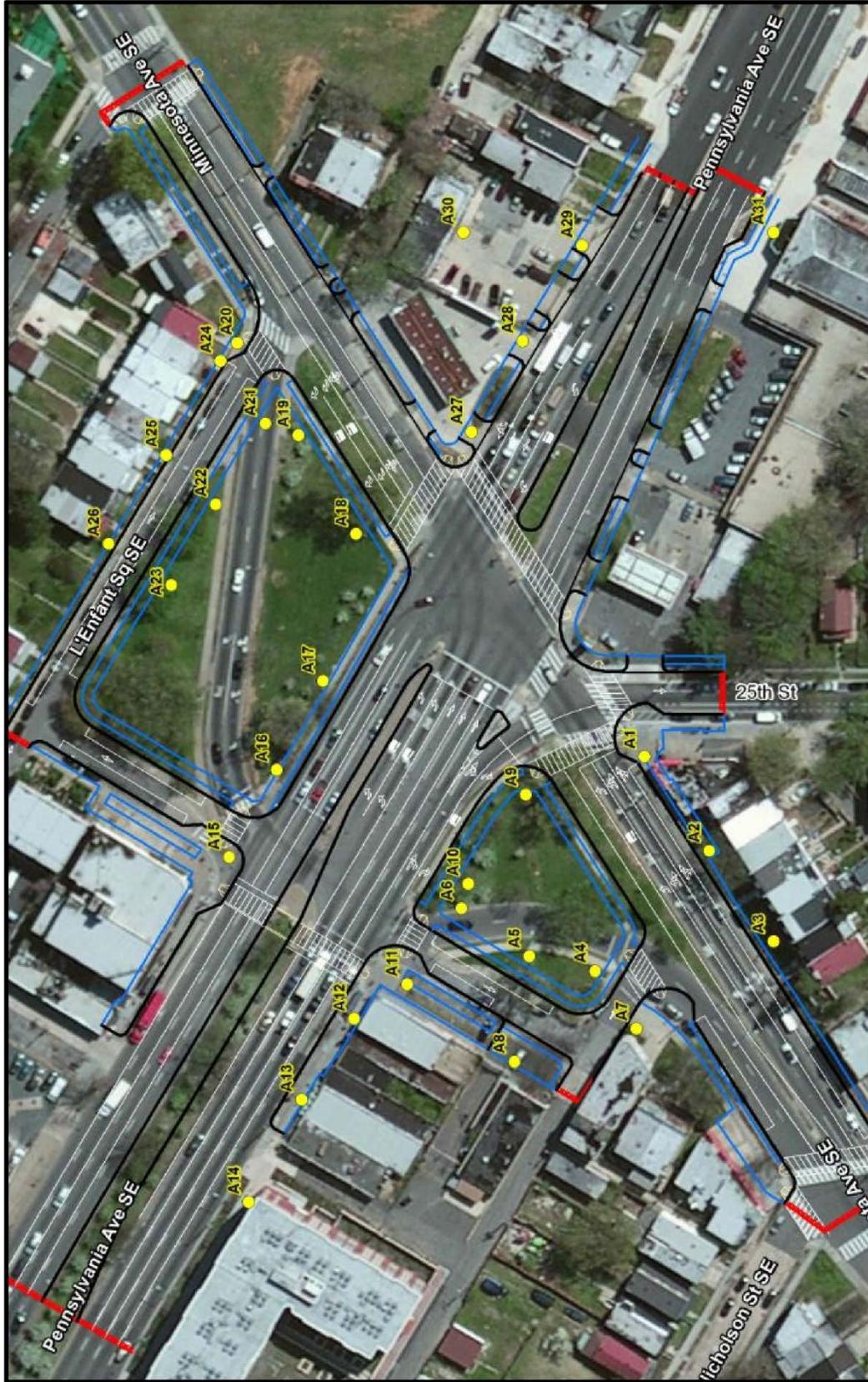
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● Air Receptor Location



Figure 4-8
CO Hot Spot Analysis – Build Alternative 1
Environmental Assessment

Sources: HNTB Corporation, 2013



LEGEND

● Air Receptor Location



Figure 4-9
CO Hot Spot Analysis – Build Alternative 2
Environmental Assessment

Sources: HNTB Corporation, 2013

Table 4.10
Microscale Air Quality Analysis
Maximum 1-Hour CO Concentrations (ppm)*

Air Quality Receptor ID	2012	2015			2040		
	Existing	No Build	Revised Square	Conventional Intersection	No Build	Revised Square	Conventional Intersection
	1 hour	1 hour	1 hour	1 hour	1 hour	1 hour	1 hour
A1	3.9	3.6	4.0	3.9	4.1	3.6	3.9
A2	3.8	3.6	3.9	3.6	3.8	3.6	3.8
A3	3.8	3.6	3.8	3.7	3.7	3.5	3.7
A4	3.7	3.5	3.9	3.9	4.2	3.4	3.5
A5	3.8	3.6	4.0	3.6	3.7	3.4	3.6
A6	3.9	3.7	4.1	3.5	3.7	3.7	3.8
A7	4.0	3.8	4.1	4.0	4.2	3.3	3.4
A8	3.9	3.8	4.1	3.9	4.3	3.4	3.5
A9	4.0	3.7	4.1	3.9	4.6	3.7	3.9
A10	4.1	3.9	4.4	3.9	4.5	3.7	3.9
A11	3.7	3.5	3.9	3.8	4.5	3.6	3.9
A12	3.6	3.4	3.6	3.8	4.5	3.8	4.1
A13	4.3	4.1	4.3	4.1	4.9	3.8	4.1
A14	3.9	3.6	3.9	3.7	5.2	3.9	4.2
A15	4.5	4.1	4.3	3.6	4.6	4.9	5.8
A16	4.4	4.0	4.4	4.4	5.7	4.6	5.3
A17	4.5	4.1	4.6	3.9	5.2	4.4	4.9
A18	4.5	4.4	5.3	3.8	5.0	4.2	4.4
A19	4.6	4.4	5.0	4.8	5.4	4.1	4.2
A20	4.6	4.3	4.7	4.3	4.8	4.3	4.4
A21	4.8	4.4	5.7	4.2	4.4	3.9	4.1
A22	4.5	4.3	5.3	4.4	4.3	3.7	3.6
A23	4.6	4.4	5.1	4.2	4.2	3.6	3.6
A24	4.5	4.2	4.8	4.3	4.2	3.8	4.0
A25	4.3	4.0	4.4	3.9	5.5	3.5	3.6
A26	4.0	3.9	4.2	3.9	5.3	3.5	3.5
A27	4.4	4.0	4.5	3.8	5.2	4.2	4.6
A28	3.8	3.6	4.0	3.6	3.9	4.2	4.6
A29	3.7	3.5	3.7	3.7	3.8	4.4	4.7
A30	3.7	3.6	3.8	-	-	3.7	3.9
A31	3.7	3.6	3.9	-	-	3.6	3.8

*The National Ambient Air Quality Standard for CO is 35 ppm for a one hour average.

Concentrations include an ambient background level of 2.9 ppm (1 hour)

█ Indicates maximum concentration for each alternative and year of analysis.

Source: HNTB Corporation, May 2013

**Table 4.11
Microscale Air Quality Analysis
Maximum 8-Hour CO Concentrations (ppm)***

Air Quality Receptor ID	2012	2015			2040		
	Existing	No Build	Revised Square	Conventional Intersection	No Build	Revised Square	Conventional Intersection
	8 hour	8 hour	8 hour	8 hour	8 hour	8 hour	8 hour
A1	3.2	3.0	3.3	3.2	3.3	3.0	3.2
A2	3.1	3.0	3.2	3.0	3.1	3.0	3.1
A3	3.1	3.0	3.1	3.1	3.1	2.9	3.1
A4	3.1	2.9	3.2	3.2	3.4	2.9	2.9
A5	3.1	3.0	3.3	3.0	3.1	2.9	3.0
A6	3.2	3.1	3.3	2.9	3.1	3.1	3.1
A7	3.3	3.1	3.3	3.3	3.4	2.8	2.9
A8	3.2	3.1	3.3	3.2	3.5	2.9	2.9
A9	3.3	3.1	3.3	3.2	3.7	3.1	3.2
A10	3.3	3.2	3.6	3.2	3.6	3.1	3.2
A11	3.1	2.9	3.2	3.1	3.6	3.0	3.2
A12	3.0	2.9	3.0	3.1	3.6	3.1	3.3
A13	3.5	3.3	3.5	3.3	3.9	3.1	3.3
A14	3.2	3.0	3.2	3.1	4.1	3.2	3.4
A15	3.6	3.3	3.5	3.0	3.7	3.9	4.5
A16	3.6	3.3	3.6	3.6	4.5	3.7	4.2
A17	3.6	3.3	3.7	3.2	4.1	3.6	3.9
A18	3.6	3.6	4.2	3.1	4.0	3.4	3.6
A19	3.7	3.6	4.0	3.8	4.3	3.3	3.4
A20	3.7	3.5	3.8	3.5	3.8	3.5	3.6
A21	3.8	3.6	4.5	3.4	3.6	3.2	3.3
A22	3.6	3.5	4.2	3.6	3.5	3.1	3.0
A23	3.7	3.6	4.0	3.4	3.4	3.0	3.0
A24	3.6	3.4	3.8	3.5	3.4	3.1	3.3
A25	3.5	3.3	3.6	3.2	4.3	2.9	3.0
A26	3.3	3.2	3.4	3.2	4.2	2.9	2.9
A27	3.6	3.3	3.6	3.1	4.1	3.4	3.7
A28	3.1	3.0	3.3	3.0	3.2	3.4	3.7
A29	3.1	2.9	3.1	3.1	3.1	3.6	3.8
A30	3.1	3.0	3.1	-	-	3.1	3.2
A31	3.1	3.0	3.2	-	-	3.0	3.1

*The National Ambient Air Quality Standard for CO is 35 ppm for a one hour average.

Concentrations include an ambient background level of 2.5 ppm (8 hour)

█ Indicates maximum concentration for each alternative and year of analysis.

Source: HNTB Corporation, May 2013

4.5.6 Ozone

Ozone project level conformity is addressed through the approval of the LRP and the TIP. As stated in *Section 4.5.1, Regional Conformity, The Air Quality Conformity Update of the 2012 Constrained Long Range Plan and The FY2013-2018 Transportation Improvement Program* for the Washington Metropolitan Region was approved by the FHWA and FTA. Therefore, the Pennsylvania Avenue/Minnesota Avenue *Great Streets* Improvements project meets the project level conformity requirements in 40 CFR Part 93.⁶⁹

4.5.7 PM_{2.5} Determination

The Proposed Action, as stated previously, is located within a nonattainment area for PM_{2.5}. The transportation conformity rule, 40 CFR 93.123(b)(1) requires a PM hot-spot analysis only for projects of local air quality concern. The proposed project is an intersection improvement project at individual intersections that is being designed to improve traffic flow and operational efficiencies, does not involve any increases in idling, and the No Build and Build Alternative volumes through the intersection are the same. The project would be expected to have a neutral or positive influence on PM_{2.5} emissions. Therefore, the project is not one of local air quality concern and a hot-spot analysis is not required.

4.5.8 Mobile Source Air Toxics (MSAT)

In addition to the criteria air pollutants presented in Table 3.14, EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).

“Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007) and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (<http://cfcpub.epa.gov/ncea/iris/index.cfm>). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (<http://www.epa.gov/ttn/atw/nata1999/>). These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules. The 2007 EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA’s MOBILE6.2 model, even if vehicle activity (vehicle-miles traveled, VMT) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050...”⁷⁰

The purpose of the Proposed Action is to improve traffic flow and operating efficiencies through the intersection by redirecting traffic, improving pedestrian safety and in some cases eliminating left turn conflicts. As noted in FHWA's *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA* in reference to Exempt Projects, "This project has been determined to generate minimal air quality impacts for CAAA criteria pollutants and has not been linked with any special MSAT concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the no-build alternative."⁷¹

The *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA* also states the following: "Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES model forecasts a combined reduction of over 80 percent in the total annual emission rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by 100 percent. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project."⁷²

4.6 Noise

Impact Thresholds

The following thresholds were used to determine the magnitude of effects to the noise environment:

Substantial Impact: A substantial impact would result if the predicted noise levels approach or exceed the Noise Abatement Criteria (NAC) value for the appropriate activity category or if noise levels increase by 10 decibels or more over existing noise levels.⁷³

Duration: **Short-term** – Impact would be a result of construction noise; **Long-term** – Impact would be a result of a change in noise due to the fully constructed alternative.

4.6.1 Noise Modeling

The latest version of the FHWA's Traffic Noise Model, TNM[®]2.5⁷⁴, was used to model existing (2012), No Build (2040), Build Alternative 1 (2040), and Build Alternative 2 (2040) for the peak noise hour noise levels within the Study Area. Twenty-two (22) representative noise receivers (representing 35 dwelling units), numbered N1 through N18, plus the four field sites, FS-1 through FS-4, as shown on Figure 3-15 and Figure 3-16, were modeled. Modeled receivers are identical on Figure 3-15 and Figure 3-16, except for Field Site 4 (FS-4). The Revised Square Alternative alignment results in FS-4 being on the pavement. Thus, FS-4 was moved approximately 70 feet northeast for the Build Alternative 1 model. These receivers were selected to model representative noise impacts at areas consisting of residential, daycare, and recreational properties, as well as one place of worship. There are multiple commercial and retail properties throughout the Study Area that do not have areas of outdoor areas of frequent human use, so locations were not modeled. The results of the computer modeling are presented in **Table 4.12**.

Table 4.12

PM Peak Hour Noise Levels, dBA Leq(h)

Receiver Location	Land Use	Activity Category	Activity Criteria	Dwelling Units	Noise Level, L _{eq} (h) (dBA)			
			Leq (h)		Existing (2012)	No Build (2040)	Revised Square (2040)	Conventional Intersection (2040)
N1	Residential	B	67	3	69.0	70.3	70.3	71.0
N2	Daycare	C	67	0	67.4	69.4	69.3	69.7
FS-3	Retail	F	N/A	0	71.0	73.0	71.9	72.5
N3	Daycare	C	67	0	69.2	71.3	70.3	70.6
N4	Residential	B	67	3	67.1	68.4	68.7	69.2
N5	Residential	B	67	2	66.6	67.7	67.8	68.1
N6	Residential	B	67	3	66.1	67.1	67.1	67.1
N7	Place of Worship	D	52	0	41.1*	41.7*	41.6*	41.3*
N8	Residential	B	67	3	66.0	67.2	67.3	66.8
FS-4	Park	C	67	0	70.0	71.5	73.1	70.2
N9	Residential	B	67	1	65.4	67.3	68.0	67.7
N10	Residential	B	67	2	63.7	65.6	66.3	66.0
N11	Residential	B	67	2	63.9	65.7	66.9	66.2
FS-1	Residential	B	67	1	63.9	65.7	66.9	66.1
N12	Residential	B	67	2	64.7	66.4	67.5	66.9
N13	Residential	B	67	2	65.2	66.8	67.8	67.3
N14	Residential	B	67	2	65.9	67.4	68.2	67.9
N15	Residential	B	67	2	66.9	68.2	68.9	68.8
N16	Residential	B	67	1	67.3	68.6	69.1	69.3
N17	Residential	B	67	3	67.5	68.6	68.8	69.6
N18	Residential	B	67	3	67.5	68.6	68.6	69.6
FS-2	Park	C	67	0	71.1	73.2	72.8	73.7

Notes: - Indicates impacted receptor. A receptor is impacted if the predicted noise level approaches or exceeds DDOT NAC, as shown on Table 3.15.

* - N7 Building Type was classified as – Masonry and Window Condition – Single Glazed. Therefore the ‘Noise Reduction Due to Exterior of the Structure’ is 25 dB as defined on Table 6: *Building Noise Reduction Factors* (page 30) in the “Highway Traffic Noise: Analysis and Abatement Guidance”, FHWA, January 2011.

Source: HNTB Corporation, 2013.

4.6.2 Impact Assessment

No Build Alternative

Under the No Build Alternative, no transfer of jurisdiction between NPS and DDOT would occur and the roadway configuration and traffic operational characteristics would remain unchanged from the existing condition. Noise can be heard consistently throughout the day at this urban intersection. However, due to the projected increase in traffic volume in 2040, the noise at the project intersection under the No Build Alternative is expected to worsen. No Build Alternative (2040) peak hour noise is predicted to exceed the NAC at 16 residential locations and four activity category C locations. The noise levels at the 16 residential locations would range from 65.6 to 70.3 dBA $L_{eq}(h)$ and represents 35 dwelling units. The noise levels at the category C locations would range from 69.4 to 73.2 dBA $L_{eq}(h)$. The interior analysis at the category D location, N7, did not approach or exceed the 52 dBA $L_{eq}(h)$ criteria.

No short-term impacts would result under the No Build Alternative, as no construction would occur.

In the long term, due to the projected increase in traffic volume at this intersection, noise levels will increase by 2040 under the No Build Alternative.

Build Alternative 1 – Revised Square Alternative

Build Alternative 1 would have a short-term adverse impact to noise levels in the Study Area during the construction phase. The major construction elements of this project are expected to be demolition, hauling, grading, and paving. Construction of the proposed improvements and local rerouting of traffic for either alternative will result in a temporary increase in the ambient noise levels for properties in the Study Area, especially along Pennsylvania Avenue and Minnesota Avenue. General construction noise impacts for passerby and those individuals living or working near the project can be expected particularly from demolition, earth moving, and paving operations. Equipment associated with construction generally includes backhoes, graders, pavers, concrete trucks, compressors, and other miscellaneous heavy equipment. **Figure 4-10** lists some typical peak operating noise levels at a distance of 15 m (50 feet), grouping construction equipment according to mobility and operating characteristics. Considering the relatively short-term nature of construction noise, impacts would be minor. The transmission loss characteristics of nearby structures are believed to be sufficient to moderate the effects of intrusive construction noise.

Construction noise is regulated by Title 20 of the DCMR. Construction is permitted from 7:00 am to 7:00 pm from Monday-Saturday, with noise levels not to exceed 80 dBA, unless granted a variance (20-2802).⁷⁵ Construction is not permitted in residential zones outside of this time frame (20-2803).⁷⁶ While some construction under Build Alternative 1 would be adjacent to residential areas, it would not be within a residential zone. Potential mitigation for the construction noise impacts could include: “work hour limits, equipment muffler requirements, location of haul roads, eliminate of “tail gate banging,” ambient sensitive back-up alarms, community rapport, and complaint mechanisms.”⁷⁷

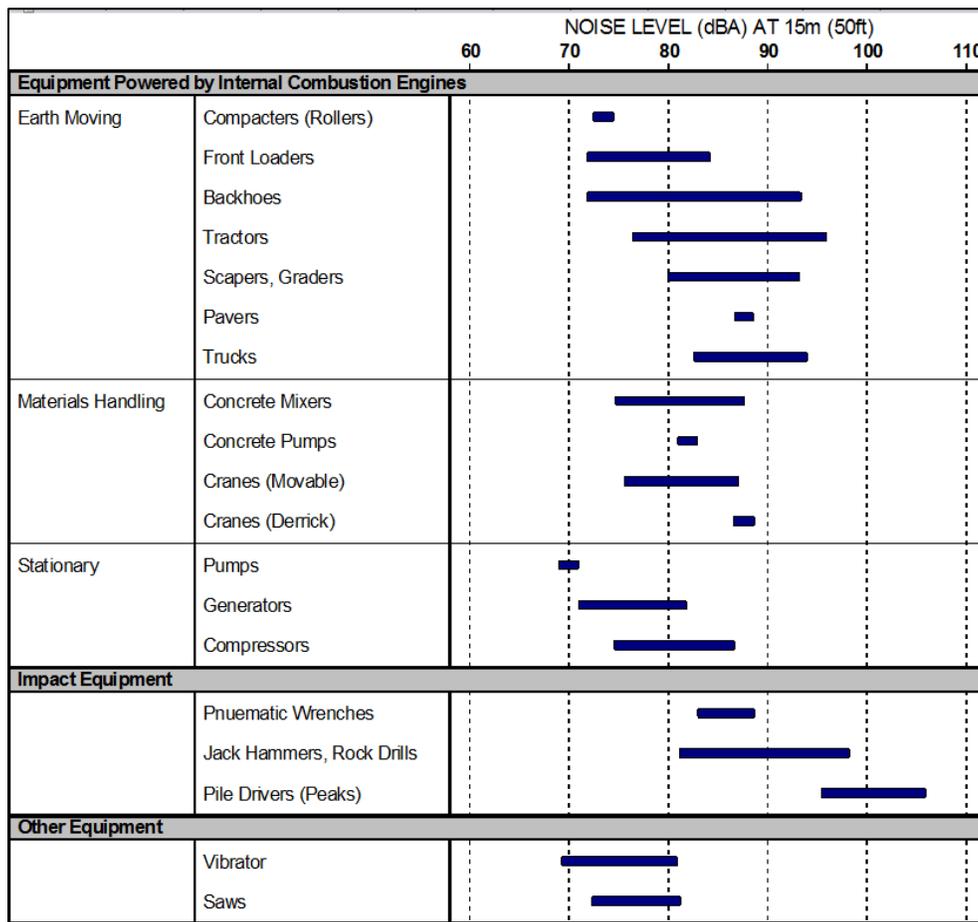
As with the No Build Alternative, predicted future (2040) noise levels for Build Alternative 1 would approach or exceed the NAC at 16 residential receivers and the same four activity category C locations identified under the No Build Alternative noise levels. The noise levels at the 16 residential locations would range from 69.3 to 73.1 dBA $L_{eq}(h)$, representing 35 dwelling units. The noise levels at the

category C locations would range from 66.6 to 73.1 dBA $L_{eq}(h)$. None of the predicted future noise levels would substantially exceed existing noise levels (DDOT has defined an increase over existing noise levels of 10 decibels or more as being a substantial noise increase).⁷⁸ The interior analysis at the category D location, N7, did not approach or exceed the 52 dBA $L_{eq}(h)$ criteria.

Impacts under Build Alternative 1 would not be substantially different from the No Build Alternative. The impacts to noise do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

Figure 4-10

Construction Equipment Sound Levels



Source: U.S. Report to the President and Congress on Noise, February 1972.

Build Alternative 2 – Conventional Intersection Alternative (Preferred Alternative)

Impacts during construction would be similar to Build Alternative 1 and would be short term and minor. Potential mitigation for the construction noise impacts could include: “work hour limits, equipment muffler requirements, location of haul roads, eliminate of “tail gate banging,” ambient sensitive back-up alarms, community rapport, and complaint mechanisms.”⁷⁹

As is the case with the No Build Alternative, predicted future (2040) noise levels for Build Alternative 2 would approach or exceed the NAC at 16 residential receivers and the same four activity category C locations identified under the No Build and Build Alternative 1 noise levels. The noise levels at the 16 residential locations would range from 66.0 to 71.0 dBA $L_{eq}(h)$, representing 35 dwelling units. The noise levels at the category C locations would range from 69.7 to 73.7 dBA $L_{eq}(h)$. None of the predicted future noise levels would substantially exceed existing noise levels (DDOT has defined an increase over existing noise levels of 10 decibels or more as being substantial). The interior analysis at the category D location, N7, did not approach or exceed the 52 dBA $L_{eq}(h)$ criteria.

Impacts under Build Alternative 2 would not be substantially different from the No Build Alternative. The impacts to noise do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

4.6.3 Undeveloped Lands

Traditionally, setback distances to 66 and 71 dB(A) $L_{eq}(h)$ are developed to assist local planning authorities in developing land use control over the remaining undeveloped lands along the project in order to prevent further development of incompatible land use based on predicted noise levels. However, the Study Area surrounding the Pennsylvania Avenue and Minnesota Avenue intersection is completely built out and therefore setback distances would not assist for this project.

4.6.4 Conclusion

Based on the study completed, mitigation of noise impacts for the Pennsylvania Avenue and Minnesota Avenue, SE improvements is not feasible for either of the Build Alternatives. Due to the built out nature of the Study Area and local access requirements, noise mitigation in this urban environment is not possible. If it subsequently develops during final design that these conditions have substantially changed, noise abatement measures will be reviewed. Refer to *Section 4.8, Mitigation Measures*, for a complete discussion of mitigation related to noise.

4.7 Indirect and Cumulative Effects

The CEQ regulations, which implement NEPA, require assessment of cumulative impacts in the decision-making process for federally funded projects. Cumulative impacts are defined 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 effects can result from individually minor, but collectively moderate or major actions taking place over a period of time.” (40 CFR 1508.7).

Cumulative effects are determined by combining the impacts of the Proposed Action with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other past, ongoing, or foreseeable future projects within immediate vicinity of the Study Area and, if necessary, the surrounding region. Cumulative effects are evaluated in a regional context, which varies for each impact topic; however, in general, the regional context is Pennsylvania Avenue, SE, the Anacostia River Watershed, and the surrounding Wards and Neighborhoods including but not limited to Randle Highlands, Fairlawn, Deanwood, Fort Dupont, and Hillcrest. The Study Area for cumulative impacts differs based on resource topic. For instance, cumulative effects to water quality generally use a larger

watershed to define the Study Area; whereas, cumulative effects on aesthetics would use a Study Area defined by viewsheds. Generally, short-term impacts do not result in cumulative effects (unless specified in this section) and if there is no impact or a beneficial impact, the alternatives would not have a cumulative impact regardless of other actions in the project vicinity. As presented earlier in this EA, implementation of the alternatives would have no long-term impacts on certain resources because the resource is either not present or the Proposed Action would have negligible impacts on the resource. As a result, there would be no appreciable cumulative effect to these resources. The resources that would not have appreciable cumulative effects include: geology, soils, topography, water resources, wildlife, historic structures, cultural landscapes, paleontological resources, land use, zoning, demographics, environmental justice, economics and development, joint development, aesthetics and visual quality, health and safety, community resources, utilities, Indian Trust resources, Sacred Sites, pedestrian and bicycle network, transit, air quality, noise, hazardous waste and energy conservation.

Past, present, and future representative projects that would have the potential to add to cumulative effects are described below. Cumulative effects are considered for all alternatives and are presented in this section for each resource topic. Indirect impacts are identified in the impact analysis under each resource topic when applicable.

4.7.1 Past Actions

I-295 Ramp Interchange Improvements

As part of the ongoing 11th Street Bridges project, approximately one mile from the Study Area, a new ramp from the 11th Street Bridge to I-295 North opened in the summer of 2012. Prior to the opening of this interchange, drivers trying to reach I-295 Northbound had to get off at the Southeast Freeway, merge onto Pennsylvania Avenue headed southbound, travel under the Sousa Bridge and make a left turn just prior to Fairlawn Avenue, SE and onto the I-295 Northbound ramp.

4.7.2 Current or Future Actions

Pennsylvania Avenue, SE Great Streets Initiative

Pennsylvania Avenue, SE Great Streets Initiative is a multiple agency effort in the District to transform this corridor into thriving and inviting neighborhood center using public actions and tools as needed to leverage private investment. With planning and financial involvement from DDOT, DMPED and D.C. Office of Planning, over \$200 million is being invested in new mixed use development projects, storefront improvements, transportation, streetscape, and transit improvements along these corridors. Neighborhood economic development projects that include quality local and national retailers are ongoing along the Pennsylvania Avenue, SE corridor. Redevelopment of key sites along the corridor are being planned and implemented.

2300 Block of Pennsylvania Avenue, SE

DMPED has plans to facilitate development along the 2300 Block of Pennsylvania Avenue, SE. This block is within the project Study Area and is located immediately west of Twining Square. The District aims to help implement the goals of the Great Streets Initiative by redeveloping this key corridor to eliminate blight, provide quality neighborhood-serving retail and potential job creation. DMPED has

already acquired 2337 Pennsylvania Avenue, SE.⁸⁰ The next steps in development will be to negotiate with private land owners on the 2300 Block in order to develop the properties.

Pennsylvania and Potomac Avenues, SE Intersection Improvements

As part of the District's AWI Program, DDOT is conducting an EA for proposed improvements at the Pennsylvania and Potomac Avenues, SE intersection to enhance safety at these street intersections for neighborhood pedestrians and transit users of the Potomac Avenue Metrorail Station and the numerous area bus stops. This project was originally proposed in the 2005 Middle Anacostia Crossings (MAC) Transportation Study as a mid-term improvement for enhancing the transportation network in the Middle Anacostia River region. The Pennsylvania and Potomac Avenues intersection is located approximately one mile west of the Study Area.

The current configuration of the six-legged intersection has multiple crosswalk locations making crosswalk signal timing challenging. Despite the numerous crosswalk locations, pedestrians traverse the intersection through the grassed median owned by the NPS. Proposed intersection changes will seek to reduce the number of pedestrian and vehicle conflict points and provide safer, more direct routes for the pedestrian and transit users. Concepts for the Pennsylvania and Potomac Avenue Intersection Project will focus on pedestrian safety for residents and multi-modal transit users.

Barney Circle and Southeast Boulevard Transportation Planning Study

Also part of the AWI Program, DDOT is conducting an EA for proposed improvements at Barney Circle-Southeast Boulevard to evaluate updated concept alternatives that were previously developed in the 2005 MAC Transportation Study and is including new alternatives for the project to ensure that pedestrian safety and multi-modal transportation needs are included, as well as new or planned residential and economic development within the surrounding AWI Program area.

Located less than a mile west of the Study Area and across the Anacostia River, Barney Circle is located at the west end of the John Philip Sousa Bridge where the SE/SW Freeway, Pennsylvania Avenue, SE and various local neighborhood streets converge. Originally designed as part of the future Interstate 295 extension across the Anacostia River, linking DC 295 to the Southeast Freeway (I-695) and I-395, Barney Circle does not function as a true traffic circle or serve all traffic movements and has become a barrier to the Anacostia waterfront. Several alternatives are being considered at Barney Circle that would provide for the necessary movements to enable it to function as a true traffic circle and improve mobility and accessibility for the surrounding community. ***Project concepts are still being finalized and public comments are being evaluated.*** Concepts for the Barney Circle Project will involve transforming the former Southeast Expressway interstate roadway into a boulevard with plantings and streetscape amenities integrated with the adjacent neighborhoods between the new 11th Street bridges and Barney Circle.

D.C. Streetcar

Planning and construction is underway for a D.C. Streetcar System in the District. The D.C. Streetcar is intended to connect neighborhoods, reduce short inter-city auto trips, parking demand, traffic congestion, air pollution, and encourage economic development and affordable housing options along the Streetcar corridors. Three phases are ultimately planned that will one day span all eight District Wards. Active

planning and construction is underway for the first 22 miles of an ultimate 37-Mile Streetcar System.⁸¹ According to the *DC's Transit Future System Plan*, Minnesota Avenue, SE in the vicinity of the Study Area is included in Phase 3 of the D.C. Streetcar program. The Study Area is along the Streetcar Line proposed to run from Bolling Air Force Base (AFB) to the Benning Road area.⁸² The current planned route would be an extension to the Anacostia Initial Line Segment (under construction), and would travel along Minnesota Avenue (heading north-south) and cross Pennsylvania Avenue, SE in the Study Area. D.C. Streetcar in this area would connect neighborhoods to Minnesota Avenue/Benning Road, Twining Square, and Historic Anacostia commercial nodes. It would also connect to the AWI redevelopment areas and connect economically distressed neighborhoods not well served by Metro to the Minnesota Avenue Metro Station.

Currently, Phase 2 of roadway construction along H Street/Benning Road is underway. About 80 percent of the work to make H Street/Benning streetcar-ready was completed during Phase 1 in 2011, during the Great Streets roadway reconstruction project. The H Street/Benning corridor anticipates being ready for the arrival of streetcars in Fall 2013.⁸³ Long range planning is ongoing for Phase 3 with a broad, 30-year Streetcar vision for the completion of the entire 37-mile system. DDOT has not provided a specific date for the implementation of Phase 3 in the vicinity of Study Area.

4.7.3 Cumulative Effects

Cumulative Effects Analysis for Road Network and Traffic

The Build Alternatives for the Pennsylvania and Minnesota Avenues, SE Intersection Improvements Project would result in minor adverse impacts compared to the No Build Alternative in the long term (2040). Compared to the No Build Alternative, the Build Alternatives would cause longer queues on Pennsylvania at Minnesota Avenues, SE in the peak travel direction during AM and PM peak hours, and would increase travel times on most vehicular trips by 2040.

The addition of the I-295 Northbound ramp connection from the 11th Street Bridge likely reduces some of the traffic on Pennsylvania Avenue, SE traveling southbound. Although the improvements are not in the Study Area, and the intersection previously affected where motorists turned left to access the I-295 Northbound ramp, spillover (indirect) effects from this traffic likely contributed to traffic congestion and illegal traffic movements in the Study Area. With the new access to I-295 Northbound from the 11th Street Bridge, cumulative effects due to the Build Alternatives would be negligible.

Development in the Study Area due to Great Streets Initiative development and the District's redevelopment plans would not be negatively impacted by the minor impacts to the roadway network due to the Build Alternatives. In fact, the Proposed Action is intended to contribute to the "place-making" ability of the Study Area and the Pennsylvania Avenue, SE corridor, in keeping with the Great Streets Initiative and the District's revitalization plans.

Alternatives development and environmental documentation are currently underway for proposed improvements at both Barney Circle and the Pennsylvania and Potomac Avenues, SE intersection. Both of these projects include roadway improvements that may impact traffic operations in the immediate vicinity of those projects. Both of these AWI projects are approximately one mile west of the Study Area along Pennsylvania Avenue and are across the Anacostia River from the Proposed Action. Neither Build Alternative is expected to result in impacts to the road network or traffic across the bridge. Queuing

analysis results are not estimated to be greater than approximately 0.30 miles in any direction from the Study Area as a result of either of the Build Alternatives in the future design year (2040). Therefore, cumulative effects due to the Build Alternatives are anticipated to be negligible.

To the extent possible, the D.C. Streetcar phasing plans are designed to coordinate with the construction of streetcar facilities with planned roadway and development projects located along the planned lines. The conceptual design of the Build Alternatives would not preclude the implementation of a Streetcar line traveling through the intersection along Minnesota Avenue. The Minnesota Avenue roadway width in the Study Area would not be reduced compared to existing conditions and the No Build Alternative. Implementation of the D.C. Streetcar in the Study Area would encourage public transit use and could ultimately lead to fewer vehicles using the intersection which could help to reduce queue lengths and travel times.

Overall the impacts to the road network and traffic would be minor as described in the impact analysis in *Section 4.4.2, Roadway Network and Traffic*. From a regional context, the incremental impact to traffic and the roadway network in 2040 due to the Build Alternatives would be negligible and would not cause the cumulative impact to be significant.

Cumulative Effects Analysis for Archaeological Resources

Due to the fact that the southern NPS reservation in the Study Area is considered a zone of high potential for archaeological resources, a Phase IB/II testing of this small area is recommended prior to final design decisions and construction of either of the Build Alternatives. Given that the area where the potential to recover historic or prehistoric archaeological resources exists is limited to the southern reservation (approximately 0.06 acres), the past, present and foreseeable actions, when combined with the Build Alternatives, are not expected to cumulatively effect archaeological resources.

4.8 Mitigation Measures

Mitigation measures are presented as part of the Proposed Action and have been developed to lessen the effects. The following mitigation measures are recommended for implementing the Preferred Alternative:

Soils

Erosion and sediment control plans would be prepared in accordance with DDOE Standards and Specifications for Soil Erosion and Sediment Control and implemented during construction of the reconfigured intersection. The plans would include project-specific measures to avoid and/or minimize soil erosion and transport due to ground-disturbing activities, including potential vegetation clearing and minimal grading. BMPs would be used during construction, to include practices such as stabilized construction entrances, silt fences, temporary sediment traps and filtering devices and earth dikes. Use of BMPs would be detailed in the approved erosion and sediment control plans.

Water Resources

Similar to the soil mitigation plan, implementation of erosion and sediment control practices would help to avoid temporary impacts to water quality during construction. BMPs such as silt fence and sediment trapping or filtering will lessen the impacts of sediment transport that degrades water quality during stormwater runoff periods.

Wildlife

The Study Area likely supports a limited population of birds, small mammals, reptiles and amphibians. Wildlife found in the Study Area are those that are able to adapt to the urban landscape. However, BMPs would be used to mitigate any potential impacts to wildlife. The tree canopy in the Study Area would be preserved and enhanced wherever possible to protect habitat for local wildlife. Erosion and sediment control plans would minimize potential impacts to water quality and thus protect impacts to aquatic habitat within the watershed.

Vegetation

Measures would be implemented, to the extent practical, to avoid impacts to larger or older tree specimens both inside and outside of the existing DDOT right-of-way. Applying LID principles to the development, the existing tree canopy in the Study Area would be preserved and enhanced wherever possible. Landscaping and replacement of trees will be conducted in accordance with the DDOT Design and Engineering Manual. New trees and vegetation would be planted in appropriate locations to maintain and enhance the tree canopy along the project corridor. Protection to tree specimens may include installation of tree protection fencing at the outer drop line of trees to be saved, staging construction equipment to avoid damage to trees and their root systems, and avoiding collision of construction equipment with trees and vegetation.

Landscaping at the project site would fulfill functional and aesthetic requirements along with those mandated by DDOT policy and Federal regulations, in coordination with NPS. Landscape plans would be developed in accordance with the NPS and DDOT's Urban Forestry Administration. Landscape plans may include planting, grading, erosion control and irrigation systems.

In addition, landscaping would be utilized where possible to improve storm water management features by following the concept of LID. Following development, the landscape would be monitored and maintained to ensure successful establishment.

Cultural Resources

If during construction, archaeological resources are discovered, all work in the immediate vicinity of the discovery would be halted until the resources can be identified and documented and an appropriate mitigation strategy developed. If necessary, consultation with the DC SHPO, NPS, and/or the NPS Regional Archeologist will be coordinated to ensure that the protection of resources are addressed. In the unlikely event that human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (25 USC 3001) of 1990 would be followed.

Parkland

Users of the intersection parkland would be notified of construction-related closures or changes in traffic patterns. DDOT would use public notification techniques such as posting information on the DDOT and NPS websites to notify residents, merchants and users of the transit and commercial establishments at the intersection of detours or any other restrictions at the intersection.

Aesthetic and Visual Quality

All landscaping and site amenities would consider aesthetics. Landscape plans would be developed in coordination with the NPS and DDOT's Urban Forestry Administration and Landscaping plans and other proposed aesthetic treatments would be submitted to the DC Commission of Fine Arts (CFA), NCPC, and NPS for review and comment.

Health and Safety

During construction, active construction areas of the project site would be closed to pedestrians by using signage and fences. When necessary, areas of the construction site may also be closed off to cars which will be re-routed through or around the intersection. After construction, the intersection would be maintained in order to provide enhanced safety for pedestrians, bicyclists and vehicles using the intersection. Maintenance activities that would ensure protection of the public using the intersection include removing snow and ice during winter months, sealing cracks and filling potholes that may be hazardous to motorists and bicyclists, and policing the area to deter any illegal activities. New pavement markings and signage would be utilized as needed for motorists and pedestrians using the intersection.

Community Resources

DDOT would coordinate with the local emergency services before construction with regards to access through the project intersection during periods of construction and how the ultimate intersection design may affect emergency responders.

Utilities and Infrastructure

DDOT would consult with all utility companies to determine if and how utility poles and other above-ground utilities in the Study Area would be impacted during construction or with project implementation. Care would be taken during construction activities so as to avoid all underground utilities. This would be done through consultations with each of the respective utilities early in design to determine exactly where, and to what depth the utilities are buried. These areas would then be marked off and carefully excavated to ensure the utilities are not accidentally damaged. Utilities that are determined to be damaged would be repaired prior to the construction of the intersection.

Bicycle and Pedestrian Network

Active construction areas of the project site would be closed to pedestrians and bicyclists by using signage and fencing. Signage will be provided to indicate alternate routes and detours to be used when walkways, paths, or street crossings are blocked.

Roadway Network and Traffic

Plans to maintain traffic during construction will be developed to minimize impacts to local traffic. Work schedules for construction may be adjusted to minimize impacts during peak traffic volumes. Active construction areas of the project site would be closed to motorists by using signage and blockades. Signage will be provided to indicate alternate routes and detours to be used during any road closures. Additionally, DDOT would use public notification techniques such as posting information on the DDOT

website to notify residents, commuters, merchants, etc. of temporary roadway closures or any other restrictions at the intersection.

The following maintenance of traffic (MOT) assumptions are anticipated:

- Maintain three lanes of traffic in each direction on Pennsylvania Avenue through the project area;
- Maintain two lanes of traffic in each direction on Minnesota Avenue through the project area;
- Maintain all turning movements during all phases of project construction (note, temporary, short-duration lane closures are anticipated during construction);
- Maintain pedestrian and bicycle access through the project area;
- Maintain full access to bus stops, businesses and residences during construction, and;
- Minimize impacts to the local community during construction.

MOT plans are included in *Appendix F, Traffic Analysis Report*. MOT plans were developed for Build Alternative 1 only; however the MOT for Build Alternative 2 would be comparable as they both has the same number of phases.

Transit

DDOT would continue to coordinate with WMATA during design and construction to avoid impacts to WMATA's facilities, maintain access, and allow for future access. ***All bus stops in the Study Area will be designed in accordance with WMATA's guidelines for the Design and Placement of Transit Stops (2009). DDOT will continue to coordinate with WMATA through final planning and design in terms of special signage and roadway markings that will be needed as a result of the intersection improvements.***

Air Quality

Particulate emissions during the two anticipated construction seasons, whether from construction equipment diesel exhaust or dust from the construction activities, should be controlled as well as possible. Contractors will follow all DDOT Standard Construction Specification sections that address the control of construction equipment exhaust or dust during construction. Even though construction mitigation measures are not required, there are several measures that could be considered to reduce engine activity or reduce emissions per unit of operating time. Operational agreements that reduce or redirect work or shift times to avoid community exposures can have positive benefits. Also, technological adjustments to construction equipment, such as off-road dump trucks and bulldozers, could be an appropriate strategy. The EPA recommends Best Available Diesel Retrofit Control Technology (BACT) to reduce diesel emissions. Typically, BACT requirements can be met through the retrofit of all diesel powered equipment with diesel oxidation catalysts or diesel particulate filters, and other devices that provide an after-treatment of exhaust emissions.

Noise

Within the framework of DDOT's criteria, various methods were reviewed to mitigate the noise impact of the proposed improvements. Among those considered were traffic management measures (reduction of

speed limits, restriction of truck traffic to specific times of the day, a total prohibition of trucks), alteration of horizontal and vertical alignments, acquisition of real property or interests therein to serve as a buffer zone to preempt development which would be adversely impacted by traffic noise, and noise insulation of Activity Category D land use facilities listed in Table 3.11, the construction of berms, and the construction of noise barriers.

Reductions of speed limits, although acoustically beneficial, are seldom practical unless the design speed of the proposed roadway is also reduced. Restriction or prohibition of trucks is counter to the project purpose and need. Design criteria, recommended termini and the preliminary design process leading to the preferred alternative preclude substantial horizontal and vertical alignment shifts that would produce noticeable changes in the projected acoustical environment. Acquisition of undeveloped property for buffer zones is typically neither feasible nor reasonable due to the amount of land needed to create an acoustically effective buffer zone and the desire to keep as much land as possible in the local community's tax base. There are no Activity Category D land use facilities that approach or exceed the NAC, so noise insulation was not considered.

A noise berm or barrier must be long enough and tall enough to minimize the noise coming over the top or around the ends of the barrier, such that the noise barrier, according to DDOT's Noise Policy, dated April 5, 2011, provides at least a 5 dB(A) reduction at impacted receptors to be considered feasible. In addition, the noise barrier or berm cannot restrict pedestrian or vehicular access for the mitigation to be considered feasible. The berm or barrier cannot have any holes in the barrier which would seriously degrade the noise reduction capability of the berm or barrier. The construction of noise berms along this project would not be feasible due to the limited space between the traffic and the receptors. Temporary noise impacts would be minimized during construction, however, by utilizing BMPs, as necessary, to meet the requirements of the Washington, DC Noise Control Act.

There is limited space to construct noise barriers between the traffic and receptors. However, all the receptors have access to a parking lane in front of the residences; see Figures 3-15 and 3-16. The length of the barriers would be limited by line of sight requirements at intersections. Providing pedestrian access from the residences to the parked cars would create a number of holes in each noise barrier. Therefore, it is not feasible to construct a noise barrier that would provide a 5 dB(A) reduction for the residences abutting the local streets throughout the project area.

Furthermore, *DDOT Noise Policy* states, "In order for a noise abatement option to be selected, it must be both feasible and reasonable."⁸⁴ As explained above, the proposed project does not meet the criteria for traffic noise mitigation feasibility. Additionally, in determining "reasonableness," for a noise abatement technique to be considered reasonable, all of the criteria must be met. Specifically, the proposed project does not meet Reasonableness criteria #5 in the *DDOT Noise Policy*: "Future traffic noise levels are all less than 75 dBA and less than 10 dBA higher than existing traffic noise levels."⁸⁵ None of the future (2040) alternatives exceed 75 dBA, nor do any of the alternatives cause the noise levels to increase 10 dBA compared to existing conditions.

4.9 Permits and Authorizations

- The transfer of land jurisdiction between NPS and DDOT is subject to additional review and approval by the National Capital Planning Commission and the D.C. Council. In accordance with United States Code (USC) Title 40 Section 8124(a), any transfer of jurisdiction of lands between

the NPS and DDOT is subject to the review and recommendation of the NCPC, and authorization of the D.C. Council. 40 USC 8124(a) and D.C. Code 10-111 – Transfer of Jurisdiction states the following:

Federal and District of Columbia authorities administering properties in the District that are owned by the Federal Government or by the District may transfer jurisdiction over any part of the property among or between themselves for purposes of administration and maintenance under conditions the parties agree on. The National Capital Planning Commission shall recommend the transfer before it is completed.

- Preliminary correspondence from the U.S. Fish and Wildlife Service (FWS) was received on August 1, 2012 that confirmed that there are no listed species identified for the vicinity of the project. Due to the location of the Study Area and the associated USGS topographic map, official online certification was received that states, “that except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the project area. Therefore, no Biological Assessment or further Section 7 consultation with the FWS is required. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.”
- Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. 470) sets forth the procedures for compliance with the NHPA. This created the President’s ACHP to review and comment upon activities sponsored or licensed by the Federal Government, that may have an effect on resources listed or eligible for listing on the NRHP. Compliance through Section 106 involves a demarcation of area to be effected and may include surveys to ascertain the presence of artifacts that are eligible for NRHP listing. The DC SHPO issued a finding of *Conditional No Adverse Effect* for this undertaking, subject to conditions (Refer to *Appendix E* for the *DC SHPO Section 106 Review Form*).
- An NPS Special Use Permit was required for DDOT and its contractors to perform work on NPS property for the geoarchaeological soil borings conducted in November of 2012 to gain access to the northern and southern reservations in the Study Area/APE (signed copy of permit is included in *Appendix E, Cultural Resources*). A Special Use Permit authorizes work on NPS property and outlines conditions for which work can be performed on NPS property. The requirements for Special Use Permits and required applications are found in Director’s Order 53 Special Park Uses at <http://www.nps.gov/policy/DO-53draft.htm>.
- Upon coordination with the DC SHPO, Phase IB/II archaeological investigation may be needed in the Study Area. This work would require an Archaeological Resources Protection Act (ARPA) Permit for conducting archeological fieldwork on federal lands. An ARPA permit is issued under the authority of the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-mm; 43 CFR 7) and The Antiquities Act of 1906 (P.L. 59-209; 34 Stat. 225; 16 U.S.C. 431-433; 43 CFR 3). Issuance and use of an ARPA permit with the NPS is described in Director’s Order 28A: Archeology.

4.10 Section 6(f) – Land and Water Conservation Act of 1965

The Land and Water Conservation Fund (LWCF) Program was established by the Federal government in 1965 to increase the net quantity of public, outdoor recreational space. Section 6(f) of this Act provides matching funds to states or municipalities for planning, improvements, or acquisition of outdoor recreational lands. Any property that was planned, purchased, or improved with LWCF money is considered 6(f) property. No 6(f) properties exist at the project intersection, and therefore no Section 6(f) analysis or mitigation is required.

4.11 Irreversible and Irrecoverable Commitment of Resources

Reconfiguration of the project intersection would involve the irreversible and irretrievable commitment of resources. Some of these resources include land, construction materials and manpower. Land within the right-of-way used for the construction of the reconfigured intersection is considered an irretrievable resource, however, the improvements are all within DDOT and NPS right-of-way (and presumably within all DDOT right-of-way once a transfer of land jurisdiction is approved), and DDOT as part of this project would continue to maintain the right-of-way for transportation purposes. Construction at the intersection would require that some existing infrastructure be either removed or relocated, which would also involve the commitment of resources. In the future, if a greater need for the land is identified, or if the transportation corridor is no longer necessary, it would be possible to convert the property to another use. It is not likely, however, that either of these situations would occur.

Construction of the reconfigured intersection would require the use of fossil fuels for construction vehicles, construction equipment, and construction personnel vehicles. Electrical energy would also be used onsite to power maintenance trailers (if applicable) and other equipment. Fossil fuels and electrical energy would be expended to manufacture the materials and products associated with development of the reconfigured intersection. In addition to those materials already mentioned, other materials such as asphalt, sand, aggregate, and steel would be used. These resources are not retrievable; however, the proposed project would not have an adverse effect on their continued availability. In order to minimize the usage of these resources, DDOT would consider ways to minimize resource commitments by reusing materials or by using recycled materials when possible, to construct the reconfigured intersection.

The current alignment of Pennsylvania Avenue, SE at the project site has been used as a transportation corridor since at least the 1860s. Reconfiguring the intersection would require the commitment of additional land, previously under NPS ownership, to be transferred to DDOT. However, the land exchange would not be considered an irreversible commitment of resources and would ultimately benefit the community. With the exception of this land transfer, the proposed intersection would remain within the existing transportation right-of-way. The reconfigured intersection could result in a minor loss of vegetation during construction activities, but would not affect wildlife habitat or special status species and the movement of wildlife. Land used for the intersection is considered an irreversible commitment during the time it is used for a transportation corridor and as a right-of way for several utilities. Alteration of the landscape by the proposed intersection would also be considered an irreversible change, however the urban environment in the vicinity of the intersection is not stagnant and is also subject to changes due to the fact that the commercial businesses and residences have private property owners. Additionally, the NPS owned land in the project intersection is currently not utilized as parkland. Long-term maintenance costs for the parkland would also be considered irretrievable.

The commitment of these resources is established on the premise that the local and regional residents, commuters, and business communities would benefit from the proposed reconfigured intersection. The reconfigured intersection would be beneficial to the local community by improving safety for pedestrians, bicyclists, motorists and public transit users, by enhancing mobility and connectivity in the area, and by enhancing the visual quality and aesthetics in the vicinity of the intersection. These long-term benefits are anticipated to outweigh the above-listed natural and fiscal resources.

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5.0 SECTION 4(f) EVALUATION AND APPROVAL FOR TRANSPORTATION PROJECTS THAT HAVE A NET BENEFIT TO A SECTION 4(f) PROPERTY

This section identifies the resource within the Pennsylvania and Minnesota Avenues, SE Intersection Improvements Project Study Area that qualifies for consideration under Section 4(f). The Section 4(f) resource in the Study Area consists of publicly owned National Park Service (NPS) land (U.S. Reservation 487/Twining Square). There are no recreation areas, wildlife or waterfowl refuges, or historic sites in the Study Area. The important details of the Section 4(f) resource are discussed in this evaluation as it relates to impacts, minimization of impacts, or the net benefit analysis.

5.1 Section 4(f) Historic Resources

Cultural resources listed on or eligible to be listed on the *National Register of Historic Places* (NRHP) and located within the *Area of Potential Effect* (APE)-Direct and APE-Indirect were identified and evaluated as part of completing the Pennsylvania and Minnesota Avenues, SE Intersection Improvement Project Environmental Assessment (EA). Section 4(f) stipulates that in order for a historic site to be granted protection, it must be considered significant. The Section 106 process is the method by which a historic site's significance is determined.⁸⁶

Through research and coordination with the *District's State Historic Preservation Office* (DC SHPO), it was determined that three buildings in the APE-Indirect are considered eligible for the NRHP for purposes of compliance with Section 106 of the National Historic Preservation Act (NHPA) for this project. These properties include the Morton's Department Store Building at 2324 Pennsylvania Avenue, SE; the Highland Theater Building at 2523 Pennsylvania Avenue, SE; and the Little Tavern Building at 2537 Pennsylvania Avenue, SE. The Little Tavern Building was demolished in 2012 and there are currently no buildings or structures that occupy the lot. Figure 3-4 provides the locations of these structures within the APE-Indirect. See *Appendix E* for a description and photographs of the historic structures.

FHWA determined that both Build Alternatives for the project will have a "No Adverse Effect" on historic resources in the project area. DCSHPO concurred with this determination and stated that because of the proposed designs, both Build Alternatives would reestablish Twining Square to its original and historical shape.

5.2 Project Description

The Pennsylvania and Minnesota Avenues, SE Intersection Improvements EA proposes improvements at the confusing and complex intersection in order to enhance the safety, mobility and connectivity for pedestrians and motorists. As shown on Figure 1-2 in *Section 1.0, Purpose and Need*, the current intersection configuration is dominated by busy lanes of traffic, rendering pedestrian circulation both difficult and dangerous. The project intersection is located on a major commuter route, Pennsylvania Avenue, SE, in an urban environment, at its crossing with the local travel route of Minnesota Avenue, SE. The project intersection carries traffic to and from the bridges that cross the Anacostia River, as well as Minnesota Avenue, SE.

This project was originally conceived as part of the *Great Streets Design Final Report*, which was developed as part of the District's Great Streets Initiative. The Great Streets Initiative was kicked off in 2005 as a multi-agency program that strategically uses public investments to improve local quality of life and attract private investments to communities in the District. Several corridors were chosen to be a part of the Great Streets Initiative, including Pennsylvania Avenue, SE.

The Study Area is located at the western end of the Pennsylvania Avenue Great Streets corridor at the intersection of Pennsylvania Avenue, SE and Minnesota Avenue, SE. The intersection includes NPS property, U.S. Reservation 487 (Twining Square), which consists of four small park parcels and the adjacent roadway medians (*U.S. Reservations 487 A, B, C, D and E*), totaling approximately **1.44** acres. The roadways split the reservations into areas that effectively function as traffic islands for pedestrians crossing the street; the pieces of parkland are too small to function as true open space or green space as currently configured. Twining Square lacks aesthetic appeal and is underutilized urban space.

In order to implement the proposed improvements, a transfer of land jurisdiction from NPS to DDOT is necessary to facilitate reconfiguration of the roadway and U.S. Reservation 487. A transfer of land jurisdiction from NPS to DDOT may be agreed upon by covenant (with stipulations), following meetings and coordination between the agencies to facilitate the improvements. ***The open green space within Twining Square would remain parkland.*** The NPS parcels are considered Section 4(f) properties and are therefore the subject of this Section 4(f) Evaluation.

5.3 Purpose and Need

The purpose of the Proposed Action is to provide transportation improvements to the Pennsylvania and Minnesota Avenues, SE intersection in keeping with the District of Columbia's Great Streets Initiative. The project needs consist of the following:

- Improve pedestrian and vehicular safety;
- Create a consolidated, usable park space;
- Improve multimodal connectivity and access; and
- Support improved land use and community needs.

5.4 Proposed Action

Section 2.0, Proposed Action and Alternatives of the EA discusses the Proposed Action in detail. The Proposed Action includes a potential land transfer (or exchange) between NPS and DDOT in order to facilitate the reconfiguration of the Pennsylvania and Minnesota Avenues, SE intersection. The reconfiguration of the intersection is needed in order to improve safety and efficiency for all modes of transportation, enhance quality of life for residents, commuters and visitors, and to attract private investment to the community.

5.5 Regulatory Requirements

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 USC §303, declares that

[i]t is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.

Section 4(f) specifies that

[t]he Secretary [of Transportation] may approve a transportation program or project...requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of a historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- 1. There is no prudent and feasible alternative to using that land; and*
- 2. The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.*

In general, a Section 4(f) “use” occurs with a Department of Transportation–approved project or program when (23 CFR §771.135 [p][1] and [2]):

- Section 4(f) land is permanently incorporated into a transportation facility.
- There is a temporary occupancy of Section 4(f) land that is adverse in terms of the Section 4(f) preservationist purposes as defined by specified criteria (23 CFR §771.135[p][7]).
- Section 4(f) land is not incorporated into the transportation project, but the nearby impacts of the projects are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired (constructive use).

5.5.1 Definition of the Net Benefits 4(f) Programmatic Evaluation

A nationwide programmatic Section 4(f) evaluation may be prepared for certain federally assisted transportation improvement projects on existing alignment that will use property of a Section 4(f) park, recreation area, wildlife or waterfowl refuge, or historic property, which in the view of the FHWA and official(s) with jurisdiction over the Section 4(f) property, the use of the Section 4(f) property will result in a net benefit to the Section 4(f) property. This programmatic evaluation can be applied to any project regardless of class of action under the National Environmental Policy Act. A “net benefit” is achieved when the transportation use, the measures to minimize harm, and the mitigation incorporated into the project results in an overall enhancement of the Section 4(f) property when compared to both the future do-nothing or avoidance alternatives and the present condition of the Section 4(f) property, considering the activities, features, and attributes that qualify the property for Section 4(f) protection. Conversely, a project does not achieve a “net benefit” if it will result in a substantial diminishment of the function or value that made the property eligible for Section 4(f) protection.

5.5.2 Applicability of the Net Benefits 4(f) Programmatic Evaluation

The applicability criteria for a Net Benefits 4(f) Programmatic Evaluation include the following:

1. The proposed transportation project uses a Section 4(f) park, recreation area, wildlife or waterfowl refuge, or historic site.
2. The proposed project includes all appropriate measures to minimize harm and subsequent mitigation necessary to preserve and enhance those features and values of the property that originally qualified the property for Section 4(f) protection.
3. For historic properties, the project does not require the major alteration of the characteristics that qualify the property for the National Register of Historic Places (NRHP) such that the property would no longer retain sufficient integrity to be considered eligible for listing. For archeological properties, the project does not require the disturbance or removal of the archaeological resources that have been determined important for preservation in-place rather than for the information that can be obtained through data recovery. The determination of a major alteration or the importance to preserve in-place will be based on consultation consistent with 36 CFR part 800.
4. For historic properties, consistent with 36 CFR part 800, there must be agreement reached amongst the SHPO and/or THPO, as appropriate, the FHWA and the Applicant on measures to minimize harm when there is a use of Section 4(f) property. Such measures must be incorporated into the project.
5. The official(s) with jurisdiction over the Section 4(f) property agree in writing with the assessment of the impacts; the proposed measures to minimize harm; and the mitigation necessary to preserve, rehabilitate and enhance those features and values of the Section 4(f) property; and that such measures will result in a net benefit to the Section 4(f) property.
6. The Administration determines that the project facts match those set forth in the Applicability, Alternatives, Findings, Mitigation and Measures to Minimize Harm, Coordination, and Public Involvement sections of this programmatic evaluation.

Any project that satisfies these criteria may make use of the Net Benefits 4(f) Programmatic Evaluation and will not require the preparation of an individual Section 4(f) Evaluation.

5.6 Section 4(f) Properties

One Section 4(f) property, NPS-owned U.S. Reservation 487 (Twining Square) would be impacted by the Proposed Action if either of the Build Alternatives is selected.

5.6.1 U.S. Reservation 487 (Twining Square)

Public Park

U.S. Reservation 487 in the Study Area is one of the Capitol Hill Parks, a collection of 59 triangles and squares owned by the NPS.⁸⁷

Many of the avenues and streets east of the Anacostia River, including Pennsylvania Avenue, did not exist as of the 1901 City of Washington Southeast Quadrant map. During the 1920s and early 1930s, Twining Square was known as L'Enfant Square. In 1929, the Office of Public Buildings and Public Parks of the National Capital assumed jurisdiction over Reservation 487 (Twining Square and the adjacent medians) at the intersection of Pennsylvania and Minnesota Avenues, SE via the March 29, 1929 request of the Commissioners of the District. In 1933, in accordance with the recommendation of the

National Capital Park and Planning Commissions, U.S. Reservation 487 officially became “Twining Square” instead of “L’Enfant Square.” The name Twining Square was selected to honor the first military member of the District Commissioners, Major William Johnson Twining who served from 1878-1882. The street along the northeast side of Twining Square is still known as L’Enfant Square, SE even though the park’s name was officially changed to Twining Square in 1933. The neighborhood to the north of Pennsylvania Avenue at the intersection is referred to as “Twining.” The park reservation has been modified since its development by bisection, and its area was reduced in the late 1940s and subsequently as Pennsylvania Avenue continued to expand. Refer to *Appendix E* for a more detailed history of the reservation.

U.S. Reservation 487 is not a significant historic resource, which has been confirmed through the Section 106 process. Although the reservation was previously known as L’Enfant Square, the reservation is not within the bounds of the L’Enfant Plan of the City of Washington, D.C., nor is it associated with the Fort Circle Parks. Although the reservation has history associated with it, through the Section 106 process, it has been confirmed that park is not historically “significant.”

Due to the intersection configuration, the four park parcels of U.S. Reservation 487 (Twining Square) effectively function as traffic islands for pedestrians while crossing the street; the pieces of parkland are too small to function as true open space or green space as currently configured. The grassed medians that bisect the Pennsylvania Avenue, SE roadway in the Study Area to the east and west of the intersection (*U.S. Reservations 487A, B, C, D and E*) are also NPS property and are considered part of U.S. Reservation 487. The medians are functional, as they separate opposing traffic along Pennsylvania Avenue, SE and serve as refuge areas for pedestrians crossing the street.

Figure 5-1 provides an illustration of the NPS reservations in the Study Area. Identification numbers 1, 2, 3 and 4 on the figure are identified as *U.S. Reservation 487*; the medians to the west and east of the intersection in the Study Area are identified as *U.S. Reservation 487C, 487D and 487E* (west of Twining Square) and Reservations 487A and 487B (east of Twining Square). **Table 5.1** provides the approximate acreages of each of the reservation parcels in table format, which equates to approximately **1.44** acres of NPS property (Section 4(f) property) in the Study Area that would be impacted by the Proposed Action.

Figure 5-1
NPS Reservation Map



Source: National Park Service, 2008.

Table 5.1
Impacted U.S. Reservation 487 (Twining Square) Property Acreages

ID No. (Fig. 5-1)	NPS Reservation	Approx. Acres
1	487	0.27
2	487	0.49
3	487	0.34
4	487*	0.06
5	487C	0.18
6	487B*	0.04
7	487A*	0.02
8	487D*	0.02
9	487E*	0.02
Total NPS Acres (Approx.)		1.44

Note: Acreage calculations are preliminary and based on aerial photo and MicroStation estimating tools unless marked by an asterisk (*).

*Based on DC GIS and DC Office of Planning GIS data.

Source: HNTB Analysis, 2014.

5.7 Alternatives Considered

The project alternatives, including the No Build Alternative and two Build Alternatives, are described in detail in *Section 2.0, Proposed Action and Alternatives*, of the EA.

5.7.1 No Build Alternative

Consideration of the No Build Alternative is required by NEPA per CEQ Regulations. This alternative serves as a basis of comparison with other alternatives considered for detailed analysis. Under the No Build Alternative, no land jurisdiction exchange between NPS and DDOT would occur. The intersection would continue to function as it does today. Existing traffic patterns, crosswalks, signalization, and sidewalks would remain unimproved. See **Figure 5-2** for an illustration of the No Build Alternative with existing reservation and median acreages.

While the No Build Alternative does not meet the purpose and need of the Proposed Action, it provides a basis for comparing the environmental consequences of the Build Alternatives.

5.7.2 Build Alternative 1 – Revised Square Alternative

Detailed discussion of Build Alternative 1 is contained in *Section 2.2.1, Build Alternative 1 – Revised Square Alternative* of the EA. Build Alternative 1 would improve the intersection to create a “traffic square” concept that would require all vehicles, with the exception of through-movements on Pennsylvania Avenue, SE, to go around the center “squares.” The reconfigured intersection would include removal of the roadways which bisect the NPS-owned reservations on either side of Pennsylvania Avenue, SE and the consolidation of green space to the north and south of Pennsylvania Avenue.

Build Alternative 1 would require a jurisdictional land transfer from NPS to DDOT of approximately **1.44** acres to enable the proposed modifications to the intersection (See Table 5.1). Build Alternative 1 would consolidate the two park parcels to the north of Pennsylvania Avenue and the two park parcels to the south of Pennsylvania Avenue in order to provide more contiguous park area for residents and visitors to use as green space. Build Alternative 1 would result in two larger park areas to the north and south of Pennsylvania Avenue than exist today, consisting of approximately 1.5 acres total (one acre to the north of Pennsylvania Avenue and 0.5 acres to the south). The traffic medians to the east and west of the intersection currently owned by NPS would also transfer to DDOT in order to accommodate proposed improvements (approximately **0.28** acres); however the size, usability, and function of the medians will not noticeably differ from current conditions. **Figure 5-3** provides an illustration of Build Alternative 1-Revised Square Alternative with acreage calculations of the two contiguous park areas that would result from the proposed modifications.

The traffic medians in the center of the Pennsylvania Avenue, SE roadway that are currently NPS property are suggested for inclusion as part of the jurisdictional transfer of property to DDOT. Initially, in the October 2013 EA and Section 4(f) Net Benefit Evaluation, only median Reservations 487 A, B and C were included as part of the transfer; however, after further discussion between NPS and DDOT following the publication of the October 2013 EA, Reservations 487 D and E are also recommended for inclusion as part of the jurisdictional transfer of property. Reservations 487 D and 487E are each approximately 0.02 acres. Therefore the additional proposed acreage to be transferred equates to approximately 0.04 acres for a total of approximately 1.44 acres.



LEGEND

Existing Right of Way (ROW)

NPS Reservation 487, 487A, B, C, D and E (1.44 approximate acres combined*)

*Reservation 487 (1.16 approximate acres)

*Reservation 487A, B, C, D and E (0.28 approximate acres)

Figure 5-2
Approximate Park Area Acreage (No Build Alternative)

Net Benefits Section 4(f) Programmatic Evaluation



Source: HNTB Corporation, 2014



LEGEND

- Existing R.O.W.
- Proposed Transfer of Jurisdiction - NPS to DDOT (1.4 acres)
- Consolidated Park Area (1.5 acres)

Figure 5-3
Build Alternative 1 - Revised Square (Consolidated Park Area)

Net Benefits Section 4(f) Programmatic Evaluation

Source: HNTB Corporation, 2014

5.7.3 Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

Detailed discussion of Build Alternative 2 is contained in *Section 2.2.2, Build Alternative 2 – Conventional Intersection Alternative* of the EA. Build Alternative 2 would reconfigure the intersection into a typical at-grade intersection with all vehicle turning movements permitted for all approaches, with the exception of 25th Street, which would remain a one-way street going southbound. The reconfigured intersection would include removal of the roadways which bisect the NPS-owned reservations on either side of Pennsylvania Avenue, SE and the consolidation of green space to the north and south of Pennsylvania Avenue.

Build Alternative 2 has two options for the movement of one-way traffic to the north and west of the “square” on L’Enfant Square, SE. Either one-way movement would work operationally as follows:

Option 1) Traffic flows one-way to the west and south on L’Enfant Square, SE. Commuter traffic could continue to cut-through the “square” to avoid the Pennsylvania/Minnesota Avenues, SE intersection and the right-turning vehicle/pedestrian conflict to the west of the square would remain; or

Option 2) Traffic flows one-way to the north and east on this roadway. Cut-through traffic would be minimized and the vehicle/pedestrian conflict would be reduced.

As with Build Alternative 1, Build Alternative 2 is expected to require a jurisdictional land transfer from NPS to DDOT of approximately **1.44** acres to enable the proposed modifications to the intersection (See Table 5.1). Build Alternative 2 would consolidate the two park parcels to the north of Pennsylvania Avenue and the two park parcels to the south of Pennsylvania Avenue in order to provide more contiguous park area. Build Alternative 2 would result in two larger park areas to the north and south of Pennsylvania Avenue than exist today, consisting of approximately 1.4 acres total (one acre to the north of Pennsylvania Avenue and 0.4 acres to the south). The traffic medians to the east and west of the intersection currently owned by NPS would also transfer to DDOT in order to accommodate proposed improvements (approximately **0.28** acres); however, the size, usability, and function of the medians will not noticeably differ from current conditions. **Figure 5-4** provides an illustration of Build Alternative 2- Conventional Intersection Alternative with acreage calculations of the two contiguous park areas that would result from the proposed modifications.

The traffic medians in the center of the Pennsylvania Avenue, SE roadway that are currently NPS property are suggested for inclusion as part of the jurisdictional transfer of property to DDOT. Initially, in the October 2013 EA and Section 4(f) Net Benefit Evaluation, only Reservations 487 A, B and C were included as part of the transfer; however, after further discussion between NPS and DDOT following the publication of the October 2013 EA, Reservations 487 D and E are also recommended for inclusion as part of the jurisdictional transfer of property. Reservation 487 D and 487E are each approximately 0.02 acres. Therefore the additional proposed acreage to be transferred equates to approximately 0.04 acres for a total of approximately 1.44 acres.

5.7.4 Summary of Build Alternatives 1 and 2

Although the Build Alternatives are different operationally and from a visual standpoint, the changes to the park configuration would be similar. Both alternatives would remove the roadways that bisect the park area to the north and south of Pennsylvania Avenue, SE and replace them with green space that would consolidate the park area to the north of Pennsylvania Avenue and to the south of Pennsylvania Avenue, resulting in usable green space for the community.

Table 5.2 provides a summary of approximate park area acreage associated with the No Build and Build Alternatives.

Table 5.2
Comparison of Park Acreage (Contiguous Park Area)

	No Build Alternative	Build Alternative 1	Build Alternative 2
North of Pennsylvania Ave. SE	0.8 (divided)	1.0	1.0
South of Pennsylvania Ave. SE	0.4 (divided)	0.5	0.4
<i>Total Acres (approx.)*</i>	<i>1.2 acres</i>	<i>1.5 acres</i>	<i>1.4 acres</i>

Note: Acreage calculations are preliminary and based on aerial photo and MicroStation estimating tools.

*Total acreage does not include the traffic medians to the west and east of the intersection or the grassed buffers in the Study Area.

Source: HNTB Analysis, 2013.



LEGEND

- Existing R.O.W.
- Proposed Transfer of Jurisdiction - NPS to DDOT (1.4 acres)
- Consolidated Park Area (1.4 acres)

Figure 5-4
Build Alternative 2 - Conventional Intersection (Consolidated Park Area)

Net Benefits Section 4(f) Programmatic Evaluation



Source: HNTB Corporation, 2014

5.8 Impacts on Section 4(f) Properties

The two Build Alternatives evaluated in the Pennsylvania and Minnesota Avenues, SE Intersection Improvements EA would both impact U.S. Reservation 487 (Twining Square) park land in the Study Area intersection. No other Section 4(f) resources would be affected by the Build Alternatives. A detailed discussion of environmental impacts due to the proposed improvements is discussed in *Section 4.0, Environmental Consequences*. A complete summary of impacts is provided in the *Executive Summary*, Table ES.1.

5.8.1 Build Alternative 1 – Revised Square Alternative

Soils

Under Build Alternative 1, there would be a minor net increase of green space compared to the No Build Alternative. The net increase in parkland would positively impact soils and geology in the Study Area as there would be an increase in usable soils. The majority of land within the Study Area has been previously graded and paved over from the construction and maintenance of the existing roadway at the intersection, and is expected to represent completely or partially disturbed soil sequences. The soil would support grass and other landscaping materials with Build Alternative 1 as the area does today.⁸⁸ Minimal grading and filling would be required as the area is generally flat and has limited elevation change. Adequate construction techniques would be adhered to so as to not increase the potential for soil erosion and loss of topsoil during construction. Therefore, Build Alternative 1 would have negligible long-term impacts to soils and would only present minor short-term adverse impacts resulting from soil erosion during construction. Based on the analysis summarized above, the impacts to soil do not meet the CEQ criteria for either context or intensity; therefore these impacts do not rise to a level of “significance” as defined by CEQ.

Water Resources

Groundwater

Impacts to groundwater recharge are unlikely. The net increase in pervious surface would be beneficial to groundwater recharge; however, any short-term or long-term impacts to groundwater recharge are expected to be negligible due to the minimal increase in pervious surface (0.09 acres) compared to the No Build Alternative. Based on the analysis summarized above, impacts to groundwater do not meet the CEQ criteria for either context or intensity; therefore these impacts do not rise to a level of “significance” as defined by CEQ.

Water Quality

Build Alternative 1 would include the removal of existing roadways that bisect the Twining Square park land, as well as reconfiguration of the intersection. Minor short-term adverse impacts to water quality may result during construction due to soil disturbance and potential clearing of vegetation. BMPs would be used during construction in accordance with DDOE and District standards to avoid increased soil erosion. This would help to prevent an increase in storm water runoff volume that could degrade water quality in the nearby tributaries and Anacostia River. The net increase in pervious surface (0.09 acres) under Build Alternative 1 would be beneficial to surface water; however, it is anticipated to have

negligible impacts to surface water in the long term given the small change in storm water runoff volumes. Storm water quality requirements will be based on providing water quality improvements for the pavement areas within the project site. This requirement will be met using a variety of BMP facilities and LID strategies such as DDOT/DC Water quality control structures and other features. Therefore, long-term impacts to water quality are expected to be negligible. Impacts to water quality do not meet the CEQ criteria for either context or intensity; therefore these impacts do not rise to a level of “significance” as defined by CEQ.

Vegetation

The reconfiguration of the intersection would include the conversion of the roadways, which fragment the currently NPS-owned reservations, into green space. The existing street trees and vegetation would be preserved where possible. Pending final design, six or seven trees may be removed to accommodate additional roadway to the north of the square, and one to two trees may need to be removed due to the roadway configuration to the south of the square. Street trees line the roadway median to the west of the square; the proposed design of Build Alternative 1 may require removal of one or two trees near the intersection where the median width is reduced to accommodate a wider sidewalk and bus stop area across the street. Upon project implementation, DDOT would develop a landscape plan and provide the appropriate vegetation to replace any trees removed. Additionally, LID principles would be applied to the development and the existing tree canopy in the Study Area would be preserved and enhanced wherever possible to maximize pavement shading.

Although there is not a substantial amount of additional park area or vegetation being added under Build Alternative 1, the consolidation of the green space and potential for enhanced landscape design would result in minor long-term benefits under this Alternative. Changes to the intersection under Build Alternative 1 would provide the opportunity to enhance the green space as usable park area for residents and visitors to this intersection. As discussed in *Section 4.8, Mitigation*, landscaping and replacement of trees will be conducted in accordance with the DDOT Design and Engineering Manual.

Short-term minor adverse impacts to vegetation may occur during construction as soils are disturbed and trees potentially impacted during the intersection development. BMPs would be used during construction to minimize soil erosion and impacts to vegetation. Given the analysis and use of BMPs, the impacts to vegetation do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

Cultural Resources

Historic Structures

FHWA determined that Build Alternative 1 will have a “No Adverse Effect” on historic resources in the project area. DCSHPO concurred with this determination and stated that because of its proposed design, Build Alternative 1 would reestablish Twining Square to its original and historical shape, The effects on historic structures do not meet the CEQ criteria for either context or intensity, and would not rise to a level of “significance” as defined by CEQ.

Archaeological Resources

The southern reservation is considered a zone of high potential for prehistoric resources, as well as historic resources associated with nineteenth century residences. Further archaeological investigation is recommended in the southern reservation area within the APE-Direct (Figure 3-2). Therefore Phase IB/II testing of this small area is recommended prior to final design decisions and construction of the proposed improvements.

FHWA determined that Build Alternative 1 will have a “No Adverse Effect” on archeological resources in the project area. DCSHPO concurred with this determination and stated that DDOT will continue consultation with the DC SHPO on the project if there are any changes to the project footprint as the designs are finalized and for treatment of any NRHP eligible archaeological resources that may be potentially identified during the Phase IB/II testing. The effects on archeological resources do not meet the CEQ criteria for either context or intensity, and would not rise to a level of “significance” as defined by CEQ.

Cultural Landscapes

There are no significant cultural landscapes associated with the Study Area. However, any long-term effects to the general landscape in the vicinity of the intersection would be negligible. Any indirect effects, such as visual impacts to the landscape due to construction would be short-term and negligible with the use of BMPs. Based on the analysis summarized above, impacts to cultural landscapes do not meet the CEQ criteria for either context or intensity, and would not rise to a level of “significance” as defined by CEQ.

Land Use and Zoning

Build Alternative 1 is consistent with the District’s planning documents, aligning with the *Great Streets Framework Plan – Pennsylvania Avenue, SE*, and the *Revitalization of Pennsylvania Avenue, SE for the Great Initiative Concept Design*. As a result of Build Alternative 1, the NPS land parcels (U.S. Reservation 487 **and 487 A, B, C, D and E**) would transfer to DDOT. This land transfer would facilitate the reconfiguration of the intersection to improve safety, mobility, and connectivity for pedestrians and motorists at the intersection in keeping with the District’s Great Streets Initiative. No private right-of-way would be impacted or acquired by the implementation of Build Alternative 1.

The land use and zoning in the Study Area would not change as a result of Build Alternative 1 and land use would only be temporarily affected during construction by road closures to reconfigure the intersection. The proposed intersection improvements would not affect any land use or zoning directly. However, Build Alternative 1 could indirectly affect future land use and zoning in the long term by functioning as a catalyst for redevelopment. As part of the Great Streets Initiative, improvements to this intersection would work toward the project mission to revitalize the District’s Great Streets, which could ultimately lead to attracting new investment in the community. Indirect impacts to land use would be minor and beneficial given the potential to generate local changes in land use and economic activity. Land use impacts in the short term would be negligible during construction. No zoning impacts would occur in the short term. The impacts to land use and zoning do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ

Aesthetics and Visual Quality

Build Alternative 1 involves primarily changes at ground level and there are no significant views or vistas in the vicinity of the Study Area. It is anticipated that indirect visual effects/changes in view in the long term would be limited to those areas directly fronting the streets involved and from the traffic lanes of the roadway in the vicinity of the intersection. The only anticipated above ground element, the relocation and improvement of traffic control lights, represents a restricted visual change.

Build Alternative 1 is compatible with the existing environment and could potentially improve aesthetics and visual quality in the area in the long term. The project was designed to create a place of distinction in keeping with the goals of the Great Streets Improvement Project, and would provide more contiguous parkland and new roadway infrastructure. Therefore, impacts to aesthetic and visual quality in the immediate Study Area vicinity would be minor and beneficial in the long term as a result of Build Alternative 1.

Minor short-term adverse impacts to views may occur within the intersection during construction while the area is temporarily used as a construction site, but the impacts would be of limited duration. Therefore, the impact is minor in context and intensity and does not rise to a level of “significance” as defined by CEQ.

Community Resources

Parks and Recreation Areas

Under Build Alternative 1, the reconfigured intersection would include removal of the roadways which bisect the NPS-owned reservations on either side of Pennsylvania Avenue, SE. The result would be consolidated green space which would promote park area continuity. Under current conditions, the green space is fragmented and is not sufficient for recreational use by the community. Build Alternative 1 would benefit the community by providing more contiguous green space to be used as park space for passive recreational activity. In the long term, Build Alternative 1 would result in a minor beneficial impact to park operations and management in the local area because the Study Area would be less fragmented and easier to maintain for mowing and any other maintenance functions. Additionally the new, larger areas of green space and reduced travel speeds around the “square” would improve visitors’ ability to use the parks for activities.

Build Alternative 1 would include minor short-term adverse impacts to the park area during construction. The impacts would be limited to the period of construction. The impacts to parks and recreation areas do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

Transportation

Pedestrian and Bicycle Network

Pedestrian and bicycle safety were given high priority in Build Alternative 1 and vehicle-pedestrian conflicts were reduced as much as possible. Build Alternative 1 would have the following pedestrian and bicyclist improvements (numbers correspond to Figure 4-1):

1. A new short crosswalk would be provided in the center of the square for pedestrians to cross Pennsylvania Avenue, SE;
2. Left turn movements from southbound L'Enfant Square, SE and northbound Minnesota Avenue, SE into the center of the square would be prohibited to eliminate conflicts between vehicles and crossing pedestrian;
3. The southbound right-turning vehicular traffic from L'Enfant Square, SE would be controlled by traffic signals to minimize the existing vehicle-pedestrian conflict;
4. New short crosswalks would replace the existing two-step crosswalks on northbound Minnesota Avenue, SE and southbound L'Enfant Square, SE to reduce the time walking in the street therefore enhance safety;
5. The expanded sidewalks at the southwest and northwest corners of Pennsylvania Avenue, SE and L'Enfant Square, SE would minimize the conflict between pedestrians waiting at the bus stop and bicyclists traveling on the sidewalk.
6. Sidewalks would be expanded along the north side of Pennsylvania Avenue, SE to the northeast of the intersection to maintain 10' shared use path for bicycle and pedestrian convenience to and through the intersection.
7. ***Crosswalk at the west intersection of Pennsylvania Avenue, SE with L'Enfant Square, SE would be improved to provide a shorter, continuous crossing length across the westbound lanes of traffic. Currently the crosswalk crosses the westbound lanes at an angle.***
8. ***Following comments received from the Washington Metropolitan Area Transit Authority (WMATA) on the October 2013 EA, a pedestrian bulb-out was included in the Build Alternative 1 design at the bus stop at westbound Pennsylvania Avenue, SE with L'Enfant Square, SE, to shorten pedestrian crossing distance, protect parked vehicles, and reduce traffic impact caused by bus pullovers.***

During construction, temporary disruption would occur to users of the intersection; however detour routes and alternate paths would be dedicated during this time. In general, the intersection would be improved with minimal disruption and ample mitigation to offset any negative effects; therefore, Build Alternative 1 would have negligible short-term impacts on the bicycle and pedestrian network.

In the long term, the Build Alternative 1 improvements would benefit the bicycle and pedestrian network in the Study Area due to geometry upgrades and traffic management measures, including new bulb-outs, sidewalk expansion, crosswalk configuration, traffic movement restrictions and traffic signalization. The improvements would also result in improved access to bus stops and other destinations at the intersection. Therefore, Build Alternative 1 would have moderate long-term beneficial impacts to the pedestrian and bicycle network both for local residents and for commuters to and through the Study Area, which would have noticeable benefits for a large number of intersection users. This includes benefits for the local community, including residents, visitors, and commuters through the Study Area. The impacts to the bicycle and pedestrian network do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of "significance" as defined by CEQ.

Air Quality

Construction of Build Alternative 1 would likely take place over two construction seasons. During each construction season there would be localized increased emissions from construction equipment and particulate emissions from construction activities. Particulate emissions, whether from construction equipment diesel exhaust or dust from the construction activities, will be controlled as well as possible. Contractors will follow all DDOT Standard Construction Specification Sections that address the control of construction equipment exhaust or dust during construction. Impacts to air quality due to construction would be temporary and localized. Even though construction mitigation measures are not required, appropriate BMPs will be used to reduce engine activity or reduce emissions per unit or operating time. See *Section 4.8, Mitigation* for additional information on air quality mitigation measures.

Based on the air quality analysis completed for Build Alternative 1, the Proposed Action would not contribute to any violation of the NAAQS and meets the project level CO conformity requirements of 40 CFR 94.

Noise

Build Alternative 1 would have a short-term adverse impact to noise levels in the Study Area during the construction phase. The major construction elements of this project are expected to be demolition, hauling, grading, and paving. Construction of the proposed improvements and local rerouting of traffic for either alternative will result in a temporary increase in the ambient noise levels for properties in the Study Area, especially along Pennsylvania Avenue and Minnesota Avenue. Considering the relatively short-term nature of construction noise, impacts would be minor. The transmission loss characteristics of nearby structures are believed to be sufficient to moderate the effects of intrusive construction noise. None of the predicted future noise levels would substantially exceed existing noise levels (DDOT has defined an increase over existing noise levels of 10 decibels or more as being substantial).⁸⁹ The interior analysis at the category D location, N7, did not approach or exceed the 52 dBA $L_{eq}(h)$ criteria.

Impacts under Build Alternative 1 would not be substantially different from the No Build Alternative. The impacts to noise do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

Summary of Build Alternative 1 Impacts

Build Alternative 1 would benefit the community by providing more contiguous green space for community use and enjoyment. Build Alternative 1 would result in benefits to park operations and management in the local area because the Study Area would be less fragmented and easier to maintain for mowing and any other maintenance functions. Additionally, the new, larger areas of green space and slower traffic would improve visitors’ ability to use the parks for activities. The bicycle and pedestrian network in and around the park area would be greatly improved under Build Alternative 1 as well. Access to U.S. Reservation 487 would be periodically disrupted during construction of the proposed improvements. The impacts would be limited to the period of construction.

5.8.2 Build Alternative 2 – Conventional Intersection Alternative (*Preferred Alternative*)

Soils

Under Build Alternative 2, there is a minor net decrease of green space as compared to the No Build Alternative. This net change includes peripheral grassed sidewalk buffers and areas outside of NPS property, but still within the Study Area. The majority of land within the Study Area has been previously graded and paved over from the construction and maintenance of the existing roadway at the intersection. Build Alternative 2 would result in similar impacts as described for Build Alternative 1. Therefore, Build Alternative 2 would have negligible long-term impacts to soils and may only present minor short-term adverse impacts resulting from soil erosion during construction. The impacts to soil do not meet the CEQ criteria for either context or intensity; therefore these impacts do not rise to a level of “significance” as defined by CEQ.

Water Quality

Groundwater

Impacts to groundwater recharge are unlikely. Build Alternative 2 would result in a net decrease of approximately 0.02 acres of pervious surface in the Study Area. This net change includes peripheral grassed sidewalk buffers and areas outside of NPS property, but still within the Study Area. Any short-term or long-term impacts to groundwater recharge are expected to be negligible due to the minimal decrease in pervious surface compared to the current Study Area. Impacts to groundwater do not meet the CEQ criteria for either context or intensity; therefore these impacts do not rise to a level of “significance” as defined by CEQ.

Water Quality

Build Alternative 2 would include the removal of existing roadways that bisect the Twining Square park land, as well as reconfiguration of the intersection. Minor short-term adverse impacts to water quality may result during construction due to soil disturbance and potential clearing of vegetation. BMPs would be used during construction in accordance with DDOE and District standards to avoid increased soil erosion. This would help to prevent an increase in storm water runoff volume that could degrade water quality in the nearby tributaries and Anacostia River. The net decrease in pervious surface under Build Alternative 2 (0.02 acres) is anticipated to have negligible impacts to surface water quality in the long term given the minimal change in pervious surface. Storm water quality requirements will be based on providing water quality improvements for the pavement areas within the project site. This requirement will be met using a variety of BMP facilities and LID strategies such as DDOT/DC Water quality control structures and other features. Therefore, long-term impacts to water quality are expected to be negligible. Impacts to water quality do not meet the CEQ criteria for either context or intensity; therefore these impacts do not rise to a level of “significance” as defined by CEQ. ***Planted medians would be used where feasible to absorb additional rainwater and stormwater runoff. Although landscape design has not been finalized, continuous tree zones would also help to absorb rainwater and storm water runoff.***

Vegetation

Build Alternative 2 would result in similar impacts to vegetation, as described under Build Alternative 1. Depending on final design of the intersection, six or seven trees in the northern reservation may need to be removed to accommodate pedestrian pathways. Three trees in the southern reservation would be impacted by roadway development under Build Alternative 2, and three to four trees would be impacted to accommodate the pedestrian pathway in the southern reservation. As with Build Alternative 1, short-term minor adverse impacts may occur to vegetation during construction and would be mitigated by using BMPs. The overall consolidation of green space and potential for enhanced landscape design under this Alternative would result in minor long-term benefits. Given the analysis and use of BMPs, the impacts to vegetation do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

Cultural Resources

Historic Structures

The impacts to historic structures from Build Alternative 2 would be similar to Build Alternative 1.

FHWA determined that Build Alternative 2 (the Preferred Alternative) will have a “No Adverse Effect” on historic resources in the project area. DCSHPO concurred with this determination and stated that because of its proposed design, Build Alternative 2 would reestablish Twining Square to its original and historical shape, The effects on historic structures do not meet the CEQ criteria for either context or intensity, and would not rise to a level of “significance” as defined by CEQ.

Archaeological Resources

As with Build Alternative 1, the northern and southern reservations, and area under the existing roadway would all be disturbed by the construction of Build Alternative 2. ***FHWA determined that Build Alternative 2 (the Preferred Alternative) will have a “No Adverse Effect” on archeological resources in the project area. DCSHPO concurred with this determination and stated that DDOT will continue consultation with the DC SHPO on the project if there are any changes to the project footprint as the designs are finalized and for treatment of any NRHP eligible archaeological resources that may be potentially identified during the Phase IB/II testing. The effects on archeological resources do not meet the CEQ criteria for either context or intensity, and would not rise to a level of “significance” as defined by CEQ.***

Cultural Landscapes

There are no significant cultural landscapes associated with the Study Area. However, any long-term effects to the landscape in the vicinity of the intersection would be negligible. Any indirect effects, such as visual impacts to the landscape due to construction would be short-term and negligible with the use of BMPs. Based on the analysis summarized above, impacts to cultural landscapes do not meet the CEQ criteria for either context or intensity, and would not rise to a level of “significance” as defined by CEQ.

Land Use and Zoning

As a result of Build Alternative 2, the NPS owned land parcels (U.S. Reservation 487 *and* 487 A, B, C, D *and* E) would transfer to DDOT. This land transfer would facilitate the reconfiguration of the intersection. The land use and zoning in the Study Area would not be directly impacted as a result of Build Alternative 2 and would be only temporarily affected during construction by road closures to reconfigure the intersection. ***Given the proposed aesthetic enhancements and operational improvements proposed as part of the Preferred Alternative based on agency and public input received on the EA and given the selection of Option 2 as the Preferred Option, this alternative has the potential to indirectly affect future land use in the long term. Indirect impacts to land use and zoning would be minor and beneficial given the potential to generate local changes in land use and economic activity.*** No zoning impacts would occur in the short term. Land use impacts under Build Alternative 2 would be negligible and temporary during construction. The impacts to land use and zoning do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

Aesthetics and Visual Quality

Build Alternative 2 design changes would result in a typical at-grade intersection, new grass and additional *contiguous* green space. Therefore as with Build Alternative 1, implementation of Build Alternative 2 would result in short-term negative impacts on views during construction, but in the long term, could result in minor beneficial aesthetic and visual quality impacts. Therefore, the impact is minor in context and intensity and does not rise to a level of “significance” as defined by CEQ.

Community Resources

Parks and Recreation Areas

Under Build Alternative 2, the reconfigured intersection would include removal of the roadways which bisect the NPS-owned reservations on either side of Pennsylvania Avenue, SE. The result would be consolidated green space which would promote park area continuity. Under current conditions, the green space is fragmented and is not sufficient for recreational use by the community. Build Alternative 2 would enhance the park and recreation areas by providing more contiguous green space. Overall impacts to park and recreation areas under Build Alternative 2 would also be minor and beneficial in the long term due to the addition of contiguous park space.

Build Alternative 2 would include minor short-term adverse impacts to the park area during construction. The impacts to parks and recreation areas do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

Transportation

Pedestrian and Bicycle Network

Build Alternative 2, would improve pedestrian and bicyclist safety in the following ways (numbers correspond to Figure 4-2):

1. Proposed bulb-outs would provide exclusive bus bays that eliminate interruption to traffic on travel lanes and allow safe boarding and alighting for passengers;
2. Proposed bulb-outs will shorten the crosswalk therefore reduce the time that pedestrian walk in street; and
3. A proposed pedestrian/bicyclist activated traffic signal at the crosswalk would provide exclusive walk time for pedestrians and bicyclists to safely cross Pennsylvania Avenue without vehicular traffic conflict.
4. *Following comments received on October 2013 EA, center median was extended to provide a more pedestrian-friendly crosswalk and reduce uninterrupted crossing length.*
5. *Crosswalk at the west intersection of Pennsylvania Avenue, SE with L'Enfant Square, SE would be improved to provide a shorter, continuous crossing length across the westbound lanes of traffic. Currently the crosswalk crosses the westbound lanes at an angle.*
6. *Option 2 (Preferred Option) minimizes cut-through traffic and reduces right-turn conflict between vehicles and pedestrians because vehicle traffic will flow one-way to the north and east on L'Enfant Square, SE.*

During construction, temporary disruption would occur to users of the intersection; however detour routes and alternate paths would be dedicated during this time. In general, the intersection would be improved with minimal disruption and ample mitigation to offset any negative effects; therefore, Build Alternative 2 would have negligible short-term impacts on the bicycle and pedestrian network.

In the long term, the Build Alternative 2 improvements would provide an overall benefit to the bicycle and pedestrian network in the Study Area over the No Build Alternative. Changes to the intersection to improve the pedestrian network include new bulb-outs, shorter crosswalks in some locations, and enhanced traffic signalization. *During the October 2013 EA review period, the project team reevaluated the pedestrian crossing at the east side of the intersection (Pennsylvania and Minnesota Avenue) and determined that an extended median in the roadway between the east- and west-bound lanes of Pennsylvania Avenue, SE that will allow a "break" for pedestrians crossing the street within the crosswalk is feasible (See Improvement #4 above). This will effectively reduce the uninterrupted crossing length and provide a more pedestrian-friendly crosswalk. Additionally, the crosswalk at the western intersection of Pennsylvania Avenue, SE with L'Enfant Square, SE is improved to provide a shorter, continuous crossing length across the westbound lanes of traffic. Currently the crosswalk crosses the westbound lanes at an angle. Crosswalk markings will also be improved and the traffic signal timing will be adjusted to accommodate the crossing time required for pedestrians. Additionally, with the selection of Option 2 as the Preferred Option, cut-through traffic will be minimized and the right-turn conflict between vehicles and pedestrians will be reduced.*

Given the overall improvement for pedestrians and bicyclists, Build Alternative 2 would have minor beneficial impacts in the long term to the pedestrian and bicycle network. The impacts to the bicycle and pedestrian network do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of "significance" as defined by CEQ.

Air Quality

Based on the air quality analysis completed for Build Alternative 1, the Proposed Action would not contribute to any violation of the NAAQS and meets the project level CO conformity requirements of 40 CFR 94.

Noise

Impacts under Build Alternative 2 would not be substantially different from the No Build Alternative. The impacts to noise do not meet the CEQ criteria for either context or intensity; therefore, these impacts do not rise to a level of “significance” as defined by CEQ.

Summary of Build Alternative 2 Impacts

Build Alternative 2 would enhance the community by providing more contiguous green space for community use and enjoyment. Build Alternative 2 would result in benefits to park operations and management in the local area because the Study Area would be less fragmented and easier to maintain for mowing and any other maintenance functions. Access to U.S. Reservation 487 would be periodically disrupted during construction of the proposed improvements. The impacts would be limited to the period of construction.

Summary of Impacts Relevant to Section 4(f) Property

A summary of the impacts associated with the environmental impact categories most relevant to the Section 4(f) property for the No Build Alternative and both of the Build Alternatives are provided in **Table 5.3**. Refer to *Section 4.0, Environmental Consequences* for definitions of impact thresholds and duration.

Table 5.3

Impacts Relevant to Section 4(f) Property

Resource	No Build Alternative	Build Alternative 1	Build Alternative 2
<i>Natural Resources</i>			
Soils	No impact.	Negligible long-term impacts; minor short-term adverse impacts from soil erosion during construction.	
Ground Water	No impact to groundwater volume or quality.	Negligible short-term and long-term impacts; minimal net increase of pervious surface.	Negligible short-term and long-term impacts; minimal net decrease of pervious surface.
Surface Water	No impact.	No impact; no surface waters within Study Area.	
Water Quality	No impact.	Minor short-term adverse impacts during construction due to potential release of sediments into stormwater runoff from soil disturbance. Negligible long-term impacts due to minimal net change in impervious surface area and distance to Anacostia River.	
Vegetation	No impact.	Minor short-term adverse impacts during construction due to earth disturbance and potential impacts to several trees to accommodate design changes. Minor long-term benefit due to enhanced landscape and additional grass and tree cover.	
<i>Cultural Resources</i>			
Historic Structures	No impact.	Conditional No Adverse Effect.	Conditional No Adverse Effect.
Archaeology	No impact.	Conditional No Adverse Effect. Phase IB/II archaeological testing of an area in the southern reservation of intersection needed prior to final design and construction where an intact historic surface was identified during geoarchaeological survey.	
Cultural Landscapes	No impact.	Any indirect effects, such as visual impacts to the landscape due to construction would be short-term and negligible with the use of BMPs. Long-term indirect effects would be negligible.	
<i>Socioeconomic Resources</i>			
Land Use and Zoning	No impact.	Negligible short-term impacts may result from road closures during construction to land use. Minor indirect long-term benefits to future land use and zoning.	Negligible short-term impacts may result from road closures during construction to land use. <i>Minor indirect long-term benefits to future land use and zoning.</i>
Aesthetics and Visual Quality	No impact.	Minor short-term adverse visual impacts during construction. Long-term minor benefit to visual quality with more contiguous park area/ green space and new roadway infrastructure.	
Parks and Recreation Areas	No direct impact. Minor long-term indirect impact as park area would remain fragmented and unusable as park or recreation area.	Minor short-term adverse impacts during construction. Long-term minor benefit due to providing more contiguous parkland to be used for passive recreational activity.	

Table 5.3

Impacts Relevant to Section 4(f) Property

Resource	No Build Alternative	Build Alternative 1	Build Alternative 2
Transportation			
Bicycle and Pedestrian Network	No impact.	Minor short-term adverse impacts due to temporary detours during construction. Moderate long-term beneficial impacts to local users and commuters through the area.	Minor short-term adverse impacts due to temporary detours during construction. Minor long-term beneficial impacts to local users and commuters through the area.
Air Quality	No impact.	Short-term adverse impacts to air quality due to construction would be temporary and localized; BMPs will be used. Build Alternatives would not contribute to any violation of the NAAQS and meets the project level CO conformity requirements of 40 CFR 94.	
Noise	No short-term impacts. In the long term, due to the projected increase in traffic volume at this intersection, noise levels will increase by 2040 under the No Build Alternative.	Minor short-term adverse impacts during construction. 2040 design year build PM peak hour traffic would raise noise levels 0.2 to 3.1 dB. The same residences, park and daycare that would be exposed to noise levels that approach or exceed the NAC with the No Build, would also approach or exceed the NAC with either build alternative. It has been determined that noise mitigation is not feasible for this project.	
Cost	--	\$10,971,254	\$9,009,853

Source: HNTB Corporation, 2014.

5.9 Avoidance Alternatives

The Section 4(f) regulations refer to an alternative that would not require the use of any Section 4(f) property as an avoidance alternative. To demonstrate that there are no feasible and prudent alternatives to the use of Section 4(f) property, the following alternatives must be considered that would avoid the use of the Section 4(f) property:

- (1) Do nothing;
- (2) Improve the transportation facility in a manner that addresses the project's purpose and need without a use of the Section 4(f) property; and
- (3) Build the transportation facility at a location that does not require use of the Section 4(f) property.

5.9.1 Do Nothing Alternative

The *Do Nothing Alternative* is to not improve the intersection in keeping with the principles of the District's Great Streets Initiative. The Do Nothing Alternative would require no land jurisdiction exchange between NPS and DDOT. The intersection would continue to function as it does today; existing traffic patterns, crosswalks, signalization, and sidewalks would remain unimproved. See Figure 2-1 for an illustration of the existing condition of the intersection, which is the same as the Do Nothing Alternative.

The Do-Nothing Alternative is not feasible and prudent because it would neither address nor correct the transportation need cited as the NEPA purpose and need, which necessitated the proposed project.

5.9.2 Improve the Transportation Facility in a Manner that Addresses the Project's Purpose and Need without a Use of the Section 4(f) Property

Through multiple planning and design studies, a range of concepts have been developed and analyzed to improve the intersection in keeping with the project purpose and need. In order to meet the project purpose and need, which includes the need to create consolidated, usable park space, all of the concepts that have been developed would require the use of the Section 4(f) property. This is due to the existing land use constraints in the Study Area:

- Pennsylvania Avenue, SE is bordered by U.S. Reservation 487 within the intersection and by commercial properties on both sides of the street immediately east and west of the intersection;
- Minnesota Avenue, SE is bordered by U.S. Reservation 487 to the west and commercial properties (including two gas stations) and residences to the east in the Study Area; and
- L'Enfant Square, SE is lined with residential and commercial development to the north and west and U.S. Reservation 487 to the south and east in the Study Area.

The communities in the Study Area are considered low income and minority populations; therefore any impacts or use of private property in the Study Area has the potential to result in Environmental Justice concerns. Furthermore, if the gas stations at the northeast and southeast corners of the intersection are impacted, environmental site assessments would be needed to investigate the underground storage tanks and other possible contaminants associated with the gas station activities. Should there be any leakage from these tanks, there could be significant remediation measures that would be required if impacted.

The avoidance of the Section 4(f) property would necessitate the use of other private property in the Study Area in order to meet the purpose and need. In considering any potential avoidance alternatives, it is important to note that the proposed improvements, including the use of the Section 4(f) property, would actually *enhance* the Section 4(f) property.

To illustrate this issue, two alternatives that could potentially avoid impacts to U.S. Reservation 487 and may still meet the project purpose and need were considered and dismissed below.

Roadway Bridge Alternative

One of the original proposed designs for improvements to the Pennsylvania and Minnesota Avenues, SE intersection called for bridging one road over the other and the construction of on and off ramps, most

likely with the creation of a single point urban interchange (SPUI). Such a design may have been able to avoid impacting any Section 4(f) properties while meeting some of the purpose and need principles. While this alternative would not meet all of the components of the purpose and need, it would likely improve safety and efficiency at the intersection for motorists. While this modification would have increased the capacity of the intersection and enhanced circulation, there would have been visual impact due to the elevated road, which would have also divided the community, causing potential social impacts and environmental justice concerns. Due to the amount of construction and type of construction associated with a roadway bridge, this plan was ultimately determined to be cost prohibitive.⁹⁰ Due to significant costs and the potential environmental and social impacts associated with this design, this avoidance alternative is not considered feasible or prudent.

Pedestrian Bridge Alternative

An alternative to construct a pedestrian bridge over the intersection that would avoid impacting Section 4(f) property has been considered. While this alternative would not meet all of the components of the purpose and need, it would separate pedestrians and bicyclists from vehicle traffic, which would likely improve safety and efficiency at the intersection. As with the original proposal of bridging the roads, this alternative would cause visual impact and divide the community due to the elevated road, causing social impacts and potential environmental justice concerns. Given the considerable space requirements for constructing pedestrian bridges and the land use constraints in the Study Area, the height requirements that would be necessary to allow vehicles to traverse Pennsylvania and Minnesota Avenues, SE safely, and the significant costs associated with constructing a pedestrian bridge, this avoidance alternative is not considered feasible or prudent.

5.9.3 Alternative at a Location Not Requiring the Use of Section 4(f) Property

There is not an alternative at another location that would satisfy the project purpose and need. *Section 1.2, Needs for the Proposed Action*, in the EA explains in detail the deficiencies and operational problems associated with the existing location, primarily the complex and congested intersection used heavily by motorists, bicyclists and pedestrians. A new location would not address or correct the problems cited as the NEPA purpose and need, which necessitated the proposed project. The project is intended to improve the intersection of Pennsylvania and Minnesota Avenues, SE in a way that realizes the Great Streets Initiative principles. This intersection cannot be improved in accordance with Great Streets Principles by using any alternative locations.

5.9.4 Summary of Avoidance Alternatives

The avoidance alternatives considered were not feasible or prudent; therefore all reasonable alternatives satisfying the project purpose and need require the use of the Section 4(f) property (U.S. Reservation 487). Consequently, all of the design concepts that have been carried forward for consideration necessitate the use of Section 4(f) property.

Furthermore, the avoidance alternatives considered would not adequately meet the project purpose and need. Specifically, the avoidance alternatives would not consolidate park space to create a consolidated, usable open space for the community.

5.10 Feasibility and Prudence Test

A feasible and prudent avoidance alternative avoids using Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property. The avoidance alternatives were evaluated to determine whether they were feasible and prudent:

- 1) An alternative is not feasible if it cannot be built as a matter of sound engineering judgment.
- 2) An alternative is not prudent if:
 - a. It compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need;
 - b. It results in unacceptable safety or operational problems;
 - c. After reasonable mitigation, it still causes:
 - i. Severe social, economic, or environmental impacts;
 - ii. Severe disruption to established communities;
 - iii. Severe disproportionate impacts to minority or low income populations; or
 - iv. Severe impacts to environmental resources protected under other Federal statutes;
 - d. It results in additional construction, maintenance, or operational costs of an extraordinary magnitude;
 - e. It causes other unique problems or unusual factors; or
 - f. It involves multiple factors in paragraphs (3)(i) through (3)(v) of this definition, that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

5.10.1 Do Nothing Alternative

As discussed in *Section 5.9.1*, the Do-Nothing Alternative is not feasible and prudent because it would neither address nor correct the transportation need cited as the NEPA purpose and need, which necessitated the proposed project.

5.10.2 Improve the Transportation Facility in a Manner that Addresses Purpose and Need without Use of the Section 4(f) Property

As discussed in *Section 5.9.2*, due to the constraints in the Study Area, any avoidance alternatives that would meet the purpose and need for this project would necessitate the use of other private property in the in order to meet the purpose and need. In considering any potential avoidance alternatives, it is important to note that the proposed improvements would actually *enhance* the Section 4(f) property.

It is not feasible and prudent to avoid the Section 4(f) property by using engineering design or transportation system management techniques, such as minor location shifts, changes in engineering

design standards, use of retaining walls and/or other structures and traffic diversions or other traffic management measures if implementing such measures would result in any of the following:

- (1) Substantial adverse community impacts to adjacent homes, businesses or other improved properties; or
- (2) Substantially increased transportation facility or structure cost; or
- (3) Unique engineering, traffic, maintenance or safety problems; or
- (4) Substantial adverse social, economic or environmental impacts; or
- (5) A substantial missed opportunity to benefit a Section 4(f) property; or
- (6) Identified transportation needs not being met; and
- (7) Impacts, costs or problems would be truly unusual, unique or of extraordinary magnitude when compared with the proposed use of Section 4(f) property after taking into account measures to minimize harm and mitigate for adverse uses, and enhance the functions and value of the Section 4(f) property.

Given the potential economic and social impacts associated with displacing existing businesses and residents (including low-income and minority population), the potential environmental impacts associated with impacting the existing gas station contaminants, and the high costs associated with relocation impacts, eminent domain, and environmental remediation, this avoidance alternative is not feasible and prudent. In accordance with the above criteria, it is not feasible and prudent because *Improving the intersection in a manner that addresses the purpose and need without use of the Section 4(f) property* would result in: (5) a substantial missed opportunity to benefit a Section 4(f) property; and could potentially also result in (1) a substantial adverse community impacts to adjacent homes, businesses or other improved properties; and/or (4) substantial adverse social, economic or environmental impacts.

5.10.3 Build the Transportation Facility at a Location that Does Not Require Use of the Section 4(f) Property

As discussed in Section 5.9.3, the project is intended to improve the intersection of Pennsylvania and Minnesota Avenues, SE in a way that realizes the Great Streets Initiative principles. This intersection cannot be improved in accordance with Great Streets Principles by using any alternative locations.

It is not feasible and prudent to avoid Section 4(f) property by constructing at a new location if:

- (1) The new location would not address or correct the problems cited as the NEPA purpose and need, which necessitated the proposed project; or
- (2) The new location would result in substantial adverse social, economic or environmental impacts (including such impacts as extensive severing of productive farmlands, displacement of a substantial number of families or businesses, serious disruption of community cohesion, jeopardize the continued existence of any endangered or threatened species or resulting in the destruction or adverse modification of their designated critical habitat, substantial damage to wetlands or other sensitive natural areas, or greater impacts to other Section 4(f) properties); or

- (3) The new location would substantially increase costs or cause substantial engineering difficulties (such as an inability to achieve minimum design standards or to meet the requirements of various permitting agencies such as those involved with navigation, pollution, or the environment); and
- (4) Such problems, impacts, costs, or difficulties would be truly unusual or unique or of extraordinary magnitude when compared with the proposed use of the Section 4(f) property after taking into account proposed measures to minimize harm, mitigation for adverse use, and the enhancement of the Section 4(f) property's functions and value.

To construct the project in a new location that does not require the use of the Section 4(f) property is not feasible and prudent because it (1) would not address or correct the problems cited as the NEPA purpose and need, which necessitated the proposed project.

5.11 Alternatives with Least Overall Harm

Due to the fact that total avoidance of Section 4(f) properties in the Study Area is not feasible and prudent, an analysis of the remaining options is required to determine which results in least overall harm.

23 CFR 774.3(c) includes a list of factors to consider in making a determination of least overall harm.

The least overall harm is determined by balancing the following factors:

- (i) The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property);
- (ii) The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection;
- (iii) The relative significance of each Section 4(f) property;
- (iv) The views of the official(s) with jurisdiction over each Section 4(f) property;
- (v) The degree to which each alternative meets the purpose and need for the project;
- (vi) After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and
- (vii) Substantial differences in costs among the alternatives.

The ability of both **Build Alternative 1** and **Build Alternative 2** to achieve the balance listed above is discussed below:

- (i) Build Alternative 1 and Build Alternative 2 would both result in “substantially equal” least overall harm to U.S. Reservation 487 (Twining Square). As illustrated by this EA, both of the Build Alternatives would mitigate any adverse impacts to the Section 4(f) property. Any adverse impacts to the property would be short-term and temporary during construction, and would be mitigated (or minimized) as discussed in *Section 4.8, Mitigation Measures* and *Section 5.12, Planning and Measures to Minimize Harm*. Both Build Alternatives would result in a benefit to the Section 4(f) property as they would both increase the amount of contiguous park area, and more importantly, would consolidate the park area into two substantial green spaces that would be usable to the community and park visitors.

- (ii) Considering the mitigation for any short-term impacts, the relative severity of the remaining harm to the protected activities, attributes, or features that qualify the Section 4(f) property for protection will be essentially non-existent. Both of the Build Alternatives will provide *more* contiguous green space than currently exists. Measures would be implemented, to the extent practical, to avoid impacts to larger or older tree specimens; however landscaping and replacement of trees will be conducted in accordance with the DDOT Design and Engineering Manual when avoidance is not feasible. New trees and vegetation would be planted in appropriate locations to maintain and enhance the tree canopy along the project corridor.
- (iii) Currently the reservation qualifies as a Section 4(f) property only because it is ***under NPS jurisdiction***. Although there is a documented history of the park's development, there is no significance association with this park, as it has been altered over time and was not originally part of *L'Enfant's Plan for the City*.
- (iv) Coordination with NPS (the official with jurisdiction over the Section 4(f) property) has been ongoing regarding the Pennsylvania and Minnesota Avenue intersection since 2006, during the development of the *Great Streets Framework Plan: Pennsylvania Avenue SE (2007)* and the *Revitalization of Pennsylvania Avenue, SE for the Great Streets Initiative Concepts Design Final Report (Great Streets Concept Design Report) (2007)*. DDOT, NPS and FHWA have met several times throughout the EA planning process to discuss the alternatives and the resource impact categories. Although NPS is willing to transfer land jurisdiction to DDOT to facilitate the project, this transfer may be agreed upon by covenant with stipulations following multiple meetings and coordination.
- (v) Build Alternative 1 ***and Build Alternative 2*** would meet the purpose and need for the Proposed Action in promoting the principles set forth in the District's Great Streets Initiative. ***Both Build Alternatives*** would improve pedestrian and vehicular safety, create a usable park space, improve multimodal connectivity and access, and support land use and community needs. ***Build Alternative 2 – Conventional Intersection Alternative is the Preferred Alternative for the Proposed Action.***
- (vi) As discussed in *Section 4.0, Environmental Consequences* of this EA, and summarized in Table ES.1, there are no moderate or major long-term adverse impacts due to either of the Build Alternatives. The only long-term minor adverse impact for either Build Alternative is to the Roadway Network and Traffic. However, there are also long-term minor adverse impacts under the No Build Alternative. Refer to *Section 4.4.2, Roadway Network and Traffic*, for detailed discussion of impacts.
- (vii) The estimated cost for Build Alternative 1 is almost \$11 million and the estimated cost for Build Alternative 2 is approximately \$9 million. The costs are not substantially different enough to influence which alternative will be carried forward.

Build Alternative 1 and Build Alternative 2 both achieve the balance the factors listed in 23 CFR 774.3(c), and are therefore both the *Alternative with Least Overall Harm*.

Importantly, both of the Build Alternatives will provide a net benefit to the park, given the additional park acreage, the ability to *use* the added contiguous park area, the potential community use of the park space, and the potential for attractive redevelopment. The alternatives would cause similar amounts of *least*

overall harm to the Section 4(f) property. FHWA Section 4(f) guidance explains that “If alternatives are determined to cause ‘substantially equal’ harm to Section 4(f) property, then FHWA may choose any one.”⁹¹

5.12 Planning to Minimize Harm

The alternatives selected include all possible planning, as defined in §774.17, to minimize harm to the Section 4(f) property. Minimization entails planning and developing measures to reduce the impact to Section 4(f) properties.

DDOT is committed to minimizing the impacts of the project to the extent possible. The impacts reported in the EA reflect the best estimates available based on the current conceptual design. Both of the Build Alternatives require the reconfiguration of the roadway and U.S. Reservation 487 park area at the intersection. The roadways that bisect the northern reservation and the southern reservation of the intersection would be replaced or filled in with green space/park area. A substantial amount of existing park area and trees in U.S. Reservation 487 are not required for roadway improvements and will remain in place to the extent possible throughout construction and following project implementation.

5.12.1 Mitigation, Enhancement, and Beneficial Measures

Coordination among NPS and DDOT is ongoing regarding the assessment of impacts, the proposed measures to minimize harm, and the mitigation necessary to preserve the values of the Section 4(f) resource. The mitigation measures below all improve existing conditions at U.S. Reservation 487 (Twining Square). There is flexibility in providing these facilities based on input and recommendations from NPS. Access will remain, and be enhanced where possible, to and through the park. Below is a summary of the major mitigation elements proposed:

Maintenance of U.S. Reservation 487 (Twining Square)

DDOT has committed to maintaining the park area within Twining Square if the proposed transfer of jurisdiction is approved. The green space of the park areas will be routinely maintained, mowed, and landscaped. Irrigation will be provided to maintain the health of plantings in the square.

Enhancement of U.S. Reservation 487 (Twining Square)

DDOT will promote a *quality* green space that is visually appealing and inviting to the community, park visitors, and commuters through the intersection.

The project would consolidate the Twining Square parcels, returning the park area to its originally planned configuration. A consolidated park area would be most compatible historically and would result in a more attractive space encouraging community usage.

Bicycle/Pedestrian Network

Both of the Build Alternatives include improvements to the bicycle and pedestrian network to and through the Twining Square park area. The shared use path to the north of Pennsylvania Avenue, SE will be widened for the convenience of bicycle and pedestrian commuters crossing to and through the

intersection. Walkways or shared-use paths will be provided around the perimeters of each of the park areas to enhance accessibility and convenience for pedestrians.

Adverse impacts as they relate to pedestrian safety would be mitigated through the improvements to the bicycle/pedestrian network at the intersection. The improved network would provide safer access to the intersection and a more usable park area. Custom colored concrete paving patterns are recommended to emphasize comfortable and safe movement through the park area. Americans with Disabilities Act (ADA) accessible guidelines will be followed to ensure safety and comfort for all park users.

Replacement of Trees and Landscaping

DDOT has committed to replacing any trees and landscaping that must be removed due to the Build Alternatives with specimens agreed upon by the NPS.

5.13 Coordination

Discussion of the public involvement activities and coordination with NPS, the federal agency with jurisdiction over the Section 4(f) properties, are provided in the following sections.

5.13.1 Public Involvement

Beginning with the District's Great Streets Initiative, kicked off in 2005, a substantial effort was made to include the public in the concept design development at the Pennsylvania and Minnesota Avenues, SE intersection. A four-day design charrette held in July 2006 resulted in the development of several concepts, which were then evaluated and subsequently condensed down to three viable options which ultimately led to the Build Alternatives carried forward in the EA. At the initiation of the EA process for the project in 2012, public outreach efforts were again conducted via project information dissemination and solicitation for public input in the fall of 2012. In the spring of 2013, DDOT distributed brochures to residents and businesses in the community and advertised a project presentation at the Advisory Neighborhood Commission (ANC) 7B Monthly Meeting on May 16, 2013.

The Notice of Availability for the EA and public hearing date was advertised in The Washington Times and as a DDOT Press Release on Monday, October 28, 2013. The EA public review and comment period was extended an additional 30 days, through December 31, 2013; however comments continued to be accepted through March 2014. The EA was available for review in hardcopy at DDOT (55 M Street, SE, Washington, D.C.), FHWA (1990 K Street, NW, Washington, D.C.) and the Francis A. Gregory Library (3660 Alabama Avenue, SE, Washington, D.C.). A public hearing was held at the Francis A. Gregory Library on November 13, 2013 from 6:00 to 8:00 PM. Announcement of the availability of the EA and the public hearing were also advertised on the project website. Electronic and/or hard copies of the EA were submitted to all ANC7B and 8A commissioners, relevant civic associations, the Mayor, and Ward 7 and 8 councilmembers for their review and distribution. Approximately 17 members of the public attended the public hearing and six people provided official testimony. Additionally, nine written comments were received from the public or community organizations during and following the public comment period. DDOT has attended multiple civic association and ANC meetings since the release of the EA to provide project information and to update the public on the EA's progress. Additionally, this project was included in the projects presented at the public meeting for the DDOT Projects Update: Ward 7 on March 6th, 2014.

More details of public involvement are included in the EA and public involvement materials are included in *Appendix C, Agency Coordination and Public Involvement* of the EA.

5.13.2 Agency Coordination

DDOT conducted agency coordination as part of the planning process for the Pennsylvania and Minnesota Avenues, SE EA. Agency coordination included project scoping, consultation with resource agencies in accordance with Section 7 of the Endangered Species Act (ESA), consultation with the DC SHPO and NPS in accordance with Section 106 of the NHPA, and individual scoping meetings. FHWA, NPS and DDOT held an inter-agency meeting on September 6, 2012 at the DDOT headquarters in Southeast D.C. For detailed information on specific agency coordination and meeting attendance, see Section 6.1, Agency Coordination of the EA.

Coordination between DDOT, FHWA and NPS has been consistent throughout the EA process and will continue through design and construction. It is important to note that a request for NCPC to become a cooperating agency in the development of the EA was submitted September 27, 2012 with request for response within 30 days. No response was received from NCPC in response to this request.

Upon the Notice of Availability and publication of the EA, which includes the Section 4(f) Net Benefit Evaluation, for public review on October 28, 2013, hard copies or electronic copies of the document were distributed to the appropriate District and Federal agencies. An email “blast” was distributed to additional members of these agencies with EA publication and availability information. Additionally, agencies were invited to attend an Inter-Agency Meeting at DDOT for information and updates pertaining to the release of the EA from 10:00 AM to 12:00 PM on Wednesday, November 13, 2013.

Two comments were received from agencies during the EA comment period. The DDOE stated that the Water Quality Division (WQD) assessed that there is no apparent significant adverse impact or likelihood of substantial negative impact to water quality and quantity with regards to Sections 7201.2(c), (d), and (l) of the Environmental Policy Act. WMATA requested additional information related to WMATA infrastructure and bus pull off areas in the Study Area. The EA was updated to include the requested information. Agency correspondence, to include agency comments received and formal DDOT responses in response to the October 2013 EA are included in Appendix C, Agency Coordination and Public Involvement.

5.13.3 Coordination with NPS

This section focuses on coordination with the NPS, the administrator of the Section 4(f) property affected by the Pennsylvania and Minnesota Avenues, SE Intersection Improvements Project. NPS owns and administers U.S. Reservation 487 (Twining Square). Twining Square is one of the Capitol Hill Parks, a collection of 59 triangles and squares owned by the NPS. Consequently, the reconfiguration of the Pennsylvania and Minnesota Avenues, SE intersection and Twining Square is significant to NPS.

Initial discussions with the NPS regarding the improvements at Twining Square and the project intersection took place in 2006 with the development of the Pennsylvania Avenue Great Streets Program. NPS and FHWA were both involved during the concept design phase in 2006 and 2007 throughout the Great Streets Concept Design Report. Coordination continued throughout the concept development phase with periodic meetings and updates.

At the commencement of the EA planning process, DDOT, NPS and FHWA attended a kick-off meeting in August of 2010 to re-introduce the project to NPS and FHWA, and to discuss agency roles for the development of the EA. Following the initial kick-off meeting, the agencies met several times throughout the duration of the project to discuss a range of alternatives and the resource impact categories.

Following the Inter-Agency Scoping Meeting in September of 2012, NPS and FHWA determined that FHWA would be the lead federal agency because they would be contributing funds to the project, and NPS would be a cooperating agency due to the transfer of land jurisdiction between NPS and DDOT.

During alternatives development, the NPS provided input in which Build Alternatives should be considered for further evaluation and which alternatives would be dismissed. NPS was supportive of moving forward with the Revised Square Alternative (Build Alternative 1) and the Conventional Intersection Alternative (Build Alternative 2). Even though the alternative designs are operationally different, the changes to the park configuration would be similar. Both alternatives would remove the cut-through roadways to the north and south of Pennsylvania Avenue and replace them with park land that would consolidate the park area to the north and the south of Pennsylvania Avenue. Although NPS is willing to transfer land jurisdiction to DDOT to facilitate the project, the transfer may be agreed upon by covenant with stipulations following multiple meetings and coordination.

Letters were submitted to NPS and the NCPC on September 27, 2012 with an invitation for these agencies to become cooperating agencies in the development of the EA. ***In a January 20, 2015 letter to the Superintendent of NPS, National Capital Parks-East, documenting the achievement of Net Benefit pursuant to the requirements of Section 4(f), the Superintendent concurred that the proposed improvements to the Pennsylvania Avenue and Minnesota Avenue S.E., intersection (i.e., Twining Square) will include all appropriate measures to minimize harm and subsequent mitigation necessary to preserve and enhance the original features and values of the Section 4(f) property (i.e., U.S. Reservation 487 and its associated parcels). The Net Benefit letter is provided in Appendix C.***

5.14 Conclusion

Because of the size, condition, and location of the affected Section 4(f) properties, DDOT proposes the use of the Net Benefit 4(f) Programmatic Evaluation as the appropriate level of Section 4(f) evaluation. Specifically, it is the appropriate approach to achieve a net benefit to the parks while at the same time recognizing the potential impacts from the transportation improvements. Coordination is ongoing regarding the assessment of impacts, the proposed measures to minimize harm, and the mitigation necessary to preserve the values of the Section 4(f) resource.

Due to the location of the Section 4(f) properties within the needed roadway improvements, there are no feasible and prudent build alternatives that could avoid use of these properties. Therefore, this project is being developed in a way that will enhance (i.e., provide a net benefit to) the affected Section 4(f) resources.

The No Build Alternative is the only alternative that avoids use of the Section 4(f) resource but it is not feasible and prudent because it would neither address nor correct the needs cited in the project's purpose and need. The complete Purpose and Need discussion is contained in *Section 1.0, Purpose and Need*, of the EA.

The avoidance alternatives discussed in *Section 5.9, Avoidance Alternatives*, include potential roadway bridge and pedestrian bridge designs that could avoid impacts to U.S. Reservation 487. The avoidance alternatives would be cost prohibitive, and would result in visual impacts and division of the neighborhood. Due to the amount of space needed to implement the avoidance alternatives, potential environmental and social impacts to homes and businesses in a low-income, minority neighborhood would be anticipated. The avoidance alternatives are not considered prudent or feasible for these reasons.

Furthermore, FHWA's *Net Benefit 4(f) Programmatic Evaluation* states the following in the *Findings* section (#2) regarding the consideration of improving the transportation facility in a manner that addresses the purpose and need without use of the Section 4(f) property (avoidance alternatives):

It is not feasible and prudent to avoid Section 4(f) property by using engineering design or transportation system management techniques, such as minor location shifts, changes in engineering design standards, use of retaining walls and/or other structures and traffic diversions or other traffic management measures if implementing such measures would result in any of the following:

- Substantial adverse community impacts to adjacent homes, businesses or other improved properties; or
- Substantially increased transportation facility or structure cost; or
- Unique engineering, traffic, maintenance or safety problems; or
- Substantial adverse social, economic or environmental impacts; or
- A substantial missed opportunity to benefit a Section 4(f) property; or
- Identified transportation needs not being met; and
- Impacts, costs or problems would be truly unusual, unique or of extraordinary magnitude when compared with the proposed use of Section 4(f) property after taking into account measures to minimize harm and mitigate for adverse uses, and enhance the functions and value of the Section 4(f) property.⁹²

Essentially, this language encourages a win-win solution by determining that it is not feasible and prudent to avoid a Section 4(f) property if doing so foregoes the opportunity to provide a net benefit to that property (fifth bullet). This is further reinforced by the first and fourth bullet that discusses substantial adverse community impacts to adjacent homes, businesses or other improve properties, or substantial adverse social, economic, or environmental impacts.

Based upon the above considerations, the following are concluded:

- (1) There is no feasible and prudent alternative to the use of land from U.S. Reservation 487 (Twining Square), and
- (2) Build Alternative 1 and Build Alternative 2 both include all possible planning to minimize harm resulting from such use; and
- (3) This project will comply with any other related laws applicable to this resource.

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6.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

6.1 Agency Coordination

DDOT conducted agency coordination as part of the planning process for the Pennsylvania and Minnesota Avenues, SE EA. Agency coordination included project scoping, consultation with resource agencies in accordance with Section 7 of the Endangered Species Act (ESA), consultation with the DC SHPO and NPS in accordance with Section 106 of the NHPA, and individual scoping meetings. Agency correspondence is included in *Appendix C, Agency Coordination and Public Involvement*. Coordination with the DC SHPO is included in *Appendix E, Section 106 Consultation and Cultural Resources Information*.

Agency Scoping

FHWA, NPS and DDOT held an inter-agency meeting on September 6, 2012 at the DDOT headquarters in Southeast D.C.

The following agencies were sent initial project information and were invited to the interagency meeting at DDOT headquarters:

- Federal Highway Administration (FHWA)
- National Park Service (NPS)
- US Fish and Wildlife Service (FWS)
- US Army Corps of Engineers (USACE)
- National Capital Planning Commission (NCPC)
- DC State Historic Preservation Office (DC SHPO)
- Washington Metropolitan and Transit Administration (WMATA)
- Commission of Fine Arts (CFA)
- DC Water and Sewer Authority (DC Water)
- DC Office of Planning (DC OP)

Agencies in attendance included DC SHPO, WMATA, EPA, and CFA. The purpose of this scoping meeting was to solicit feedback from the agencies that could potentially affect the scope or content of the EA and to analyze the potential environmental impacts of the improvements to be made at the intersection of Pennsylvania Avenue and Minnesota Avenue, SE.

The NCPC provided scoping comments on October 15, 2012 stating that a request that the EA analyze all potential action alternatives for consistency with applicable planning policies of the Comprehensive Plan for the National Capital: Federal Elements, and also noting that any transfer of jurisdiction of lands between NPS and DDOT is subject to review and approval of NCPC. NCPC was invited to be a cooperating agency on the EA and as a consulting party under Section 106 in a letter dated September 27, 2012.

NPS and FHWA Meetings

Initial discussions with the NPS regarding the project intersection took place in 2006 with the development of the Pennsylvania Avenue Great Streets Program given that NPS owns some of the land at this intersection.

At the commencement of the EA planning process, DDOT, NPS and FHWA attended a kick-off meeting in August of 2010 to re-introduce the project to NPS and FHWA and to discuss agency roles for the development of the EA. NPS and FHWA were both involved during the concept design phase in 2006 and 2007 throughout the Great Streets Concept Design Report. Following the initial kick-off meeting, the agencies met several times throughout the EA planning process to discuss the alternatives and the resource impact categories. Following the Agency Scoping Meeting in September of 2012, NPS and FHWA determined that FHWA would be the lead federal agency because they would be contributing funds to the project, and NPS would be a cooperating agency due to the transfer of land jurisdiction between NPS and DDOT.

Letters were submitted to NPS and the National Capital Planning Commission (NCPC) on September 27, 2012 with an invitation for these agencies to become cooperating agencies in the development of the EA.

DC SHPO

Coordination with the D.C. SHPO commenced about the project intersection originally began in 2006 with the development of the Pennsylvania Avenue Great Streets Program when tasked with considering the environmental constraints. When DDOT began refining the project alternatives at the start of the EA process, DDOT submitted a letter to the D.C. SHPO on December 17, 2010 to formally initiate the Section 106 process in accordance with the NHPA. DDOT held a meeting to re-introduce DC SHPO staff to the project on February 2, 2011 to discuss the project status, any cultural resources in the project vicinity, the potential APE, and any necessary consulting parties. In March of 2011, DDOT requested DC SHPO's concurrence with the project APE. The DC SHPO responded with their concurrence on April 8, 2011.

In July of 2011, DDOT submitted an *Archaeological Assessment of Potential* to the DC SHPO with recommendations for archaeological survey.

On October 26, 2011 the DC SHPO provided additional Section 106 comments on the project with response that no previously identified historic properties are located in the APE and that if the Build 1 Alternative – Revised Square Alternative (referred to as Modified Square Alternative in the letter), the project would likely have no adverse effect on historic properties. Geoarchaeological coring was requested to further investigate the potential for archaeological resources. A Special Use Permit was obtained from NPS and the testing was conducted in November of 2012 (signed copy of Special Use Permit is included in *Appendix E, Cultural Resources*). The *Geoarchaeological Interpretations in the Vicinity of the Intersection of Pennsylvania and Minnesota Avenues in the Anacostia Section of Washington, D.C.* provides the results of the preliminary testing.

NCPC was invited to be a cooperating agency on the EA and as a consulting party under Section 106 in a letter dated September 27, 2012.

Coordination with the DC SHPO and cultural reports submitted are provided in *Appendix E, Cultural Resources*.

Environmental Assessment (October 28, 2013)

Upon the Notice of Availability and publication of the EA for public review on October 28, 2013, hard copies or electronic copies of the document were distributed to the appropriate District and Federal agencies. An email “blast” was distributed to additional members of these agencies with Draft EA release information. Additionally, agencies were invited to attend an Inter-Agency Meeting at DDOT for information and updates pertaining to the release of the EA from 10:00 AM to 12:00 PM on Wednesday, November 13, 2013.

Two comments were received from agencies during the EA comment period. The DDOE stated that the Water Quality Division (WQD) assessed that there is no apparent significant adverse impact or likelihood of substantial negative impact to water quality and quantity with regards to Sections 7201.2(c), (d), and (l) of the Environmental Policy Act. WMATA requested additional information related to WMATA infrastructure and bus pull off areas in the Study Area. The EA was updated to include the requested information. Agency comments received and formal DDOT responses, along with other correspondence regarding the release of the EA are included in Appendix C, Agency Coordination and Public Involvement.

6.2 Public Involvement

Public Scoping

DDOT sent scoping notices to the public to solicit comments on environmental, historical, cultural and other issues relevant to the proposed project. Scoping notices, scoping letters and project brochures were distributed to the public in September 2012. DDOT provided a project website in the fall of 2012 that detailed the project history and proposed improvements. The public was asked to send comments by mail to DDOT or to leave comments on the project website by October 15, 2012. A summary of comments from the public is presented in *Appendix C, Agency Coordination and Public Involvement*.

Public Meetings

DDOT hand-delivered brochures in the project Study Area in April of 2013 that contained project information and notice of a project presentation at the ANC 7B Monthly Meeting held on May 16, 2013. There were approximately 50 attendees at the meeting. DDOT presented the project purpose and need, proposed action and alternatives being carried forward in the EA. Handouts were provided for attendees, along with optional comment cards that could be left at the meeting or mailed to DDOT. The public had an opportunity to ask questions and comment on the information provided. The majority of comments were questions regarding the traffic operations of the alternatives and concerns regarding bicycle and pedestrian movement through the intersection.

Environmental Assessment

The Notice of Availability for the EA and public hearing date was advertised in The Washington Times and as a DDOT Press Release on Monday, October 28, 2013. The EA public review and comment period was extended an additional 30 days, through December 31, 2013; however comments continued to be accepted through March 2014. The EA was available for review in hardcopy at DDOT (55 M Street, SE, Washington, D.C.), FHWA (1990 K Street, NW, Washington, D.C.) and the Francis A. Gregory Library (3660 Alabama Avenue, SE, Washington, D.C.). A public hearing was held at the Francis A. Gregory Library on November 13, 2013 from 6:00 to 8:00 PM. Announcement of the availability of the EA and the public hearing were also advertised on the project website. Electronic and/or hard copies of the EA were submitted to all ANC7B and 8A commissioners, relevant civic associations, the Mayor, and Ward 7 and 8 councilmembers for their review and distribution. Approximately 17 members of the public attended the public hearing and six people provided official testimony. Additionally, nine written comments were received from the public or community organizations during and following the public comment period.

DDOT has attended multiple civic association and ANC meetings since the publication of the EA to provide project information and to update the public on the EA's progress. Additionally, this project was included in the projects presented at the public meeting for the DDOT Projects Update: Ward 7 on March 6th, 2014.

Public comments received on the October 2013 EA and DDOT responses to comment, along with public meeting materials, are included in Appendix C, Agency Coordination and Public Involvement.

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Neelima Ghanta, PE	Traffic Operations Analysis
Alan McDonald, EIT	Traffic Analysis and Noise Monitor Data Collection
Ryan Carey, EIT	Affected Environment, Environmental Consequences, and EA development
Royce Bassarab	Noise Analysis
Dara Soum	Preliminary Engineering/ Roadway Engineer
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Name	Primary Responsibilities / Role
Elizabeth Comer	Project Manager for Archaeology and Historic Architecture
Tery Harris	Principal Investigator- Archaeology

8.0 ENVIRONMENTAL ASSESSMENT DISTRIBUTION

Various federal and District agencies, as well as many other organizations and groups representing project stakeholders, were provided with copies of the Final EA. The Final EA is also available for review on the DDOT and NPS websites.

8.1 Federal/Regional Agencies

Federal Highway Administration

National Park Service

U.S. Army Corps of Engineers

U.S. Environmental Protection Agency

U.S. Fish and Wildlife Service

Commission of Fine Arts

National Capital Planning Commission

Metropolitan Washington Council of Governments

Washington Metropolitan Area Transit Authority

District of Columbia Water and Sewer Authority

8.2 District Agencies

District Department of Transportation

DC State Historic Preservation Office

District Department of the Environment

DC Department of Parks and Recreation

8.3 District Elected Officials

The Honorable Vincent Gray

Mayor, District of Columbia

Executive Office of the Mayor

1350 Pennsylvania Avenue, NW, Suite 316

Washington, DC 20004

The Honorable Yvette Alexander

Ward 7 Councilmember

1350 Pennsylvania Avenue, NW, Suite 400

Washington, DC 20004

The Honorable Marion Berry

Ward 8 Councilmember

1350 Pennsylvania Avenue, NW, Suite 102

Washington, DC 20004

8.4 Advisory Neighborhood Commissions

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ANC 7B03

3200 S Street, SE

Washington, DC 20020

Robert Richards, Chair

ANC 7B07

3200 S Street, SE

Washington, DC 20020

Holly Muhammad

ANC 8A01

2100-D Martin Luther King Jr. Avenue, SE

Washington, DC 20020

Robin Marlin, Vice Chair

ANC 7B05

3200 S Street, SE

Washington, DC 20020

8.5 Utilities

PEPCO
DC Water and Sewer

8.6 Neighborhood Associations

Hillcrest Community Civic Association

Randle Highlands Citizen Civic Association

Penn- Branch Citizens/Civic Association

Fairlawn Citizens Association

8.7 Public Review Copies

District Department of Transportation
Project Development and Environment Division
Infrastructure Project Management Administration
55 M Street, SE, Suite 500
Washington, DC 20003

Federal Highway Administration
District of Columbia Division
1990 K St. NW, Suite 510
Washington, DC 20006

Francis A. Gregory Library
3660 Alabama Ave. SE
Washington, DC 20020

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- ⁸⁷ U.S. Reservation 336A is also known as “Twining Square” and lies a few blocks east of the Proposed Action intersection on Pennsylvania Avenue between 27th and 28th Streets, SE.
- ⁸⁸ USDA, Soil Conservation Service (by Horace Smith), *Soil Survey of District of Columbia*, 1976, <http://www.sawgal.umd.edu/nrcsweb/DCsoils/DC.pdf>
- ⁸⁹ DDOT. Environmental Policy and Process Manual. 2nd Edition, Chapter 15: Highway Noise Policy and Regulations, Section 15.2, “Substantial noise increase.” p. 215, June 20, 2012.
- ⁹⁰ DDOT, *Pennsylvania Avenue, SE Transportation Study Final Report*, November 2003.
- ⁹¹ FHWA, “Section 4(f) at a Glance,” <http://www.environment.fhwa.dot.gov/4f/4fAtGlance.asp>, accessed September 2013.
- ⁹² FHWA, Section 4(f) Evaluation and Approval for Transportation Projects That Have a Net Benefit to a Section 4(f) Property, <http://environment.fhwa.dot.gov/4f/4fnetbenefits.asp>, accessed July 2013.

Appendix

B

Design Criteria

Report

**Project Parameters for the Development of
the Conceptual Plans for the Pennsylvania
and Minnesota Avenues, SE Intersection
Improvements Environmental Assessment
(Design Criteria Report)**

HNTB Corporation

May 2013

**Pennsylvania and Minnesota Avenues, SE
Intersection Improvement Project
Environmental Assessment**

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1.0 DESIGN CRITERIA REPORT

1.1 Introduction

HNTB Corporation is developing conceptual engineering design plans for the two build alternatives for the Pennsylvania and Minnesota Avenues, SE Intersection Improvement Project as part of the Environmental Assessment (EA) study phase for the District Department of Transportation (DDOT) in Washington, DC. The two build alternatives being studied in the EA consist of a “Revised Square Alternative” and a “Conventional Intersection Alternative”. Conceptual engineering design plans have been developed for both alternatives consisting of horizontal and vertical alignments, typical sections, plans, profiles, pavement marking and maintenance of traffic during construction.

The purpose of this memorandum is to outline the framework and basis for preparation of the two build alternatives’ Conceptual Plans including operational, geometric and design parameters. The project parameters include the items below. The plans are developed using the current design requirements and best available information at this point in the project, and additional items will likely surface during subsequent phases of design.

- DDOT Design Standards and Guidelines
- AASHTO Policy and Standards
- Critical design elements
- Non-standard project elements or design requirements
- Assumptions
- Constraints
- Potential design exceptions

The Conceptual Plans will serve as a foundation for the subsequent preliminary engineering and development of detailed constructions plans for the Selected Alternative, and are intended to provide a basis for the following:

- Development of order-of-magnitude estimates for project construction costs;
- Sufficient engineering design to develop a constructible and feasible solution;
- Identification of issues that may affect construction costs, constructability, schedule and phasing, right-of-way acquisition requirements, environmental impacts and environmental commitments; and
- Identify potential design exceptions.

1.2 Project Description

The proposed project is located at the western end of the Pennsylvania Avenue, SE Great Streets corridor at the intersection of Pennsylvania Avenue with Minnesota Avenue, SE, in the immediate vicinity of Twining Square Park, also referred to as L’Enfant Square in the Great Streets Framework Plan. The project area is a complex and congested intersection consisting of two separate signalized intersections that are separated by 250 feet. The project intersection carries traffic to and from the bridges that cross the Anacostia River, as well as Minnesota Avenue SE. The proposed action includes improvements to the

intersection to improve safety, mobility, and connectivity for pedestrians and motorists. A land transfer from National Park Service (NPS) to DDOT would be necessary, pending National Capital Planning Commission (NCPC) approval, to carry out the proposed intersection improvements. Proposed improvements would not impact any private right-of-way.

The project is intended to:

- Improve pedestrian and vehicular safety;
- Create a consolidated, usable park space;
- Improve multimodal connectivity and access; and
- Support land use and community needs.

1.3 Codes, Manuals, Drawings and Construction Specifications

The following codes, engineering manuals, standard drawings and construction specifications will be used to guide the development of the two Build Alternative Conceptual Plans.

- 2011 AASHTO Policy on Geometric Design of Highways and Streets
- 2010 Highway Capacity Manual
- 2009 FHWA Manual on Uniform Traffic Control Devices
- 2009 District of Columbia Department of Transportation Standard Specifications for Highways and Structures
- 2009 District of Columbia Department of Transportation Design and Engineering Manual
- 2009 District of Columbia Department of Transportation Standard Drawings
- 2012 Stormwater Guidebook published by the District of Columbia, Department of Environment
- 2003 District of Columbia Standards and Specifications for Soil Erosion and Sediment Control
- 2003 Soil Erosion and Siltation Control Handbook published by District of Columbia
- DDOT Design and Engineering Manual, Version 3 Draft (2013)
- DDOT Low Impact Development (LID) Details

1.4 Roadway Network Assumptions

The two build alternatives' Conceptual Plans will be designed under the assumption that the 11th Street Bridges Project is completed (anticipated September 2015).

1.5 Traffic Capacity

The project improvements do not include any major capacity enhancements within the project limits. Modifications to the intersection provide adequate and context-sensitive connectivity with the surrounding community and transportation network, while improving pedestrian, bicycle and vehicular safety and accessibility. While the project is intended to improve multi-modal safety and accessibility while consolidating green space and driving economic development, all alternatives, including the no-build alternative, are expected to operate at a level of service F in the design year (2040).

1.6 Road Geometry

The roadway geometry generally conforms to the aforementioned policy and standards, with the various criteria outlined in **Table 1**. The proposed typical roadway cross sections are included in the conceptual plans. Critical design elements and non-standard project elements or design requirements are outlined below.

1.6.1 Design Speed

Pennsylvania Avenue is classified as a Primary Arterial and has a posted speed of 30 mph. Minnesota Avenue is classified as a Minor Arterial and has a posted speed of 25 mph. Design speed for both roadways will be 5 mph higher than posted speed. Local roadways, including L'Enfant Square and 25th Street will have a design speed of 20 mph.

All streets are designed based on their roadway classification and in accordance with the DDOT Design and Engineering Manual.

1.6.2 Profiles/ Alignments

Items affecting the profiles and alignments are noted below.

- Existing Right of Way limits;
- Existing sidewalk and adjacent building grades; and
- Minimizing reconstruction limits, utilizing existing pavement widening.

1.7 Mapping

The two build alternatives' conceptual plans are prepared using mapping provided by GSA and DDOT. Mapping consists of aerial orthomosaic photography and topographic mapping prepared from aerial photography dated 6-21-2006 and ground survey prepared by Aero-Metric and Maddox Engineers and Surveyors, completed 2008. Mapping coordinates based on Maryland State Plane Coordinate System, NAD 1983/84; vertical datum based on DC Engineers Datum.

1.8 Right of Way

Right of Way (ROW) lines depicted on the conceptual plans are taken from highway as-built drawings, plat maps and District of Columbia GIS ROW data provided by DDOT. However, because no formal survey was performed or provided for ROW, the ROW lines shown may vary.

The two build alternatives' Conceptual Plans were developed to stay within the existing ROW whenever possible and minimize temporary construction easements. As noted above, because of the proposed reconfiguration of the intersection, a land transfer from NPS to DDOT would be required for both build alternatives.

1.9 Drainage and Storm Water Management

Design criteria for proposed drainage facilities will be in accordance with the criteria and guidelines provided in the 2009 Design and Engineering Manual published by the District of Columbia, Department of Transportation.

Erosion and sediment control criteria will be in accordance with the 2003 District of Columbia Standards and Specifications for Soil Erosion and Sediment Control published by the Department of Health and the 2003 Soil Erosion and Siltation Control Handbook published by District of Columbia.

Design to meet storm water quality requirements will be based on 2012 Stormwater Guidebook published by the District of Columbia, Department of Environment. Supplementing this, the DDOT Design and Engineering Manual, Version 3 Draft (2013), and DDOT Low Impact Development (LID) Details will be referred for stormwater management design.

Storm water quality requirements will be based on providing water quality improvements for the pavement areas within the project site. This requirement will be met using a variety of BMP facilities such as DDOT/DC Water quality control structures and other features. Storm water quantity control will not be required due to proximity of the Anacostia River and less than a 10% increase in impervious pavement area anticipated.

1.10 Utilities

Utilities are plotted based on utility designation to a quality level C. Level C designation data is obtained from surveying and plotting aboveground utility features and information derived from records research. Located utilities are marked, field-tied to project monumentation, and mapped onto plan documents.

A more detailed survey, including subsurface utility locating and mapping will be performed as design development advances. Because utility mapping has not been performed, likely utility conflicts will occur.

1.11 Geotechnical

No geotechnical information is available at this time and geotechnical investigation will not be completed for the development of the two build alternatives' Conceptual Plans.

It will be assumed that the geotechnical conditions will be representative of those encountered in the project proximity, and future geotechnical investigation and design will be required to confirm this assumption.

1.12 Hazardous Materials

Hazardous Materials investigations will not be completed as part of the Conceptual Plans development.

1.13 Construction

1.13.1 Maintenance of Traffic

The two build alternatives' Conceptual Plans will be developed based on the following Maintenance of Traffic assumptions:

- Maintain three lanes of traffic in each direction on Pennsylvania Avenue through the project area;
- Maintain two lanes of traffic in each direction on Minnesota Avenue through the project area;
- Maintain all turning movements during all phases of project construction (note, temporary, short-duration lane closures are anticipated during construction);
- Maintain pedestrian and bicycle access through the project area;
- Maintain full access to bus stops, businesses and residences during construction, and;
- Minimize impacts to the local community during construction.

1.14 Design Exceptions/Design Waivers

The two build alternatives' Conceptual Plans have been developed to avoid any Design Exceptions. It may be necessary, as design is developed further to entertain the use of design exceptions to avoid or minimize further impacts to NPS lands, private properties or other existing facilities.

Table 1
Design Criteria - Pennsylvania and Minnesota Avenues, SE Intersection Improvements

Criteria	Reference		Pennsylvania Avenue, SE	Minnesota Avenue, SE	L'Enfant Square, SE	25th Street, SE
	Manual	Page				
Functional Classification	DDOT Functional Classification Map (2011) DDOT DEM	30-2	Principal Arterial	Minor Arterial	Local Street	Local Street
Element of Design						
Design Speed	DDOT DEM	30-3.4	Des. Speed = 35, Posted = 30	Des. Speed = 30, Posted = 25	20	20
Stopping Sight Distance (Min)	AASHTO 2011	3-4	200	155	115	115
Design Vehicle			CITYBUS	CITYBUS	CITYBUS	CITYBUS
Horizontal Elements						
Maximum Superelevation	DDOT DEM	30-9	4%	4%	4%	4%
Minimum Radius	AASHTO 2011	3-44	371 Ft.	250 Ft.	86 Ft.	86 Ft.
Vertical Elements						
Maximum Grade	DDOT DEM	30-13	6%	7%	8%	8%
Minimum Vertical Curve Length (Crest)	DDOT DEM	30-13	110 Ft.	70 Ft.	50 Ft.	50 Ft.
Minimum K Value	AASHTO 2011	3-155	19	12	7	7
Minimum Vertical Curve Length (Sag)	DDOT DEM	30-13	90 Ft.	60 Ft.	50 Ft.	50 Ft.
Desirable K Value	AASHTO 2011	3-161	49	37	17	17
Minimum Curve Length (Comfort)	AASHTO 2011	3-160	$L=AV^2/46.5$	$L=AV^2/46.5$	$L=AV^2/46.5$	$L=AV^2/46.5$
Minimum Vertical Clearance						
Over Freeways and Interchange Ramps	DDOT DEM	15-6	16.5 Ft.	16.5 Ft.	16.5 Ft.	16.5 Ft.
Local Roadways	DDOT DEM	15-6	14.5 Ft.	14.5 Ft.	14.5 Ft.	14.5 Ft.
Pedestrian Overpasses	DDOT DEM	15-6	17.5 Ft.	17.5 Ft.	17.5 Ft.	17.5 Ft.
Cross Sectional Elements						
Minimum Lane Width	DDOT DEM	30-17	10 Ft.	10 Ft.	10 Ft.	10 Ft.
Parking						
Minimum Parking Lane Width	AASHTO 2011 DDOT DEM	4-73 30-16	8 Ft.	8 Ft.	8 Ft.	8 Ft.
Driving & Parking Lane Width Together	DDOT DEM	30-16	19 Ft.	19 Ft.	19 Ft.	19 Ft.
Clear Zone / Lateral Clearance	AASHTO 2011 AASHTO RDG	3-14 437, 481	1.5 Ft. (with Curb)	1.5 Ft. (with Curb)	1.5 Ft. (with Curb)	1.5 Ft. (with Curb)
Lateral Clearance at Intersections, Driveways	AASHTO RDG	3-13	3 Ft. (with Curb)	3 Ft. (with Curb)	3 Ft. (with Curb)	3 Ft. (with Curb)
Shoulder Width						
Right Side	AASHTO 2011	4-19, 7-30	N/A	N/A	N/A	N/A
Left Side	AASHTO 2011	4-19, 7-30	N/A	N/A	N/A	N/A
Side Slopes						
Inside Clear Zone						
Recoverable Fill Slope	AASHTO RDG	3-11	4:1	4:1	4:1	4:1
Beyond Clear Zone	DDOT DEM	37-2, 3	3:1 F; 2:1 C	3:1 F; 2:1 C	3:1 F; 2:1 C	3:1 F; 2:1 C

Legend

DDOT DEM	DDOT Design and Engineering Manual, 2009
AASHTO 2011	AASHTO - A Policy on Geometric Design of Highways and Street, 2004
AASHTO 2011	AASHTO - A Policy on Geometric Design of Highways and Street, 2011
AASHTO RDG	AASHTO Roadside Design Guide, 2011

Appendix

C

**Agency
Coordination
and
Public Involvement**

INTERAGENCY MEETING

SEPTEMBER 6, 2012



Pennsylvania Avenue/Minnesota Avenue Intersection Improvements EA Project

INTERAGENCY MEETING

September 6, 2012
1:00pm-2:30pm
DDOT, 55 M St, SE, Conf room 541

AGENDA

- 1- Welcome and Introductions
- 2- Project overview and Presentation
- 3- Discussions
- 4- Next Steps
- 5- Wrap up

From: [Casey, Austina \(DDOT\)](#)
To: "[Jessica Demoise \(WASA\)](#)"; "[michael.hicks@fhwa.dot.gov](#)"; "[alex_romero@nps.gov](#)"; "[David_Hayes@nps.gov](#)"; "[peter_may@nps.gov](#)"; "[stephen_syphax@nps.gov](#)"; "[joel_gorder@nps.gov](#)"; "[leopoldo_miranda@fws.gov](#)"; "[bob_zepp@fws.gov](#)"; "[maria.teresi@usace.army.mil](#)"; "[rudnick_barbara@epa.gov](#)"; "[tleubke@cfa.gov](#)"; "[Marcel.Acosta@ncpc.gov](#)"; "[david.levy@ncpc.gov](#)"; "[Bill.Dowd@ncpc.gov](#)"; "[dmclaughlin@dcwater.com](#)"; "[Maloney_David \(OP\)](#)"; "[Lewis_Andrew \(OP\)](#)"; "[Musse_Abdi \(DDOE\)](#)"; "[Chinkuyu_Adion \(DDOE\)](#)"; "[flindstrom@cfa.gov](#)"; "[sbatcheler@cfa.gov](#)"; "[michael.weil@ncpc.gov](#)"; "[gopaul_noojibail@nps.gov](#)"; "[Michael.Hicks@dot.gov](#)"; "[Foxy, Keith \(DDOT\)](#)"; "[Muluneh_Dawit \(DDOT\)](#)"; "[Ogbeide_Patrick \(DDOT\)](#)"; "[Troccoli_Ruth \(OP\)](#)"; "[rmburns@wmata.com](#)"; "[Caroline Pinegar](#)"; "[Bo Yuan](#)"; "[Kim Hughes](#)"; "[Thomas, Charles \(DDOT\)](#)
Cc: "[Khan, Saadat \(DDOT\)](#)"; "[Kersavage, Kristin \(DDOT\)](#)"; "[Rupert, Lezlie \(DDOT\)](#)"; "[Hameed, Faisal \(DDOT\)](#)"; "[McQuale, Christopher \(DDOE\)](#)
Subject: Pennsylvania Avenue/Minnesota Avenue Intersection Improvements Project
Start: Thursday, September 06, 2012 1:00:00 PM
End: Thursday, September 06, 2012 2:30:00 PM
Location: DDOT, 55 M St. Rm.541
Attachments: [ATT91829.jpg](#)

PENNSYLVANIA AVENUE AND MINNESOTA AVENUE INTERSECTION IMPROVEMENT PROJECT
ENVIRONMENTAL ASSESSMENT
INVITATION TO INTER-AGENCY MEETING

The Federal Highway Administration (FHWA), National Park Service (NPS), and District Department of Transportation (DDOT) would like to invite you to an Inter-agency Meeting for the Environmental Assessment (EA) to analyze potential environmental impacts of the improvements to be made at the intersection of Pennsylvania Avenue and Minnesota Avenue, SE, Washington, DC. The EA will be prepared in accordance with the National Environmental Policy Act (NEPA). The project will also include the assessment of historic resources in accordance with the Section 106 of the National Historic Preservation Act.

This project is part of the Greet Streets Initiative for the revitalization of Pennsylvania Avenue SE from the Sousa Bridge over the Anacostia River to Southern Avenue SE. The purpose of the project is to transfer property from NPS to the District to facilitate design improvements at the intersection with the intent to: enhance safety for motorists and pedestrians; create a consolidated, usable park space for pedestrians and visitors; and function as a catalyst for neighborhood revitalization.

We invite you to join us from 1:00 PM to 2:30 PM on September 6, 2012 for an Inter-agency Meeting for this project. The meeting will be held in at the DDOT headquarters at:

District Department of Transportation
Conference Room 541
55 M Street, SE
Suite 500
Washington, DC 20003

Our building is right on top of the Navy Yard Metro Station on Green line. Use the Half Street/Ballpark exit. We look forward to seeing you at this meeting.

Sincerely,

Austina Casey
Project Manager

The District of Columbia Department of Transportation (DDOT) and the Federal Highway Administration (FHWA), in coordination with the National Park Service (NPS) are proposing improvements to the intersection at Pennsylvania Avenue and Minnesota Avenue, S.E Washington, DC (Twining Square area) (see **Figure 1**) as defined in the **Revitalization of Pennsylvania Ave, SE for the Great Streets Initiative Concept Design Final Report (Great Streets Concept Design Report)**, which was published in 2007.

Key to this project is the potential for land transfer between DDOT and NPS to facilitate the reconfiguration of the Twining Square area with the intent to:

- Improve pedestrian and vehicular safety;
- Create a consolidated, usable open space for community; and
- Improve multimodal connectivity and support land use.
- Support land use and community needs.

Prior to moving the project through final design and construction, an Environmental Assessment (EA) of the proposed action and its potential effects is being prepared in accordance with the National Environmental Policy Act of 1969 (NEPA). Additionally, the project will also include an assessment of effects on historical and cultural resources in accordance with the Section 106 of the National Historic Preservation Act of 1966 (NHPA).

FHWA and NPS are co-lead federal agencies for the project.

Please submit your comments to the addresses below by **October 15, 2012**.

Mail:

Penn/Minn Avenues Improvement Project
Attn: Austina Casey, Project Manager
District Department of Transportation
IPMA/PDE
55 M Street SE, Suite 500,
Washington, DC 20003

**Website:
via DDOT**

<http://ddot.dc.gov/PennMinnAvesProject>

via NPS

<http://parkplanning.nps.gov/twiningsquare>

PENNSYLVANIA AVE-MINNESOTA AVE INTERSECTION IMPROVEMENT ENVIRONMENTAL ASSESSMENT

PROJECT INFORMATION



Figure 1: Twining Square

We thank you for your continued interest and participation in this project.



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REQUEST FOR AGENCY COOPERATION





U.S. Department
of Transportation
**Federal Highway
Administration**

District of Columbia Division
(202) 219-3570 FAX 219-3545

1990 K Street, NW
Suite 510
Washington, DC 20006-1103

SEP 27 2012

In Reply Refer To: HDA-DC

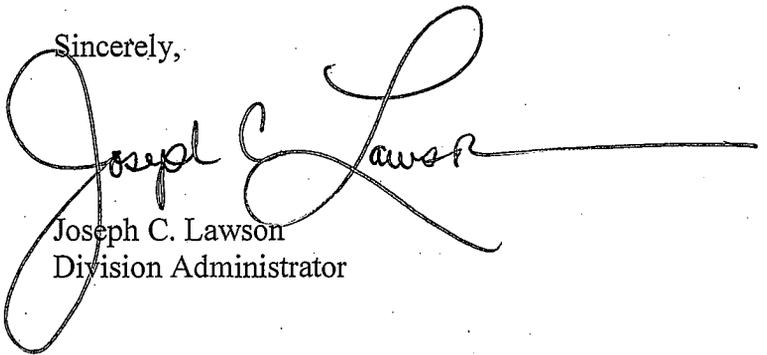
Mr. David W. Levy
Director, Urban Design and Plan Review
National Capital Planning Commission
401 9th Street, NW, Suite 500
Washington DC 20004

Dear Mr. Levy:

The Federal Highway Administration (FHWA), in conjunction with the District Department of Transportation (DDOT), is preparing an Environmental Assessment (EA) for improvements to the intersection at Pennsylvania Avenue and Minnesota Avenue, S.E. Washington, DC (Twining Square), in accordance with requirements of the National Environmental Policy Act. The project also includes an assessment of historic resources in accordance with Section 106 of the National Historic Preservation Act.

FHWA invites the National Capital Planning Commission to become a cooperating agency in the development of the EA for the subject project. Please respond in writing within 30 days of receipt of this solicitation if you either accept or decline Cooperating Agency status regarding the referenced project. If you have any questions, please contact either Michael Hicks of my staff at (202) 219-3513, michael.hicks@dot.gov or Austina Casey (DDOT) at (202) 671-0494, austina.casey@dc.gov. Thank you for your cooperation and interest in this project.

Sincerely,



Joseph C. Lawson
Division Administrator

cc: Faisal Hameed, DDOT
Austina Casey, DDOT





U.S. Department
of Transportation
**Federal Highway
Administration**

District of Columbia Division
(202) 219-3570 FAX 219-3545

1990 K Street, NW
Suite 510
Washington, DC 20006-1103

SEP 27 2012

In Reply Refer To: HDA-DC

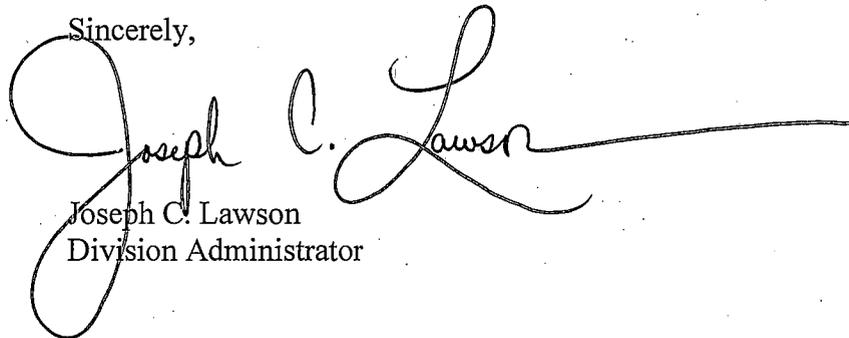
Mr. Alex Romero
Superintendent
National Capital Parks-East
1900 Anacostia Drive, S.E.
Washington, D.C. 20020

Dear Mr. Romero:

The Federal Highway Administration (FHWA), in conjunction with the District Department of Transportation (DDOT), is preparing an Environmental Assessment (EA) for improvements to the intersection at Pennsylvania Avenue and Minnesota Avenue, S.E. Washington, DC (Twining Square), in accordance with requirements of the National Environmental Policy Act. The project also includes an assessment of historic resources in accordance with Section 106 of the National Historic Preservation Act.

FHWA invites the National Park Service to become a cooperating agency in the development of the EA for the subject project. Please respond in writing within 30 days of receipt of this solicitation if you either accept or decline Cooperating Agency status regarding the referenced project. If you have any questions, please contact either Michael Hicks of my staff at (202) 219-3513, michael.hicks@dot.gov or Austina Casey (DDOT) at (202) 671-0494, austina.casey@dc.gov. Thank you for your cooperation and interest in this project.

Sincerely,



Joseph C. Lawson
Division Administrator

cc: Faisal Hameed, DDOT
Austina Casey, DDOT



**SECTION 4(f)
NET BENEFIT LETTER**

GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION



d. Infrastructure Project Management Administration

Mr. Gopaul Noojibail
Superintendent
Office of the Superintendent
National Capital Parks-East
1900 Anacostia Drive, S.E.
Washington, D.C. 20020

Re: Pennsylvania Ave-Minnesota Ave, S.E. Intersection Improvement Project
Approval for a Transportation Project that have a Net Benefit to a Section 4(f) Property

Dear Mr. Noojibail:

The purpose of this letter is to clearly document the achievement of a “Net Benefit,” pursuant to the requirements of Section 4(f) of the U.S. Department of Transportation Act of 1966, as a result of incorporating the provisions discussed below for the Pennsylvania Ave-Minnesota Ave., SE Intersection Improvement Project (Project). The Section 4(f) resource is the publicly-owned National Park Service (NPS) land, U.S. Reservation 487, which is known as Twining Square. There is no Section 4(f) historic, wildlife or waterfowl refuge, or known archaeological resources within the project area. Twining Square is not a historic resource and District of Columbia State Historic Office (DC SHPO), through review of historical document, agrees that Twining Square is not listed in the National Register, nor is it eligible for listing in the National Register. Additionally, DC SHPO concurred with Federal Highway Administration (FHWA) that the project will have “no adverse effect” on historical resources in the areas.

From the outset of the overall National Environmental Policy Act (NEPA) process, including the Section 106 and Section 4(f) activities, the District Department of Transportation (DDOT) and FHWA have worked with the National Capital Parks-East (NPS-NACE) staff to create a solution following the FHWA Section 4(f) Programmatic Evaluation, entitled “*Section 4(f) Evaluation and Approval for Transportation Projects That Have a Net Benefit to a Section 4(f) Property.*” The Section 4(f) Programmatic Evaluation for this project is on the park resource, Twining Square and it is provided in Chapter 5 of the EA. As defined by FHWA, a net benefit is achieved when the transportation use, the measures to minimize harm, and the mitigation incorporated into a project results in an overall enhancement of the Section 4(f) property when compared to both the “no-build” or avoidance alternatives and the present condition of the Section 4(f) property.

As you are aware through continued coordination with your office, the Preferred Alternative for the project identified in the Environmental Assessment (EA) is *Build Alternative 2, the Conventional Intersection (Attachment 1)*. With this preferred alternative, the intersection would be reconfigured to achieve an improved typical at-grade intersection with all vehicle turning movements permitted for all approaches, with the exception of 25th Street, which would remain a one-way street going southbound. There are two options being proposed for the traffic flow on L'Enfant Square, SE:

- Option 1) Traffic flows one-way to the west and south on L'Enfant Square, SE. Commuter traffic could continue to cut-through the "square" to avoid the Pennsylvania/Minnesota Avenues, SE intersection and the right-turning vehicle/pedestrian conflict to the west of the square would remain; or
- Option 2) Traffic flows one-way to the north and east on this roadway. Cut-through traffic would be minimized and the vehicle/pedestrian conflict would be reduced.

Build Alternative 2, the Conventional Intersection is consistent with your office's expressed preference for an alternative that minimizes the impact to the intersection, that most closely resemble a conventional intersection, and that most closely reestablishes the original configuration of the streets and reservation at that intersection of Pennsylvania Avenue and Minnesota Avenue in southeast Washington DC (i.e., Twining Square). Extensive coordination with NPS, DC SHPO, and other consulting parties have resulted in the following proposed measures to minimize harm, and mitigation measures to be incorporated into the Project to preserve the function and values of the Section 4(f) properties, which will result in a Net Benefit to the Section 4(f) properties. To the maximum extent possible, consistent with applicable safety and operational standards and requirements, and contingent upon all required approvals from FHWA, DDOT shall reconfigure the intersection of Pennsylvania and Minnesota Avenues and provide improvements to Twining Square in a context-sensitive manner that avoids or minimizes visual obstruction of the view corridors and vistas associated with the street. All planning and design submissions by DDOT shall address the design from the standpoint of preserving the original configuration of the intersection and the park resources. DDOT shall design and landscape Reservation No. 487 in a context-sensitive manner and consistent as much as possible with the reservations' historic appearance and function. The Preferred Alternative will achieve "net benefit" because the transportation use, the measures to minimize harm, and the mitigation incorporated into the project will result in an overall enhancement of the Section 4(f) property (i.e., the green space within Twining Square), when compared to both the future do-nothing or avoidance alternatives and the present condition of the Section 4(f) property, considering the activities, features, and attributes that qualify the property for Section 4(f) protection.

The Proposed Action includes the transfer of jurisdiction of approximately 1.4 acres of Reservation No. 487 and its associated parcels from NPS to DDOT. Once transferred the land will be maintained by DDOT and the open green space within Twining Square will remain parkland. As part of its development of the future design and landscape plans of this reservation, DDOT will seek comments from NPS. NPS will be provided documentation to allow for a meaningful evaluation of the proposed design and landscape elements with respect to the use of park resources and will be given with a mutually agreeable timeframe. All comments from NPS shall be provided to DDOT in writing. Once comments are received from NPS, DDOT will coordinate with NPS on how best to address those comments.

In fulfilling the duties and obligations discussed in this letter, the NPS and DDOT shall comply with all applicable laws, regulations, and rules. Moreover, they acknowledge and agree that their respective obligations to fulfill financial obligations of any kind pursuant to any and all provisions discussed in this letter, or any agreement entered into by DDOT and NPS subsequently or pursuant to this letter, are and shall remain subject to the provisions of (i) the federal Anti-Deficiency Act, 31 U.S.C. §§ 1341, 1342, 1349, 1351, (ii) the District of Columbia Anti-deficiency Act, D.C. Official Code §§ 47-355.01-355.08 (2001), (iii) D.C. Official Code § 47-105 (2001), and (iv) D.C. Official Code § 1-204.26 (2006 Supp.), as the foregoing statutes may be amended from time to time, regardless of whether a particular obligation has been expressly so conditioned. The signatures below document that DDOT and NPS agree in the determination of a Net Benefit to the Section 4(f) properties for the Project.

SIGNATORIES:

By: Muhammed Khalid Date 1/20/15
Muhammed Khalid, P.E., Interim Chief Engineer
District Department of Transportation
Enclosure

CONCURRENCE:

Having reviewed and provided comments to the Section 4(f) Programmatic Evaluation, entitled "*Section 4(f) Evaluation and Approval for Transportation Projects That Have a Net Benefit to a Section 4(f) Property*," which was provided in Chapter 5 of the EA; I have determined that the project facts match those set forth in the Applicability, Alternatives, Findings, Mitigation and Measures to Minimize Harm, Coordination, and Public Involvement sections of the programmatic evaluation. I concur that the proposed improvements to the Pennsylvania Avenue and Minnesota Avenue S.E., intersection (i.e., Twining Square) will include all appropriate measures to minimize harm and subsequent mitigation necessary to preserve and enhance the original features and values of the Section 4(f) property (i.e., U.S. Reservation 487 and its associated parcels) as detailed in the Section 4(f) evaluation and in this letter.

By: Gopaul Neogbail Date 2/18/15
Gopaul Neogbail - Superintendent
National Capital Parks-East
National Park Service

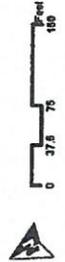
By: Joseph C. Lawson Date 3/11/15
Joseph C. Lawson, Division Administrator
Federal Highway Administration
DC Division Office

ATTACHMENT 1



Figure 2-3
Build Alternative 2 - Conventional Intersection
Environmental Assessment

- LEGEND**
- Existing Right of Way (ROW) to remain
 - Proposed Transfer of Jurisdiction - NPS to DDOT (1.44 acres)
 - Proposed Park Area / Green Space



Source: HNTB Corporation, 2014

AGENCY COMMENTS



IN REPLY REFER TO:
NCPC File No. 7434

October 15, 2012

Penn/Minn Avenues Improvement Project
Attn: Austina Casey, Project Manager
District Department of Transportation
IPMA/PDE
55 M Street SE, Suite 500
Washington, DC 20003

Re: Pennsylvania Avenue – Minnesota Avenue Intersection Improvement Scoping

Dear Ms. Casey:

The National Capital Planning Commission (NCPC) staff is writing to provide scoping comments on the purpose and need for the Pennsylvania Avenue – Minnesota Avenue Intersection Improvement Environmental Assessment (EA). We appreciate the importance of improving pedestrian and vehicular safety and of creating a consolidated and usable open space for the community, and support the goals of the District's Great Streets Initiative.

The EA should analyze all potential action alternatives for consistency with applicable planning policies of the Comprehensive Plan for the National Capital: Federal Elements¹. Furthermore, please note that any transfer of jurisdiction of lands between the National Park Service and the District of Columbia Department of Transportation is subject to the review and approval of NCPC in accordance of United States Code Title 40 Section 8124(a)². As such, NCPC should be invited to participate as a cooperating agency on all future National Environmental Policy Act (NEPA) studies related to this project, and as a consulting party under Section 106 of the National Historic Preservation Act (106). NCPC will rely on the information provided in the final EA to satisfy its independent obligations under NEPA and 106 in its review.

We look forward to participating in further consultation as the Environmental Assessment is developed. My representative in this effort will be Urban Planner Michael Weil. He can be contacted at (202) 482-7253 or Michael.weil@ncpc.gov

Sincerely,

Christine Saum, AIA
Director, Urban Design and Plan Review Division

¹ The Federal Elements are prepared by the National Capital Planning Commission and provide a policy framework for the federal government in managing its operations and activity in the National Capital Region. The Comprehensive Plan may be reference on NCPC's website at <http://www.ncpc.gov>

² 40 USC § 8124(a) TRANSFER OF JURISDICTION – Federal and District of Columbia authorities administering properties in the District that are owned by the Federal Government or by the District may transfer jurisdiction over any part of the property among or between themselves for purposes of administration and maintenance under conditions the parties agree on. The National Capital Planning Commission shall recommend the transfer before it is completed.

cc: Alexcy Romero, Superintendent
National Park Service, National Capital Parks – East

Peter May, Associate Regional Director for Lands, Resources and Planning
National Park Service, National Capital Region



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
<http://www.fws.gov/chesapeakebay>

June 25, 2013

HNTB
2900 S. Quincy St., Suite 200
Arlington, VA 22206

RE: Pennsylvania & Minnesota Ave, SE Intersection Washington DC

Dear Caroline Pinegar:

This responds to your letter, received May 20, 2013, requesting information on the presence of species which are federally listed or proposed for listing as endangered or threatened in the above referenced project area. We have reviewed the information you enclosed and are providing comments in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

Except for occasional transient individuals, no proposed or federally listed endangered or threatened species are known to exist within the project impact area. Therefore, no Biological Assessment or further section 7 consultation with the U.S. Fish and Wildlife Service is required. Should project plans change, or should additional information on the distribution of listed or proposed species become available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. Limited information is currently available regarding the distribution of other rare species in the District of Columbia. However, the Nature Conservancy and National Park Service (NPS) have initiated an inventory of rare species within the District. For further information on such rare species, you should contact Tanya Shenk of the National Park Service at (970) 267-2193.

Effective August 8, 2007, under the authority of the Endangered Species Act of 1973, as amended, the U.S. Fish and Wildlife Service (Service) removed (delist) the bald eagle in the lower 48 States of the United States from the Federal List of Endangered and Threatened Wildlife. However, the bald eagle will still be protected by the Bald and Golden Eagle Protection Act, Lacey Act and the Migratory Bird Treaty Act. As a result, starting on August 8,



2007, if your project may cause “disturbance” to the bald eagle, please consult the “National Bald Eagle Management Guidelines” dated May 2007.

If any planned or ongoing activities cannot be conducted in compliance with the National Bald Eagle Management Guidelines (Eagle Management Guidelines), please contact the Chesapeake Bay Ecological Services Field Office at 410-573-4573 for technical assistance. The Eagle Management Guidelines can be found at:

<http://www.fws.gov/northeast/ecologicalservices/pdf/NationalBaldEagleManagementGuidelines.pdf>

In the future, if your project can not avoid disturbance to the bald eagle by complying with the Eagle Management Guidelines, you will be able to apply for a permit that authorizes the take of bald and golden eagles under the Bald and Golden Eagle Protection Act, generally where the take to be authorized is associated with otherwise lawful activities.

An additional concern of the Service is wetlands protection. Federal and state partners of the Chesapeake Bay Program have adopted an interim goal of no overall net loss of the Basin’s remaining wetlands, and the long term goal of increasing the quality and quantity of the Basin’s wetlands resource base. Because of this policy and the functions and values wetlands perform, the Service recommends avoiding wetland impacts. All wetlands within the project area should be identified, and if alterations of wetlands is proposed, the U.S. Army Corps of Engineers, Baltimore District, should be contacted for permit requirements. They can be reached at (410) 962-3670.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interests in these resources. If you have any questions or need further assistance, please contact Trevor Clark at (410) 573-4527.

Sincerely,

A handwritten signature in blue ink that reads "G. LaRouche". The signature is written in a cursive style with a large initial "G".

Genevieve LaRouche
Supervisor



United States Department of the Interior



FISH AND WILDLIFE SERVICE
CHESAPEAKE BAY ECOLOGICAL SERVICES FIELD OFFICE
177 ADMIRAL COCHRANE DRIVE
ANNAPOLIS, MD 21401
PHONE: (410)573-4500 FAX: (410)266-9127

Consultation Tracking Number: 05E2CB00-2012-SLI-0374

August 01, 2012

Project Name: Penn and Minn Avenues, SE Environmen Assessment

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the

human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: Penn and Minn Avenues, SE Environmen Assessment

Preliminary Species list

Provided by:

CHESAPEAKE BAY ECOLOGICAL SERVICES FIELD OFFICE
177 ADMIRAL COCHRANE DRIVE
ANNAPOLIS, MD 21401
(410) 573-4500

Consultation Tracking Number: 05E2CB00-2012-SLI-0374

Project Type: Transportation

Project Description: Transportation project to reconfigure intersection to be safer and more pedestrian friendly.

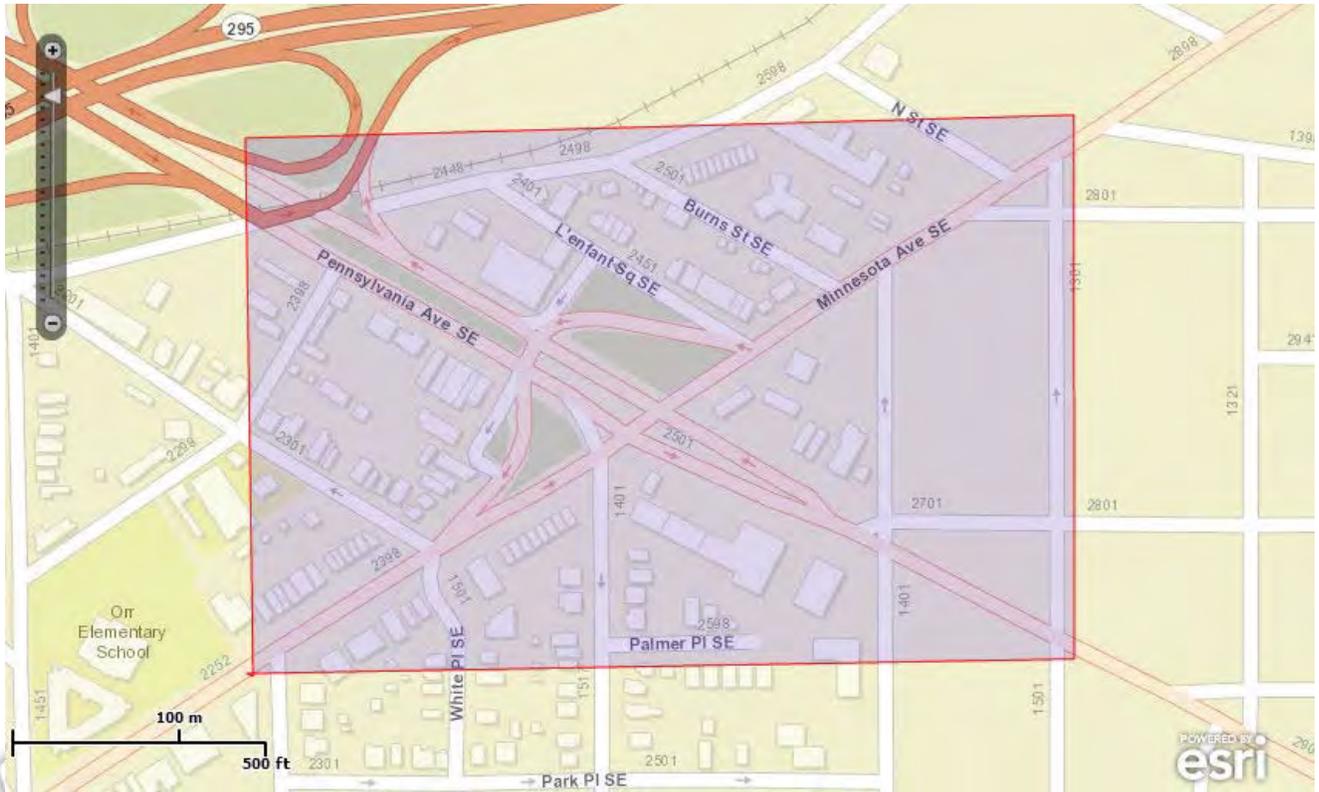
Preliminary



United States Department of Interior
Fish and Wildlife Service

Project name: Penn and Minn Avenues, SE Environmen Assessment

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-76.9733569 38.87210569, -76.9733566 38.8720893, -76.9734006 38.8721051, -76.9733569 38.87210569)), ((-76.9733569 38.87210569, -76.9734103 38.8750052, -76.9676414 38.8751301, -76.9676381 38.8721828, -76.9733569 38.87210569)))

Project Counties: District of Columbia, DC



United States Department of Interior
Fish and Wildlife Service

Project name: Penn and Minn Avenues, SE Environmen Assessment

Endangered Species Act Species List

Species lists are not entirely based upon the current range of a species but may also take into consideration actions that affect a species that exists in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Please contact the designated FWS office if you have questions.

There are no listed species identified for the vicinity of your project.

Preliminary

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**RESPONSES TO
AGENCIES COMMENTS**

GOVERNMENT OF THE DISTRICT OF COLUMBIA
District Department of the Environment

Office of the Director



MEMORANDUM

TO: Austina Casey
Project Manager
DDOT
Attn: Penn-Minnesota Improvements EA
55 M St SE Suite 400
Washington, DC 20003
Submitted via email to: Austina.Casey@dc.gov

FROM: Victoria North
Acting Environmental Review Coordinator

THRU: Harrison Newton
Acting Chief of Staff

DATE: November 27, 2013

SUBJECT: Environmental Assessment: Pennsylvania Ave. - Minnesota Ave intersection improvement

On behalf of the District Department of the Environment (DDOE), I am submitting comments on the Pennsylvania Ave. - Minnesota Ave intersection improvement.

Comments from Water Quality:

Resources Consulted

The following documents were consulted in the EISF review process:

1. D.C. Department of Consumer and Regulatory Affairs (DCRA), District of Columbia Wetland Conservation Plan. August 1997.
2. D.C. Groundwater Resources Studies (series of four reports).
3. Johnston, P.M., Geology and Ground-Water Resources of Washington, D.C. and Vicinity. USGS Water Supply Paper (WSP) 1776. Reston, Virginia, 1964.
4. U.S. Geological Survey (USGS), Topographic Map Washington West Quadrangle 7.5 Minute Series, 1965. Photo Revised 1982
5. Federal Highway Administration (FHWA), U.S. Department of Transportation, and District Department of Transportation (DDOT), 2013. Environmental Assessment, Pennsylvania Ave-Minnesota Ave, SE Intersection Improvement Project, Washington DC, Date of Report: October 2013.

Water Resources/Wetlands

The Environmental Assessment (EA) report was reviewed for water-related issues in accordance with the D.C. Environmental Policy Act and regulations, Sections 7201.2(c), (d), and (l).

Environmental Setting

Geologically, the project site is located entirely within the Coastal Plain physiographic province. The Coastal Plain is characterized by unconsolidated interleaved deposits of gravel, sand, silt, and clay, with the surface soils of the specific Study Area vicinity formed in reworked river terrace deposits from the Pliocene and Pleistocene (FHWA and DDOT, 2013, and USGS, 1965). Based on the topographic map for the site (USGS, 1965) and Johnston (1964), there are no streams, lakes, ponds, springs, or wetlands within 100 feet of the project site.

Environmental Consequences

The EA was reviewed for water-related issues in accordance with the D.C. Environmental Policy Act and regulations, Section 7201.2(c), (d), and (l). Sections 7201.2(c), (d), and (l) implementing regulations provide that a project should be assessed to determine whether the action might:

- (a) Significantly deplete or degrade groundwater resources;
- (b) Significantly interfere with groundwater recharge; and/or
- (c) Cause significant adverse change in the existing surface water quality or quantity.

Groundwater

(The following addresses requirements of Sections 7201.2(c) and (d) of the Environmental Policy Act regulations)

The purpose of the proposed project is to provide transportation improvements of safety, mobility, and connectivity for pedestrians and motorists. Therefore, the proposed project would require limited excavation or disturbance of soils, indicating that the shallow excavation is expected in association with the improvements. Therefore, dewatering of groundwater may not be required during the site development. Overall there is no expected impact on groundwater flow as a result of the proposed project.

There are several hazardous waste discharge facilities, and two gas stations having underground storage tanks (USTs) listed within or adjacent to the project area. However, it is stated that the proposed land transfer and reconfiguration of the intersection would not result in disturbance to any of the known existing waste discharge facilities or USTs (FHWA and DDOT, 2013). Consequently, if the guidance provided herein is adhered to, the project is anticipated to have minimal or no impact on groundwater quality.

The proposed project would increase the impervious surface, which does not allow for as much rainwater to recharge naturally. Therefore, the proposed development at the site is expected to have minimal impact on groundwater recharge in the area.

Surface Water

(The following addresses requirements of Sections 7201.2(c) and (d) of the Environmental Policy Act regulations)

Based on the topographic maps for the site (USGS, 1965) and Johnston (1964), the project site is more than 100 feet away from the nearest hydraulically down gradient natural surface water body. Consequently, the project is expected to have minimal impact to surface water flow.

There might be minor short-term adverse impacts during construction due to potential release of sediments into stormwater runoff from soil disturbance. Based on the information provided in the EA, erosion and sediment control plans would be prepared in accordance with District Department of the Environment (DDOE) stands and Specifications for Soil Erosion and Sediment Control, and implemented during construction of the reconfigured intersection. The plans would include project specific measures to avoid and/or minimize soil erosion and transport due to ground-disturbing activities. Additionally, BMPs such as silt fence and sediment trapping or filtering would be used during construction to avoid temporary impacts to water quality during construction. Stormwater management plans would also be prepared to address long-term runoff and pollutant discharge into the Anacostia River Watershed. Therefore, minimal or no impact to surface water quality is anticipated to result from the project.

Conclusion

DDOE-01

In view of the above, the WQD has assessed that there is no apparent significant adverse impact or likelihood of substantial negative impact to water quality and quantity with regards to Sections 7201.2(c), (d), and (l) of the Environmental Policy Act.

DDOE appreciates the opportunity to submit these comments, and we look forward to working with the Pennsylvania Ave. - Minnesota Ave intersection improvement staff as this project continues to be developed.

If you have any questions, please contact:

Ms. Victoria North
(202) 535-1909
victoria.north@dc.gov

CC: Harrison Newton
Ibrahim Bullo

Response to Comment DDOE-01

Thank you for your comments. They will be included in the project Administrative Record.

Caroline Pinegar

From: Casey, Austina (DDOT) <austina.casey@dc.gov>
Sent: Monday, December 02, 2013 11:24 AM
To: Caroline Pinegar
Subject: Comments from WMATA on Penn/Minn EA

Each One Give One! Help the DC ONE FUND reach our One City DC One Fund goal of \$1 million dollars to provide much needed support to so many in our region. Learn more at www.dconeofund.org <<http://www.dconeofund.org>> or www.onefund.dc.gov <<http://www.onefund.dc.gov>>

From: Overman, Aaron [<mailto:aoverman@wmata.com>]
Sent: Wednesday, November 27, 2013 2:08 PM
To: Casey, Austina (DDOT)
Cc: Chisholm, Ann; Hamre, James; Hershorn, Julie G.; Erion, David F.; Ochia, Kry
Subject: RE: Invitation: Pennsylvania Avenue/Minnesota Avenue Intersection Improvements Project

Dear Tina,

It's always good to work with you! I am providing the comments below on behalf of WMATA Metrobus to the EA referenced in the subject.

WMATA-01

On Page 63, it notes that no WMATA infrastructure is present in the subject area. Two comments: 1) All bus stop poles are WMATA property, so at every bus stop there is a bus stop pole with information attached representing WMATA infrastructure. 2) This section also references bus shelters – all shelters in District right-of-way belong to Clear Channel under a franchise agreement and have nothing to do with WMATA.

WMATA-02

In Build Alternative 1, stop relocations are noted due to the new roadway geometry. These recommendations do not appear to materially affect bus operations. The design of all bus stops should follow the guidelines found in <http://www.wmata.com/pdfs/planning/WMATA%20Guidelines-Design%20and%20Placement%20of%20Transit%20Stops.pdf>, and this document should be referred to inside the EA as a requirement for all bus stops in the project area. The WMATA bus stop guidelines document must be adhered to at all times, especially as it regards ADA requirements at bus stops. At what is referred to as "Stop 2", there will need to be special signage and roadway markings allowing the bus to move from the curbside lane to the

WMATA-03

In Build Alternative 2, pedestrian bulb outs are recommended. I need to state WMATA's opposition to any bus "pull off" areas for a standard bus stop. These are not recommended in our bus stop guidelines. Any design that requires the bus to leave the travel lane and then return to a busy traffic stream will delay buses and create unsafe conditions, increasing the possibility of sideswipe accidents. However, the drawings shown in Figure 4-2 show farside bus stops where the pedestrian bulbouts are recommended, with the bus able to continue straight in the curbside lane after the bus stop and allowing sufficient room for the bus to accelerate back into the traffic stream. Designs such as this are supported by our guidelines, provided they are of sufficient length and do not force buses into a pocket lane outside the normal traffic stream bracketed in both directions by curbs. Again, the WMATA bus stop guidelines document must be adhered to at all times.

WMATA-04

On page 107, it refers to an Autoturn analysis for fire trucks. The same analysis must be performed for transit buses, to ensure that they will be able to make turns safely through the intersection.

Response to Comment WMATA-01

Thank you for your comments. They will be included in the project Administrative Record. *Section 3.3.9, Utilities and Infrastructure*, of the EA has been revised to indicate that there are no bus shelters in the Study Area, but does not refer to bus shelters as WMATA infrastructure. The section has also been updated with information about the bus stop poles, which are considered WMATA infrastructure.

Response to Comment WMATA-02

The bus stops being relocated in the Study Area intersection are those that are currently located on the cut-through road north of Pennsylvania Avenue, SE. *Section 4.4.3, Transit*, of the EA, has been updated to include discussion of and adherence to WMATA's guidelines for the *Design and Placement of Transit Stops (2009)*. DDOT will continue to coordinate with WMATA through final planning and design in terms of special signage and roadway markings that will be needed as a result of the intersection improvements.

Response to Comment WMATA-03

Following comments received from WMATA, pedestrian bulb-outs have been included in the design of both of the Build Alternatives of the October 2013 EA. After consideration of the purpose of and need for the proposed action, analysis in the EA, and public and agency comments, DDOT has identified Build Alternative 2 – Conventional Intersection as the Preferred Alternative for the EA, along with Option 2, in which traffic would flow one-way to the north and east on the L'Enfant Square SE roadway. With Option 2, cut-through traffic would be minimized along the L'Enfant Square SE residences and the vehicle/pedestrian conflict would be reduced.

There are no bus stop pull-off areas in either of the Build Alternatives. DDOT understands that WMATA buses need ample acceleration room and that sufficient length is needed for buses to return back into the normal traffic stream. The Build Alternatives currently provide the minimum bus zone length and minimum landing area offset distance required by WMATA's *Design and*

Placement of Transit Stops (2009) manual. During final planning and design, DDOT will ensure that all WMATA bus stop guidelines are adhered to in accordance with WMATA's *Design and Placement of Transit Stops (2009)* manual.

Response to Comment WMATA-04

Following comments from WMATA on the October 2013 EA, AutoTURN™ analysis was conducted for transit bus operations throughout the intersection to ensure that bus movements could be accommodated safely through the intersection. DDOT determined that both of the Build Alternatives can accommodate bus transit movements through the intersection. Additionally, Build Alternative 2 (Preferred Alternative) was modified following the October 2013 EA based on input received about the long crossing length at the east side of the intersection. The center median was therefore extended to the west to provide a pedestrian refuge area between the east- and westbound travel lanes. DDOT confirmed that the WMATA transit buses are able to make this turn as well.

WMATA-05

Nowhere in the document does it refer to lane widths – a minimum 11 foot lane width is required in the curbside lane in order for Metrobus to safely drive through and make stops.

Please contact me should you have any questions or require any clarification.

-Aaron

Aaron W. Overman, PE
Office of Bus Planning, Scheduling and Customer Facilities (PSCF)
Department of Bus Services
Washington Metropolitan Area Transit Authority
600 Fifth Street, NW
Washington, DC 20001
Tel: 202-962-1954
Fax: 202-962-1277

Response to Comment WMATA-05

During final planning and design, DDOT will ensure that the curbside lane width requirements and all other WMATA guidance is adhered to for the safety of WMATA's transit buses and passengers.

**RESPONSES TO
PUBLIC COMMENTS**

DRAFT



Austina Casey, Project Manager
District Department of Transportation
55 M Street SE, Suite 500
Washington, DC 20003

Monday October 8, 2012

Ms. Casey:

Thank you for the opportunity to provide comments on the Pennsylvania and Minnesota (Penn-Minn) Avenues intersection project. The Hillcrest Community Civic Association believes Pennsylvania Ave SE is not only a "Great Street", but it is America's Main Street.

001-01

We fully support DDOT and NPS goals to: (1) enhance safety for motorists and pedestrians, (2) create a consolidated, usable park space for pedestrians and visitors, and (3) function as a catalyst for neighborhood revitalization. We would also like to ensure the following is included in the goals: (1) improve accessibility and mobility for our disabled population, (2) enhance safety for bicyclists, (3) enhance the intersection's function as a major public transportation (bus) hub, (4) create an aesthetically pleasing gateway into Ward 7, and (5) alleviate traffic on local streets that connect both avenues.

001-02

We are not aware of any cultural or environmental resources within the project limits of the Penn-Minn intersection. We would like more information on the advantages and disadvantages of the proposed alternatives before we provide comment.

001-03

While this is the early stage of the environmental assessment process, we invite you to present at our monthly HCCA meeting, so our community can fully understand the project and provide comment on the proposed alternatives.

We look forward to continuing the dialog and being part of the process to complete the transformation of Pennsylvania Ave SE.

Karen Williams, President

HILLCREST COMMUNITY CIVIC ASSOCIATION

Response to Comment 001-01

Thank you for your comments. They will be included in the project Administrative Record. The recommended goals are embodied in the project's stated purpose and need and project goals, as explained below. Please refer to *Section 1.0, Purpose and Need* of the EA.

The commenter's Goal #1 falls under the defined project need to improve multimodal connectivity and access (*Section 1.2.3*) and to support improved land use and community needs (*Section 1.2.4*). It is also encompassed with the Great Streets Initiative program goals to improve the quality of life in neighborhoods along the corridors, including public safety, physical appearance and personal opportunity; and to expand mobility choices and improve safety and efficiency of all modes of travel. Refer to *Section 1.3.1, Background*, for discussion of program goals of the Great Streets Initiative.

DDOT has identified Build Alternative 2 – Conventional Intersection as the Preferred Alternative. This design includes Americans with Disabilities Act (ADA)-compliant ramps and sidewalks to be improved or included in the Study Area where they do not exist currently.

The commenter's Goals #2 and are included in the project need to improve multimodal connectivity and access (*Section 1.2.3*); and is also included in the program goal to expand mobility choices and improve safety and efficiency of all modes of travel.

The commenter's Goal #4 is presumed in the project need to support improved land use and community needs (*Section 1.2.4*), and the program goals to improve the quality of life in neighborhoods along the corridors, including public safety, physical appearance and personal opportunity; and to attract private investment through the demonstration of a public commitment to Great Street communities.

With regard to the commenter's Goal #5, while the project purpose is to provide transportation improvements to the project intersection, "alleviating vehicular traffic on local streets" is not specified in the project need or as one of the program goals. The project intends to improve vehicular safety and efficiency and

the expansion of mobility choices, however, it does not promise relief of traffic congestion. This is because the aim of the project is to improve safety for pedestrians, bicyclists, motorists and all intersection users, residents and visitors by making the intersection less confusing to navigate, to reduce traffic speeds and conflicts between vehicles and pedestrians and to improve the physical appearance of the intersection and usability of the park space.

Response to Comment 001-02

Your comments have been noted and will be included in the project Administrative Record. Cultural and environmental Resources are discussed in *Section 3.2* and *Section 4.2, Cultural Resources*, of the EA.

Response to Comment 001-03

Your comments have been noted and will be included in the project Administrative Record. Please refer to *Section 2.0, Proposed Action and Alternatives* of the EA for a discussion of the Build Alternatives. *Section 2.2.1, Build Alternative 1 – Revised Square Alternative* discusses the advantages of Build Alternative 1 - Revised Square; *Section 2.2.2, Build Alternative 2 – Conventional Intersection Alternative* discusses the advantages of Build Alternative 2 - Conventional Intersection. After consideration of the purpose of and need for the proposed action, analysis in the EA, and public and agency comments, DDOT has identified Build Alternative 2 – Conventional Intersection as the Preferred Alternative for the EA, along with Option 2, in which traffic would flow one-way to the north and east on the L’Enfant Square, SE roadway. With Option 2, cut-through traffic would be minimized along the L’Enfant Square, SE, residences and the vehicle/pedestrian conflict would be reduced.

Build Alternative 2 would meet the purpose and need for the Proposed Action in promoting the principles set forth in the District’s Great Streets Initiative.

PENNSYLVANIA AVE-MINNESOTA AVE, S.E.
INTERSECTION IMPROVEMENT PROJECT



ENVIRONMENTAL ASSESSMENT AND SECTION 106 EVALUATION
COMMENT FORM
November 13, 2013

Thank you for participating in tonight's Public Hearing. Please write your comments and questions below, and leave your form in the comment box. You may also mail your comments. Simply fold this completed comment form along the dashed lines on the back and mail to the address on the back (U.S. postage is required).

Please print clearly. Thank you!

002-01

① Permeable surfaces - needed from Southern along PA Ave
to Sousa Bridge

002-02

② No more wide sidewalks that take our green spaces
not (1) Bike uses these wide side walks

Name (optional):

Address (optional):

Email (optional):

Visit our website at:
<http://ddot.dc.gov/PennMinnAvesProject>



Response to Comment 002-01

Thank you for your comments. They will be included in the project Administrative Record. Permeable pavements are feasible in the permanent parking areas as well as sidewalks. DDOT will investigate the use of these pavements during the design phase to mitigate stormwater runoff.

Response to Comment 002-02

Your comments have been noted and will be included in the project Administrative Record. As part of the overall connectivity along the Pennsylvania Avenue, SE corridor, wider sidewalks are being proposed for bicycle shared-use between the Sousa Bridge and the bike path east of 27th Street, SE. DDOT will preserve as much green space along this area as possible. As part of the Pennsylvania Avenue-Minnesota Avenue, SE Intersection Improvement Project, DDOT will consolidate the fragmented green spaces at the intersection to allow for a more usable park space and to encourage community activities.

PENNSYLVANIA AVE-MINNESOTA AVE, S.E.
INTERSECTION IMPROVEMENT PROJECT



ENVIRONMENTAL ASSESSMENT AND SECTION 106 EVALUATION
COMMENT FORM
November 13, 2013

Thank you for participating in tonight's Public Hearing. Please write your comments and questions below, and leave your form in the comment box. You may also mail your comments. Simply fold this completed comment form along the dashed lines on the back and mail to the address on the back (U.S. postage is required).

Please print clearly. Thank you!

003-01

Alternatives I and II: drivers will turn right around the U.S.P.A. and turn left at the alley to access Minnesota Dr.

003-02

The buses going to the Anacostia Metro need an "easier" right turn to access Minnesota Dr.

003-03

Project should extend to Fairlawn. we should consider access to the businesses on PA from Fairlawn to MT: gas station, Fairlawn Market, mattress store and Gray's Gift

Name (optional): Carol Cooper
Address (optional): AN/BA
Email (optional): 01

Visit our website at:
<http://ddot.dc.gov/PennMinnAvesProject>



Response to Comment 003-01

Thank you for your comments. They will be included in the project Administrative Record. During the design phase, DDOT will evaluate methods to deter vehicles cutting through the alley, including the use of signage, speed bumps or the use of a one-way westbound alley to eliminate this as a cut-through route.

Response to Comment 003-02

All bus and emergency vehicle turning movements at this intersection were verified for both of the Build Alternative using the two-dimensional AutoCAD software AutoTURN™. Similar analyses will be conducted during the final design phase to reconfirm all vehicle turning movements.

Response to Comment 003-03

Although the Study Area for the project extends to Fairlawn Avenue, SE in order to consider potential impacts at the intersection as a result of the alternatives, no improvements are recommended at the Fairlawn Avenue intersection as part of the Pennsylvania Avenue-Minnesota Avenue, SE Intersection Improvement Project EA. DDOT has identified Build Alternative 2 – Conventional Intersection as the Preferred Alternative in the EA.

Build Alternative 2 would improve vehicle operations and reduce confusion at the complex intersection. The improvements would create more consolidated park space for visitors and residents to the area and the intersection would be less confusing to navigate for motorists and pedestrians. Build Alternative 2 would enhance the appeal and quality of the area which could benefit economic development and encourage new business, retail and jobs in the area. Please refer to Section 1.0, Purpose and Need, of the EA, for discussion of the project objectives, purpose and need and a description of the Study Area.

Response to Comment 004-01

Thank you for your illustrated suggestions on the project handout and your comments. They will be included in the project Administrative Record. DDOT has identified Build Alternative 2 – Conventional Intersection Alternative as the Preferred Alternative. With the implementation of the Preferred Alternative, Minnesota Avenue, SE at the intersection would remain two-way. Please refer to *Section 2.2.2, Build Alternative 2 – Conventional Intersection Alternative* for more details.

Response to Comment 004-02

Maintaining the “sweep” right turn in Build Alternative 1 – Revised Square would remove the traffic-calming intent of this alternative and would not fulfill the purpose and need for the Proposed Action, which is identified in *Section 1.0, Purpose and Need* of the EA. The right-hand turn from Pennsylvania Avenue, SE eastbound onto Minnesota Avenue, SE southbound could likely not be closed off, as suggested, due to the bus circulation and movements through the intersection. However, various methods of improving traffic flow through the intersection will be considered during the design phase of the project.

Response to Comment 004-03

With the implementation of Build Alternative 2 (Preferred Alternative), left turns onto Minnesota Avenue, SE from Pennsylvania Avenue, SE eastbound will be maintained. Please refer to *Section 2.2.2, Build Alternative 2 – Conventional Intersection Alternative* for a full discussion of this alternative.

Project Background

The District of Columbia Department of Transportation (DDOT) and the Federal Highway Administration (FHWA), in cooperation with the National Park Service (NPS) and National Capital Planning Commission (NCPC) are proposing improvements to the intersection of Pennsylvania Avenue and Minnesota Avenue, SE in Washington, DC, known as the Fanning Square area.

Purpose & Need

The purpose of this project is to provide transportation improvements to the Pennsylvania Ave/Minnesota Ave, SE intersection in keeping with the District of Columbia's Great Streets Initiative. Key to the project is the potential for land transfer from NPS to DDOT to facilitate the reconfiguration of the Fanning Square area. The need for this project consists of the following:

- Improve pedestrian and vehicle safety.
- Improve multimodal connectivity and access.
- Create a coordinated, usable space and
- Substant land use.

Section 106 Evaluation
(National Historic Preservation Act of 1966)

- Section 106 of the NHPA requires consultation with the DC State Historic Preservation Office and other interested parties.
- An Assessment of Effects on Cultural Resources was prepared and is summarized in the Environmental Assessment.
- No Adverse Effect for the Proposed Action.

Environmental Assessment
(National Environmental Policy Act of 1969)

- Released on October 28, 2013.
- EA available electronically at the following locations:
 - DDOT
 - 33 M Street SE, Suite 400, Washington, DC 20003
 - FHWA, DC Office
 - 1950 K Street, Suite 310, Washington, DC 20004
 - James A. Gregory Library
 - 3400 Assembly Avenue, SE, Washington, DC 20008
- Public Hearing November 13, 2013
- Comment Period Ends on November 30, 2013





004-01

004-02

No-Build Alternative
(current configuration)

- DDOT will not conduct any construction at this intersection.
- Pedestrian and traffic conflict at the intersection.
- No multimodal connectivity.
- Divided green space.

004-03

Alternative 1
Revised Square

Handwritten notes:
- Keep Sweeps on Min
- Keep Sweeps on 1 side of Pennsylvania P
- Eliminate the left-turn conflicts from Pennsylvania Avenue onto Minnesota Avenue.

- Consolidates green space.
- Adjust roadway alignments for traffic circulation.
- Reduces conflicts between pedestrian and vehicles by reducing crosswalk length and by providing pedestrian facilities.

Alternative 2
Conventional Intersection

- Consolidates multiple traffic movements into one signalized intersection.
- Consolidates green space.
- Provides left-turn movements in all directions.
- Increases left-turn queuing capacity.

www.ddot.dc.gov/PennMinnesotaProject Pennsylvania Ave - Minnesota Ave Intersection Environmental Assessment

GOVERNMENT OF THE DISTRICT OF COLUMBIA
DISTRICT DEPARTMENT OF TRANSPORTATION

+ + + + +

PUBLIC HEARING

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PENNSYLVANIA AVE - MINNESOTA AVE, SE
INTERSECTION IMPROVEMENT PROJECT

ENVIRONMENTAL ASSESSMENT AND
SECTION 106 EVALUATION

+ + + + +

WEDNESDAY

NOVEMBER 13, 2013

+ + + + +

The Public Hearing convened at the
Francis A. Gregory Public Library, 3660
Alabama Avenue, SE, Washington, DC, 20020, at
6:00 p.m.

Neal R. Gross & Co., Inc.
202-234-4433

P-R-O-C-E-E-D-I-N-G-S

(6:40 p.m.)

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MS. CASEY: Thanks everyone for
coming. What we're going to do is a quick
presentation before we give you a chance to
come up and give your testimony. My name is
Tina Casey, I'm with DDOT. I'm the Project
Manager for the Environmental Report here.

All right. Okay. So as people
come in, we'll do the presentation. That way,
we don't have to keep you all here all night.
But anyway, tonight we'll be providing you an
update to the project.

We did the environmental
assessment. It's out for public review. So
we'll give you an overview of the results from
the analysis. Also, we'll be going over
Section 106 Evaluation and the results from
that.

As most of you know, this project
was the concept of the Great Street
Initiative, which was a multi-agency program

Neal R. Gross & Co., Inc.
202-234-4433

1 aimed to transform major corridors that
2 connect neighborhoods into great streets.

3 The key component from the Great
4 Street project included street that facilitate
5 commerce, that are safe and appealing, that
6 encourage walking, that are memorable and
7 promote a community feel.

8 Several task forces and public
9 meetings were held during the program, which
10 was between 2005 and 2007. And from there, we
11 developed several studies and identified the
12 Pennsylvania, Minnesota Avenue intersection
13 for improvement.

14 The Great Street program overall
15 focused on nine corridors, which are the ones
16 that are identified there in the yellow. And
17 Pennsylvania Avenue was one of those
18 corridors.

19 And the project area for
20 Pennsylvania Avenue from the Great Street
21 program was from the foot of the Sousa Bridge
22 to Southern Avenue. And of course, Minnesota

1 Avenue and Pennsylvania Avenue intersection,
2 our project, is right there.

3 And also, most of the project
4 under that Pennsylvania Avenue corridor
5 improvement for the Great Street are already
6 underway or finalized. And this intersection
7 is one of the few remaining ones.

8 So for the EA, we had to develop a
9 purpose and need. And so the purpose for the
10 program was to provide transportation
11 improvement to the Pennsylvania Avenue,
12 Minnesota Avenue Southeast intersection in
13 keeping with the Great Street Initiative.

14 And then part of that and key to
15 that is the transfer of land from NPS to DDOT
16 in order to facilitate reconfiguring Twining
17 Square.

18 So FHWA is the lead agency. And
19 NPS, National Park Service and NCPC, National
20 Capital Planning Commission are cooperating
21 agencies. The need for the project was
22 identified through past studies and recent

1 consultations.

2 A need for safety improvement
3 where the intersection, right now as it
4 stands, is a major pedestrian oriented
5 activity node in which in many instances where
6 there are conflict at the intersection of
7 Pennsylvania Avenue, Minnesota Avenue and even
8 on 25th Street.

9 There's a need for functional and
10 usable space. And as you can see right now,
11 the green space there is divided with major
12 traffic going through.

13 So we hope to consolidate the park
14 space. The need for safe and easy access for
15 other modes of transportation such as
16 bicyclists and in transit including bus.

17 There's a heavy bus use in the
18 area, but access to the bus stops can be risky
19 and difficult. And also bicyclists prefer to
20 ride on, because of the heavy traffic on
21 Pennsylvania Avenue, bicyclists prefer to ride
22 on the now narrow sidewalk. So that cause for

1 dangerous operation all around.

2 And of course, the need for the
3 land use and community needs, to support land
4 use and community needs ties it back to the
5 Great Streets components.

6 So these two alternatives or
7 concepts were dismissed. They were developed
8 during the Great Street program. And the
9 elliptical, as you can see, it's just a
10 circular design.

11 And it was dismissed because,
12 again, it required acquisition of private
13 properties, which we try to avoid as much as
14 possible at DDOT.

15 Although it consolidated the park
16 area, it conflicted with the historical
17 configuration, which we later found out what
18 that was.

19 The modified square was actually
20 identified as the recommended alternative for
21 this intersection in the Great Streets report.
22 But again, we had to dismiss it because of

1 acquisition of private property.

2 And a couple of those properties
3 were gas station, which would likely have
4 hazardous waste remediation issues that can be
5 very extensive.

6 So in the EA, we went ahead with
7 three alternatives. The no-build alternative,
8 alternative one, the revised square. No-build
9 is basically the current configuration leaving
10 everything as it is.

11 And the alternative one we'll talk
12 about later, which is the revised square and
13 alternate to the conventional intersection.

14 So for the no-build, as I said, as
15 part of NEPA, the National Environmental
16 Policy Act, you always have to analyze the
17 current situation versus what you plan to
18 change to see what your impacts are.

19 So that's why we have the no-
20 build. And with the no-build, as I said,
21 nothing will be changed, we will not need the
22 land transfer from NPS.

1 We'll continue to have the same
2 issues as before, but we went ahead and
3 analyzed it anyway. And it's always an option
4 at the end of the day.

5 So the build alternative one, we
6 call it a revised square because it's
7 essentially revised the modified square, which
8 we had to dismiss because of the taking of
9 private property.

10 And that modified square, as I
11 mentioned before, was the recommended
12 alternative from the Great Streets Report. So
13 we try to work with what we have instead of
14 going back to the drawing board.

15 So we re-config it and we designed
16 it to avoid taking those properties. So
17 basically what this will do, it will require
18 1.4 acres from NPS to be transferred to DDOT,
19 specifically to transportation purposes.

20 As far as operation, it eliminates
21 the left turn conflict that you see right now
22 on Pennsylvania Avenue. So right there,

1 people are turning left on Pennsylvania
2 Avenue, causing backups.

3 And there's not enough storage
4 space if somebody's trying to cross, for cars
5 to get out of the way so that, you know,
6 traffic could keep moving.

7 It will also improve alignment to
8 promote traffic coming because it will direct
9 the turning movements around the square. So
10 it will operate sort of as a circle, but more
11 square. You know.

12 So there wouldn't be no left
13 turns, it's all --

14 FEMALE PARTICIPANT: I'm sorry, I
15 just don't understand what you just said about
16 the traffic. How do you make a left turn?
17 Show me.

18 MS. CASEY: There will not be any
19 left turns from Pennsylvania Avenue. That's
20 what I'm telling you.

21 MALE PARTICIPANT: How would you
22 get onto Minnesota Avenue from Pennsylvania

1 Avenue traveling from the south --

2 MS. CASEY: You make a right turn
3 and go around.

4 (Off microphone comments)

5 MS. CASEY: All right. And then
6 on the north side of L'Enfant Square there, we
7 will be widening to three lanes from the
8 existing one to accommodate the travel that
9 will then need to go through in order to allow
10 traffic to move through Pennsylvania Avenue.

11 MALE PARTICIPANT: I have a
12 question about that. Will you be taking space
13 away from the sidewalks that are currently
14 there? Will you be taking space?

15 MS. CASEY: The space in front of
16 the sidewalk in front of the residence will
17 not be reduced. In fact, we will widen it a
18 bit to add buffer because that parking spot up
19 there will remain.

20 The parking spot at the bottom on
21 the south side, those will be taken away.
22 Exactly. We're taking away from the park

1 versus from the resident.

2 And yes, so I guess one option,
3 which I should talk about Jon, is the option
4 of right now everybody comes from Minnesota
5 Avenue up north to make a right on L'Enfant
6 down.

7 And what we were considering, and
8 I think we discussed it in the EA, did we,
9 where it would be potential of going -- oh,
10 oh. My bad. It was this one.

11 FEMALE PARTICIPANT: Just a
12 question. So when you make the right in order
13 to make the left onto Minnesota Avenue, so you
14 will have to make a left and then get over in
15 the far left hand lane, make the right, get
16 over to the far left hand lane in order to
17 make the left to go up Minnesota Avenue. Am
18 I understanding that correctly? You turn
19 there?

20 MS. CASEY: You turn here, yes,
21 going to the left --

22 FEMALE PARTICIPANT: Then you have

1 to get into the left hand lane in the --

2 MS. CASEY: Yes, to go into the --

3 FEMALE PARTICIPANT: -- hopefully
4 that you can go straight.

5 MS. CASEY: Yes.

6 FEMALE PARTICIPANT: Well, how
7 would you be able to stack the vehicles when
8 Minnesota Avenue is backed up going across
9 Pennsylvania? And it does stack up.

10 MS. CASEY: I think there will be
11 signal, it will be signalized in, I mean, I'm
12 not too sure about the signal. Jon, do you
13 want to help me with the signal? But it will
14 be signalized in order to --

15 MR. WHITNEY: It will be
16 signalized there at the bottom of the square
17 to allow the northbound Minnesota Avenue
18 traffic versus the traffic that's going around
19 the square. Give them alternate access to
20 Minnesota Avenue northbound.

21 MS. CASEY: So here, right?

22 MR. WHITNEY: Yes.

1 FEMALE PARTICIPANT: So you would
2 have to go through two signals in order to get
3 across Pennsylvania Avenue?

4 MS. CASEY: It's north is up.

5 MALE PARTICIPANT: With this
6 alternative, it's going to be a nightmare
7 because of 25th Street. The traffic coming
8 off Pennsylvania Avenue turning onto Minnesota
9 Avenue turning left, got to get all the way
10 over to the right to go up to 25th.

11 FEMALE PARTICIPANT: And that's
12 not going to happen.

13 MALE PARTICIPANT: That's going to
14 cause a lot of confusion.

15 FEMALE PARTICIPANT: That's a
16 nightmare.

17 MALE PARTICIPANT: 25th is a busy
18 street. I don't know if that's been studied
19 or not. But it used to come right off
20 Pennsylvania Avenue and go right up to 25th.

21 So the impact that that's going to
22 have is probably going to greatly influence

1 the traffic coming off Minnesota Avenue.

2 FEMALE PARTICIPANT: Absolutely.

3 MALE PARTICIPANT: Also, the bus
4 stop that's now on the corner of --

5 MS. CASEY: This bus stop?

6 FEMALE PARTICIPANT: Yes.

7 MALE PARTICIPANT: Right. Is that
8 bus stop going to stay there?

9 MS. CASEY: Yes.

10 MALE PARTICIPANT: So you're going
11 to have a bus stop there at that corner at the
12 same intersection that you're going to force
13 all cars who want to go north of Minnesota
14 Avenue to make the right turn. You are going
15 to stop the traffic all --

16 MS. CASEY: There is a bulb out,
17 is that what you call it, for the bus.

18 FEMALE PARTICIPANT: But you can't
19 turn right in front of a bus. You can't do
20 that in the District of Columbia. That's
21 illegal.

22 MALE PARTICIPANT: It looks like

1 there's two lanes that turn left at the turn
2 lane.

3 MS. CASEY: Is that --

4 MR. WHITNEY: Well, there's an
5 opportunity to move the end of the bus stop
6 further to the west, or into the square area.

7 MALE PARTICIPANT: That's why I
8 was asking about east of Washington --

9 (Crosstalk)

10 MS. CASEY: Yes. We would --

11 (Crosstalk)

12 FEMALE PARTICIPANT: Then the bus
13 can't make the left turn in order to get where
14 they need to go at Anacostia Metro Station.

15 MALE PARTICIPANT: You should have
16 had this worked out before you came in here
17 tonight.

18 FEMALE PARTICIPANT: That helps.

19 FEMALE PARTICIPANT: Isn't that
20 kind of grey building there, isn't that the
21 post office on that corner?

22 FEMALE PARTICIPANT: Yes.

1 FEMALE PARTICIPANT: That's where
2 the bus stop is. It's not up near that white
3 --

4 FEMALE PARTICIPANT: Oh, no.

5 MALE PARTICIPANT: No, that's
6 where they're building. No. They can't build
7 there.

8 FEMALE PARTICIPANT: Build out.

9 MALE PARTICIPANT: The bus stop
10 will still be there, they'll just build out.

11 FEMALE PARTICIPANT: That's going
12 to be backed up impossibly.

13 (Crosstalk)

14 MALE PARTICIPANT: Yes, wider
15 sidewalks.

16 FEMALE PARTICIPANT: What's that
17 white part just before you get to the right
18 turn?

19 MS. CASEY: Of this?

20 FEMALE PARTICIPANT: Yes, what is
21 that?

22 MS. CASEY: It's just the

1 sidewalk.

2 FEMALE PARTICIPANT: It's sidewalk
3 going up --

4 MS. CASEY: It's widened, yes.
5 It's just wider sidewalk.

6 FEMALE PARTICIPANT: So the bus
7 has to go around that in order to go towards
8 the Anacostia Metro?

9 FEMALE PARTICIPANT: Yes.

10 MALE PARTICIPANT: And it stops
11 right there where all the traffic --

12 (Crosstalk)

13 MS. CASEY: Let's go through the
14 next slide. I'm very appreciative of your
15 comments. And we will have an opportunity to
16 give testimony where it's going to be
17 recorded, and therefore we'll have it, a
18 written record of your comment.

19 So we'll move on to the next
20 alternative so I can go ahead and describe
21 that.

22 MS. PAUL: Remember, nothing has

1 been designed at all. So please make sure
2 when you get the tape recording and the
3 detailed write up.

4 Some of you in the previous
5 meetings have given us detailed
6 recommendations, suggestions. They are being
7 taken seriously. Nothing is finite. Nothing
8 is designed. Go ahead, Ms. Casey.

9 MS. CASEY: Yes I mean, if we see
10 anything that needs, you know, based on your
11 comments, that's why we have these meetings,
12 we still have, this is not the final EA.

13 We still have an opportunity to go
14 back and revisit some of these.

15 FEMALE PARTICIPANT: Well, I just
16 had a question. Minnesota is three lanes.
17 But what's that street that you turn right on
18 before the green space there? Is that two
19 lanes?

20 MS. CASEY: This is a different
21 alternative. Yes, this is a second
22 alternative. But it's still L'Enfant Square

1 it's called.

2 FEMALE PARTICIPANT: But how many
3 lanes is it?

4 MS. CASEY: I believe it's two
5 lanes on the revised. Anyway, for this
6 alternative, this is more of a conventional
7 intersection in the sense that it consolidates
8 all traffic movement to one signalized
9 intersection, which is that one there.

10 So Minnesota Avenue will become a
11 five lane roadway through the intersection.
12 And it would not reduce traffic speed, and the
13 intersection will continue to favor motorists
14 and over pedestrian movement.

15 And of course, it will cause the
16 same increase, cause an increase in the
17 queuing from the left turns because now you
18 have more left turns to deal with.

19 All right, so we did quite a bit
20 of, analyzed quite a bit of the impact on
21 quite a bit of the resources in the area. And
22 under the no-build, as you can see, there's

1 minor long-term impact to economic development
2 because as I said, one of our need is
3 supporting community needs and revitalization
4 in the area.

5 And from the studies in the past,
6 it has shown that reconfiguring this
7 intersection, making it safer for pedestrians
8 and vehicle ***6:59:46 will promote that, will
9 be a factor in promoting that.

10 So continuing to not have that
11 change will result in an issue.

12 FEMALE PARTICIPANT: Just so that
13 I understand this, Ms. Casey, the no-build
14 alternative is the leave alone, don't mess
15 with it?

16 MS. CASEY: Yes.

17 FEMALE PARTICIPANT: Okay, so I
18 see a whole lot of no impact. When I look
19 over to see build alternative one or two, I
20 see a lot of impact.

21 MS. CASEY: Most of the impacts
22 you see are either minor or negligible, or

1 mostly from during the construction phase,
2 okay, which will be temporary.

3 FEMALE PARTICIPANT: Okay, well
4 let me just say, I appreciate, you know, your
5 presentation and what have you. But as I was
6 telling you, since 2003 I've been involved in
7 this project.

8 And this is not what was
9 envisioned when we began with this project
10 when I was on Pennsylvania Avenue Task Force.
11 So that's why I was looking at the no-impact
12 because I think what was said to us back then
13 was there would be an impact.

14 If there was the configuration,
15 you're correct that there was a design as part
16 of the Pennsylvania Avenue Task force, one of
17 the phases.

18 But you know, fast forward ten
19 years later, I'm sitting here and I'm seeing
20 that actually, the no-build alternative has
21 the minimal impact on anything.

22 Not the construction part, all

1 these other things, school, water,
2 landscaping, ***7:01:19 and I talked about the
3 taking of the property.

4 And I convey to you that as long
5 as they're residential, the citizen ***7:01:27
6 about a property owner, you know what I'm
7 saying? You know, it's not a neighborhood
8 concern. ***7:01:37 homeowners, that's what
9 I'm saying.

10 MS. CASEY: Okay, I understand.
11 Well, a lot of what you see also are what we
12 identified as potential benefits. You know,
13 the impact you see for water quality is
14 because of the more pervious surfaces with the
15 wider sidewalks and impervious surfaces I
16 should say with the wider sidewalks.

17 But again, these are minimal,
18 negligible impacts. And impact is an impact,
19 and that's how we discussed them in the EA
20 under DDOT.

21 Again, there is, like, a scale as
22 well of how we determined and discussed them.

1 None of these impacts are significant. In
2 fact, some of them are beneficial.

3 FEMALE PARTICIPANT: So the
4 sidewalk along Pennsylvania will be permeable,
5 that's what you're saying? Or permeable?

6 MS. CASEY: Well they will be
7 impermeable because they will be --

8 (Crosstalk)

9 FEMALE PARTICIPANT: And I thought
10 the goal was for DDOE was to have permeable
11 surfaces.

12 MS. CASEY: Well I mean, again, as
13 Ms. Paul pointed out, this is not the final
14 design.

15 FEMALE PARTICIPANT: Okay.

16 MS. CASEY: Certain features as
17 permeable sidewalk, we've been using on other
18 projects, on DDOT projects.

19 FEMALE PARTICIPANT: That's why I
20 --

21 MS. CASEY: So we will consider
22 it. It's just these, you know, in the EA, you

1 want to look at worst case, I guess, and just
2 seeing what that would be.

3 FEMALE PARTICIPANT: Some of the
4 permeable surfaces you said ***7:03:19?

5 MS. CASEY: Yes.

6 FEMALE PARTICIPANT: They have
7 been used outside of southeast. I really want
8 to have a discussion about southeast versus
9 other parts of the city.

10 But I don't want to sit here
11 either after working as long as I have on this
12 project and take this because we were at our
13 last day and it's real emotional for me. And
14 it just seems like again, DDOT doesn't listen.

15 MS. CASEY: Well, we will take all
16 this into consideration. And you know, we are
17 with the goal of having as little impervious
18 surfaces in the city as we can.

19 And of course, we will look at
20 that. Again, some of these features are going
21 to be more ironed out once we go into the
22 design. Right now, it's just planning.

1 And whatever comments you have
2 that could improve our planning so that the
3 designers could then move forward with it is
4 very helpful.

5 FEMALE PARTICIPANT: Thank you.

6 FEMALE PARTICIPANT: These are
7 things that just on what the on and off ramps
8 at 295 and all the other things that they've
9 done, how that has impacted the traffic on
10 Pennsylvania Avenue?

11 All of them about blocking half
12 off there and it seems like there's a lot less
13 traffic on Pennsylvania Avenue. I had no
14 trouble getting across Sousa Bridge at rush
15 hour.

16 MS. PINEGAR: They did update the
17 traffic with the new designs with 295
18 Interchange. So the traffic analysis and the
19 EA is updated to include the new improvements
20 that you're talking about.

21 FEMALE PARTICIPANT: Yes, the only
22 problem we have is where they merge onto

1 Pennsylvania Avenue --

2 FEMALE PARTICIPANT: That's
3 because you're down at the end. Come up the
4 bridge, it's a problem.

5 FEMALE PARTICIPANT: Where they're
6 coming in?

7 FEMALE PARTICIPANT: Yes.

8 FEMALE PARTICIPANT: You mean
9 where they're coming in?

10 FEMALE PARTICIPANT: Yes.

11 FEMALE PARTICIPANT: Yes, I'm
12 talking about when they're going home and
13 because I go down 17 and come across the
14 bridge. And then I have to try and get to the
15 right to turn right on Fairlawn.

16 And the way they made that merge
17 lane now, the merge people think that they can
18 just shoot right down the street without
19 slowing down.

20 MS. CASEY: Sorry. Sorry to
21 interrupt you. I just wanted to rush through.

22 MS. PAUL: ***7:05:34 that's going

1 to end in another 14 months, the merging, and
2 then the short time we put a police car there
3 as of two weeks ago because of your ***7:05:49
4 with a radar gun to --

5 FEMALE PARTICIPANT: Slow it down?

6 MS. PAUL: -- slow it down and get
7 a lot of people in the correct lane.

8 FEMALE PARTICIPANT: Yes, well
9 we're not there now.

10 (Crosstalk)

11 MALE PARTICIPANT: He was not
12 there yesterday, and he was not there today
13 because I come through there when I come home.

14 MS. CASEY: All right. So looking
15 at that, these are more resources that we
16 have. And as you can see, these resources are
17 in line with our purpose and need and the
18 underlying issues that are there right now.

19 So therefore, you see more of the
20 no-build having an impact versus previously.
21 And again, with the build alternatives, we
22 have minor construction impacts and short term

1 impacts, but mostly benefits for the issues
2 that are currently there.

3 FEMALE PARTICIPANT: On your first
4 alternative, speaking of that merge land back
5 at the foot of the Sousa Bridge, if they
6 didn't have to get over to the left to make a
7 left turn, they would just continue on
8 straight ahead, you know, on Pennsylvania
9 Avenue in order to turn right on to go around
10 that little piece of real estate to go out on
11 Pennsylvania Avenue.

12 MS. CASEY: First alternative?

13 FEMALE PARTICIPANT: What are you
14 going to do for that merge lane?

15 MS. CASEY: Can you say that again
16 please? I just didn't get what you were
17 saying before.

18 (Off microphone comment)

19 MS. CASEY: Oh, yes. That is not
20 in our project area.

21 FEMALE PARTICIPANT: But it
22 effects your project area because the people

1 coming off that merge lane try to get to the
2 left so that they can get lined up to turn
3 left on Minnesota Avenue.

4 FEMALE PARTICIPANT: Yes, that's
5 true.

6 FEMALE PARTICIPANT: So if you
7 don't have them turning left there, then
8 they're going to stay in the right and try and
9 make that right hand turn, and it's going to
10 back up.

11 MALE PARTICIPANT: But the bus is
12 going to be at a stop.

13 FEMALE PARTICIPANT: And there are
14 busses, yes.

15 MS. CASEY: Ms. Paul, do you know
16 of any projects that are in the area
17 specifically what she's talking about as far
18 as other DDOT projects that could address her
19 issues?

20 MS. PAUL: Well we hope that in 14
21 months, one of our guests here, who's also
22 been involved in this process for about 28

1 years, we will have the, what's called the
2 Barney Circle project kick off in 14 months.

3 FEMALE PARTICIPANT: Didn't they
4 go to court to stop that the last time?

5 MS. PAUL: The last time. But we
6 all through all that stuff. We on the
7 positive rock and roll right now.

8 (Off microphone comment)

9 MS. PAUL: But I'm just saying 14
10 to 18 months, if we all stay positive, this
11 will be executed.

12 MALE PARTICIPANT: Will they be
13 done at the same time?

14 MS. PAUL: No, no. We would never
15 do that to you. We would never do that to
16 you. We're not crazy. We're aggressive but
17 not crazy.

18 MALE PARTICIPANT: So when is the
19 projected start of this?

20 MS. CASEY: Well, right now we're
21 in the planning. And once we pick an
22 alternative to go forward with, then we will

1 go into full design.

2 And that typically will take a
3 year. And then beyond that is the
4 construction. So you're looking at a year, a
5 year and a half. And it all depends on final
6 funding.

7 MALE PARTICIPANT: So I hope what
8 I'm hearing is all the construction that's
9 going on now on the Sousa Bridge and all the
10 other stuff that's going on right now, all of
11 that stuff will be finished and completed
12 before we start this.

13 MS. CASEY: I cannot say. I'm not
14 too familiar with the schedule of the other
15 construction. I will talk about that.

16 MS. PAUL: We can't have multiple
17 cranes in locations. We can't violate our own
18 laws. We can't create congestion where we
19 just, although sometimes I know some of us
20 would like ***7:09:51. But nevertheless, the
21 answer is we will be as close to finished, but
22 99 percent ***7:09:59, like planting trees,

1 not in the roadway.

2 MALE PARTICIPANT: Ninety nine
3 percent just don't do.

4 MS. PAUL: Well it won't be on the
5 roadway. It will be fixing the grass areas as
6 you come off of the ramp.

7 (Crosstalk)

8 MS. PAUL: -- motorists that does
9 not impact bicyclists. But I can assure you
10 they will not have three construction projects
11 taking place at one time.

12 FEMALE PARTICIPANT: Possibly, get
13 some other people going that way.

14 MS. CASEY: There is always an
15 opportunity for public input with all our
16 projects throughout all the phases.

17 FEMALE PARTICIPANT: Public what?

18 MS. CASEY: Input.

19 FEMALE PARTICIPANT: Oh, input.

20 MS. CASEY: Public involvement
21 throughout all --

22 FEMALE PARTICIPANT: You mean

1 complaints, registered complaints? Is that
2 what you're saying?

3 FEMALE PARTICIPANT: Hearings.

4 MS. CASEY: Involvement.

5 Completely positive as well as, you know, all
6 types I guess. But I'm just saying that my
7 point being that hopefully this is not the
8 last time you see us here for this project
9 specifically.

10 Okay, so we've gone through all
11 the impacts, and that was the NEPA portion of
12 it. Now we're looking at the historical
13 preservation aspects of it.

14 And section 106 of the National
15 Historic Preservation Act requires us to
16 consult with the local historic preservation
17 office when we there are potential for
18 historical structures and archeology in the
19 area.

20 So we did that and we had a did an
21 assessment of effect on our culture resources.

22 And we identified, actually, these three

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1 buildings, one of them which is no longer
2 there, the Little Tavern building which, I
3 guess, was demolished in 2012, right, at the
4 time we were doing our project.

5 But all the same, these were the
6 listed --

7 FEMALE PARTICIPANT: Did you say
8 destruction?

9 MALE PARTICIPANT: It's a
10 construction company here --

11 (Crosstalk)

12 MS. CASEY: But, so --

13 MS. PAUL: The Little Tavern was
14 not supposed to go down.

15 MALE PARTICIPANT: Yes, it wasn't
16 supposed to go down.

17 MS. CASEY: Oh dear.

18 (Crosstalk)

19 MS. CASEY: So I don't think it
20 matters. So those were the three that were
21 found. And actually, that's our direct area
22 of potential effect.

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1 And our indirect area of potential
2 effect is even wider. And those three were
3 outside of that. So we had no adverse effect
4 finding determination, which will work with
5 FHWA and get concurrence from DC SHPO on.

6 But basically they did not see, it
7 comes down to no problem with our project on
8 the historical resources.

9 FEMALE PARTICIPANT: So they will
10 remain there? The buildings?

11 MS. CASEY: We are not touching
12 them. Yes. All right, so since the release
13 or with the release of the EA on October 28,
14 we have them available here at this library.

15 We have it available at DDOT
16 online and at FHWA. The ones that are here
17 are just for viewing. The ANC should have
18 received copies of them.

19 And you could go online and
20 download a copy from our website which is down
21 there. And we have the comment period until
22 November 30th.

1 And hopefully once we get all the
2 comments in, including the ones from today,
3 and we revise the EA, we hope to have a final
4 EA in the winter of this year into next year,
5 and a decision documents.

6 Hopefully if no significant
7 impacts come up, it will be a final thing, and
8 that's what we can then move forward with the
9 project.

10 We've done some public outreach
11 and there's a list of some of them with the
12 last one being this one today.

13 FEMALE PARTICIPANT: ***7:14:35.
14 Oh, okay. Someone mentioned that the
15 Whorten's, the Whorten's Store, they had an
16 underground railroad or something. Something
17 of significance for historic preservation.
18 Did you all find that? Is that where that
19 ended up?

20 MS. PAUL: The owners plan to get
21 it, they have to keep it aside under NCPC
22 rules. They want to make it an upscale

1 department store/restaurant in that corner.

2 FEMALE PARTICIPANT: But they keep
3 the structure?

4 MS. PAUL: Yes. As long as they
5 keep the facade, I think they are in
6 compliance.

7 FEMALE PARTICIPANT: Thank you.

8 MS. CASEY: Yes, some ***7:15:21
9 removing, they will need to consult with DC
10 SHPO's on that.

11 FEMALE PARTICIPANT: Yes.

12 FEMALE PARTICIPANT: AC who?

13 MS. CASEY: The historical
14 preservation office.

15 FEMALE PARTICIPANT: Oh, okay.
16 All right.

17 MS. CASEY: But since we are not
18 touching, we just haven't delved into it.

19 FEMALE PARTICIPANT: ***7:15:40 DC
20 drivers and how they try to get around
21 everything, and you're looking at all kind of,
22 or not all, for alternative two, it looks like

1 you have to go Pennsylvania Avenue and make
2 that little right around the green area.

3 But there is this little grey area
4 by the post office which also connects you up
5 towards Minnesota Avenue. So if you just go
6 through there where the road is all screwed
7 up, full of potholes because of the car wash
8 that's I think illegally there again.

9 MALE PARTICIPANT: Do you see
10 where the big bus stop is on Minnesota?

11 MS. CASEY: Yes.

12 MALE PARTICIPANT: Come right
13 around the corner.

14 MS. CASEY: You think people will
15 go --

16 (Crosstalk)

17 MALE PARTICIPANT: Right there,
18 that's where you're talking about.

19 MS. PAUL: Oh, you mean they will
20 just cut through here?

21 FEMALE PARTICIPANT: They're going
22 to cut through.

1 (Crosstalk)

2 FEMALE PARTICIPANT: Yes. Well,
3 this is a parking area for the Post Office.

4 MALE PARTICIPANT: That the alley
5 right there.

6 FEMALE PARTICIPANT: But they're
7 going to come down here and then they're going
8 to go to the alley and then they're going to -
9 -

10 FEMALE PARTICIPANT: That's right.
11 That's exactly what they're going to do.

12 FEMALE PARTICIPANT: That's
13 exactly what they're going to do because they
14 go up 22nd Street.

15 FEMALE PARTICIPANT: Trying to
16 avoid Minnesota and Pennsylvania. Going to
17 shoot right out ***7:16:46 at 40 miles an
18 hour.

19 MS. CASEY: So I think that was
20 the end of my slide --

21 MALE PARTICIPANT: Well actually,
22 I had one question about the alternative.

1 MS. CASEY: Okay.

2 MALE PARTICIPANT: What type of
3 traffic coming, like, stops and all that
4 stuff, are going to be taken into
5 consideration as well? Like, on L'Enfant
6 Square, if you have traffic coming down there
7 --

8 (Crosstalk)

9 MALE PARTICIPANT: -- I've asked
10 them to put a street bump on that block. But
11 they told me that traffic was coming at 17
12 miles per hour, which is not true, okay.

13 And I was just wondering, what
14 type of traffic are you going to be able to do
15 on that end because you have metro buses
16 coming, traffic coming and they're going to be
17 going 30, 40 miles per hour.

18 And people can't cross already, so
19 that's one thing I think we should address,
20 some type of traffic fixes.

21 MS. CASEY: Okay. Yes, I mean,
22 those are the types of details that I was

1 saying we can re-do in the design phase.

2 MALE PARTICIPANT: Okay.

3 MS. CASEY: I mean, there are a
4 number of things that we could look into as
5 well. So right now, we don't have any --

6 (Off microphone comment)

7 MS. CASEY: Actually, our
8 discussion now is being recorded. But since
9 my presentation is over --

10 FEMALE PARTICIPANT: Sorry about
11 your presentation --

12 (Crosstalk)

13 FEMALE PARTICIPANT: I want you to
14 please introduce the people you had with you.

15 MS. CASEY: Oh, okay. Yes, we
16 have consultants from HNTB, we had Caroline
17 and Kim and John Witney.

18 (Off microphone comment)

19 FEMALE PARTICIPANT: We're the
20 consulting agency.

21 MS. CASEY: Consulting company
22 from that --

1 (Crosstalk)

2 FEMALE PARTICIPANT: And the
3 gentleman who was with you?

4 MS. CASEY: Yes, they're the court
5 reporters. They are recording our testimony
6 today. That's the setting of a public hearing
7 is --

8 FEMALE PARTICIPANT: I know. But
9 are they DDOT staff?

10 MS. CASEY: No.

11 FEMALE PARTICIPANT: Who are the
12 DDOT people? Her I know. Anybody else?

13 MS. CASEY: There's Keith Foxx,
14 there's Dawit, and there's Ms. Paul.

15 FEMALE PARTICIPANT: And who are
16 those two gentlemen?

17 MS. CASEY: And Mr. Chruscie.

18 FEMALE PARTICIPANT: Are you
19 infrastructure?

20 MALE PARTICIPANT: Yes.

21 FEMALE PARTICIPANT: And you are,
22 sir?

1 MALE PARTICIPANT: Keith Foxx.

2 FEMALE PARTICIPANT: Team for?

3 MS. PAUL: Ward 7. They represent
4 -- they're team four for Ward 7 and 8.

5 FEMALE PARTICIPANT: Okay.

6 MS. PAUL: And ***7:19:39 ELC, and
7 she runs our big DPE program. And it's pre-
8 participation, a residence and the
9 construction industry on behalf of DDOT. And
10 I don't think I brought anybody else.

11 MS. CASEY: Okay. So I guess
12 we'll go just a couple of ground rules to say.
13 But that's my contact information on the
14 website, it's there.

15 On the back of the document you
16 got, it's there. It's here now. So if you
17 want to send your comments, email, written
18 cmoments in the post.

19 But just a couple of things for
20 tonight's public meeting. Sorry, I got to
21 wear my broken glasses. Yes, so I'm trying to
22 figure out where I should start.

1 Okay, so I guess some of you
2 already registered to speak, so we'll be
3 calling you on a first come, first served
4 basis.

5 Everybody will be allowed two
6 minutes to provide your comments at the mic.
7 Please speak clearly. State your name and
8 your organization, address, you don't have to
9 say your address but just your name and your
10 organization will be fine.

11 And please speak clearly so that
12 the gentleman here could record it. And we'll
13 just make sure everybody who signed up get a
14 chance to speak.

15 And Caroline will be putting up a

16 --

17 MS. PINEGAR: All right, yes. So
18 when you have 30 seconds left, we'll hold up
19 the yellow. I know it's a, you know, eye
20 test. But --

21 (Crosstalk)

22 MS. PINEGAR: -- we hold up the

1 yellow you'll have 30 seconds left, and then
2 the red one's 15.

3 MS. CASEY: So when you see red.
4 Again, thanks everyone for coming. And I will
5 let Caroline and Ryan do the --

6 MS. PINEGAR: Okay, so first one
7 signed up was Veronica.

8 MS. CASEY: No, it's all right.

9 (Off microphone comments)

10 MS. DAVIS: So I'll make my
11 comments brief. I'm going to say what I like
12 and what I don't like about each of them since
13 you all are open to reconsidering that.

14 So for alternative one, I do like
15 the wider sidewalks on the southern end. But
16 I do agree with Commissioner Hammond. I would
17 like to see more green elements and not just
18 concrete.

19 Specifically what you have over
20 by, like, DDOE where you have some of the
21 permeable pavers, especially since that is an
22 area that is supposed to be reinvisioned as a

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005-01

Response to Comment 001-01

Thank you for your comments. They will be included in the project Administrative Record. The recommended goals are embodied in the project's stated purpose and need and project goals, as explained below. Please refer to *Section 1.0, Purpose and Need* of the EA.

The commenter's Goal #1 falls under the defined project need to improve multimodal connectivity and access (*Section 1.2.3*) and to support improved land use and community needs (*Section 1.2.4*). It is also encompassed with the Great Streets Initiative program goals to improve the quality of life in neighborhoods along the corridors, including public safety, physical appearance and personal opportunity; and to expand mobility choices and improve safety and efficiency of all modes of travel. Refer to *Section 1.3.1, Background*, for discussion of program goals of the Great Streets Initiative.

DDOT has identified Build Alternative 2 – Conventional Intersection as the Preferred Alternative. This design includes Americans with Disabilities Act (ADA)-compliant ramps and sidewalks to be improved or included in the Study Area where they do not exist currently.

The commenter's Goals #2 and are included in the project need to improve multimodal connectivity and access (*Section 1.2.3*); and is also included in the program goal to expand mobility choices and improve safety and efficiency of all modes of travel.

The commenter's Goal #4 is presumed in the project need to support improved land use and community needs (*Section 1.2.4*), and the program goals to improve the quality of life in neighborhoods along the corridors, including public safety, physical appearance and personal opportunity; and to attract private investment through the demonstration of a public commitment to Great Street communities.

With regard to the commenter's Goal #5, while the project purpose is to provide transportation improvements to the project intersection, "alleviating vehicular traffic on local streets" is not specified in the project need or as one of the program goals. The project intends to improve vehicular safety and efficiency and

005-01 (cont.) 1 revitalized commercial area.

2 I do like the smaller road

005-02 3 footprint just at the actual intersection of

4 Minnesota and Pennsylvania. I am very

5 concerned, though, about the homes at L'Enfant

6 Square.

005-03 7 And so I encourage you to reach

8 out to those specific homeowners with having

9 three lanes of traffic on L'Enfant Square that

10 weren't there before.

11 I do like the fact that it

12 straightens out the eastbound lanes at

005-04 13 Pennsylvania Avenue. And I also from the cars

14 coming off of 295, it prevents the need for

15 them having to cross three lanes of traffic to

16 make that left. So that I do like.

17 However, I am a little bit

18 concerned. It looks a little bit like the

005-05 19 Dave Thomas Circle over at Florida and New

20 York Avenue. And we don't want that.

005-06 21 For alternative two, one of the

22 things I am concerned about is the ten lane

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Response to Comment 005-02

Thank you for your comments. They will be included in the project Administrative Record.

Response to Comment 005-03

After consideration of the purpose of and need for the proposed action, analysis in the EA, and public and agency comments, DDOT has identified Build Alternative 2 – Conventional Intersection as the Preferred Alternative for the EA, along with Option 2, in which traffic would flow one-way to the north and east on the L'Enfant Square, SE roadway. With Option 2, cut-through traffic would be minimized along the L'Enfant Square, SE residences and the vehicle/pedestrian conflict would be reduced. Option 2 also maintains L'Enfant Square, SE as a one-lane roadway with on-street parking on both sides of the street.

As part of the public outreach for the EA, announcement of public meetings was conducted via door-to-door distribution of flyers, e-mail announcement “blasts,” via public notice in the *Washington Times* (for the Public Hearing), and on the DDOT website. Upon invitation, DDOT has met with ANC Commissioners and has presented the alternatives, the October 2013 EA, and overall project updates at ANC meetings as well as neighborhood association meetings. DDOT also held a formal Public Hearing in November 2013 after the publication of the EA and also presented the project at the DDOT Ward 7 Update Meeting on March 6, 2014.

Response to Comment 005-04

Thank you for your comments. They will be included in the project Administrative Record.

Response to Comment 005-05

Thank you for your comments. The Pennsylvania and Minnesota Avenues, SE intersection has less complicated traffic movements than Dave Thomas Circle at Florida and New York avenues. After consideration of the purpose of and need for the proposed action, analysis in the EA, and public and agency comments, DDOT has identified Build Alternative 2 – Conventional Intersection as the

Preferred Alternative for the EA, along with Option 2, in which traffic would flow one-way to the north and east on the L'Enfant Square, SE roadway and reduce cut-through traffic. Build Alternative 2 maintains the intersection as a conventional intersection in which the turns permitted today will continue to be permitted, without any similarities to traffic circles.

Response to Comment 005-06

For Build Alternative 2, the pedestrian crossing across Pennsylvania Avenue, SE at the east side of the Pennsylvania/Minnesota intersection was designed similar to the pedestrian crossing at this intersection today, with pedestrians crossing seven lanes of roadway. DDOT has identified Build Alternative 2 – Conventional Intersection as the Preferred Alternative for the EA. Based on the number of public comments received, the project team reevaluated this pedestrian crossing and determined that an extended median between the east- and west-bound lanes of Pennsylvania Avenue, SE that will allow a “break” for pedestrians crossing the street within the crosswalk is feasible and is included in the Final EA. This will effectively reduce the uninterrupted crossing length and provide a more pedestrian-friendly crosswalk. Additionally, the crosswalk at the western intersection of Pennsylvania Avenue, SE with L'Enfant Square, SE is improved to provide a shorter, continuous crossing length across the westbound lanes of traffic. Currently the crosswalk crosses the westbound lanes at an angle. Crosswalk markings will also be improved and the traffic signal timing will be adjusted to accommodate the crossing time required for pedestrians.

1 footprint right there at the intersection and
2 pedestrians being able to get across.

005-06
(cont.)

3 It seems just a little bit less
4 pedestrian friendly, especially for the people
5 coming on the south side of Pennsylvania
6 Avenue. There's a lot of people trying to get
7 to the day care from the bus stop. There's
8 just a lot of pedestrian traffic in the
9 morning.

005-07

10 And also too, there's a lot of
11 people at the bus stop, so the sidewalks
12 aren't as wide. I do like the two way on
13 Minnesota Avenue.

005-08

14 But I am very concerned about the
15 bus turning movements. I think two, I don't
16 remember which one it is, no I think it's one
17 that has the worst bus turning movements. And
18 so that is a concern.

19 And this is a major bus hub. So
20 just if you can really be thinking about how
21 the busses operate at that intersection.

22 MS. CAREY: Next is Patricia.

Response to Comment 005-07

Thank you for your comments. They will be included in the project Administrative Record. Currently the sidewalk widths in Build Alternative 2 (Preferred Alternative) are comparable to existing conditions. However, the bus stops in this area are heavily used at this intersection and pedestrian traffic is significant. Sidewalk widths may be reevaluated during the design phase to accommodate the number of people using the bus stops.

Response to Comment 005-08

DDOT is committed to coordinating with WMATA throughout all of the stages of planning and project development. When the EA for improvements to the Pennsylvania and Minnesota avenues, SE intersection was initiated in 2012, WMATA was included in and attended the agency scoping meeting and provided input and comments on the project early on and has been updated on the alternative development throughout the project. DDOT is coordinating with WMATA to ensure that the intersection will accommodate bus operations to and through this intersection. Bus stop locations, design and ADA requirements are being developed in accordance with WMATA's guidelines for the *Design and Placement of Transit Stops (2009)*. Bus stop locations, turning radii and operations were considered for both of the Build Alternatives. Based on comments received from WMATA and the public during the EA comment period, more information was included in *Section 4.4.3, Transit* and further analysis was conducted using AutoTURN™ simulation to ensure that all of the turning radii could be performed by the WMATA buses that use this intersection.

DDOT is committed to coordinating improvements to this intersection with WMATA and ensuring that the transit needs are accommodated.

1 MS. HOWARD-CHITTAMS: My name is
2 Patricia Howard-Chittams. I'm ANC 7B01, part
3 of ANC 7B. I wanted to point out that in the
4 people in the community want the no-build.

5 That is their preference, however
6 if they must choose a preference, the
7 preference they choose is item two. It is not
8 the best of both worlds.

9 I believe that there should be a
10 merging of some of the best elements of both.
11 However, neither of the designs that are being
12 offered are conducive or acceptable to the
13 community at large.

14 It will negatively impact the
15 community as far as construction, as far as
16 traffic. And I also notice on the paperwork,
17 in the no-build zone you state in 2040 it's
18 going to be an increase of traffic.

19 Well, there's going to be an
20 increase of traffic no matter which one you
21 choose.

22 We also need to be cognizant of

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Response to Comment 006-01

Thank you for your comments. They will be included in the project Administrative Record.

Response to Comment 006-02

DDOT is responsible for the creation, implementation, and enforcement of maintenance of traffic (MOT) plans and in some cases, transportation management plans (TMPs), which are prepared in accordance with the "District of Columbia Work Zone Safety and Mobility Policy" (October 2007). DDOT has considered in the EA, and will continue to consider during the design phase, potential impacts from work zone generated traffic and seek ways to minimize impacts. DDOT has not identified an MOT plan or TMP as mitigation in the EA because they are already requirements for DDOT Design and Construction projects. Project impacts identified for construction assumes that DDOT would follow its processes outlined in the design standards and the District of Columbia Work Zone Safety and Mobility Policy. TMPs have a public outreach component that helps keep the public informed of project construction related delays and changes in traffic patterns.

There is an anticipated deterioration in level of service (LOS) at several of the intersections in the Study Area under all of the 2040 alternatives, including the No Build Alternative due to the anticipated volume of vehicles using the intersection due to projected population growth in the District and the resultant increase in traffic demand. In general, LOS, travel times and queue lengths would increase due to projected increases in traffic volumes.

Refer to *Section 4.4.2, Roadway Network and Traffic* of the EA for detailed methodology, results, and discussion of the impacts to traffic as a result of the no build and build alternatives analyzed in the EA.

006-03

1 the fact that it seems as though that these
2 were designed as if there were no real cars
3 and no real people who actually have to cross
4 the street and drive up and down the street
5 every day.

6 And it would really make sense if
7 those of you who are actually doing the
8 designing spend a couple of weeks, not an
9 afternoon, but a couple of weeks actually
10 watching the ebb and flow of traffic on
11 Pennsylvania and Minnesota Avenue.

12 MS. CAREY: Robin?

13 MS. MARLIN: Oh, okay. Okay.

14 Good afternoon. First, let me thank Ms. Casey
15 for coming out to our ANC meeting to share
16 this concept with us, as well as coming back
17 to our community tonight.

18 I'm Robin Hammond-Marlin,
19 Commissioner for SND 7B05. I'm also the Vice
20 Chair of ANC7B. In 2006, DDOT embarked on the
21 Great Streets Initiative.

22 As a member of the Pennsylvania

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Response to Comment 006-03

Per Federal Highway Administration (FHWA) guidance, traffic simulation was used to model, analyze and compare the traffic operations of the alternatives. Synchro software (version 8.0) was used to model and analyze the traffic signal operations including delays, LOS and queues. VISSIM software (version 5.3) was used to provide the travel time results. Available traffic counts within the last three years were collected from DDOT and the existing year (2012) volumes were developed using an annual growth rate of 0.5 percent. In order to confirm and verify the traffic data being used, the traffic flow, transit activity, and pedestrian volume were observed during both the AM and PM peak hours. Multiple field visits were conducted to monitor the existing peak hour traffic operations and to verify field conditions. Average and maximum queue lengths, peak condition durations, posted speed limits, bottleneck locations and typical driving behaviors were recorded and were used for simulation base model development and calibration.

Additionally, at any intersections with missing data, data were collected for one-hour period during the AM and PM peak hours. To account for the traffic pattern change caused by the newly constructed I-295 NB ramps at the adjacent 11th Street Bridge, traffic counts were collected again in 2013. Using this data, a balanced set of peak hour traffic volumes were developed for the analysis of Existing Conditions. A detailed discussion of the methodology and findings of the transportation analysis are presented in *Section 4.4, Transportation* of the EA. For more detailed methodology, data collection methods, traffic volume development, and traffic simulation model calibration techniques, refer to *Appendix F, Traffic Analysis Report*.

1 Avenue Task Force then, I have in depth
2 knowledge of what the community expected from
3 these projects, what the project gave us, and
4 what we ended up with in reality.

007-01 5 It lacks rationale and foresight
6 to now, I think, recreate an intersection when
7 you have not completed the work promised with
8 the 11th Street Bridge.

9 I think you've heard that here,
10 which was a massive, expensive project, was
11 promised to move traffic from my congested
12 neighborhood, so streets such as Pennsylvania
13 Avenue, Branch Avenue, Minnesota Avenue, and
14 this was in 2006 and that was part of the
15 Great Streets Framework.

007-02 16 And as I look around the room, I
17 was sharing with the young man next to me from
18 the Park Service, I think I only see one
19 person that started back in 2003 when I first
20 started with this whole Great Streets concept
21 with the Pennsylvania Avenue Task Force.

22 And I'm speaking from the DDOT

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Response to Comment 007-01

Thank you for your comments. They will be included in the project Administrative Record.

Response to Comment 007-02

Thank you for your comments. Public outreach for the Great Streets Initiative commenced in 2006. Ideally, there would be one project manager and staff who would track the same project from inception through implementation, construction, maintenance, etc. Because this is not always feasible due to changes in staff, project funding, the political environment, and a variety of other reasons, DDOT strives to maintain a tracking system that provides methods for ensuring that documentation from each of the project phases is carried forward from project inception to implementation. The DDOT project manager for the EA has been involved with EA coordination and documentation from the beginning of the EA documentation process.

007-02
(cont.)

1 team. No offense to those of you all that are
2 here and your having to deal with the
3 community here without concerns with the Great
4 Streets project.

5 But it does concern me that the
6 project started with one group, with a team,
7 and we don't see any of those people with us
8 now.

9 I'm well aware the federal monies
10 and the goal of the TIP. And the Great
11 Streets is part of that, funding came from
12 that. The federal incentives directive given
13 to DDOT to create functional designs to
14 improve traffic, transportation in the
15 metropolitan area.

16 However, those incentives have
17 become an exercise in busywork, I think. I
18 think the engineers need to be more creative
19 in creating traffic flow in this city and in
20 our neighborhoods.

21 To try to ***7:28:13 the traffic
22 congestion that still plagues our

1 neighborhoods and our city. And I feel like
2 if they can do it in Orlando, Florida, they
3 can do it here.

4 Now to start another project that
5 would dismantle our streets, start a project
6 that also has no promise to really guarantee
7 eliminating congestion in our neighborhoods is
8 hard to digest.

9 There should have been and still
10 needs to be a sincere conversation with your
11 PG, Prince George's County transportation
12 partners when designing these projects in the
13 effort to design, curtail and redirect traffic
14 from our streets.

15 There needs to be an outreach by
16 DDOT to have a sincere partnership with PG
17 County, a partnership where PG officials
18 recognize and respect our city's traffic
19 concerns with commuter traffic when those that
20 don't even pay taxes to live here, but yet
21 they use our roadways.

22 There needs to be a gut effort to

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007-03

007-04

Response to Comment 007-03

The alternatives include measures to improve traffic circulation (e.g., new roadway alignments, consolidated traffic movements, increased left-turn queuing capacity, expanded lanes), however, the purpose of the improvements is not to eliminate traffic congestion. As the traffic analysis indicates, traffic conditions are expected to deteriorate at some of the intersections in the Study Area due to the anticipated increase in vehicle volumes by 2040 due to the projected population increase in the metropolitan area. The improvements are necessary, however, in order to improve safety for pedestrians and motorists at the intersection; to improve multimodal connectivity and access; to create a consolidated, usable open space; and to support improved land use in the Study Area.

Response to Comment 007-04

DDOT coordinates with all neighboring jurisdictions during project planning, however the project is not within Prince George's County jurisdiction and will not impact their roadways. Build Alternative 2 (Preferred Alternative) has components that are intended to discourage commuter cut-through traffic, including the one-way traffic flow north and east on the L'Enfant Square SE roadway. With this change to the vehicle direction, cut-through traffic would be minimized along the L'Enfant Square, SE residences and the vehicle/pedestrian conflict would be reduced. Additionally traffic signals will be improved for vehicles and pedestrians using the intersection. However, preventing commuters from using this intersection is outside of the scope of this project.

1 have this serious and honest conversation if
2 there is to be any attempt to curtail or
3 mitigate and manage the traffic that now
4 disrespects our neighborhood streets.

5 The Hillcrest neighborhood, the
6 Fort Davis neighborhood, Twining, Fort Dupont,
7 Penn Branch, and along the corridors of
8 Minnesota Avenue.

9 Lastly, as an example to leave
10 with you, each morning, Monday through Friday,
11 at peak rush hour from 6:30 a.m. to 9:00 at
12 the corner of Branch and S Street southeast,
13 not too far from here, these Maryland
14 commuters with Maryland tags use their
15 vehicles as a safety risk object to form two
16 lanes on a two way street because they're too
17 impatient to wait for the traffic light at
18 Branch and Pennsylvania Avenue.

19 If you stand at that corner, you
20 can just see rows of cars coming into our
21 city, but yet they disrespect our city. And
22 for you all to embark on another project

007-04
(cont.)

1 before DDOT takes a serious look of
2 alternatives of bringing traffic into our
3 neighborhood, I cannot sanction a project like
4 this.

5 And nor would I ask my
6 constituents to buy into it. I think DDOT
7 needs to embark on a really serious,
8 insightful sort of concept and really look at
9 how they're planning traffic flow in our
10 community.

11 And someone mentioned the Florida
12 Avenue, New York Avenue, that roundabout?
13 It's a mess. And DDOT used to have their
14 offices right there. They could peer out the
15 window and see that mess.

16 But they packed up and moved. So
17 they left us down there to deal with that
18 mess. It doesn't work, and that's my point in
19 terms of the engineers.

20 When they're designing these
21 things, they can't design something for the
22 city and then go back to Virginia. I counted

007-04
(cont.)

1 ten cars out here with Maryland, Virginia
2 tags.

3 You have to really live it, feel
4 it to be able to know what we go through
5 everyday as far as traffic is concerned.

6 Now as a commissioner, I will
7 support the residents and the commissioners
8 that are mostly impacted by this design if
9 they want it. But as a citizen, I would not.
10 Okay, thank you.

11 MS. CAREY: Gary?

12 MR. BUTLER: Hello. Hi everyone.
13 My name's Gary Butler. I'm the 7B03
14 Commissioner. So I'm probably the most
15 involved in the direct impact zone.

16 Just a tailback on what Robin
17 said, I'll start off there. If you can, how
18 many people live in 7B03, are directly
19 impacted by this construction?

20 I know myself, and I believe the
21 young lady sitting up here.

22 FEMALE PARTICIPANT: 8801.

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Response to Comment 007-05

Thank you for your comments. After consideration of the purpose of and needs for the proposed action, analysis in the EA, and public and agency comments, DDOT has identified Alternative 2 – Conventional Intersection as the Preferred Alternative.

007-05

1 MR. BUTLER: 8801? Right,
2 redistricting. Okay, there's three of us.

3 And I would like to start by saying that I
4 don't believe DDOT has done enough to get the
5 people directly affected by the project to get
6 to these meetings.

7 There needs to be more door-to-
8 door. We live in the time now where emails
9 and pamphlets get thrown in the trash so fast.
10 We need more direct involvement. That's one
11 thing.

12 I was just sitting here going
13 through a list. I didn't prepare anything.
14 I wish I would have because I thought we were
15 going to meet with your director of the
16 Department of Transportation before we got
17 here.

18 But I'll go ahead and go through
19 some of those. After talking to about eight
20 to ten of my neighbors, their prospective on
21 this situation would be they would recommend
22 the no-build.

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Response to Comment 008-01

Thank you for your comments. They will be included in the project Administrative Record. While DDOT is not able to meet with all the homeowners individually, as part of the public outreach for the EA, announcement of public meetings was conducted via door-to-door distribution of flyers, e-mail announcement "blasts," via public notice in the *Washington Times* (for the Public Hearing), and on the DDOT website. Upon invitation, DDOT has met with ANC Commissioners and has presented the alternatives, the EA, and overall project updates at ANC meetings as well as neighborhood association meetings. DDOT also held a formal Public Hearing in on November 13, 2013 at the Francis Gregory Library to receive testimony from the public regarding the project. After the publication of the October 2013 EA, DDOT also presented the project at the Ward 7 Update Meeting on March 6, 2014. In addition to holding public meetings for this project, DDOT has made efforts to meet with smaller groups upon request in public forums as opposed to walking door-to-door for purposes of safety.

Response to Comment 008-02

Thank you for your comments. The No Build Alternative does not meet the purpose of and need for the Proposed Action. Please refer to *Section 1.0, Purpose and Need* of the EA for discussion of the purpose and need for the project.

After consideration of the purpose of and need for the proposed action, analysis in the EA, and public and agency comments, DDOT has identified Build Alternative 2 – Conventional Intersection as the Preferred Alternative for the EA, along with Option 2, which is designed to reduce the traffic volume adjacent to the residences along L'Enfant Square, SE, as cut-through traffic would be minimized along L'Enfant Square, SE. Option 2 eliminates right turns from southbound L'Enfant Square, SE onto Pennsylvania Avenue, SE westbound, significantly reducing vehicle-pedestrian conflicts.

008-02
(cont.)

1 That's the first. If they had to
2 pick one, they would pick alternative two.

3 There's different reasons, and I wish they
4 were here to give their comments.

008-03

5 One thing that they said was they
6 see an area such as Lincoln Park over on 12th
7 Street, Capitol Hill, the same area the same
8 square. They would love to see a monument or
9 some type of statue or something put in that
10 public space.

11 And they really don't support the
12 transfer of the property going from the
13 National Park Service to the District because
14 of the impact that the District hasn't had on
15 the neighborhood already.

008-04

16 They haven't done enough as far as
17 writing fines, you know, dealing with the
18 community already with the actual businesses
19 there. They haven't been doing enough.

20 So they think the park will
21 actually deteriorate. The National Park
22 Service has done a great job. They're over

Response to Comment 008-03

The design of the intersection and aesthetic elements are not discussed in detail or determined during the EA phase of the project. However, as design continues, DDOT will consider public and agency comments, and will coordinate with the National Park Service and the National Capital Planning Commission (NCPC) regarding the natural features, appearance, aesthetic treatment and maintenance of the park area. Monuments and public art undoubtedly enrich the economic, social and cultural surroundings of urban areas. While the intersection of Pennsylvania and Minnesota Avenues, SE is not identified in NCPC's *Memorials and Museums Master Plan*, the document is intended to be a "flexible, 'living' document that can and should be revised as development opportunities and commemorative needs change" (p. 1).

Authorizing commemorative works is the responsibility of Congress and design and funding are usually carried out by private sponsoring organizations. DDOT encourages the community to work with the City, NPS and NCPC prior to or during final design to garner support for a major monument if that is desired.

Response to Comment 008-04

The Proposed Action includes a transfer of land jurisdiction from NPS to DDOT, as may be agreed upon by covenant with stipulations between the agencies. The land exchange is necessary to facilitate the design improvements needed at the intersection. No private right-of-way would be impacted or acquired as a result of the Proposed Action.

In the existing intersection configuration, the four NPS reservation parcels effectively function as traffic islands for pedestrians while crossing the street; the pieces of parkland are too small to function as true open space or green space as currently configured. In order to meet the purpose and need to create a consolidated, usable open space and to implement the roadway improvements, NPS, pending authorization from NCPC, has agreed that the park area should be under DDOT jurisdiction. Build Alternative 2 (Preferred Alternative) will consolidate the park areas to create larger spaces that will be usable to

008-04
(cont.)

1 there two, three times a week taking care of
 2 it.
 3 We think that the support that we
 4 have now will greatly diminish if the District
 5 took it. So that's one.

008-05

6 We believe that Washington
 7 Metropolitan Area Transit Authority should
 8 have had more involvement because the effects
 9 of the bus locations will directly impact a
 10 lot of this because they have removed, I
 11 believe, two bus stops.
 12 If that drawing was up, I would
 13 show you where they were. But one right
 14 before you make the turn around, so they were
 15 probably relocation of where the bus stop
 16 should be.

008-06

17 I'll just go down my list real
 18 quick. Like I said, shared comments. Oh, one
 19 of the biggest things my neighbors did ask me,
 20 and I will say this, they wanted DDOT to share
 21 the comments of who gave their input because
 22 they say they get to the project and then they

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pedestrians and visitors. DDOT will coordinate with the NPS and NCPC regarding the natural features, appearance and aesthetic treatment of the park area as planning progresses to ensure that the park is maintained in accordance with NPS and District standards.

Response to Comment 008-05

DDOT is committed to coordinating with WMATA throughout all of the stages of planning and project development. When the EA for improvements to the Pennsylvania and Minnesota Avenues, SE intersection was initiated in 2012, WMATA was included in and attended the agency scoping meeting and provided input and comments on the project early on and has been updated on the alternative development throughout the project. DDOT is coordinating with WMATA to ensure that the intersection will accommodate bus operations to and through this intersection. Bus stop locations, design and ADA requirements are being developed in accordance with WMATA's guidelines for the *Design and Placement of Transit Stops (2009)*. Bus stop locations, turning radii and operations were considered for both of the Build Alternatives. Based on comments received from WMATA and the public during the October 2013 EA comment period, more information was included in *Section 4.4.3, Transit* and further analysis was conducted using AutoTURN™ simulation to ensure that all of the turning radii could be performed by the WMATA buses that use this intersection.

DDOT is committed to coordinating improvements to this intersection with WMATA and ensuring that the transit needs are accommodated.

Response to Comment 008-06

All written comments received during the scoping period for the project and during the October 2013 EA comment period are included in *Appendix C, Agency Coordination and Public Involvement* of the Final EA. Formal comments submitted during the October 2013 EA comment period via letter, email, telephone or during public hearing testimony (11/13/13) regarding the EA receive formal written responses in the Final EA. Comments received during the public

scoping period for the EA are also included as part of Appendix C of the EA, and were included in the EA that was published in October of 2013. Although formal responses to these comments are not published in the Final EA, the comments are reviewed carefully and taken into consideration during EA development.

1 talk to each other among each other.

2 Nobody ever hears where did the
3 results come from. Where did our comments go,
4 and how are they going to be shared back with
5 us? That's probably one of the main questions
6 that they were asking.

7 And the last one, they were real
8 adamant about busses should stay on the main
9 thoroughfare. They shouldn't be cutting
10 through public streets in the city. So that
11 was my comments.

12 MS. CAREY: Is there anyone else?

13 (Off microphone comments)

14 MR. CAPOZZI: Is there any way we
15 could put the picture back up? I'm really
16 good with the visual thing, but it's hard to
17 just talk about it.

18 Anyway, I'm John Capozzi and I
19 live over on Austin Street. And as was
20 mentioned, I've been involved with the Barney
21 Circle and this whole area for, well I hate to
22 say how long, but long enough to know the area

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Response to Comment 008-07

Under either of the Build Alternatives, the only bus stops that are relocated are those that are currently located on the cut through road north of Pennsylvania Avenue, SE. The bus stops would be relocated to either Minnesota Avenue, SE or Pennsylvania Avenue, SE at the project intersection (the main thoroughfare). The intersection improvements would not alter the bus routes, other than to require movement around the traffic square under Build Alternative 1. With the implementation of Build Alternative 2 (Preferred Alternative), however, the buses would not cut through any public or neighborhood streets that are not already part of existing bus routes.

008-06
(cont.)

008-07

1 really well.

2 Plus, I ride my bike there every
3 day. You know, I commute from here to Union
4 Station. So I know the intersection extremely
5 well.

6 And a couple things I'm most
7 concerned about. And I wasn't sure I would be
8 the most negative person here, but apparently
9 I'm not, so that made me feel better.

10 But I really didn't like any of
11 the alternatives because I didn't think it
12 fixed a lot of the problems. And then when I
13 see the EA statement, especially to the Parks
14 Works people, that the park service, the park
15 area's going to be unusable.

16 Well, I mean, what are we fixing
17 if it's not going to be useful? I mean,
18 there's no point in having a park that's
19 unusable.

20 To me that's just sort of like we
21 failed if that was part of the goal of this
22 project. Plus, with all the traffic concerns,

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Response to Comment 009-01

Thank you for your comments. Your comments have been noted and will be included in the project Administrative Record. The project includes the creation of consolidated, *usable* park space. The park space is *unusable* in its *current* form (four small parcels). One of the goals of this project is to make the park space usable. This is accomplished with the implementation of Build Alternative 2 – Conventional Intersection (Preferred Alternative) by consolidating the four existing parcels of park area into two larger parcels, resulting in approximately one (1) acre of consolidated park area to the north of Pennsylvania Avenue, SE and 0.5 acres of park area to the south of Pennsylvania Avenue, SE for passive recreational activity. The consolidated, larger park spaces have the potential to be used by the public for passive recreational activities, a public plaza, or another variation of enhanced community space for residents and intersection users to enjoy. The intent is to enhance the community through the creation of valuable open spaces.

009-02

1 I mean, you know, riding my bike, I didn't see
2 anything at all related to bikes.

009-03

3 And also, I really don't like the
4 fact that the plan ends at Prout Street
5 because the fact is that when you're driving
6 or you're riding your bike through that area,
7 you have to get from Prout Street to where the
8 intersection is, basically in essence all
9 those ramps that go over, they put you onto
10 the freeway or get you over on the Sousa
11 Bridge.

009-04

12 So in essence, it really needs to
13 have some plan between Prout Street and where
14 the overpass is because otherwise I don't
15 understand. It's a complete thing. It's not
16 like you're going to do a separate project
17 just for that small area.

18 And so I think it should be
19 connected. When we talk about the neighbors
20 for example, you know, I am concerned that all
21 of a sudden all of the traffic, instead of
22 cutting through the park where it does now,

Response to Comment 009-02

Bicycle and Pedestrian network discussion is included in *Sections 3.4.1 and 4.4.1, Bicycle and Pedestrian Network*, of the EA. Figures 4-1 and 4-2 in the EA illustrate the pedestrian and bicycle improvements for Build Alternative 1 and Build Alternative 2, respectively. Build Alternative 2 (Preferred Alternative) improves safety for pedestrians and bicyclists by reducing multiple confusing traffic movements at two adjacent intersections along Pennsylvania Avenue, SE into one signalized intersection. A pedestrian/bicyclist-activated crossing signal would be provided to allow safe crossing. Other safety improvements for pedestrians and bicyclists include new bulb-outs to reduce vehicle speeds, shorter crosswalks in some locations, and enhanced traffic signalization.

Response to Comment 009-03

The Study Area for the project extends to Fairlawn Avenue, SE, just west of the intersection with Prout Street, SE. However no improvements are recommended as part of the Build Alternatives analyzed in this EA beyond the intersections of Pennsylvania Avenue, SE at Minnesota Avenue, SE and Pennsylvania Avenue, SE at L'Enfant Square, SE. After consideration of the purpose of and needs for the proposed action, analysis in the EA, and public and agency comments, DDOT has identified Build Alternative 2 – Conventional Intersection as the Preferred Alternative. As part of the overall connectivity along the Pennsylvania Avenue, SE corridor, wider sidewalks are being proposed for bicycle shared-use between the Sousa Bridge and the bike path east of 27th Street, SE. DDOT will preserve as much green space along this area as possible. DDOT is also consolidating the fragmented green spaces at the intersection to allow for a more usable park space and encourage community activities. The scope of this EA, however, was limited to the improvements identified and does not include Prout Street, SE or the overpass area.

Response to Comment 009-04

Build Alternative 1 expands L'Enfant Square, SE from one to three lanes, and Build Alternative 2 does not change the number of lanes. Both alternatives leave the

1 goes in front of everyone's house because, I
2 mean, that's like, I don't want to think how
3 many cars that is a day, but it's thousands.

4 And I knew if I lived in that
5 home, you know, it's going to affect my value,
6 it's going to affect my quality of life. Part
7 of the reason that it's there the way it is
8 now is to avoid going in front of everyone's
9 house.

10 So I'm not sure why that was one
11 of the, that's in both of the alternatives,
12 which I didn't particularly care for. And

13 then I do want to plan for either sidewalks or
14 a bike lane because I think that if people are
15 going to ride through there, you have to have
16 a plan for it.

17 Now we doubled the sidewalk on
18 Pennsylvania Avenue going up the hill. But
19 when you get to the end of the hill, there's
20 nothing. And so it's extremely dangerous.

21 I do it every day. There are no
22 curb cuts along the way. But again, like

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009-04
(cont.)

009-05

street parking in place on the residential side of the street, along with the sidewalk and grass buffer strip, which would continue to provide a buffer between the traffic and the residences. Build Alternative 2 maintains on-street parking on both sides of the street. After consideration of the purpose of and need for the proposed action, analysis in the EA, and public and agency comments, DDOT identified Build Alternative 2 – Conventional Intersection as the Preferred Alternative for the EA, along with *Option 2*, which is designed to reduce the traffic volume adjacent to the residences along L'Enfant Square, SE, as cut-through traffic would be minimized due to the one-way movement of vehicles in the north and east direction. Option 2 eliminates right turns from southbound L'Enfant Square, SE onto Pennsylvania Avenue, SE westbound, significantly reducing vehicle-pedestrian conflicts.

Response to Comment 009-05

Please refer to response for Comment 009-03.

1 you're saying, you're not concerned with that
2 because that's past Prout Street.

009-05
(cont.)

3 But the fact is you have to have a
4 unified plan between where this project starts
5 on Pennsylvania, taking you over to where the
6 Sousa Bridge actually gives you a dedicated
7 bike lane on the side of the bridge.

8 And then finally, I am excited
9 that the community is this engaged because
10 that's the only way. I know DDOT is so much
11 better now in terms of listening to the
12 community.

009-06

13 So I think that if we are
14 concerned, we do need to make sure more people
15 add their comments because hopefully they will
16 listen.

17 And I also, left turns are
18 eliminated where the shopping center is now.
19 I'm not particularly sure if that's good or
20 bad.

009-07

21 But one of the reasons that the
22 market failed over there on Prout Street is

Response to Comment 009-06

Thank you for your comments. They will be included in the project Administrative Record.

Response to Comment 009-07

Thank you for your comments. They will be included in the project Administrative Record. As with existing conditions, inbound traffic cannot make a left turn from Pennsylvania Avenue, SE to Prout Street, SE in either of the Build Alternatives. To access businesses in the shopping center and on Prout Street, SE when heading north/inbound on Pennsylvania Avenue, SE, vehicles should travel south on Minnesota Avenue, SE and turn right (west) on Nicholson Street, SE to access Prout Street, SE as they do today. No islands will be removed to the west of the intersection as part of Build Alternative 2 (Preferred Alternative) and access to the businesses on Prout Street, SE will remain the same.

1 that nobody could take a left turn from
2 Pennsylvania Avenue going over toward Capitol
3 Hill to get to it.

4 So the only way you can get to
5 that business is to actually come the other
6 way on the bridge. There's actually no way
7 except to go all the way over the bridge and
8 come back to get to that side of Pennsylvania
9 Avenue.

009-07
(cont.)

10 And so if we want any of these
11 businesses to succeed, and if you look at the
12 businesses that are there, they're all failing
13 or they're not doing that well. The fact is
14 that's part of the reason is the traffic
15 pattern doesn't allow people to get from point
16 A to point B to get to either side.

17 So with this plan, I was hoping
18 that they were going to correct that. And in
19 essence, they've actually made it a little bit
20 worse because they've eliminated a couple of
21 islands that allowed people to take a turn
22 into the shopping center. Thank you.

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MS. CAREY: Any more comments?

MR. RICHARDS: My name is Robert Richards. I'm 7B07, and I'm also the Chairman

of ANC7B. The part of this plan that I find disturbing is the fact that, you know, it was presented to the ANC back in June.

And there's been no improvement to it since that time. It doesn't seem to address and solve the problems of that intersection.

It's clear to me that the people who designed this road pattern don't travel through that intersection, don't live in this community, don't shop in those stores, don't understand what it's like to need some chicken wings and you want to run down to the old Yes Market in Fairlawn and buy some so that you could come home and cook your dinner.

You know, you've got to have people designing the roads who actually use the roads.

(Off microphone comment)

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010-01

010-02

Response to Comment 010-01

Thank you for your comments. They will be included in the project Administrative Record. Comments received and information gathered at the public meetings held prior to the publication of the October 2013 EA was used in developing the existing conditions assessment (*Section 3.0, Affected Environment*) and to determine any impacts to resources as a result of the Proposed Action (*Section 4.0, Environmental Consequences*). The Build Alternatives were revised as needed throughout the planning process to accommodate the project needs.

The purpose of the Proposed Action is to provide transportation improvements to the Pennsylvania and Minnesota Avenues, SE intersection in keeping with the District of Columbia's Great Streets Initiative as set forth in the 2007 *Great Streets Framework Plan* and the 2007 *Revitalization of Pennsylvania Avenue, SE for the Great Streets Initiative Concepts Design Final Report (Great Streets Design Final Report)*. The primary need for the Proposed Action is to improve safety for pedestrians and motorists using this intersection. Build Alternative 2 (Preferred Alternative) would meet the purpose and need for the Proposed Action in promoting the principles set forth in the District's Great Streets Initiative. Build Alternative 2 would improve pedestrian and vehicular safety, create a usable park space, improve multimodal connectivity and access, and support improved land use and community needs. Please refer to *Section 2.2.2, Build Alternative 2 – Conventional Intersection Alternative* for a discussion of the benefits of Build Alternative 2.

Response to Comment 010-02

The need to improve the Pennsylvania and Minnesota Avenues, SE intersection has been reiterated through multiple studies, beginning with DDOT's 2003 *Pennsylvania Avenue, SE Transportation Study*. Please refer to *Section 1.3, Project Overview* for an overview of the project and for information regarding the history of this project and the amount of study and effort that has been put forth in the development of solutions to issues associated with this complex intersection. The findings and information gathered throughout these studies drove the development of the project alternatives.

1 MR. RICHARDS: Well okay, since
2 this is for a written record, you have to have
3 people designing the roads who actually use
4 the roads.

5 Now you know you don't want to get
6 me started on that because then I'll get over
7 on 295 and Pennsylvania Avenue, and that's
8 designed by the same people.

9 So you know, we're from the
10 government, we're here to help. You know?
11 DDOT does not understand the reality of
12 America in the 21st Century.

13 We live in a community where we
14 need to shop, we need to move around, we need
15 busses, and we've got to have roads that
16 facilitate that.

17 You know, we don't always like it,
18 but these Maryland folks do use our roads to
19 commute. And there's not really much we can
20 do about that.

21 But the fact of the matter is the
22 roads shouldn't be designed so that they can

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Build Alternative 2 (Preferred Alternative) would meet the purpose and need for the Proposed Action in promoting the principles set forth in the District's Great Streets Initiative: *Energize* – Strengthen businesses and other local services; *Refresh* – Integrate nature and create valuable open spaces; *Move* – Choices in how to travel; *Distinguish* – Safe, vibrant places that reflect local character; and *Care* – Increase community ownership and participation. Build Alternative 2 would improve pedestrian and vehicular safety, create a usable park space, improve multimodal connectivity and access, and support improved land use and community needs. Please refer to *Section 2.2.2, Build Alternative 2 – Conventional Intersection Alternative* of the EA for a discussion of the benefits of Build Alternative 2.

Please refer to *Section 1.2* of the EA for a discussion of the needs that were identified for this project, following multiple detailed studies by DDOT and other District agencies which have included significant public outreach.

010-02
(cont.)

1 come through and commute, and we can't get
2 across the street to get a loaf of bread.

3 And DDOT has got to come to that

4 realization. I'm waiting for it, and it looks
5 like I shouldn't hold my breath.

6 MS. CAREY: Any more comments?

7 MS. HOWARD-CHITTAMS: I have a
8 question.

9 MS. CASEY: Sure.

10 MS. HOWARD-CHITTAMS: I have a
11 question. Do you foresee these designs that
12 you're presenting to help in any way with the
13 11th Street fiasco design, because a lot of
14 money went into that project, and you can't
15 hardly access it because, you know, the
16 residents.

17 It's designed for commuters, but
18 it's really a part of our neighborhood. So
19 can you pinpoint how this is going to help?
20 Do you know what I'm saying?

21 MS. PAUL: Geographically,
22 Pennsylvania and Minnesota is not even going

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END OF FORMAL
PUBLIC
HEARING
TESTIMONY

011-01

END OF FORMAL PUBLIC HEARING TESTIMONY

Response to Comment 011-01

Thank you for your comments. They will be included in the project Administrative Record.

The Pennsylvania Avenue- Minnesota Avenue, SE Intersection Improvement EA does not include any modifications to the intersection that would impact the 11th Street Bridges or improve traffic congestion. Improving the 11th Street Bridges was not part of the purpose and need for this project, which is discussed in *Section 1.0, Purpose and Need* of the EA. The improvements to the project intersection, however, are intended to benefit the community and quality of life for residents and users of the intersection by improving safety, creating park space and supporting improved land use and community needs through improving the aesthetics and marketability of the area to businesses.

1 to touch on that. Geographically, you know
2 that.

3 MS. HOWARD-CHITTAMS: Well no. I
4 didn't know that. What about geographically?

5 MS. PAUL: I'm just throwing it
6 out.

7 MS. HOWARD-CHITTAMS: Okay.

8 MS. PAUL: But what we need,
9 because like for example, you said that you
10 are, we looked at the comments and we keep
11 pulling the comments and we want more
12 comments.

13 We're not even at the point where
14 we could draw in a final line or a design. I
15 live in this neighborhood. I drive in this
16 neighborhood. I've been taking pictures of
17 the sidewalks and uploading.

18 But my voice is just a half a
19 voice because I'm a DDOT employee. So I'm
20 encouraging the details of if you think it is
21 a feasibility, like where did he go? He left?

22 Like one of his critical ones was

1 let's push the project line further back to
2 include Prout Street. That's a definitive
3 thing that needs to be looked at and pushed
4 back. When you said porous sidewalks, I mean,
5 you didn't say it in your thing. That's why
6 I want to make sure you write that down.

7 Mr. Capozzi also said something
8 about where it's acceptable, can we put bike
9 lanes? And then the -- where did he go? He
10 said where do we put comments?

11 We going to put all these comments
12 on the website. It's going to be available
13 for you to download and print. If we're
14 having another meeting, I will go out, I am a
15 community person and Gary, I will go out with
16 you in your community two weeks prior to a
17 next meeting and bang on doors.

18 And if we have to take, and we
19 relentlessly encourage folks to come with us,
20 I want to try to address as many of the
21 statements. I want to enter some concrete
22 recommendations to change any of, if we can

1 change anything, where do we move the bus
2 stops? I want to hear some of that, too.

3 MS. MARLIN: That's not what I'm
4 asking you. Let me cut you off. What I'm
5 asking you is what you heard here is most
6 people don't like the designs.

7 MS. PAUL: Oh, I understand that.

8 MS. MARLIN: Okay. So with that
9 said, it's a no-build preference. So I'm
10 asking you, if you all don't listen to us like
11 what some of the items, and Bernie you said
12 you live in the neighborhood, some of the
13 things we were promised on the Great Streets
14 project we didn't get.

15 You all did what you wanted to do.
16 So if you push forward with one or two, I'm
17 asking DDOT, I won't put the pressure on you,
18 how is this going to better our neighborhood?

19 How is this going to help with
20 eliminating the traffic that I think that DDOT
21 has done an absolutely poor job in designing
22 the 11th Street Bridge.

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Response to Comment 012-01

Thank you for your comments. They will be included in the project Administrative Record.

The No Build Alternative does not meet the purpose and need for the proposed action. Please refer to *Section 1.0, Purpose and Need* of the EA for discussion of the purpose and need for the project. After consideration of the purpose of and need for the proposed action, analysis in the EA, and public and agency comments, DDOT has identified Build Alternative 2 – Conventional Intersection as the Preferred Alternative for the EA, along with Option 2, which is designed to reduce the traffic volume adjacent to the residences along L'Enfant Square, SE, as cut-through traffic would be minimized along L'Enfant Square, SE. Option 2 eliminates right turns from southbound L'Enfant Square, SE onto Pennsylvania Avenue, SE westbound, significantly reducing vehicle-pedestrian conflicts.

Build Alternative 2 would meet the purpose and need for the Proposed Action in promoting the principles set forth in the District's Great Streets Initiative. Build Alternative 2 would improve pedestrian and vehicular safety, create a usable park space, improve multimodal connectivity and access, and support improved land use and community needs. Please refer to *Section 2.2.2, Build Alternative 2 – Conventional Intersection Alternative* for a discussion of the benefits of Build Alternative 2.

Response to Comment 012-02

While the project purpose is to provide transportation improvements to the project intersection, reducing traffic congestion is not specified in the project need or as one of the project goals. The intent of the project is to improve vehicular and pedestrian safety, to expand mobility choices and to support improved land use, however, it does not promise relief of traffic congestion. This is because the aim of the project is to improve safety for pedestrians, bicyclists, motorists and all intersection users, residents and visitors by making the intersection less confusing to navigate, to reduce traffic speeds and conflicts

1 When they promised us, we got
2 behind you all. We went down and testified.
3 You promised us that you said that it was
4 going to eliminate all the commuter traffic on
5 Naylor Road, Branch Avenue, Pennsylvania
6 Avenue.

7 Those people hate that design. My
8 co-workers, I'm one out of ten people that
9 live in Maryland and they refuse to take that
10 roadway because first of all they got to cut
11 down Pennsylvania Avenue, get off, go out of
12 their way.

13 And then when you get around
14 there, you all designed it so that you can go
15 on Capitol Hill in two lanes, and you have to
16 sit in one lane to try to merge into another
17 two lanes where people don't want to let you
18 in.

19 It's dangerous. So you have more
20 traffic on Pennsylvania Avenue going into the
21 city, cutting through their side streets.
22 They put up speed cameras.

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between vehicles and pedestrians and to improve the physical appearance of the intersection and usability of the park space.

012-02
(cont.)

012-02
(cont.)

1 So you all haven't really
2 addressed the issue, but yet now you want to
3 reconfigure an intersection that I think's
4 going to make it worse. So where does it
5 stop? Where --

6 MS. PAUL: Let me try to address
7 because I don't want --

8 MS. MARLIN: But it's not just
9 you. I don't want to say it's you.

10 MS. PAUL: No, no. I understand.
11 But I want to address, as a community person
12 I'm not a quiet person at DDOT, okay, in terms
13 of okay, I want to see some things.

14 There are four projects that were
15 talked about during the Great Streets. One
16 was the 11th Street Bridge, the largest. The
17 second one was the Barney Circle.

18 The third one was the Minnesota
19 Avenue intersection that we are calling the
20 Twining Square. And the fourth one where the
21 off shoot ramps on both sides of the bridge.

22 We were asked not to do the

1 original Great Street all the way down, try to
2 do all the things to be inclusive from the
3 footprint of the Sousa Bridge to 7 because
4 there was some legal things that had to
5 happen, call this NEPA and all that fancy
6 stuff that she talked about.

7 So the project called Great
8 Street, if you go on the website said we were
9 going to start at the Sousa Bridge. Except we
10 did not.

11 We cut it in half because what
12 they were going to do was hold up the
13 Pennsylvania Avenue portion from 27th to 7
14 until we did what you just have been listening
15 to tonight.

16 Rather than not do that, they
17 moved forward from Pennsylvania Avenue and
18 continued simultaneously doing this NEPA, this
19 NCP stuff, et cetera, et cetera.

20 We began the 11th Street Bridge
21 simultaneously and Nannie Helen Burroughs and
22 completed Kenilworth Avenue at the same time.

1 So other projects, like I said,
2 that will help in 14 and a half to 18 months
3 that really will make you see and for lack of
4 a better descriptive, embrace the 11th Street
5 Bridge is when the Barney Circle piece, you'll
6 have your three lanes back, you'll go back
7 under and go on downtown or will come back up
8 on the Sousa Bridge and come on back across
9 the river.

10 That's the Barney Circle piece, 14
11 months, 18 months to be under construction.
12 So a lot of things have happened.

13 Funding has stopped it, NEPA
14 requirements have stopped it, but it doesn't
15 stop us from looking at the one we hear
16 tonight and capture a list, I mean, like a
17 grocery list, the sidewalks, the -- where did
18 Ms. Davis go because she promised to have
19 photos to upload of similar locations where
20 people are sharing bikes because when we were
21 going to do the bike sharing all the way from
22 southern down --

1 MS. MARLIN: Yes, I remember.
2 MS. PAUL: Remember what --
3 MS. MARLIN: Yes, I remember.
4 MS. PAUL: And we backed off --
5 MS. MARLIN: I remember what they
6 said.
7 MS. PAUL: Everybody said no we
8 don't want that.
9 MS. MARLIN: But tell them why.
10 MS. PAUL: Because it was
11 dangerous.
12 MS. MARLIN: No, that's not why.
13 MS. PAUL: That's what somebody
14 said.
15 MS. MARLIN: The people that
16 wanted majorily was seniors. The argument
17 was, and I can attest to this, since you all
18 have taken away our green spaces, put those
19 wide sidewalks up, what Capozzi was talking
20 about, I haven't seen one bicycle on those
21 wide sidewalks.
22 And now we have all this hard

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Response to Comment 012-03

The Proposed Action includes the consolidation of green space at the intersection and increases the amount of green space that will be usable to residents and visitors to the intersection. With the implementation of Build Alternative 2 (Preferred Alternative), the consolidation of the green space and potential for enhanced landscape design would result in benefits to residents and visitors to the intersection. The proposed improvements to the intersection would provide the opportunity to enhance the green space as usable park area for residents and visitors to this intersection. Additionally, any trees that require removal during construction of the improvements will be replaced in accordance with the DDOT Design and Engineering Manual.

012-03

012-03
(cont.)

1 cement. We've lost our trees and our tree
2 space. And we have the broken down railings
3 around the tree space, unkept islands.
4 So this is not a Great Streets.
5 It's frustrating for me because I did what my
6 town --

7 MS. PAUL: Wait --

8 MS. MARLIN: Wait a minute, let me
9 finish. Afterward to come out and talk. So
10 when you stand there and say that this is a
11 project that's helping the community, it has
12 not. And you know that. And it's not your
13 fault.

14 MS. PAUL: Okay, okay. Let me
15 just say this. I don't want to disrespect the
16 EA's responsibility here. By law, she has to
17 make sure.

18 MS. MARLIN: I understand.

19 MS. PAUL: She has succinct
20 comments that recommend no build because A, B,
21 and C or alternative one, and if I do
22 alternative one, please take and consider

1 moving the geography all the way back to
2 capture all of the streets all the way to
3 Minnesota.

4 We really need to do that and have
5 that documented so that when you see her at
6 the next meeting, you see a different design.
7 If we don't help her to get that different
8 design, then we may have to sit down and say
9 hey, leave it alone. Resurface the street,
10 re-strike the street and everybody goes home?

11 MS. MARLIN: Is that an option?

12 MS. PAUL: No.

13 MS. MARLIN: Why isn't it an
14 option?

15 MS. PAUL: Because we already been
16 down --

17 MS. MARLIN: They took the money,
18 that's why. They took the money from the feds
19 and the feds --

20 FEMALE PARTICIPANT: They took the
21 money so now they got to do something.

22 MS. MARLIN: Yes, that's what I'm

Response to Comment 012-04

The No Build Alternative was fully considered during the EA process and is always an alternative for selection in an EA in accordance with the National Environmental Policy Act of 1969 (NEPA). However, the No Build Alternative does not meet the purpose and need for the proposed action. Please refer to *Section 1.0, Purpose and Need* of the EA for discussion of the purpose and need for the project. After consideration of the purpose of and need for the proposed action, analysis in the EA, and public and agency comments, DDOT has identified Build Alternative 2 – Conventional Intersection as the Preferred Alternative for the EA, along with Option 2, which is designed to reduce the traffic volume adjacent to the residences along L’Enfant Square, SE, as cut-through traffic would be minimized along L’Enfant Square, SE. Build Alternative 2 would meet the purpose and need for the Proposed Action in promoting the principles set forth in the District’s Great Streets Initiative. Build Alternative 2 would improve pedestrian and vehicular safety, create a usable park space, improve multimodal connectivity and access, and support improved land use and community needs. Please refer to *Section 2.2.2, Build Alternative 2 – Conventional Intersection Alternative* for a discussion of the benefits of Build Alternative 2.

1 saying. We say no, that should be an option.

2 MR. BUTLER: I have one other
3 question.

4 MS. CASEY: The no alternative is
5 an option.

6 MS. MARLIN: It's still an option.

7 MS. CASEY: It's an option. We can

8 --

9 (Crosstalk)

10 MR. BUTLER: Let's never bring up
11 one.

12 MS. CASEY: One, I mean, we're
13 going to put all the comments we've received
14 and make a decision on the preferred
15 alternative. It could very well be the no
16 actions.

17 MR. BUTLER: Right. I just have
18 one quick question. It'll be real quick.

19 FEMALE PARTICIPANT: May I state
20 something real quickly.

21 MR. BUTLER: Real quickly, just
22 two things about bridges.

1 FEMALE PARTICIPANT: Give me a
2 moment before you say yours. I don't think we
3 should go to that booth, if it's an option,
4 who has money.

5 This project has been going on
6 under Mayor Williams, Linda Crump. So it has
7 been going on and on and on. It takes time,
8 take ten to 15 years before it get past the
9 planning stage.

10 We're not going to agree on all of
11 this, but I think we should give some
12 consideration. And we're not going to even
13 start and say who took the money. We're going
14 to use this money, we're going to benefit our
15 neighborhoods.

16 (Crosstalk)

17 MS. MARLIN: -- a benefit and it
18 has not been going on since --

19 FEMALE PARTICIPANT: Excuse me --

20 (Crosstalk)

21 FEMALE PARTICIPANT: Robin, I did
22 not interrupt you, but please. Don't get

1 emotional because I know how you feel because
2 I feel the same way about Pennsylvania Avenue
3 at Fort Davis.

4 But we're going to see how we're
5 going to move along with this project. And
6 we're going to accept this money. And this
7 money's going to be used and all of us is
8 going to get involved.

9 But I think Gary, your
10 neighborhood is more affected than mine.

11 MR. BUTLER: It is. I only have
12 one quick comment. It's about the Sousa
13 Bridge. What is the life expectancy of that
14 bridge? Is there any major road work or
15 bridge improvements?

16 MS. CASEY: We have our engineers
17 in the back and maybe they might have some --

18 MR. BUTLER: That brings the build
19 to what, 39?

20 FEMALE PARTICIPANT: No, it was
21 redone.

22 MALE PARTICIPANT: No, it was just

1 redone. It was just redone and --

2 MR. BUTLER: Redone, okay. Now I
3 know Frederick Douglass Bridge is going to be
4 done.

5 MS. PAUL: Not until 2024.

6 MR. BUTLER: Okay.

7 MALE PARTICIPANT: Oh 2024? Okay.

8 MR. BUTLER: I was just wondering
9 if either of those bridges would have an
10 effect on any of this project. That's all.

11 But no. No, sir. No, sir.

12 MS. CASEY: Yes, go ahead sir.

13 MALE PARTICIPANT: I have some
14 recommendations.

15 MS. CASEY: All right.

16 MALE PARTICIPANT: There are
17 elements in one and two that I like and there
18 are elements in one and two that I hate.

19 MS. CASEY: Okay.

20 MALE PARTICIPANT: But there are
21 aspects of both that I think if we put
22 together would work.

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Response to Comment 013-01

Thank you for your comments. They will be included in the project Administrative Record. Neither the Sousa Bridge nor the Frederick Douglass Bridge is impacted by the Pennsylvania Avenue-Minnesota Avenue, SE Intersection Improvement EA. Additionally, improvements to or evaluation of these bridges is outside the scope of this project.

Response to Comment 014-01

Thank you for your comments. They will be included in the project Administrative Record. Comments can be submitted at the public hearing via the court reporter or using a comment sheet, and can also be submitted via email to the DDOT Project Manager. Submitting a comment in the form of an illustration is acceptable. *[Participant provided comments in the form of a marked-up brochure/illustration].*

1 MS. CASEY: Oh, great.
2 MALE PARTICIPANT: There's no way
3 for me to use words to describe. Who do I
4 get in touch with to sit down and maybe draw
5 it out so that you all can see what I would
6 recommend?
7 MS. CASEY: You could attempt to
8 draw it and send it to me. I'm the project
9 manager, so if we need to meet we can then sit
10 down and meet.
11 MALE PARTICIPANT: Okay, fine.
12 MS. CASEY: Okay?
13 MALE PARTICIPANT: Okay.
14 MS. CASEY: Yes, sir?
15 MR. RICHARDS: Yes, I have a
16 question. The flying-circle project has been
17 brought up again. How is that going to impact
18 on this portion of Pennsylvania Avenue.
19 And more importantly, isn't Barney
20 Circle really a continuation of Pennsylvania
21 Avenue, and isn't it an important part of the
22 overall traffic patterns that we have to deal

014-01
(cont.)

015-01

Response to Comment 015-01

Thank you for your comments. They will be included in the project Administrative Record. The Pennsylvania Avenue-Minnesota Avenue, SE Intersection Improvement EA does consider other projects in the area to determine cumulative impacts. As the projects continue into design, coordination with other projects in the area will continue in order to ensure that there are no scheduling conflicts, and in order to minimize impacts to traffic in the area and minimize any other potentially adverse impacts. A Draft EA for improvements to Barney Circle-Southeast Boulevard is currently being developed by DDOT. Barney Circle is located less than a mile west of the Pennsylvania Avenue-Minnesota Avenue, SE Intersection Improvement EA Study Area, across the Anacostia River at the west end of the John Philip Sousa Bridge where the SE/SW Freeway, Pennsylvania Avenue, SE and various local neighborhood streets converge. DDOT expects the Draft EA to be circulated in Winter 2015/ Spring 2016 and the Final EA and finding to be issued in the Spring of 2016. As this project and the Pennsylvania and Minnesota avenues project enter into the final planning and design phases, DDOT will ensure coordination between these projects. The Study Area for the Pennsylvania and Minnesota avenues project is discussed in *Section 1.3.2* and is shown on Figure 1-2 of the EA. The Study Area is limited to the Twining Square vicinity and the public right-of-way along Pennsylvania Avenue, SE, ending at Fairlawn Avenue, SE on the west and 27th Street, SE on the east.

015-01
(cont.)

1 with?

2 MS. PAUL: Answering your
3 questions backwards, yes, no and yes.

4 (Crosstalk)

5 MS. PAUL: He's correct --

6 MS. CASEY: Yes, we didn't look at
7 it in the environmental assessment.

8 MS. PAUL: -- of the Pennsylvania
9 Avenue travel patterns, either way you go.

10 And is it going to impact what you all are
11 discussing tonight? No because you do
12 critical staging of construction.

13 And yes, again I'm going to just
14 overemphasize, I'm not going to walk or ride
15 bikes. And so I am one of the crazy ones that
16 is still driving.

17 MR. RICHARDS: All of us over 70
18 are in the category of no bicycles, I'm going
19 to drive.

20 MS. PAUL: Right, so --

21 MR. RICHARDS: But the question is
22 how is it going to impact? What are you going

015-02

Response to Comment 015-02

Evaluation of the flow of traffic at Barney Circle or on Pennsylvania Avenue as a result of the Barney Circle project is outside the scope of this project. A Draft EA for improvements to Barney Circle-Southeast Boulevard is currently being developed by DDOT which will consider impacts related to that project. Please refer to Response to Comment #015-01 for additional information.

015-02
(cont.)

1 to do at Barney Circle that's going to impact
2 the flow on Pennsylvania Avenue?

3 MS. PAUL: I'm not here to answer
4 that tonight only because the engineers for
5 that project, none of them are here. But we
6 sent out, their team sent out, I think it was
7 yesterday, their announcement.

8 And I sent it to Penn Branch last
9 night, hard copies, I printed it off. That's
10 my civic association.

11 MALE PARTICIPANT: November 20th?

12 MS. PAUL: No, it went to 7B
13 electronically, but I personally went online
14 for my own community group and sent it. It's
15 the 21st. That meeting is the 21st of
16 November at Payne Elementary School.

17 FEMALE PARTICIPANT: What time is
18 that over?

19 MS. PAUL: They're going to do a
20 6:00 to 6:30, similar to what Ms. Casey did
21 tonight to allow you to come in.

22 6:00 to 6:30 to look at the

1 designs and then at 6:30 start the
2 presentation and then take questions and
3 answers. And then they'll have the same
4 session.

5 MR. RICHARDS: In a nutshell, for
6 example, well let me ask it in specific
7 questions. Will there be a driving lane where
8 you can drive your automobile eastbound on
9 Pennsylvania Avenue, and when you reach Barney
10 Circle, access what used to be the
11 southeast/southwest freeway?

12 Will it still be the
13 east/west/southwest freeway?

14 MS. PAUL: I'm not sure about the
15 name change. Please go to the ***7:57:08
16 because I don't want to misquote the engineers
17 and their drawings.

18 MR. RICHARDS: So there will be a
19 road there, but it might be a boulevard?

20 MS. PAUL: Yes. No more
21 questions. The engineers for that project --

22 (Crosstalk)

1 MS. CASEY: We have one more
2 question about this project from this lady
3 here.

4 FEMALE PARTICIPANT: I don't have
5 a question. I wish to, hope that the group
6 would give some consideration as to ADA,
7 American Disability when they do the
8 sidewalks.

9 Ward 7 have a lot of walkers, a
10 lot of people in wheelchairs, just disability
11 all the way around. So when you do this
12 project and think about the three to four to
13 five lanes, you have people in wheelchairs and
14 you have people crossing the street.

15 And at my age, I don't need to
16 run. My little neighbor say Ms. Gladys, you
17 be hip hopping, you don't run anymore. But at
18 age 70, I cannot run.

19 So with this in mind, give us some
20 consideration. Thank you.

21 MS. CASEY: Okay. All right,
22 anybody else want to leave a message? Well,

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Response to Comment 016-01

Thank you for your comments. They will be included in the project Administrative Record. DDOT has identified Build Alternative 2 – Conventional Intersection as the Preferred Alternative. This design includes Americans with Disabilities Act (ADA)-compliant ramps and sidewalks to be improved or included in the Study Area where they do not exist currently.

One of DDOT's main objectives for this project is to support improved land use and community needs by improving public safety, expanding mobility choices, and improving safety and efficiency for all modes of travel. An important component of the project includes improvements to increase pedestrian safety at the intersection, making it more accessible to all pedestrians, including disabled persons and senior citizens. Build Alternative 2 also includes construction of additional crosswalks, some with shorter (and more direct) crossing distances, and improved signal timing to allow adequate time for pedestrians, particularly senior citizens and children, to safely cross the intersection. DDOT will incorporate ADA requirements in the design phase for the intersection sidewalks and crosswalks.

Additionally, bus stop locations that meet the design and ADA requirements of WMATA's guidelines for the *Design and Placement of Transit Stops (2009)* will be adhered to.

1 I appreciate all the comments we've gotten.

2 We have them recorded.

3 And please continue to send more
4 comments in. The closing date is November
5 30th. We have the comment cards, you can
6 email, you can send me your drawings via
7 email.

8 And if we could sit together, I'll
9 make time for that. So again, thanks so much
10 for everyone coming and giving their input.
11 Yes?

12 FEMALE PARTICIPANT: We could
13 email our comments?

14 MS. CASEY: Oh yes. My email
15 address is in that handout, the brochure. And
16 along with my address, the DDOT's address. So
17 yes, please complete the Title VI forms and
18 any other form that is required by the
19 District laws. And so I would appreciate it.

20 MS. MARLIN: Could you explain the
21 Title VI form, why are we filling it out?

22 MS. PAUL: It's a requirement of

1 the federal law --

2 MS. MARLIN: I know what it is. I
3 want everybody else to hear it.

4 MS. MARLIN: It's a requirement of
5 the federal law that every time we have a
6 public meeting to discuss a project that will
7 be subsidized by the U.S. Federal Government
8 that we document who you are and how you found
9 out about the meeting, and if you had an
10 opportunity to do any input through comments
11 like she's just given you a blank comment form
12 to fill out.

13 And again, she said on the back,
14 and it tells you did you have many options to
15 put input. She gave you her email address on
16 the back of the document so you can continue.

17 This is not the end of your
18 communicating with her. This is just our way
19 of standing together on that particular night
20 for this particular project, we did have
21 people come out in response to an invite and
22 here is their forms to say that they were real

1 human beings.

2 MS. MARLIN: Could I ask a
3 question Alberta, please? Once these forms
4 are turned in, do they ever hear the outcome
5 of the meeting? Will they hear that you had
6 a lot of opposition voice?

7 MS. CASEY: That's not part of
8 that form.

9 MS. PAUL: No, this form is just
10 for counting.

11 MS. CASEY: The comments that we
12 had written, that's where we'll --

13 MS. PAUL: The comments that you
14 write and the comments that you made into this
15 transcript is what is clear and concise your
16 position on this project.

17 MS. CASEY: When we publish the
18 final EA, there will be a comment response
19 section where we will put down all of the
20 comments we received in written form,
21 including the testimony, and show you how we
22 addressed them in the EA.

1 So you could then go back into the
2 EA and say oh, I see. And if we didn't
3 address them directly, we'll give you a reason
4 as to why it wasn't addressed directly.

5 MS. MARLIN: Right. But I want to
6 know, I know it goes on DDOT's website. But
7 the federal --

8 MS. PAUL: It goes to the --

9 MS. MARLIN: Does it?

10 (Crosstalk)

11 MS. MARLIN: The comments?

12 MS. CASEY: Right, the comments --

13 (Crosstalk)

14 MS. CASEY: Well, NEPA is a federal
15 law. So we are doing this for FHWA is the lead
16 agency, the federal agency. So they get to
17 review it. They get to approve the document --

18 MS. MARLIN: Okay, that's what I
19 meant. All right then.

20 MS. CASEY: -- before it goes out.

21 FEMALE PARTICIPANT: Did anybody
22 notify, like, AMC8A or the Fairlawn Citizen

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202-234-4433

Response to Comment 017-01

All of the Advisory Neighborhood Commission (ANC) Commissioners in ANC 7B and ANC 8A were sent a letter to notify them of the publication of the EA (October 2013) and the public hearing, along with a CD of the EA. The Chairpersons for ANC 7B and 8A were sent a hardcopy of the EA in addition to the CD. The Councilmembers for Wards 7 and 8 were also sent notification and a CD of the document. Although DDOT made every effort to include the presidents or chairpersons of all interested civic associations and neighborhood groups in addition to the ANCs, DDOT does not have record of submitting a copy of the October 2013 EA to the Fairlawn Citizens Association. However, following this omission, DDOT attended f Fairlawn Citizens Association meeting to present the findings of the EA and to provide a project update. Additionally, an additional 30 days was granted by the Federal Highway Administration (FHWA, lead federal agency) upon public request for the EA comment period. The comment period was extended through December 31, 2013. (DDOT continued accepting formal comments beyond this date as well). Fairlawn Citizens Association has subsequently been included in the distribution list for this project. DDOT apologizes for this initial omission.

017-01
(cont.)

1 Association?

2 MS. CASEY: Yes, we did.

3 FEMALE PARTICIPANT: The Fairlawn
4 Citizen Association?

5 MS. CASEY: Yes, ma'am.

6 FEMALE PARTICIPANT: I was just at
7 the executive committee meeting and I never
8 heard a word.

9 MS. CASEY: Yes, we sent out --

10 FEMALE PARTICIPANT: The only way
11 I knew about this was Yvette Alexander's
12 newsletter.

13 MS. CASEY: Yes, we actually 8A
14 sent me back the document that I sent them.
15 So I don't, you know, I don't understand why
16 that was. But they did obviously receive the
17 document and our invite for tonight.

18 (Off microphone comments)

19 MS. CASEY: All right, we're done.
20 Thank you.

21 (Whereupon, the meeting concluded
22 at 8:02 p.m.)

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streets 3:2 6:5,21 8:12 49:21 50:12 50:15,20 51:4,11 52:5,14 53:4 59:10 70:13 71:21 72:15 76:4 77:2 structure 37:3 structures 33:18 studied 13:18 studies 3:11 4:22 20:5 stuff 30:6 31:10,11 40:4 73:6,19 subsidized 88:7 succeed 64:11 succinct 76:19 sudden 61:21 suggestions 18:6 support 6:3 55:7 57:11 58:3 supporting 20:3 supposed 34:14,16 45:22 sure 12:12 18:1 44:13 60:7 62:10 63:14,19 67:9 69:6 76:17 85:14 surfaces 22:14,15 23:11 24:4,18	75:19 tape 18:2 task 3:8 21:10,16 50:1,21 Tavern 34:2,13 taxes 52:20 team 43:2,4 51:1,6 84:6 tell 75:9 telling 9:20 21:6 tells 88:14 temporary 21:2 ten 21:18 46:22 55:1 56:20 71:8 79:8 term 27:22 terms 54:19 63:11 72:12 test 44:20 testified 71:2 testimony 2:6 17:16 42:5 89:21 thank 25:5 37:7 49:14 55:10 64:22 86:20 91:20 thanks 2:3 45:4 87:9 thing 36:7 40:19 56:11 57:5 59:16 61:15 69:3,5 things 22:1 25:7,8 41:4 43:19 46:22 54:21 58:19 60:6 70:13 72:13 73:2 73:4 74:12 78:22 think 11:8 12:10 21:12 26:17 34:19 37:5 38:8,14 39:19 40:19 43:10 47:15,16 50:6,9 50:18 51:17,18 54:6 57:20 58:3 60:11 61:18 62:2 62:14 63:13 68:20 70:20 79:2,11 80:9 81:21 84:6 86:12	thinking 47:20 think's 72:3 third 72:18 Thomas 46:19 thoroughfare 59:9 thought 23:9 56:14 thousands 62:3 three 7:7 10:7 18:16 32:10 33:22 34:20 35:2 46:9 46:15 56:2 58:1 74:6 86:12 throwing 68:5 thrown 56:9 ties 6:4 time 27:2 30:4,5,13 32:11 33:8 34:4 56:8 65:8 73:22 79:7 84:17 87:9 88:5 times 58:1 Tina 2:7 TIP 51:10 Title 87:17,21 today 27:12 36:2 36:12 42:6 told 40:11 tonight 2:12 15:17 49:17 73:15 74:16 83:11 84:4,21 91:17 tonight's 43:20 touch 68:1 82:4 touching 35:11 37:18 town 76:6 traffic 5:12,20 9:6 9:8,16 10:10 12:18,18 13:7 14:1,15 17:11 19:8,12 25:9,13 25:17,18 40:3,6 40:11,14,16,20 46:9,15 47:8 48:16,18,20 49:10 50:11 51:14,19,21 52:13,18,19 53:3	53:17 54:2,9 55:5 60:22 61:21 64:14 70:20 71:4,20 82:22 transcript 89:15 transfer 4:15 7:22 57:12 transferred 8:18 transform 3:1 transit 5:16 58:7 transportation 1:2 4:10 5:15 8:19 51:14 52:11 56:16 trash 56:9 travel 10:8 65:12 83:9 traveling 10:1 tree 76:1,3 trees 31:22 76:1 trouble 25:14 true 29:5 40:12 try 6:13 8:13 26:14 29:1,8 37:20 51:21 69:20 71:16 72:6 73:1 trying 9:4 39:15 43:21 47:6 turn 8:21 9:16 10:2 11:18,20 14:14,19 15:1,1,13 16:18 18:17 26:15 28:7 28:9 29:2,9 58:14 64:1,21 turned 89:4 turning 9:1,9 13:8 13:9 29:7 47:15 47:17 turns 9:13,19 19:17 19:18 63:17 Twining 4:16 53:6 72:20 two 6:6 13:2 15:1 18:18 19:4 20:19 27:3 37:22 42:16 44:5 46:21 47:12 47:15 48:7 53:15 53:16 57:2 58:1	58:11 69:16 70:16 71:15,17 78:22 81:17,18 type 40:2,14,20 57:9 types 33:6 40:22 typically 31:2 <hr/> U underground 36:16 underlying 27:18 understand 9:15 20:13 22:10 61:15 65:15 66:11 70:7 72:10 76:18 91:15 understanding 11:18 underway 4:6 unified 63:4 Union 60:3 unkept 76:3 unable 60:15,19 update 2:13 25:16 updated 25:19 upload 74:19 uploading 68:17 upscale 36:22 usable 5:10 use 5:17 6:3,4 52:21 53:14 65:20 66:3,18 79:14 82:3 useful 60:17 U.S. 88:7 <hr/> V value 62:5 vehicle 20:8 vehicles 12:7 53:15 Veronica 45:7 versus 7:17 11:1 12:18 24:8 27:20 VI 87:17,21 Vice 49:19 viewing 35:17 violate 31:17 Virginia 54:22 55:1
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Neal R. Gross & Co., Inc.
202-234-4433

C E R T I F I C A T E

This is to certify that the foregoing transcript

In the matter of: Pennsylvania Ave - Minnesota Ave NE
Intersection Improvement Project

Before: DC DOT

Date: 11-13-13

Place: Washington, DC

was duly recorded and accurately transcribed under
my direction; further, that said transcript is a
true and accurate record of the proceedings.

Neal R. Gross

Court Reporter

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVE., N.W.

WASHINGTON, D.C. 20005-3701

From: John Capozzi [REDACTED]
Sent: Friday, November 22, 2013 2:36 PM
To: Casey, Austina (DDOT)
Subject: Plan has negative reviews

- 018-01 The draft alternatives fix nothing that is wrong with this intersection.
- 018-02 1. Is being planned without coordination to the Barney Circle plan which is ½ mile away. This lack of coordination needs to be corrected.
- 018-03 2. Also, no left turn to Prout Street, SE from inbound traffic. No easy way to make a U-Turn to get back to Capitol Hill fore outbound traffic.
- 018-04 3. Plan does not include the area from Prout Street, SE to the 294 ramps, another rro that needs to be fixed.
- 018-05 4. Additionally routing all Minn. Ave Traffic in front of houses and eliminating the cut through is a serious mistake. A better alternative is to eliminate the cut through and have a right turn lane onto PA Ave, SE.
- 018-06 5. Also, the EA said the Park space is "unusable"; a serious flaw. I would be in favor of eliminating "unusable Park space, v. keeping it.
- 018-07 6. How about a tunnel for PA Ave from Minn. Ave, to past Prout street, SWE?
- 018-08 7. Please meet with all the homeowners to get their thought.
- 018-09 8. Next meeting at the Wah Sing or the Thai Orchid so people can walk to the meeting...

Response to Comment 018-01

Thank you for your comments. They will be included in the project Administrative Record. Please refer to *Section 2.0, Proposed Action and Alternatives* of the EA for a discussion of the Build Alternatives. *Section 2.2.1, Build Alternative 1 – Revised Square Alternative* discusses the advantages of Build Alternative 1 (Revised Square); *Section 2.2.2, Build Alternative 2 – Conventional Intersection Alternative* discusses the advantages of Build Alternative 2 (Conventional Intersection). DDOT has identified Build Alternative 2 – Conventional Intersection as the Preferred Alternative for the EA, along with Option 2, in which traffic would flow one-way to the north and east on the L’Enfant Square, SE roadway. Build Alternative 2 would meet the purpose and need for the Proposed Action in promoting the principles set forth in the District’s Great Streets Initiative by improving pedestrian and vehicular safety, create a usable park space, improving multimodal connectivity and access, and supporting improved land use and community needs.

Response to Comment 018-02

The Pennsylvania Avenue-Minnesota Avenue, SE Intersection Improvement EA considers nearby projects in the area to determine cumulative impacts, including the Barney Circle project. Barney Circle is located less than a mile west of the Pennsylvania Avenue-Minnesota Avenue, SE Intersection Improvement EA Study Area, across the Anacostia River at the west end of the John Philip Sousa Bridge where the SE/SW Freeway, Pennsylvania Avenue, SE and various local neighborhood streets converge. A Draft EA for improvements to Barney Circle-Southeast Boulevard is currently being developed by DDOT. DDOT expects the Draft EA to be circulated in Winter 2015/ Spring 2016 and the Final EA and finding to be issued in the Spring of 2016. As this project and the Pennsylvania and Minnesota avenues project enter into the final planning, coordination will continue in order to ensure that there are no scheduling conflicts, and in order to minimize impacts to traffic in the area and minimize any other potentially adverse impacts.

Response to Comment 018-03

As with existing conditions, inbound traffic cannot make a left turn from Pennsylvania Avenue, SE to Prout Street, SE with either of the Build Alternatives. To access Prout Street, SE, vehicles should travel south on Minnesota Avenue, SE to Nicholson Avenue to access Prout Street, SE.

Response to Comment 018-04

The Study Area for the project extends to Fairlawn Avenue, just west of the intersection with Prout Street, SE. However no improvements are recommended as part of the Build Alternatives analyzed in this EA beyond the intersections of Pennsylvania Avenue with Minnesota Avenue and L’Enfant Square, SE. After consideration of the purpose of and needs for the proposed action, analysis in the EA, and public and agency comments, DDOT has identified Build Alternative 2 – Conventional Intersection as the Preferred Alternative. As part of the overall connectivity along the Pennsylvania Avenue, SE corridor, wider sidewalks are being proposed for bicycle shared-use between the Sousa Bridge and the bike path east of 27th Street, SE. The scope of this EA, however, was limited to the improvements identified and does not include Prout Street, SE or the overpass area.

Response to Comment 018-05

Thank you for your comments. They will be included in the project Administrative Record. After consideration of the purpose of and need for the proposed action, analysis in the EA, and public and agency comments, DDOT has identified Build Alternative 2 – Conventional Intersection as the Preferred Alternative for the EA, along with Option 2, which is designed to reduce the traffic volume adjacent to the residences along L’Enfant Square, SE, as cut-through traffic would be minimized along L’Enfant Square, SE. Option 2 eliminates right turns from southbound L’Enfant Square, SE onto Pennsylvania Avenue, SE westbound, significantly reducing vehicle-pedestrian conflicts.

Response to Comment 018-06

Your comments have been noted and will be included in the project Administrative Record. The project includes the creation of consolidated, *usable* park space. The park space is *unusable* in its *current* form (four small parcels). One of the goals of this project is to make the park space usable. This is accomplished with the implementation of Build Alternative 2 – Conventional Intersection (Preferred Alternative) by consolidating the four existing parcels of park area into two larger parcels, resulting in approximately one (1) acre of consolidated park area to the north of Pennsylvania Avenue, SE and 0.5 acres of park area to the south of Pennsylvania Avenue, SE for passive recreational activity. The consolidated, larger park spaces have the potential to be used by the public for passive recreational activities, a public plaza, or another variation of enhanced community space for residents and intersection users to enjoy. The intent is to enhance the community through the creation of valuable open spaces.

Response to Comment 018-07

Alternatives such as bridges and tunnels were considered at this intersection in the early stages of planning during the Great Streets Initiative, and were ultimately eliminated from consideration for a number of reasons. Due to the amount of construction and type of construction associated with roadway bridges and tunnels, alternatives such as tunnels and bridges were determined to be cost prohibitive and to have higher potential to have significant environmental impacts. Additionally, it was found that this type of major infrastructure would likely have significant visual impacts, and/or could cause the communities to the north and south of the intersection to be divided. For these reasons, alternatives such as tunnels and bridges were eliminated from detailed evaluation in this EA.

Response to Comment 018-08

Your comments have been noted and will be included in the project Administrative Record. While DDOT is not able to meet with all the homeowners individually, announcement of public meetings was conducted via door-to-door distribution of flyers, e-mail announcement “blasts,” via public notice in the

Washington Times (for the Public Hearing), and on the DDOT website. Upon invitation, DDOT has met with ANC Commissioners and has presented the alternatives, the EA, and overall project updates at ANC meetings as well as neighborhood association meetings, to include ANC 7B, Fairlawn Citizens Association, and several others. DDOT held a formal Public Hearing in on November 13, 2013 to receive testimony from the public regarding the project. After the publication of the October 2013 EA, DDOT also presented the project at the Ward 7 Update Meeting on March 6, 2014. In addition to holding public meetings for this project, DDOT has made efforts to meet with smaller groups upon request in public forums as opposed to meeting with each homeowner individually.

Response to Comment 018-09

Thank you for your comments. They will be included in the project Administrative Record. DDOT will make efforts to have future public meetings for the project in a location that is easily walkable from this intersection.

From: Metzger, William [REDACTED]
Sent: Tuesday, November 26, 2013 5:49 PM
To: Casey, Austina (DDOT)
Subject: Penn-Minn intersection comment

Dear Ms. Casey,

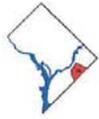
019-01 I write strongly in support of the plans to redesign the Pennsylvania/Minnesota Ave SE intersection. The current layout is very confusing and unsafe for pedestrians and vehicle traffic. It is also unattractive for new businesses to come in. The modified traffic square concept seems to be the best. It would allow us to maximize green space in the square and allow pedestrians to move easily across the intersection to their homes or business. In addition, the concept would reduce the sheer amount of concrete and congested traffic lanes that currently define the intersection. I am not aware of any environmental or cultural concerns that need to be taken into account. Please proceed as expeditiously as possible with improving this intersection so that it can become a focal point for the growth and prosperity of the community!

Thank you.

Will Metzger
25th St SE Resident

Response to Comment 019-01

Thank you for your comments. They will be included in the project Administrative Record.



**NAYLOR DUPONT
Advisory Neighborhood
Commission 7B**



District of Columbia Government
3200 S Street, S.E.,
Washington, DC. 20020
email: anc7b@earthlink.net
web: www.anc7b.net
phone: (202) 584-3400 fax: (202) 584-3420

December 30, 2013

Austina Casey, Project Manager
District Department of Transportation
Attn: Penn-Minnesota Improvements EA
55 M Street, SE, Suite 400
Washington, DC 20003

RECEIVED BY
DDOT
IPMA
OCE
2014 JAN -8 PM 1:39

Re: Penn-Minnesota Improvements EA

Dear Ms. Casey:

At its regular Public meeting held December 19, 2013, following proper notice, the Commission held a review of the Environmental Assessment of the Pennsylvania & Minnesota Avenues Intersection Improvements Plans. The Commission after considering the proposed options for reconstructing that intersection has concluded to support the no-build option because no plan presented solved a majority of the problems at the intersection and all left most problems either the same or in worse condition. Therefore by a vote of 6 to 0 the Commission adopted a resolution recommending the no build option.

Sincerely,


ROBERT T. RICHARDS, Chair

Response to Comment 020-01

Thank you for your comments. They will be included in the project Administrative Record.

The No Build Alternative does not meet the purpose and need for the Proposed Action. Please refer to *Section 1.0, Purpose and Need* of the EA for discussion of the purpose and need for the project. After consideration of the purpose of and need for the proposed action, analysis in the EA, and public and agency comments, DDOT has identified Build Alternative 2 – Conventional Intersection as the Preferred Alternative for the EA, along with Option 2, which is designed to reduce the traffic volume adjacent to the residences along L’Enfant Square, SE, as cut-through traffic would be minimized along L’Enfant Square, SE. Option 2 eliminates right turns from southbound L’Enfant Square, SE onto Pennsylvania Avenue, SE westbound, significantly reducing vehicle-pedestrian conflicts.

Build Alternative 2 would meet the purpose and need for the Proposed Action in promoting the principles set forth in the District’s Great Streets Initiative. Build Alternative 2 would improve pedestrian and vehicular safety, create a usable park space, improve multimodal connectivity and access, and support improved land use and community needs. Please refer to *Section 2.2.2, Build Alternative 2 – Conventional Intersection Alternative* for a discussion of the benefits of Build Alternative 2.

020-01

From: [REDACTED]

Sent: Saturday, March 22, 2014 7:38 PM

To: Casey, Austina (DDOT)

Cc: [REDACTED]

Subject: DPCA Comments Re: Penn/Minn Avenue SE Improvement Project - 3/22/14

Thanks again Ms. Casey for sharing the 3 proposed DDOT plans under the Penn/Minn Avenue, SE Improvement Project at the monthly Dupont Park Civic Association (DPCA) meeting held on February 18, 2014.

021-01 After discussions with members on the Executive Board and members in attendance at the March 2014 meeting, it was determined that the proposed changes presented would not be beneficial to the DC Ward 7 residents in the neighborhoods directly affected. As a matter of fact, alternatives 1 and 2 appear to potentially create a hardship for seniors, pedestrians and neighbors whose local quiet streets will serve as alternate routes for commuters travelling through the District.

As such, on behalf of the DPCA, it is requested the No-Build (current configuration) be selected for the Penn/Minn Ave Intersection Improvement Environmental Assessment.

It is my understanding from 7B04 ANC Mr. Hammond, this is the same position as the 7B ANC's. I would greatly appreciate a copy of your report or email notification if placed on the web once completed.

If I can be of any further assistance, please do not hesitate to let me know. k



Karen A. Wiggins
DPCA President

Have questions about your new Supercan, trash can or larger recycling bin? Check out this helpful [FAQ](#) from the Department of Public Works.

Response to Comment 021-01

Thank you for your comments. They will be included in the project Administrative Record.

The No Build Alternative does not meet the purpose and need for the proposed action. Please refer to *Section 1.0, Purpose and Need* of the EA for discussion of the purpose and need for the project. After consideration of the purpose of and need for the proposed action, analysis in the EA, and public and agency comments, DDOT has identified Build Alternative 2 – Conventional Intersection as the Preferred Alternative for the EA, along with Option 2, which is designed to reduce the traffic volume adjacent to the residences along L’Enfant Square, SE, as cut-through traffic would be minimized along L’Enfant Square, SE. Option 2 eliminates right turns from southbound L’Enfant Square, SE onto Pennsylvania Avenue, SE westbound, significantly reducing vehicle-pedestrian conflicts. Build Alternative 2 would meet the purpose and need for the Proposed Action in promoting the principles set forth in the District’s Great Streets Initiative. Build Alternative 2 would improve pedestrian and vehicular safety, create a usable park space, improve multimodal connectivity and access, and support improved land use and community needs. Please refer to *Section 2.2.2, Build Alternative 2 – Conventional Intersection Alternative* for a discussion of the benefits of Build Alternative 2.

Additionally, Build Alternative 2 includes Americans with Disabilities Act (ADA)-compliant ramps and sidewalks to be improved or included in the Study Area where they do not exist currently. One of DDOT’s main objectives for this project is to support improved land use and community needs by improving public safety, expanding mobility choices, and improving safety and efficiency for all modes of travel. An important component of the project includes improvements to increase pedestrian safety at the intersection, making it more accessible to all pedestrians, including disabled persons and senior citizens. Build Alternative 2 also includes construction of additional crosswalks, some with shorter (and more direct) crossing distances, and improved signal timing to allow adequate time for pedestrians, particularly senior citizens and children, to safely cross the

intersection. DDOT will incorporate ADA requirements in the design phase for the intersection sidewalks and crosswalks. Bus stop locations that meet the design and ADA requirements of WMATA's guidelines for the *Design and Placement of Transit Stops (2009)* will be adhered to.

From: [REDACTED]
Sent: Thursday, April 03, 2014 3:20 AM
To: Casey, Austina (DDOT)
Subject: Twining (L'Enfant) Square

Dear Ms. Casey:

I have just purchased a house in Twining, just off 31st street on the West side of Pennsylvania Ave.

I would like to provide an opinion of what the Twining Square redevelopment should look like.

There should be verdant green space, with only 2 lanes Eastbound and 2 lanes Westbound passing through; separated by a verdant median with a high berm, similar to Connecticut Ave NW above K St. These lanes should bulge slightly to the North & South, respectively, around a powerful gushing fountain of 12-15' height, kind of a geyser, with a simple basin. The fountain could be turned off on very windy days. This fountain would add a freshness and a purifying quality to an otherwise gritty intersection, and it would highlight the proximity of the Anacostia River crossing. Bulging the East- & West-bound lanes of Pennsylvania Ave around the geyser would serve to slow traffic slightly, to allow a better sense of place and restore some of the dignity of this square named for Pierre Charles L'Enfant.

Minnesota Ave would follow a 2-lane perimeter of the square, with rounded corners. Signage would be added at the approaches to the square on Pennsylvania Ave alerting motorists to the need to turn right and traverse around the perimeter of the square in order to turn left across traffic onto Minnesota Ave.

I would recommend no benches or walkways in this center green space, but rather plan things and landscape architecture which would enhance the verdant gateway effect.

v/r,
Matthew J Guyette
Future Member of Congress

Sent from AOL Mobile Mail

April is National 9-1-1 Education Month!
Create a Safety Profile for your household at Smart911.com.
It's free, 100% private and secure.

Response to Comment 022-01

Thank you for your comments. They will be included in the project Administrative Record.

The design of the intersection and aesthetic elements are not discussed in detail or determined during the EA phase of the project. However, as design continues, DDOT will consider public and agency comments, and will coordinate with the National Park Service and the National Capital Planning Commission (NCPC) regarding the natural features, appearance, aesthetic treatment and maintenance of the park area. Although the final aesthetic treatment and design of the park area will not occur until final design of the intersection, the consolidated green space has the potential to be usable park space for passive recreational activities, a public plaza, or another variation of enhanced community space for residents and intersection users to enjoy. The intent is for the green space to enhance the community through the creation of valuable open space.

To help create a "gateway effect," DDOT's goals to support improved land use and community needs at this intersection as well as consolidate the fragmented green spaces would improve the appearance of the intersection and potentially attract private investment through the demonstration of a public commitment to the Great Street communities.

It is unlikely that the number of lanes on Pennsylvania Avenue, SE at this location could be reduced to two lanes due to Pennsylvania Avenue's designation as an emergency evacuation route in the District.

PUBLIC INVOLVEMENT

GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION



d. Infrastructure Project Management Administration

**Re: Scoping Letter: Environmental Assessment and Section 106 Evaluation
Pennsylvania Ave-Minnesota Ave Intersection Improvement Project**

Dear Recipient:

The District Department of Transportation (DDOT) and the Federal Highway Administration (FHWA), in coordination with the National Park Service (NPS) are proposing improvements to the intersection at Pennsylvania Avenue and Minnesota Avenue, S.E Washington, DC (Twining Square). Prior to moving the project through final design and construction, an Environmental Assessment (EA) to analyze the impacts of the proposed project is being prepared in accordance with the National Environmental Policy Act of 1969 (NEPA). Additionally, the effects of the project to historic and cultural resources will be evaluated in accordance with the Section 106 of the National Historic Preservation Act of 1966 (NHPA).

This project is part of the revitalization of Pennsylvania Avenue SE from the foot of the Sousa Bridge to Southern Avenue SE, which is one of the corridors identified for improvement in the District of Columbia's **Greet Streets Initiative**. As part of the NEPA and Section 106 processes, we would like to receive your input on environmental, historical, cultural and other resources and issues relevant to the project. We would appreciate your input on these factors, including the purpose and need by **October 15, 2012**.

Please send your comments to me at the address given below. You may visit the project websites (<http://ddot.dc.gov/PennMinnAvesProject> or <http://parkplanning.nps.gov/twiningsquare>) to leave your comments or for additional project information and updates.

Sincerely,

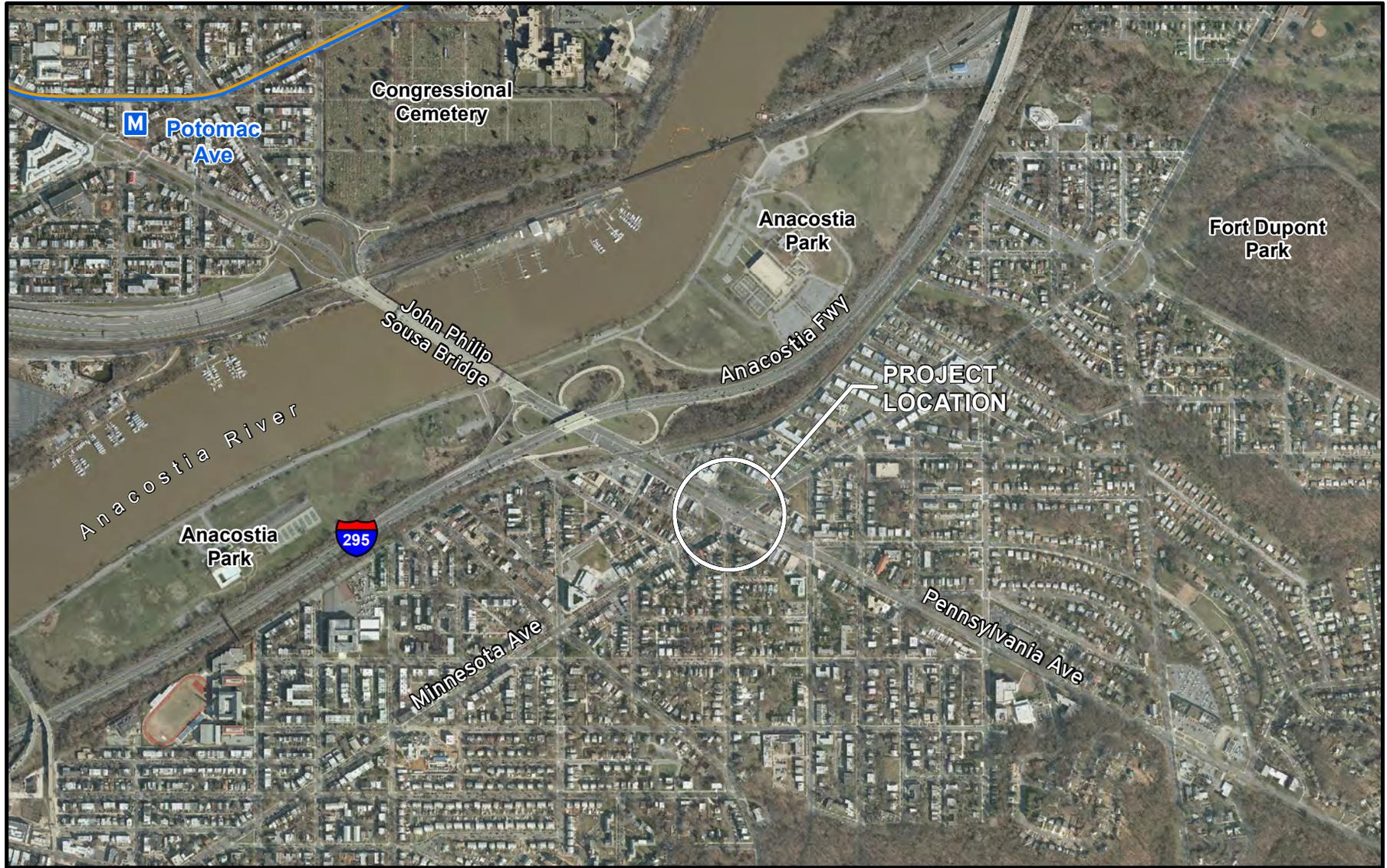
A handwritten signature in black ink that reads 'Austina Casey'.

Austina Casey
Project Manager
Project Development & Environment Division
Infrastructure Project Management Administration (IPMA)
District Department of Transportation
55 M Street S.E., Suite 500,
Washington, DC 20003

Enclosures

cc: Michael Hicks (FHWA)
Stephen Syphax (NPS)
Faisal Hameed (DDOT)

Pennsylvania Avenue / Minnesota Avenue Intersection Improvement Project



0 260 520 1,040 Feet

Figure 1
Project Location

Environmental Assessment and Section 106

Government of the District of Columbia
Department of Transportation



FOR IMMEDIATE RELEASE

Wednesday, September 12, 2012

Media Contact: Monica Hernandez – 202-671-2261, monica.hernandez@dc.gov

*****PUBLIC SCOPING NOTICE*****

**DDOT Seeking Public Input on the
Pennsylvania and Minnesota Avenues Intersection Improvement Project
Environmental Assessment and Section 106 Evaluation**

All Who Live, Work or Visit in the District Are Encouraged to Participate

(Washington, D.C.) The District Department of Transportation (DDOT) and the Federal Highway Administration (FHWA), in cooperation with the National Park Service (NPS) are proposing improvements to the intersection at Pennsylvania Avenue and Minnesota Avenue, S.E Washington, DC (Twining Square). This project is part of the *Great Streets Initiative* for improvements to Pennsylvania Avenue S.E., Washington, DC. Prior to moving the project through final design and construction, an Environmental Assessment (EA) to analyze the impacts of the proposed project is being prepared in accordance with the National Environmental Policy Act of 1969 (NEPA). Additionally, the effects of the project to historic and cultural resources will be evaluated in accordance with the Section 106 of the National Historic Preservation Act of 1966 (NHPA).

As part of the NEPA and Section 106 processes, we would like to receive your input on environmental, historical, cultural and other resources and issues relevant to the project. We would appreciate your input on these factors, including the purpose and need by **October 15, 2012**. Please send comments to the following addresses:

Penn/Minn Avenues Improvement Project
Attn: Austina Casey, Project Manager
Project Development & Environment Division
Infrastructure Project Management Administration (IPMA)
District Department of Transportation
55 M Street S.E., Suite 400,
Washington, DC 20003

Please visit the project websites to leave your comments or for additional project information and updates:

DDOT: <http://ddot.dc.gov/PennMinnAvesProject>

NPS: <http://parkplanning.nps.gov/twiningsquare>

DDOT is committed to ensuring that no person is excluded from participation in, or denied the benefits of, its projects, programs, and services on the basis of race, color, national origin, or gender, as provided by Title VI of the Civil Rights Act of 1964 or on the basis of disability as provided by the Americans with Disabilities Act.

If you need special accommodations or language assistance services (translation or interpretation), please contact Austina Casey at (202) 671-0494 or austina.casey@dc.gov. These services will be provided free of charge.

The District of Columbia Department of Transportation (DDOT) and the Federal Highway Administration (FHWA), in coordination with the National Park Service (NPS) are proposing improvements to the intersection at Pennsylvania Avenue and Minnesota Avenue, S.E Washington, DC (Twining Square area) (see **Figure 1**) as defined in the **Revitalization of Pennsylvania Ave, SE for the Great Streets Initiative Concept Design Final Report (Great Streets Concept Design Report)**, which was published in 2007.

Key to this project is the potential for land transfer between DDOT and NPS to facilitate the reconfiguration of the Twining Square area with the intent to:

- Improve pedestrian and vehicular safety;
- Create a consolidated, usable open space for community; and
- Improve multimodal connectivity and support land use.

Prior to moving the project through final design and construction, an Environmental Assessment (EA) of the proposed action and its potential effects is being prepared in accordance with the National Environmental Policy Act of 1969 (NEPA). Additionally, the project will also include an assessment of effects on historical and cultural resources in accordance with the Section 106 of the National Historic Preservation Act of 1966 (NHPA).

FHWA and NPS are co-lead federal agencies for the project.

Please submit your comments to the addresses below by **October 15, 2012**.

Mail:

Penn/Minn Avenues Improvement Project
Attn: Austina Casey, Project Manager
District Department of Transportation
IPMA/PDE
55 M Street SE, Suite 500,
Washington, DC 20003

**Website:
via DDOT**

<http://ddot.dc.gov/PennMinnAvesProject>

via NPS

<http://parkplanning.nps.gov/twiningsquare>

PENNSYLVANIA AVE-MINNESOTA AVE INTERSECTION IMPROVEMENT ENVIRONMENTAL ASSESSMENT

PROJECT INFORMATION



Figure 1: Twining Square

We thank you for your continued interest and participation in this project.



Project Background

In the past, the **Great Streets Initiative** and various other planning activities have been performed on Pennsylvania Avenue, SE and the surrounding community, including: Pennsylvania Avenue Task Force Vision Plan; Middle Anacostia River Crossing Transportation Study; and Pennsylvania Avenue, SE - Great Streets Framework Plan.

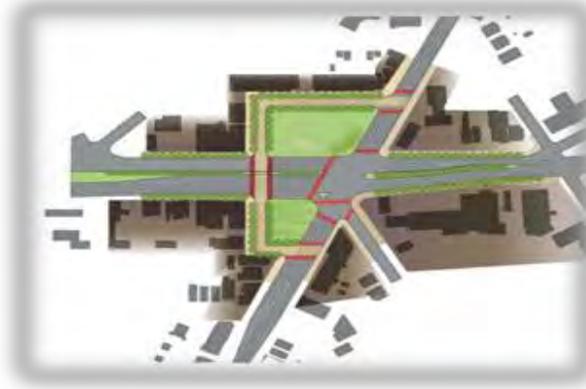
The **Great Streets Concept Design Report** identified the Twining Square area as one of three major pedestrian-oriented activity nodes along Pennsylvania Avenue that can offer a diverse and high quality experience and recommended modifications to the traffic configuration at the intersection to improve mobility and safety for vehicular traffic movements and for pedestrian and bicycle movements.

Proposed Alternatives

During the **Great Streets Initiative** process, the community and other stakeholders developed the following three conceptual configuration designs for the Twining Square area (see **Figures 2 through 4**). An additional concept design (**Figure 5**) was developed as a refinement of the previous concepts during follow-up coordination to the Great Streets Initiative planning process.

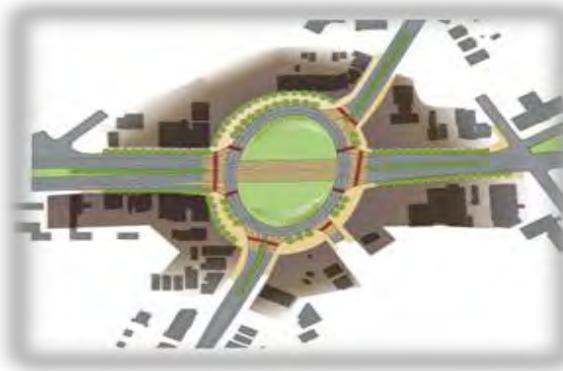
We would appreciate your input on these concepts and your assistance in identifying any environmental, cultural, or other resources within the project area. Please provide any comments or suggestions you may have regarding important factors that should be considered in the process, including the purpose and need.

**Figure 2:
Conventional Intersection**



Conventional intersection of Pennsylvania Avenue and Minnesota Avenue with consolidated movements to one intersection.

**Figure 3:
Ellipse**



Circle within the square with Pennsylvania Avenue bisecting. Will provide increased green space, consolidated open space, and remove left turning conflicts.

**Figure 4:
Modified Traffic Square**



Square with Pennsylvania Avenue bisecting. Modified to reduce the impact to residential properties along Minnesota Avenue and 25th Street. Will provide increased green space and improve safety by reducing turning movements; and is closer to the current configuration of the square.

**Figure 5:
Revised Traffic Square**



The Modified Traffic Square was revised to avoid taking commercial property. Will have the same benefits as the Modified Traffic Square.

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55 M Street, SE, Suite 400
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ddot@dc.gov

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TTY: (202) 673-6813

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Pennsylvania & Minnesota Avenues Intersection Improvements

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The District of Columbia Department of Transportation (DDOT) and the Federal Highway Administration (FHWA), in coordination with the National Park Service (NPS) are proposing improvements to the intersection at Pennsylvania Avenue and Minnesota Avenue, S.E Washington, DC. This project is part of the revitalization of Pennsylvania Avenue SE from the foot of the Sousa Bridge to Southern Avenue S.E., which is one of the corridors identified for improvement in the District of Columbia's [Greet Streets Initiative](#).

Prior to moving the project through final design and construction, an Environmental Assessment (EA) of the proposed action and its potential effects is being prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), the Council of Environmental Quality (CEQ) regulations(40 CFR 1500-1508), the FHWA's Environmental Impact and Related Procedures (23 CFR 771); and NPS Director's Order 12: Conservation Planning, Environmental Impact Analysis and Decision Making. Additionally, the project will also include the assessment of historic resources in accordance with the Section 106 of the National Historic Preservation Act of 1966 (NHPA). FHWA and NPS are co-lead federal agencies for the project.

In September 2012, DDOT solicited public feedback on identifying any environmental or cultural resources within the project area and providing comments on various conceptual designs. Additionally, DDOT asked that the public provide comments and suggestions regarding important factors that should be considered in the assessment, including the purpose and need. The comment period ended on October 15, 2012. Following public feedback and coordination with FHWA and NPS, DDOT will analyze the following two Build alternatives developed from the various conceptual design and a No-Build Alternative in the EA:

The **Alternative 1: Traffic Square Alternative** includes the following components:

- Eliminates the left-turn conflicts from Pennsylvania Avenue onto Minnesota Avenue;
- Consolidates green space;
- Adjust roadway alignments for traffic circulation;
- Reduces conflicts between pedestrian and vehicles by reducing crosswalk length and by providing pedestrian facilities;

The **Alternative 2: Conventional Intersection Alternative** includes the following components:

- Consolidates multiple traffic movements into one signalized intersection;
- Consolidates green space
- Provides left-turn movements in all directions,
- Increases left-turn queuing capacity.

Websites addresses:

- DDOT – <http://ddot.dc.gov/PennMinnAvesProject>
- NPS – <http://parkplanning.nps.gov/TwiningSquare>



Project at a Glance

Project Title: Pennsylvania & Minnesota Avenues Intersection Improvements
Providing Agency: District Department of Transportation
Office: Infrastructure Project Management Administration (IPMA)
Status: PROGRESS
Type: Renovation/Modernization
Start Date: August 01, 2012
Phone: (202) 673-6813

Milestones and Deliverables

Pennsylvania & Minnesota Avenues Intersection Improvements:

:
:
:

- [Related Documents](#)



Terry Bellamy
Director
Ask the Agency

For more information, please see the document links [below](#). Available are downloadable renderings of the Build Alternatives.

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- [Revitalization of Pennsylvania Avenue, SE for the Great Streets Initiative Concept Design — Final Report](#) ^[PDF]
- [Pennsylvania and Minnesota Avenues Intersection Improvement Project — Handout](#) ^[PDF]
- [Rendering of Alternative 1: Revised Traffic Square Alternative](#) ^[PDF]
- [Rendering of Alternative 2: Conventional Intersection Alternative](#) ^[PDF]

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Re-design & Improve Twining Square (Pennsylvania & Minnesota Avenues S.E. Intersection)

[National Capital Parks - East » Re-design & Improve Twining Square \(Pennsylvania & Minnesota Avenues S.E. Intersection\) » Document List](#)



Pennsylvania and Minnesota Avenues Intersection Improvement Project

Public Scoping

The District of Columbia Department of Transportation (DDOT), the National Park Service (NPS) and the Federal Highway Administration (FHWA) are proposing improvements to the intersection at Pennsylvania Avenue and Minnesota Avenue, SE, Washington, DC. Prior to moving the project through final design and construction, an Environmental Assessment (EA) of the proposed action and its potential effects is being prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), the Council of Environmental Quality (CEQ) regulations (40 CFR 1500-1508), the FHWA's Environmental Impact and Related Procedures (23 CFR 771); and NPS Director's Order 12: Conservation Planning, Environmental Impact Analysis and Decision Making. This public scoping is part of this process. Additionally, this project will also include the assessment of historic resources in accordance with the Section 106 of the National Historic Preservation Act of 1966 (NHPA). FHWA and NPS are co-lead federal agencies for the project.

This project is part of the revitalization of Pennsylvania Avenue SE from the foot of the Sousa Bridge to Southern Avenue SE, which is one of the corridors identified for improvement in the District of Columbia's Great Streets Initiative. Based on the program goals, the Great Streets Framework Plan, and input from the community, the following three conceptual designs were developed in the Great Streets Concept Design Report for reconfiguration of this intersection:

- Circle within the Square with Pennsylvania Avenue Bisecting (Ellipse);
- Conventional Intersection of Pennsylvania Avenue and Minnesota Avenue (Conventional); and
- Square with Pennsylvania Avenue Bisecting (Modified Square)

As a follow-up to the Great Streets planning process, an additional concept design (Revised Traffic Square) was developed to avoid the taking of private property.

At this early, scoping stage of the EA, our efforts are focused on identifying important environmental, historical, and cultural constraints and other concerns relevant to the EA and Section 106 process. We would appreciate your input on the concept designs. Your assistance in identifying any environmental or cultural resources within the project area, as well as any comments and suggestions you may have regarding important factors that should be considered in the assessment, including the purpose and need would be appreciated. Your input which will allow us to comprehensively address all potential impacts as the process moves forward.

Please submit your comments to the addresses below by October 15, 2012:

Contact Information

Austina Casey, Project Manager
Penn/Minn Avenues Improvement Project
District Department of Transportation

IPMA/PDE
55 M Street SE, Suite 500,
Washington, DC 20003
Email: ddot.comments@dc.gov



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ANC 7B MEETING

Government of the District of Columbia
 District Department of Transportation
 55 M Street, S.E., Suite 400
 Washington, DC 20003

PENNSYLVANIA AVE-MINNESOTA AVE INTERSECTION IMPROVEMENT ENVIRONMENTAL ASSESSMENT

Purpose & Need

The purpose is to provide improvements to the Pennsylvania and Minnesota Avenues, S.E. intersection in keeping with the District of Columbia's Great Streets Initiative as set forth in the **2007 Great Streets Framework Plan** and the **Great Streets Concept Design Report**.

The need for the project consists of the following:

- Improve pedestrian and vehicular safety;
- Improve multimodal connectivity and access;
- Create a consolidated, usable space; and
- Support land use.



Schedule	Date
Scope and Concepts Development	Winter 2013
Alternatives Development	Spring 2013
Results and Analysis	Spring 2013
Final Document	Summer 2013

Please give us your comments:

- DDOT staff will be available to answer questions regarding this project at the **ANC 7B Community Meeting** on **May 16, 2013** from **7:00PM to 9:00PM** at: Ryland Epworth United Methodist Church, 3200 S. St. S.E., Washington, DC 20020
- Website: <http://ddot.dc.gov/PennMinnAvesProject>
- Mail: Austina Casey, DDOT
55 M Street, S.E., Suite 400
Washington, DC 20003

Project Information

The District Department of Transportation (DDOT) does not discriminate on the basis of actual or perceived: race, color, religion, national origin, sex, age, marital status, personal appearance, sexual orientation, gender identity or expression, familial status, family responsibilities, matriculation, political affiliation, genetic information, disability, source of income, status as a victim of an intrafamily offense, or place of residence or business as provided by Title VI of the Civil Rights Act of 1964, the Americans with Disabilities Act, the D.C. Human Rights Act of 1977, and other related statutes.



Project Background

The District of Columbia Department of Transportation (DDOT) and the Federal Highway Administration (FHWA), in coordination with the National Park Service (NPS) are proposing improvements to the intersection at Pennsylvania Avenue and Minnesota Avenue, S.E Washington, DC (Twining Square area). Key to this project is the potential for land transfer between DDOT and NPS to facilitate the reconfiguration of the Twining Square area.

Prior to moving the project through final design and construction, an Environmental Assessment (EA) of the proposed action and its potential effects is being prepared in accordance with the National Environmental Policy Act of 1969 (NEPA). Additionally, the project includes an assessment of effects on historical and cultural resources in accordance with the Section 106 of the National Historic Preservation Act of 1966 (NHPA). FHWA and NPS are co-lead federal agencies for the project.

In September 2012, DDOT solicited public feedback on four conceptual designs and on identifying any environmental or cultural resources within the project area. Based on public and agency feedback, three alternatives are being analyzed in the EA (a No-Build alternative and two Build alternatives).

This project was conceived as part of the Great Street Initiative in the *Revitalization of Pennsylvania Ave, SE for the Great Streets Initiative Concept Design Final Report (Great Streets Concept Design Report)*, which was published in 2007. The *Great Streets Concept Design Report* identified the Twining Square area as one of three major pedestrian-oriented activity nodes along Pennsylvania Avenue that can offer a diverse and high quality experience and recommended modifications to the traffic configuration at the intersection to improve mobility and safety for vehicular traffic movements and for pedestrian and bicycle movements.



No-Build Alternative (current configuration)

- DDOT will not conduct any construction to improve the intersection.
- Pedestrian and traffic conflict at the intersection.
- No multimodal connectivity
- Divided green space



Alternative 1 Revised Square

- Eliminates the left-turn conflicts from Pennsylvania Avenue onto Minnesota Avenue;
- Consolidates green space;
- Adjust roadway alignments for traffic circulation;
- Reduces conflicts between pedestrian and vehicles by reducing crosswalk length and by providing pedestrian facilities.



Alternative 2 Conventional Intersection

- Consolidates multiple traffic movements into one signalized intersection;
- Consolidates green space
- Provides left-turn movements in all directions,
- Increases left-turn queuing capacity.

**U.S. Postage
Required**

**Austina Casey
Environmental Policy Analyst
District Department of Transportation
Infrastructure Project Management Administration
Project Development & Environment Division
55 M Street, S.E., Suite 400
Washington, DC 20003**

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1. Fold along line

Additional Comments

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NAYLOR DUPONT

Advisory Neighborhood Commission 7B

District of Columbia Government
3200 S Street, S.E.
Washington, D.C. 20020
email: anc7b@earthlink.net
web: www.anc7b.net
phone: (202) 584-3400 fax: (202) 584-3420

AGENDA

ANC 7B COMMUNITY MEETING

MAY 16, 2013

7:00 Call to Order, Roll Call

-PATRICIA HOWARD-CHITTAMS, 7B01 (SECY)
-ZINA WILLIAMS, 7B02 (PARLIAMENT)
-GARY BUTLER, 7B03
-PHILIP HAMMOND, 7B04 (TREAS)
-ROBIN MARLIN, 7B05 (VICE CHAIR)
-ROBERT JORDAN, 7B06
-ROBERT RICHARDS, 7B07 (CHAIR)

7:02 Treasurer's Report

7:05 Approval of Minutes-- April 18, 2013 Meeting

7:10 Police Reports (PSAs 605, 606, 607) and Neighborhood Watch Reports

7:20 DC Fire Department

7:25 Speaker -- Steven Rice, DC Office of Planning -- Ward 7 Projects

7:45 Speaker -- Austina Casey, DDOT--Penn/Minn Aves. Project Update

8:05 Wah Sing Restaurant, 2521 Penn. Ave, SE

8:10 Community Concerns

8:20 Old Business/New Business

8:25 Commissioners' Roundtable

8:45 Committee Reports/Standing Reports

--Skyland Update

-- Pennsylvania Avenue Construction Update

8:55 Announcements

9:00 Adjourn

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PUBLIC COMMENTS

From: Casey, Austina (DDOT)
Sent: Tuesday, September 04, 2012 6:55 AM
To: ROBIN MARLIN
Cc: dmorgan620@aol.com; pesavage@rcn.com; lmoore6577@aol.com; mphammond@msn.com;
Neighborhood
Subject: RE: [HillcrestDC] Request for Comments: Pennsylvania Ave & Minnesota Ave Project [1 Attachment]

Dear Commissioner Marlin,

Thanks for providing me information regarding redistricting of the area. We did send a letter, soliciting comments, to ANC 7B. I have attached the letter and other documents for you review. Please feel free to send in any comments/suggestions/input you may have on the project.

Thanks for your help.

-Austina Casey

From: ROBIN MARLIN [rrmarlin@verizon.net]
Sent: Thursday, August 30, 2012 11:56 PM
To: Casey, Austina (DDOT)
Cc: dmorgan620@aol.com; pesavage@rcn.com; lmoore6577@aol.com; mphammond@msn.com;
Neighborhood
Subject: Fw: [HillcrestDC] Request for Comments: Pennsylvania Ave & Minnesota Ave Project [1 Attachment]

Ms. Casey,

Will DDOT ask ANC 7B to comment? As you may or may not know, this area, through the 2012 ANC SMD redistricting, will become part of **ANC 7B**. Too, there is a Pa Ave Task Force which over the past 8 or more years has been extremely involved with the OP plan and Pa Avenue Great Streets for conceptual ideas for the Pa Ave corridor from the Sousa Bridge to Southern Avenue.

On behalf of ANC 7B I have been the contact for projects pertaining to the Pa Avenue corridor east of the Sousa Bridge. On behalf of ANC 7B we would like to be included in the discussion of Minnesota and Pa Avenue, SE.

Sincerely,
Commissioner Marlin

--- On **Thu, 8/30/12**, **Veronica O. Davis** <veronica_o_davis@yahoo.com> wrote:

From: Veronica O. Davis <veronica_o_davis@yahoo.com>
Subject: [HillcrestDC] Request for Comments: Pennsylvania Ave & Minnesota Ave Project [1 Attachment]
To: hillcrestdc@yahoogroups.com, Fairfax_Village_DC@yahoogroups.com,
hcca_bod_dc@yahoogroups.com
Date: Thursday, August 30, 2012, 11:28 PM

[Attachment(s) from Veronica O. Davis included below]

Greetings Neighbors,

The Hillcrest Community Civic Association (HCCA) President, Karen Williams, has been asked to prepare a comment letter on behalf of HCCA on the Pennsylvania Ave & Minnesota Ave Project. DDOT is in the preliminary stages of an Environmental Assessment of the Pennsylvania Ave and Minnesota Ave SE intersection. Specifically DDOT is looking for comments on the conceptual designs, and any input on cultural and environmental resources in the project area.

The Street, Traffic, and Transportation Committee has prepared a comment form, which is attached. **Please email the attached comment form to me (yod2@cornell.edu) and cc: Karen Williams (klwilliams@HillcrestDC.com) by September 21, 2012.** We will compile all comments and present a draft letter to the HCCA membership at the October Meeting. A letter signed by the HCCA President and ALL comments will be submitted to DDOT.

You can also provide your comments directly to DDOT via online form or email, by October 15, 2012.

Mail:

Penn/Minn Avenues Improvement Project
ATTN: Austina Casey, Project Manager
District Department of Transportation, IPMA/PDED
55 M Street SE, Suite 500
Washington, DC 20003

Online:

ddot.dc.gov/PennMinnAvesProject

For more information please visit the committee blog (including the comment form):

<http://hccatransport.blogspot.com/>

Cheerfully,
Veronica

Veronica O. Davis, PE

Life in the Village: <http://fairfaxvillage.blogspot.com>

Hillcrest Transportation Committee: <http://hccatransport.blogspot.com/>

"Because the people who are crazy enough to think they can change the world, are the ones who do." - Steve Jobs

Attachment(s) from **Veronica O. Davis**

1 of 1 File(s)

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Joan E. McKenzie
3639 Highwood Drive, SE
Washington, DC 20020

September 19, 2012

Austina Casey, Project Manager
Penn/Minn Avenues Improvement Project
DDOT
55 M Street, SE, Suite 500
Washington, DC 20003

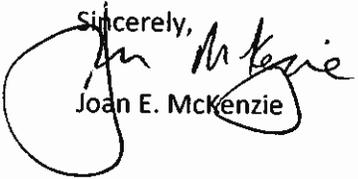
Dear Austina:

I am writing to comment on the improvement of the Penn/Minn Avenue intersection. I am very pleased that this intersection will finally be improved because it is a traffic nightmare. Since I am not a traffic engineer I will not comment on the specific design. I would like to instead comment on the goals that I hope you will strive to meet in redesigning the intersection. They are as follows:

1. Move the traffic from Minn(in both directions) onto Penn in a more efficient manner. Right now having to go around the current square configuration is inefficient and slow. It should be easier to make a left or a right onto Penn from Minn going south and also to cross Penn and continue south on Minn without going around a square. I support any plan that moves the traffic more efficiently—whether it being a circle or a conventional intersection. I do not support keeping the current square concept because it doesn't work. I have the same comment for travelling north on Minn and trying to cross Penn.
2. Make it easier to get from Penn inbound onto Minn going south and to access Anacostia Park, the Post Office and YES Market. It is crazy that you can't make a left onto Minn or to access Anacostia Park, the Post Office or YES Market when travelling inbound on Penn.
3. Make it easier to turn onto Minn going south from Penn outbound. The current configuration is confusing. It is also difficult to access the Post Office and to park at the Post Office.
4. Make it easier to get to and patronize the current businesses on Penn such as the YES market and Thai Orchard. It is amazingly difficult to get to these businesses and to park depending upon which direction you are travelling on either Penn or Minn.

Efficient traffic flow and easy access to the businesses and Anacostia Park are my primary concerns. Please put me on the mailing list for additional information about public meetings, etc. concerning this very important project. Thank you for your attention to this matter.

Sincerely,


Joan E. McKenzie

From: Veronica O. Davis [mailto:veronica_o_davis@yahoo.com]
Sent: Monday, April 29, 2013 10:23 AM
To: Casey, Austina (DDOT)
Cc: Kelsi Bracmort; Jordan, Robert A. (ANC 7B06); Shane Farthing; Sebastian, Jim (DDOT); winslowsr13@aol.com; klwilliams@HillcrestDC.com; m4jjohnson@msn.com
Subject: Proposed Improvements at Intersection of Pennsylvania and Minnesota Avenues, S.E

Ms. Casey,

I'll be in Austin on May 16th, so I will not be in attendance at the meeting. Below are my comments on the proposed alternatives.

My major concern is the alternatives do not include a discussion of bicycle movement through this intersection. While bicycles are not a large portion of the mode share, there are several members of the Ward 7 community that bike through this intersection to access the bike/pedestrian path on the Sousa Bridge.

Between the traffic volumes on Pennsylvania Ave and the general chaos of this intersection, most of the cyclists in this area use the sidewalk on the south side of Pennsylvania Ave to get to the bike/pedestrian path on the bridge. Very few people use the north bike/ped path on the bridge, because there is no continuous sidewalk or curb cuts on the north side of Pennsylvania Ave west of the Citgo.

As someone who commutes via bike through this intersection almost daily, my preferred alternative is "Alternative 1 Revised Square". Being able to continue straight through that intersection would be a big improvement over the current configuration. This not only benefits cyclists, but also parents with strollers and handicap populations.

The expanded sidewalk on the SW corner of Pennsylvania Ave and L'Enfant Square would minimize the conflict between pedestrians waiting at the bus stop and bikes trying to get to bridge. My suggested revision to this alternative is to expand the sidewalk on the south side of Pennsylvania Ave from 27th Street to L'Enfant Square similar to "multi-modal" sidewalk east of 27th Street SE. Expanded sidewalks are also needed on the NE corner of Pennsylvania and Minnesota Ave to accommodate people waiting for the bus.

The other advantage of Alternative 1 is it prevents motorists coming off 295 NB from flying across 3 lanes of traffic to make the left turn on Minnesota Ave. Lastly, Alternative 1 gives Pennsylvania Ave a much needed road diet transforming it into a neighborhood boulevard.

The one advantage of "Alternative 2 Conventional Intersection" is being able to go southbound on Minnesota Ave from Pennsylvania Ave without extra effort. However the 8-10 lanes at the intersection seems excessive. In addition, the inability to continue straight on the south sidewalk of Pennsylvania Ave is an inconvenience for wheelchairs, parents with strollers, and cyclists.

I hope that as this project moves forward pedestrian/bicyclist safety, handicap accessibility, and quality of life of residents are given priority over moving Maryland drivers through the corridor.

Veronica O. Davis, P.E.
Hillcrest (Fairfax Village) Resident

--- On Sat, 4/27/13, Trish Chittams <MinTrish@GMail.com> wrote:

From: Trish Chittams <MinTrish@GMail.com>
Subject: [MPD-6D] Fwd: ANC 7B Community Meeting for May 16, 2013 @ 7pm. Re:Project Information: Proposed Improvements at Intersection of Pennsylvania and Minnesota Avenues, S.E
To: HillcrestDC@yahoogroups.com, MPD-6D@yahoogroups.com, "Ward7@yahoogroups.com" <Ward7@yahoogroups.com>
Date: Saturday, April 27, 2013, 9:22 AM

> Please note that DDoT will be attending the next ANC7B meeting regarding the reconfiguration of L'Enfant Square (sp?). This reconfiguration will effect traffic at the intersection of Minnesota and Pennsylvania Avenues and the residences along the square. Please come out to hear the plans which will effect your daily lives.

Trish

>
>

From: Derrick Woody [<mailto:derrick.l.woody@gmail.com>]

Sent: Wednesday, December 12, 2012 11:33 AM

To: Casey, Austina (DDOT)

Cc: Hameed, Faisal (DDOT); Bellamy, Terry (DDOT); Zimbabwe, Sam (DDOT); Khalid, Muhammed (DDOT); Gary Cha; Janice Yun; Kathy Rachels; Muluneh, Dawit (DDOT)

Subject: Re: Pennsylvania Avenue SE - Reconstruction

Austina:

Again, thanks for sending the information over.

DDOT has been really great with helping to address the concerns of property and business owners in commercial districts in which DDOT was investing. The agency's recognition that how they invest was critical to economic development has lead to amazing returns to the District.

For the 2300 block of Pennsylvania Avenue (south side), the issue still remains as to **the feasibility of a left turn at Prout Street SE from the westbound side of Pennsylvania Avenue SE**. Gary's store and any others built along the 2300 block south side will all face access issues for their customer base coming from the east. Is it possible for DDOT to explore options for this left turn?

Sincerely,

Derrick Lanardo Woody
Chief Executive Officer



2651 16th Street NW
Suite 806
Washington, DC 20009
202.270.8456
derrick.l.woody@gmail.com

real estate & land use advisory

On Dec 11, 2012, at 2:40 PM, "Casey, Austina (DDOT)" <austina.casey@dc.gov> wrote:

Hello Mr. Woody,

I look forward to hearing from you. In the meantime, I know you said below that you had gone to the DDOT website for information but I wanted to send you a direct link to the project, Pennsylvania Ave/Minnesota Ave Intersection Improvement, website (both DDOT and NPS), just in case:

Website:

via DDOT

<http://ddot.dc.gov/PennMinnAvesProject>

via NPS

<http://parkplanning.nps.gov/twiningsquare>

You should be able to get background information about the project and concept designs for the intersection. We are currently working with NPS to develop those concepts into viable alternatives that will be analyzed in the Environmental Assessment. We will update the website as the project progresses.

Talk to you soon.

-Tina Casey
202-671-0494

From: Derrick Woody [mailto:derrick.l.woody@gmail.com]

Sent: Tuesday, December 11, 2012 2:25 PM

To: Hameed, Faisal (DDOT)

Cc: Bellamy, Terry (DDOT); Zimbabwe, Sam (DDOT); Khalid, Muhammed (DDOT); Gary Cha; Janice Yun; Kathy Rachels; Muluneh, Dawit (DDOT); Casey, Austina (DDOT)

Subject: Re: Pennsylvania Avenue SE - Reconstruction

Thanks, Faisal. We will reach out to Austina to make sure that Gary's concerns are reported.

Sent from my iPhone

On Dec 11, 2012, at 2:10 PM, "Hameed, Faisal (DDOT)" <faisal.hameed@dc.gov> wrote:

We have recently re-started the Environmental Assessment (EA) for the Penn-Minn Ave Intersection. We hope to have the EA approved in the next 6 months or so, depending upon NPS approval. After which design can start, followed by construction.

Austina Casey (copied) is the PM for this EA.

Thanks

Faisal

Faisal Hameed

Manager | Project Development & Environment Division | Infrastructure Project Management Administration (IPMA)

d. District Department of Transportation | 55 M Street, SE, Suite 500 | Washington DC 20003
202-671-2326 (Desk) | www.ddot.dc.gov

From: Bellamy, Terry (DDOT)

Sent: Tuesday, December 11, 2012 11:33 AM

To: Derrick Woody; Hameed, Faisal (DDOT); Zimbabwe, Sam (DDOT); Khalid, Muhammed (DDOT)

Cc: Gary Cha; Janice Yun; Kathy Rachels; Muluneh, Dawit (DDOT)

Subject: RE: Pennsylvania Avenue SE - Reconstruction

Thanks for the email. I am asking Faisal Hameed to provide you with the latest information on this environmental work for this location.

Terry Bellamy

Director | Desk (202) 671-4097 | Terry.Bellamy@dc.gov | www.ddot.dc.gov

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Support the DC One Fund Campaign, Each One Give One.

Learn more at www.dconefund.org or www.onefund.dc.gov. One City, Working Together!

From: Derrick Woody [<mailto:derrick.l.woody@gmail.com>]

Sent: Tuesday, December 11, 2012 9:50 AM

To: Bellamy, Terry (DDOT)

Cc: Gary Cha; Janice Yun; Kathy Rachels

Subject: Pennsylvania Avenue SE - Reconstruction

Importance: High

Hey Terry:

I hope that all is going well.

I am working with Gary Cha, owner of YES! Organic stores throughout the city. He has a store at 2323 Pennsylvania Avenue SE in the Fairlawn neighborhood. The store was slated to close, but Gary is working diligently to have the store re-branded for the neighborhoods there and to preserve a much needed grocery store on the Pennsylvania Avenue corridor.

One issue will remain ... providing easy access for customers to get to the store. Most of the neighborhood customers are further east and have to travel west on Pennsylvania Avenue to get to the store, but getting there from the east is no easy matter with the network of one way streets and no left turn access from Pennsylvania Avenue to Prout Street SE.

I went to your website for an update and to try not to interrupt your day, but found no information on Pennsylvania Avenue SE between Fairlawn Avenue and Minnesota Avenue. When is DDOT slated to reconstruct this stretch, and where can one find a copy of any plans for this stretch?

I recall that this stretch was fairly complicated given some of the land assemblage which needed to be done for reconfiguration of the Minnesota intersection in particular.

If there is a DDOT point person for this project, please let me know.

Thanks in advance!

Sincerely,

Derrick Lanardo Woody
Chief Executive Officer

<image001.png>

2651 16th Street NW
Suite 806
Washington, DC 20009
202.270.8456
derrick.l.woody@gmail.com

real estate & land use advisory

Appendix

D

Construction Cost

Estimate

and

Schedule

**PENNSYLVANIA AVE. SE / MINNESOTA AVE. SE
ALTERNATIVE 1 - REVISED SQUARE
CONSTRUCTION COST ESTIMATE (CONCEPTUAL PLAN)**

COST ESTIMATE ITEMS	UNITS	QUANTITY	UNIT COST	AMOUNT
Pennsylvania Ave. / Minnesota Ave. - Alternative 1				
Revised Traffic Square Alternative				
1 Demolition				
A Pavement Demo	SF	37,550	\$ 3.00	\$ 112,650
B Sidewalk Demo	SF	36,400	\$ 1.00	\$ 36,400
2 Roadway				
A Overlay Pavement (2" Mill and 2" HMA Surface Course)	SF	117,900	\$ 2.50	\$ 294,750
B Full Depth Pavement (2" HMA Surface, 10" PCC Base, 6" GAB)	SF	28,100	\$ 12.00	\$ 337,200
C Rasied Median	SF	6,650	\$ 10.00	\$ 66,500
D Pavement Repair (10%)	SF	11,790	\$ 13.00	\$ 153,270
3 Miscellaneous Items				
A Sidewalk / Trail Area (exposed aggregate sidewalk)	SF	43,100	\$ 8.50	\$ 366,350
B Driveway Entrance	SF	5,100	\$ 7.00	\$ 35,700
C Bus Pad	SF	1,860	\$ 14.00	\$ 26,040
D Grassed or Landscape Area	SF	70,000	\$ 1.50	\$ 105,000
E Granite Curb & PCC Gutter	LF	4,600	\$ 57.00	\$ 262,200
F Granite Curb	LF	3,050	\$ 50.00	\$ 152,500
G PCC Wheelchair/Bicycle Ramp	Each	39	\$ 1,000.00	\$ 39,000
4 Traffic Signals				
A Traffic Signal	Each	3	\$ 200,000.00	\$ 600,000
Subtotal				\$ 2,587,560
5 Misc. Cost by Percent for each of the following				
A Drainage and Stormwater Management	60.0%			\$ 1,552,536
B Erosion and Sediment Control	5.0%			\$ 129,378
C Utility Adjustments and Relocations	30.0%			\$ 776,268
D Street Lighting	40.0%			\$ 1,035,024
E Signing and Pavement Marking	10.0%			\$ 258,756
F Grading and Earthwork	15.0%			\$ 388,134
G Landscaping/Tree Removal	5.0%			\$ 129,378
Subtotal				\$ 6,857,034
Maintenance of Traffic	25.0%			\$ 1,714,259
Mobilization	10.0%			\$ 685,703
New Subtotal				\$ 9,256,996
Concept Level Contingency	25.0%			\$ 1,714,259

TOTAL AMOUNT \$ 10,971,254

The costs shown in this estimate represent an estimate of probable costs prepared in good faith and with reasonable care. HNTB has no control over the costs of construction labor, materials, or equipment, nor over competitive bidding or negotiating methods and does not make any commitment or assume any duty to assure that bids or negotiated prices will not vary from this estimate.

**PENNSYLVANIA AVE. SE / MINNESOTA AVE. SE
ALTERNATIVE 2 - CONCEPTIONAL INTERSECTION
CONSTRUCTION COST ESTIMATE (CONCEPTUAL PLAN)**

COST ESTIMATE ITEMS	UNITS	QUANTITY	UNIT COST	AMOUNT
Pennsylvania Ave. / Minnesota Ave. - Alternative 2				
Conventional Intersection				
1 Demolition				
A Pavement Demo	SF	19,600	\$ 3.00	\$ 58,800
B Sidewalk Demo	SF	36,400	\$ 1.00	\$ 36,400
2 Roadway				
A Overlay Pavement (2" Mill and 2" HMA Surface Course)	SF	138,100	\$ 2.50	\$ 345,250
B Full Depth Pavement (2" HMA Surface, 10" PCC Base, 6" GAB)	SF	20,700	\$ 12.00	\$ 248,400
C Rasied Median	SF	4,200	\$ 10.00	\$ 42,000
D Pavement Repair (10%)	SF	13,810	\$ 13.00	\$ 179,530
3 Miscellaneous Items				
A Sidewalk / Trail Area (exposed aggregate sidewalk)	SF	38,900	\$ 8.50	\$ 330,650
B Driveway Entrance	SF	5,600	\$ 7.00	\$ 39,200
C Bus Pad	SF	2,550	\$ 14.00	\$ 35,700
D Grassed or Landscape Area	SF	67,700	\$ 1.50	\$ 101,550
E Granite Curb & PCC Gutter	LF	4,550	\$ 57.00	\$ 259,350
F Granite Curb	LF	1,800	\$ 50.00	\$ 90,000
G PCC Wheelchair/Bicycle Ramp	Each	24	\$ 1,000.00	\$ 24,000
4 Traffic Signals				
A Traffic Signal	Each	1	\$ 200,000.00	\$ 200,000
B Pedestrian Crosswalk Signal	Each	1	\$ 175,000.00	\$ 175,000
Subtotal				\$ 2,165,830
5 Misc. Cost by Percent for each of the following				
A Drainage and Stormwater Management	60.0%			\$ 1,299,498
B Erosion and Sediment Control	5.0%			\$ 108,292
C Utility Adjustments and Relocations	30.0%			\$ 649,749
D Street Lighting	40.0%			\$ 866,332
E Signing and Pavement Marking	10.0%			\$ 216,583
F Grading and Earthwork	15.0%			\$ 324,875
G Landscaping/Tree Removal				\$ -
Subtotal				\$ 5,631,158
Maintenance of Traffic	25.0%			\$ 1,407,790
Mobilization	10.0%			\$ 563,116
New Subtotal				\$ 7,602,063
Concept Level Contingency	25.0%			\$ 1,407,790

TOTAL AMOUNT \$ 9,009,853

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**PENNSYLVANIA AVE. SE / MINNESOTA AVE. SE
CONSTRUCTION COST ESTIMATE - UNIT COSTS**

2" AC Surface +2" Mill

Milling	\$ 7.00	SY	\$ 0.78	SF
AC	\$ 120.00	Ton	\$ 1.47	SF
Tack	\$ 1.50	SY	\$ 0.17	
		Total	\$ 2.41	
		Say	\$ 2.50	SF

Full Depth Pavement

2" Surface	\$ 120.00	Ton	\$ 1.47	SF
10" PCC Base	\$ 300.00	CY	\$ 9.26	SF
Tack	\$ 1.50	SY	\$ 0.17	SF
6" GAB	\$ 50.00	CY	\$ 0.93	SF
		Total	\$ 11.82	SF
		Say	\$ 12.00	SF

Pavement Repair

Demoliton	\$ 50.00	CY	\$ 2.78	SF
10" PCC Base	\$ 300.00	CY	\$ 9.26	SF
6" GAB	\$ 50.00	CY	\$ 0.93	SF
		Total	\$ 12.96	
		Say	\$ 13.00	SF

Pavement Demolition

\$ 50.00	CY	\$ 2.78	SF
	Say	\$ 3.00	SF

Sidewalk Demolition

\$ 40.00	CY	\$ 0.49	SF
	Say	\$ 1.00	SF

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Raised Median					
	\$ 350.00	CY	\$ 9.72		SF
		Say	\$ 10.00		SF
Sidewalk / Trail Area					
Sidewalk	\$ 70.00	SY	\$ 7.78		SF
			\$ 7.78		
		Say	\$ 8.50		SF
Driveway Entrance					
	\$ 275.00	CY	\$ 5.94		SF
6" GAB	\$ 50.00	CY	\$ 0.93		SF
			\$ 6.87		
		Say	\$ 7.00		SF
Bus Pad					
	\$ 450.00	CY	\$ 13.89		SF
		Say	\$ 14.00		SF
Grassed or Landscape Area					
	\$ 10.00	SY	\$ 1.11		SF
		Say	\$ 1.20		SF
Curb & Gutter					
Curb	\$ 50.00	LF	\$ 50.00		LF
Gutter	\$ 300.00	CY	\$ 6.48		SF
		Total	\$ 56.48		LF
		Say	\$ 57.00		LF
Curb	\$ 50.00	LF	\$ 50.00		LF
PCC Wheelchair/Bicycle Ramp			\$ 1,000.00		EA

The costs shown in this estimate represent an estimate of probable costs prepared in good faith and with reasonable care. HNTB has no control over the costs of construction labor, materials, or equipment, nor over competitive bidding or negotiating methods and does not make any commitment or assume any duty to assure that bids or negotiated prices will not vary from this estimate.

Appendix

E

Section 106
Consultation
and
Cultural Resources
Information

DC SHPO CORRESPONDENCE

GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION



Infrastructure Project Management Administration

December 17, 2010

Mr. David Maloney
District of Columbia Historic Preservation Office
2000 14th Street, NW, 4th Floor
Washington, DC 20009

RE: Section 106 consultation for the Pennsylvania Avenue at Minnesota Intersection Project

Dear Mr. Maloney:

The District Department of Transportation (DDOT), in cooperation with the National Park Service (NPS) and Federal Highway Administration (FHWA), is preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) for proposed changes to the intersection of Pennsylvania and Minnesota Avenues, SE. The project will consider effects to historic properties in accordance with the requirements of Section 106 of the National Historic Preservation Act (16 U.S.C. §470) and its implementing regulations, 36 CFR Part 800. The purpose of this letter is to formally initiate Section 106 consultation for the Pennsylvania and Minnesota Avenues Intersection Project.

The proposed project was developed as part of the District of Columbia's Great Streets Improvement Project. DDOT proposes to improve the traffic flow and pedestrian safety at the intersection by reconfiguring the road alignments and traffic patterns. The project also includes the 25th St SE intersection with Minnesota Avenues, the green space area designated as Twining Circle or L'Enfant Square, and two small side streets designated as L'Enfant Square SE. Proposed improvements will come in to, but not completely encompass, the intersection of Fairlawn Ave SE and Pennsylvania Ave SE. The project is located in existing DDOT and NPS right-of-way and would require a land exchange between DDOT and NPS. Elements of this EA will include documentation of the purpose and need, identification of sensitive environmental resources, development of context sensitive alternatives, evaluation of impacts to cultural, natural, and socio-economic resources, agency/stakeholder coordination, and public involvement.

We will contact you shortly to set up meetings to discuss this project. If you have any additional questions or comments, please contact me. Thank you very much, and we look forward to working with you on this project.

Sincerely,

Luan Tran
Project Engineer, IPMA
202-671-4649

Cc: Andrew Lewis, DCHPO; Austina Casey, DDOT; Mike Hicks, FHWA DC Division; Joel Gorder, NPS; Nancy Witherell, NCPC; David Levy, NCPC; Caroline Ellis, HNTB

GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION



Infrastructure Project Management Administration

March 1, 2011

Mr. Andrew Lewis
District of Columbia Historic Preservation Office
1100 4th Street SW, Suite E650
Washington, DC 20024

Dear Mr. Lewis,

The District Department of Transportation (DDOT) wishes to formally submit the proposed Area of Potential Effects (APE) to the District of Columbia Historic Preservation Office (DC HPO) for the proposed design improvements at Pennsylvania and Minnesota Avenues, SE. In order to make the proposed changes at this intersection, an exchange of land jurisdiction between the National Park Service (NPS) and DDOT at Pennsylvania Avenue at Minnesota Avenue, SE is necessary. DDOT's design consultant, HNTB, will be preparing an Environmental Assessment (EA) for the exchange of jurisdiction and proposed improvements specific to the intersection, for subsequent NPS signature. The Federal Highway Administration (FHWA) will be a concurring agency for that Environmental Assessment.

DDOT met with Ms. Ruth Troccoli of the DC Historic Preservation Office on February 2, 2011 to discuss the coordination process and begin preliminary discussions with the DC HPO. A letter was sent to the DC HPO to initiate the Section 106 process in December of 2010.

Project Introduction

DDOT proposes to improve the traffic flow and pedestrian safety at the intersection of Pennsylvania Avenue SE and Minnesota Avenue SE by reconfiguring the road alignments and traffic patterns at this major intersection. The project also includes the 25th Street SE intersection with Minnesota Avenues, the green space area designated as Twining Circle or L'Enfant Square, and two small side streets designated as L'Enfant Square SE. Proposed improvements will come in to, but not completely encompass, the intersection of Fairlawn Avenue SE and Pennsylvania Ave SE. The project area is currently a mixture of residential rowhouses and commercial structures. A single multi-story condominium complex has been constructed recently.

Attachment A indicates the proposed project Limit of Disturbance (LOD) (indicated in blue) against the current USGS Anacostia and Washington East Quadrangles. DDOT has specified development of five potential alternatives; a No Build alternative, and four build alternatives (1) a conventional intersection alternative, (2) a traffic circle alternative, (3) a traffic square alternative, and (4) a revised square alternative (DDOT's current recommended alternative). Attachment B provides the anticipated footprint for the four build alternatives (the No Build has no anticipated LOD). The Study LOD has been developed using a composite of all proposed alternatives, representing the widest possible LOD.

Project activities which will result in ground disturbance include removal of existing pavement and sidewalks, construction of new traffic lanes and sidewalks, relocation of traffic control signals, street lights, landscaping and utilities. Direct impact to any existing structure is anticipated under two alternatives (the Traffic Circle Alternative and the Traffic Square Alternative). As the project involves primarily changes at ground level, it is anticipated that indirect visual effect will be limited to those areas directly fronting the streets involved. The only anticipated above ground element, the relocation and improvement of traffic control lights, represents a restricted visual change.

Area of Potential Effects definition for archaeological consideration (Area of Potential Effect-Direct)

The archaeological Area of Potential Effects (APE) is restricted to the area of direct impact from proposed ground disturbing activities. The project has no known non-contiguous wet lands remediation or storage and staging areas for consideration. As such, the archaeological APE has been defined as the Study LOD, indicated in blue on Attachment C.

Area of Potential Effects, definition for historic architectural resources and cultural landscapes consideration (Area of Potential Effects Direct and Indirect)

The historic architecture and history APE is based upon a site visit and line-of-sight survey. Since the project's direct impact is confined to the Study LOD, the potential impact to historic structures is restricted to the two alternatives noted above, and the Architectural APE-Direct includes the full parcels of the three properties potentially effected (Attachment C). The Architectural APE-Indirect was delineated to include the full parcel of all structures adjacent to the LOD, and including one building beyond the LOD (Pennsylvania Avenue, Minnesota Avenue, and 25th Street, and Pennsylvania Avenue and Fairlawn Avenue) (Attachment D). The following text provides a narrative description of this APE-Indirect. Attachment E provides photographs of the current visual conditions within the delineated APE-Indirect.

Line of sight is truncated in the northwest portion of the APE by the artificial berms constructed to carry I-295 over Pennsylvania Avenue. From this overpass, the APE-Indirect boundary runs southeast towards Fairlawn Avenue, passing over the elevated CSX tracks, and crossing Fairlawn Avenue at its intersection with the western extension of the L'Enfant Square roadway. Beyond this point on Fairlawn Avenue line of sight for the LOD is either interrupted or occluded by other structures fronting Pennsylvania Avenue and Fairlawn Avenue.

From this intersection, the APE-Indirect boundary runs southeast along the alley until the western parcel line of the first parcel abutting Twining/L'Enfant Square. The boundary then runs northeast to the rear parcel line, and turns southeast again to run along the rear parcel lines of rowhouses facing the Square, expanding north to include a residential structure visible through a gap in the rowhouses. The boundary then turns north to run along the rear parcel lines of a detached house and a small block of rowhouses on the west side of Minnesota Avenue. Views of the majority of the project LOD beyond Burns Street on Minnesota Avenue are partially or fully occluded by intervening structures. The boundary then follows Burns Street to Minnesota Avenue, and across Minnesota Avenue, turning north until 27th Street SE to include an empty lot on Minnesota Avenue, and then south to follow 27th Street. The boundary then turns east, following a parcel line to 28th Street SE, including the four rowhouses on 27th Street which have unblocked views of the project area.

From here the boundary runs south along 28th Street SE, then turns west along the southern parcel line and turning south down 27th Street. At the next alley, the boundary again turns east, then south along the east boundary of a school complex and down to O Street SE. At O Street SE, the boundary turns east again, and follows the perimeter of a small NPS park, south down 28th Street, and then northwest up

Pennsylvania Avenue back to the eastern parcel line of a commercial structure on 27th Street SE. The boundary then follows the parcel line south to an alley and west back to 27th Street. At 27th Street SE, the boundary again turns south to encompass a commercial structure, turns to follow its southern parcel boundary, and then runs north and northeast to follow the rear parcel lines of commercial structures and a shopping complex on Pennsylvania Avenue. The boundary then turns south to follow the eastern and southern parcel lines of two structures fronting 25th Street.

The boundary crosses over 25th Street SE and turns south to reach the follow the southwestern parcel line of two structures fronting 25th Street, and from there turns southwest to follow the rear property lines of a church and rowhouses along Minnesota Avenue to include the first four structures past Whites Place SE. Here the boundary turns northwest to follow the parcel line and crosses Minnesota Avenue, jogging slightly west then continuing north to follow the first alley west of Nicholson Street SE to the rear parcel lines of rowhouses fronting Minnesota Avenue, turns northeast again to follow the rear parcel lines to Nicholson Street SE, and then follows Nicholson Street SE south to the rear parcel line of Martha's Market on Minnesota Avenue.

From there the boundary follows the rear parcel lines of commercial properties fronting Minnesota Avenue, running northwest behind these stores, the newly completed condominium structure, and out past the rear of the Sunoco Station to Fairlawn Avenue. Finally, the boundary travels northwest across Fairlawn Avenue and the no-elevated portions of the CSX railway, and to Pennsylvania Avenue where it passes under the I-295 overpass and to its beginning. Beyond the overpass, the project area will be visible only from the traffic lanes of Pennsylvania Avenue, and the overpass itself.

DDOT, HNTB, and EAC/Archaeology, Inc. (as the cultural resources consultant for the study) look forward to coordinating with the DC HPO on the subsequent architectural survey and archaeological assessment of potential to be prepared as part of this Environmental Assessment. We solicit your comments on the proposed Architectural APE-Indirect and Direct, and the Archaeological APE-Direct as the first step in this Section 106 process.

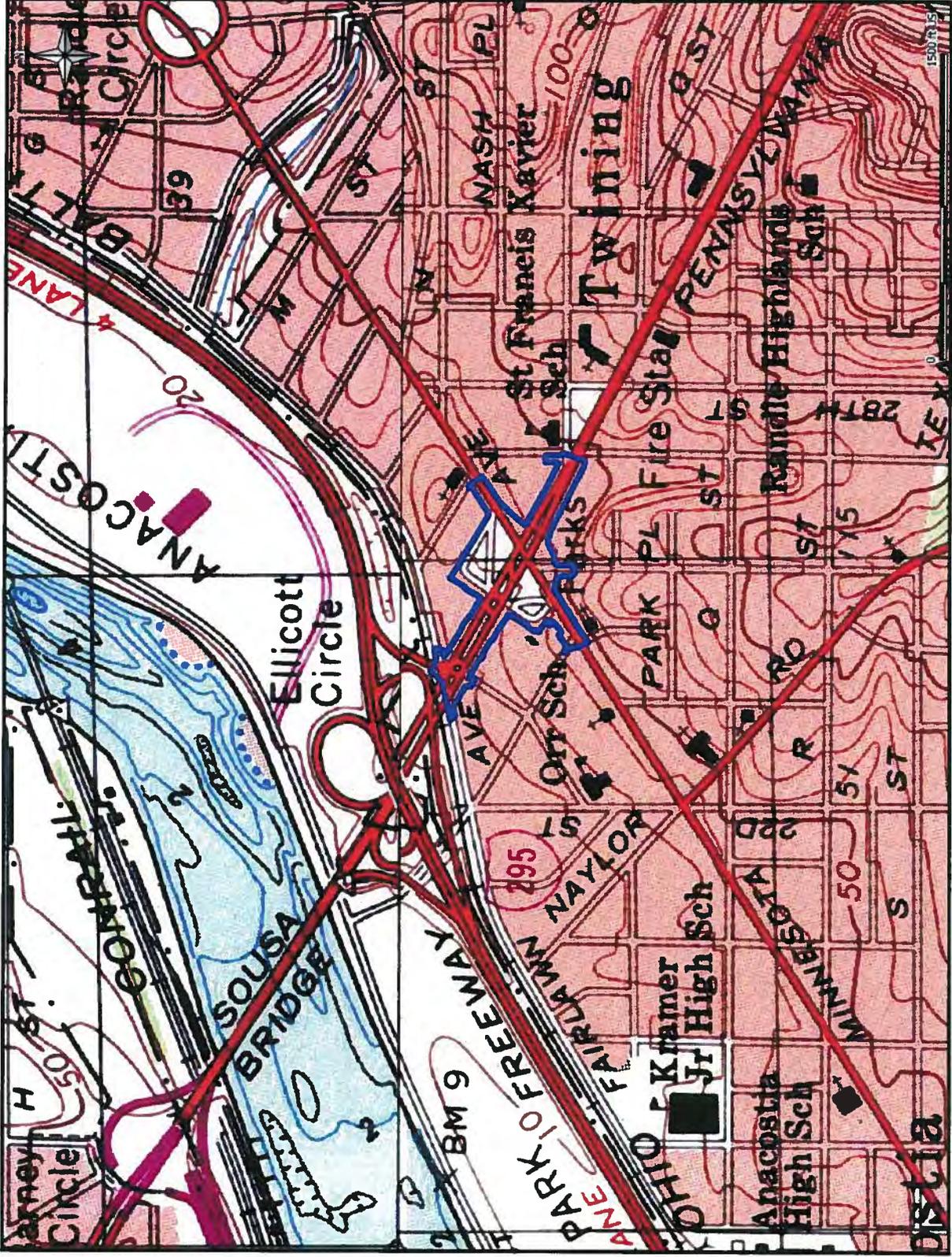
Sincerely,



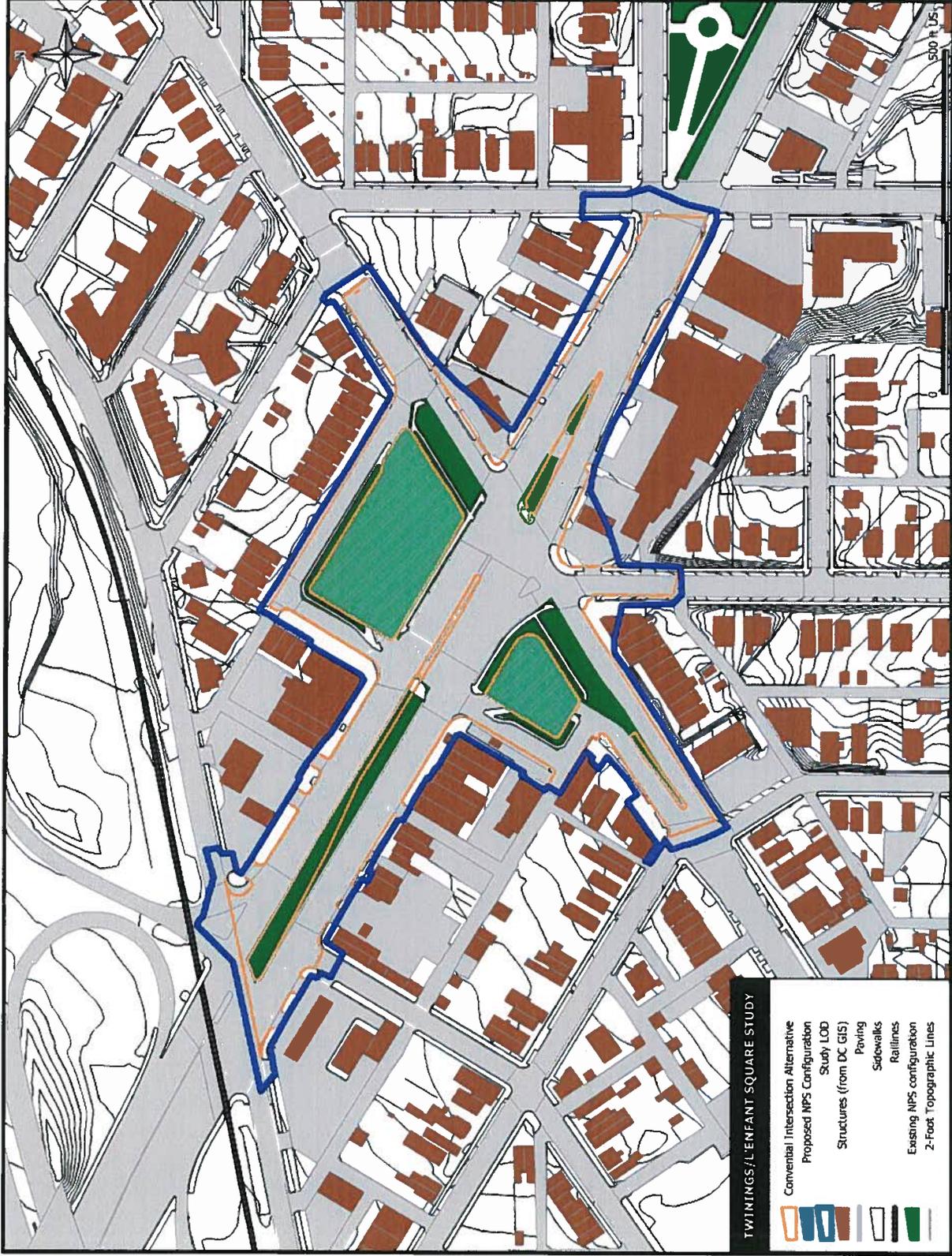
Maduabuchi Udeh
Team 4 Program Manager, IPMA
202-671-2800

cc: Ruth Troccoli, DCHPO,
Austina Casey, DDOT;
Mike Hicks, FHWA DC Division;
Joel Gorder, NPS;
Nancy Witherell, NCPC;
David Levy, NCPC;
Caroline Pinegar, HNTB,
Luan Tran, DDOT
Giles Njumbe, DDOT
Johnny Aniagboso, DDOT

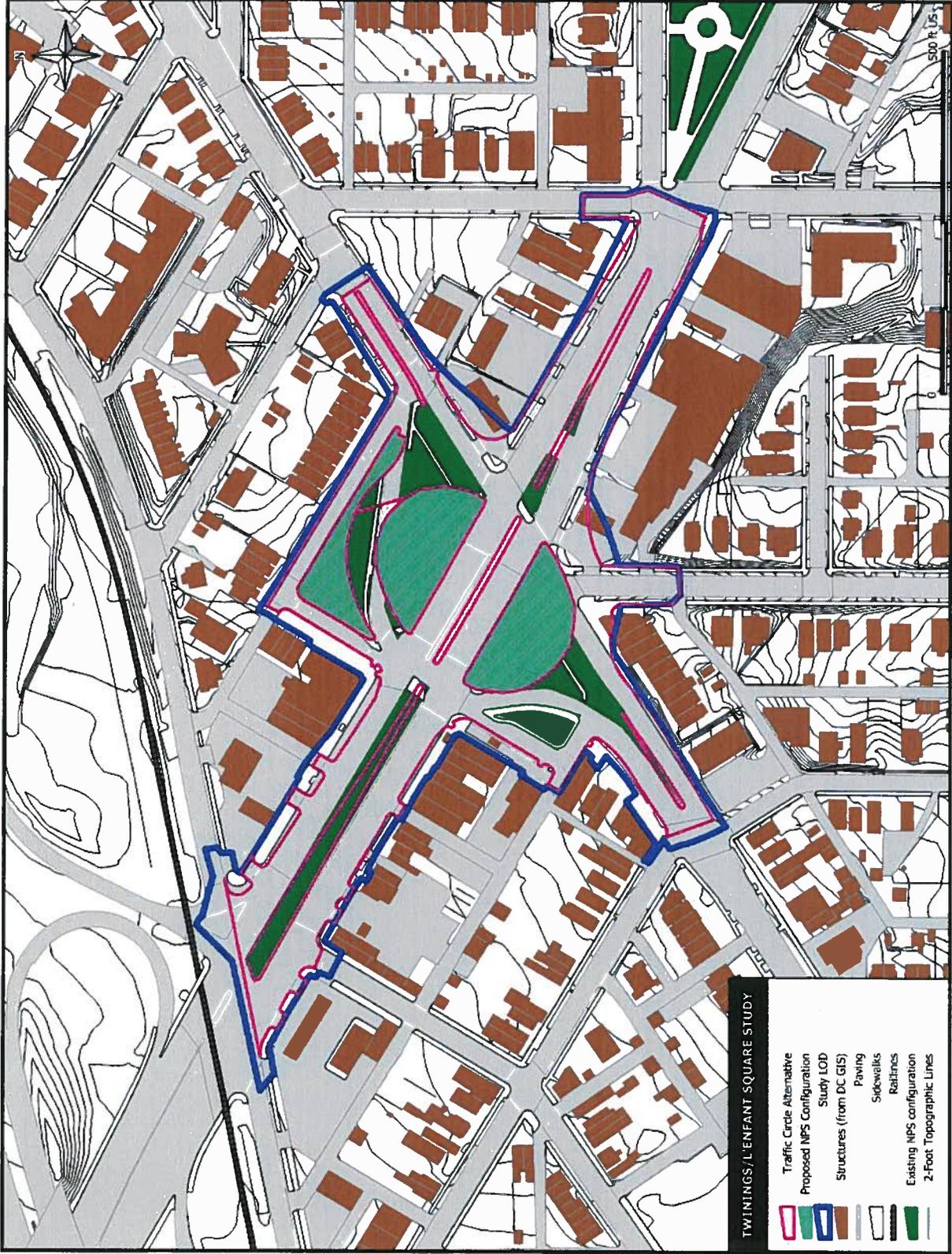
ATTACHMENT A- STUDY LOD ON THE ANACOSTIA AND WASHINGTON EAST USGS 7.5 MINUTE QUADRANGLES



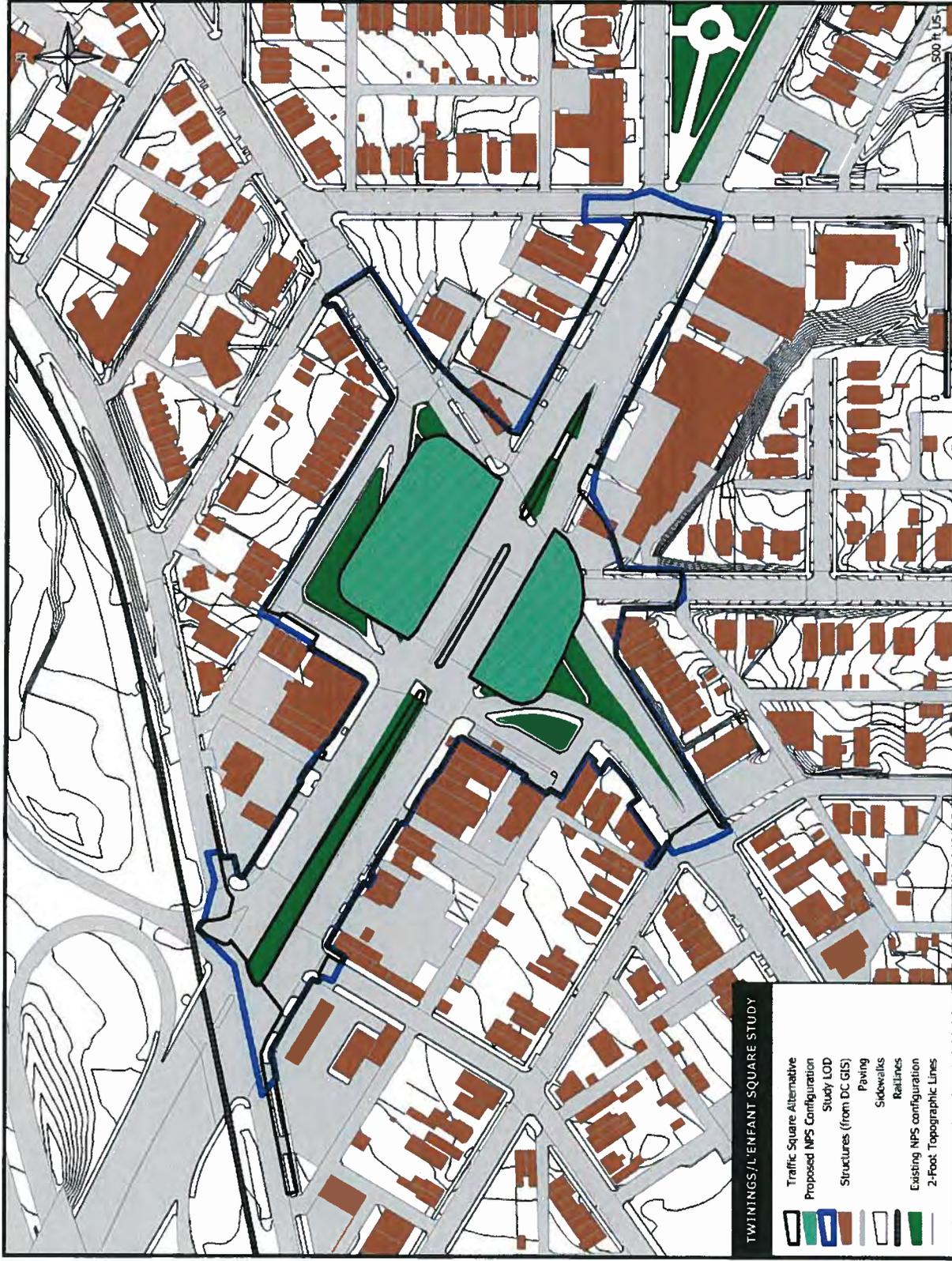
ATTACHMENT B- ALL STUDY ALIGNMENTS



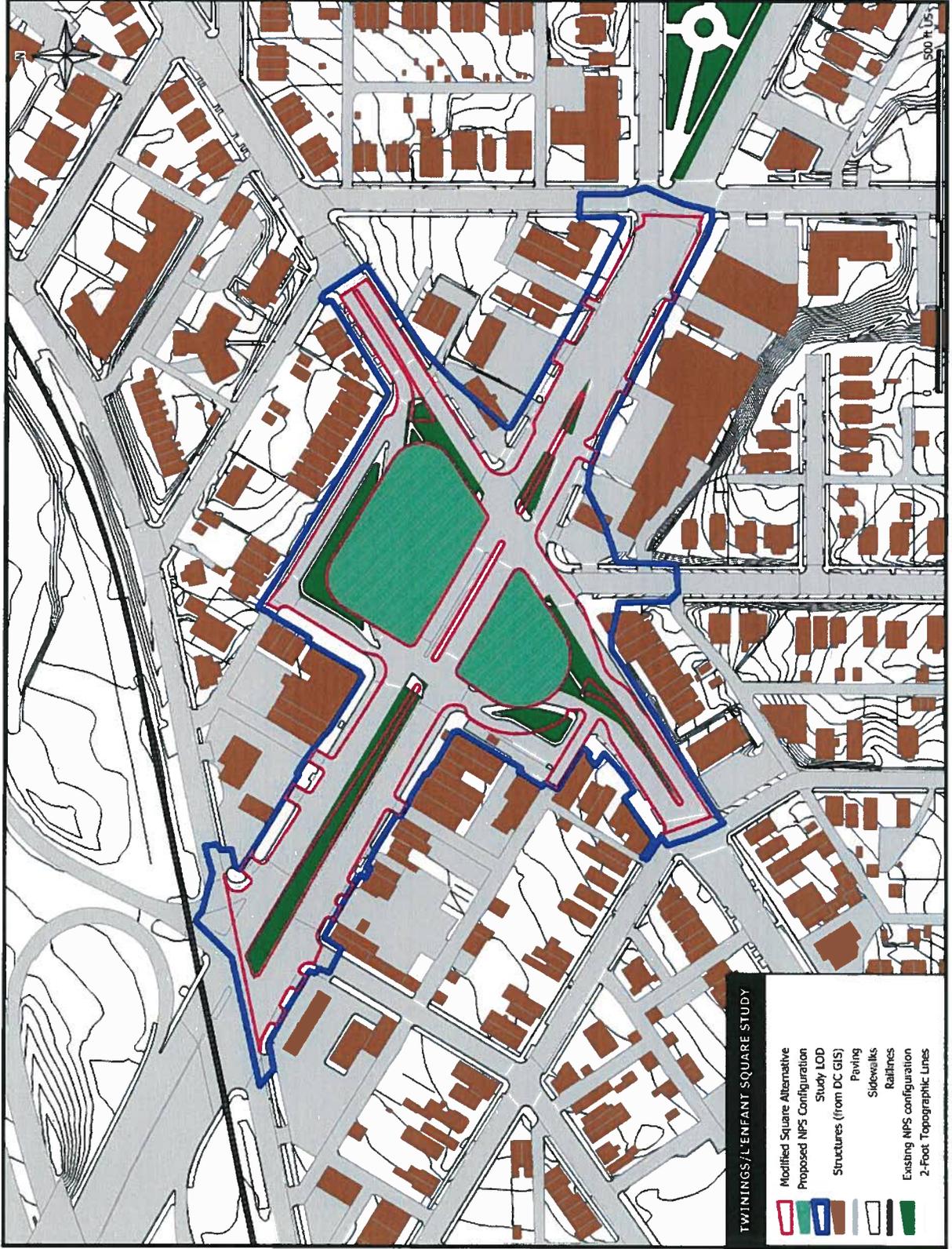
ATTACHMENT B- ALL STUDY ALIGNMENTS



ATTACHMENT B- ALL STUDY ALIGNMENTS

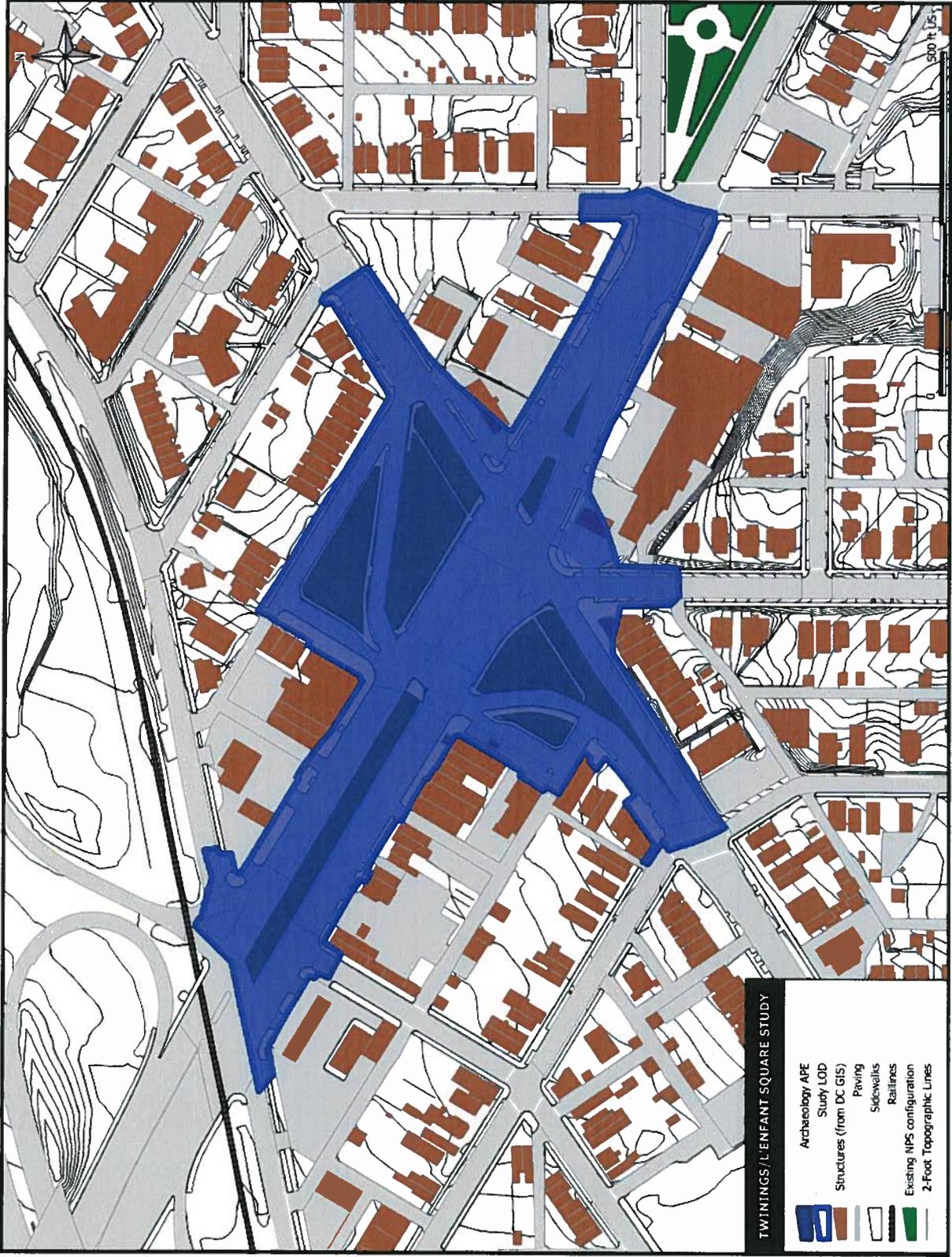


ATTACHMENT B- ALL STUDY ALIGNMENTS



300 ft US

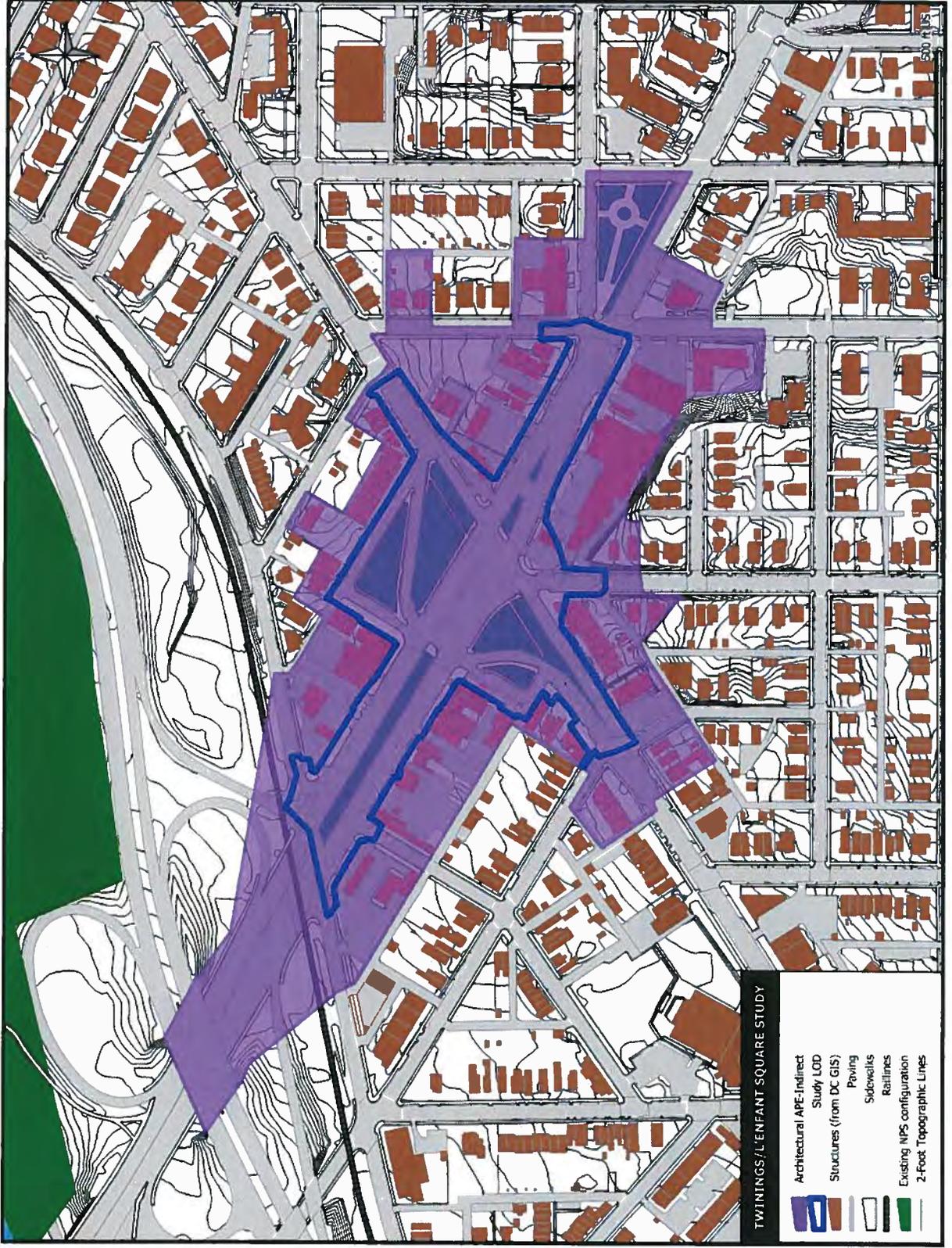
ATTACHMENT C- ARCHAEOLOGICAL APE-DIRECT



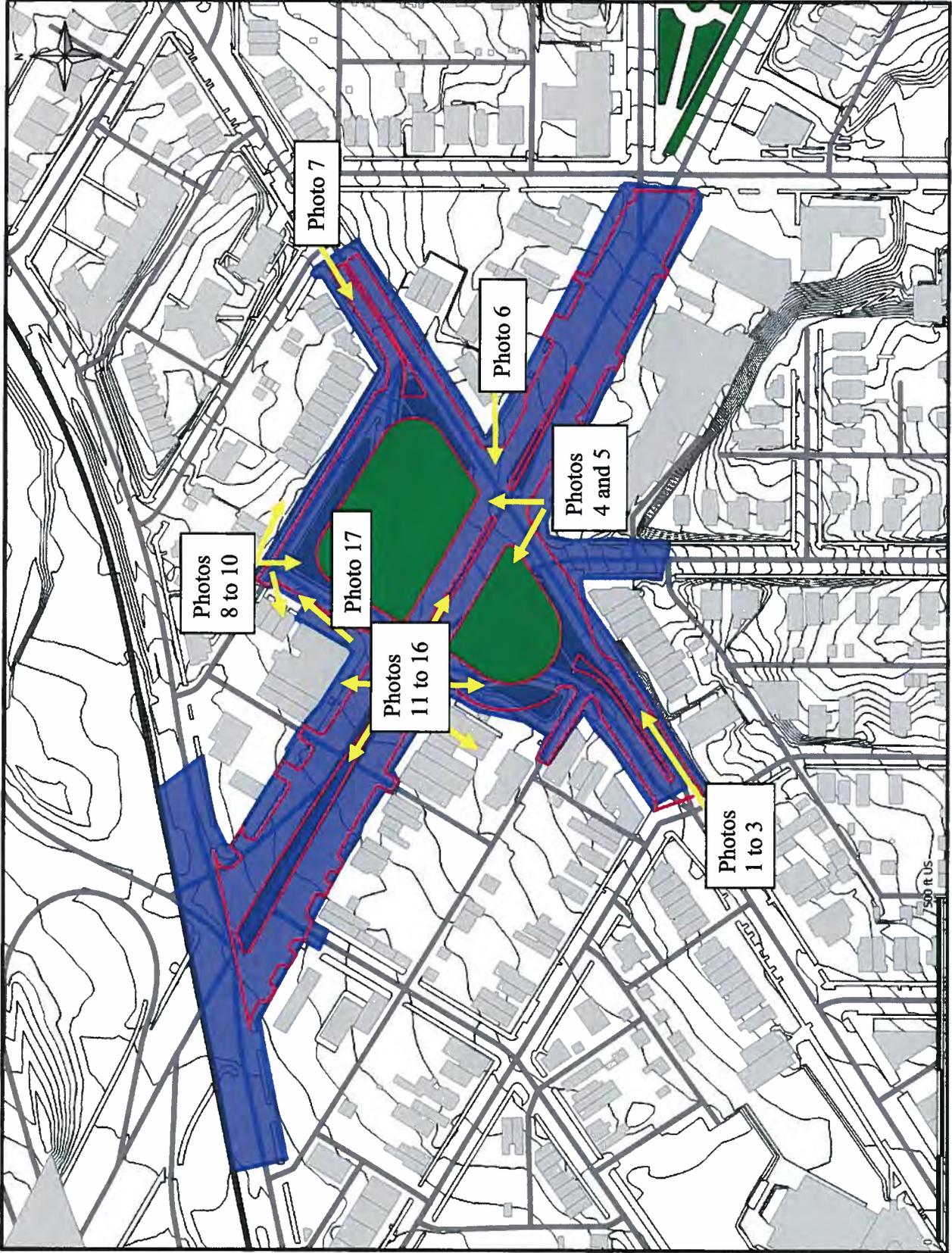
ATTACHMENT C- ARCHITECTURAL APE-DIRECT



ATTACHMENT D- APE-INDIRECT (ARCHITECTURAL ONLY)



ATTACHMENT E- PHOTOGRAPHS, 12-11-2010, ARCHITECTURAL APE-INDIRECT



ATTACHMENT E- PHOTOGRAPHS, 12-11-2010, ARCHITECTURAL APE-INDIRECT



Photo 1. View looking northeast up Minnesota Avenue from west of Whites Place. E.Comer, Photographer.



Photo 2. View looking northeast up Minnesota Avenue from west of Whites Place. E.Comer, Photographer.

ATTACHMENT E- PHOTOGRAPHS, 12-11-2010, ARCHITECTURAL APE-INDIRECT



Photo 3. View looking northeast up Minnesota Avenue from west of Whites Place. E.Comer, Photographer.



Photo 4. View looking north from the intersection of Minnesota Avenue and Pennsylvania Avenue, east of 25th Street SE. E.Comer, Photographer.

ATTACHMENT E- PHOTOGRAPHS, 12-11-2010, ARCHITECTURAL APE-INDIRECT



Photo 5. View looking northwest from the intersection of Minnesota Avenue and Pennsylvania Avenue, east of 25th Street SE. E.Comer, Photographer.

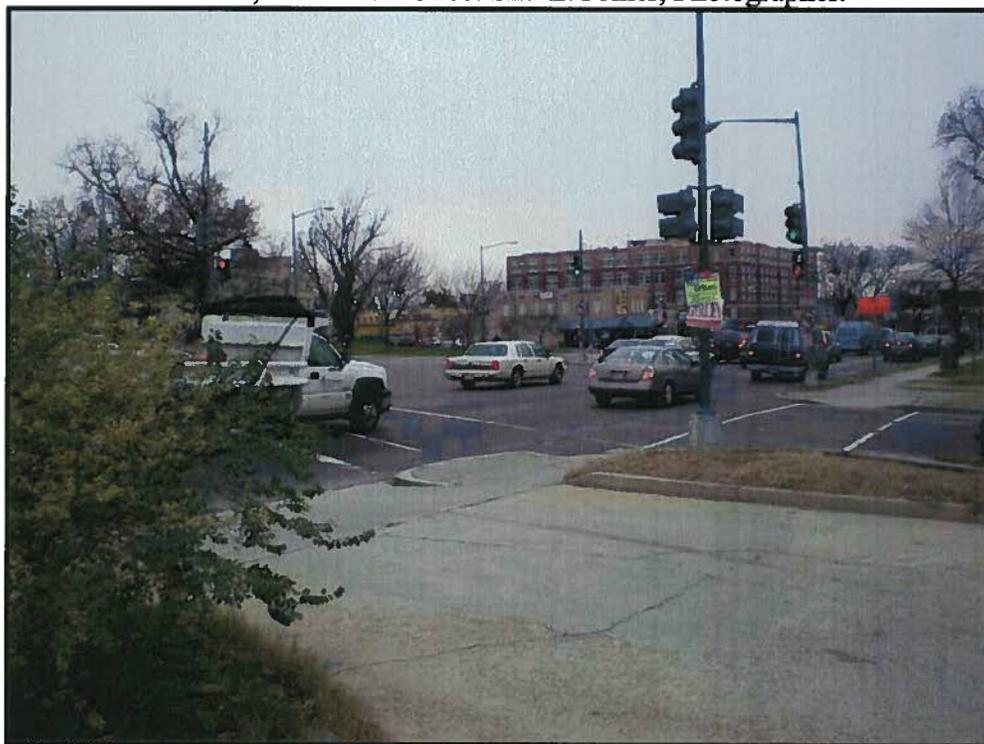


Photo 6. View looking west by northwest from the intersection of Minnesota Avenue and Pennsylvania Avenue, north of Pennsylvania Avenue. E.Comer, Photographer.

ATTACHMENT E- PHOTOGRAPHS, 12-11-2010, ARCHITECTURAL APE-INDIRECT



Photo 7. View looking southwest down Minnesota Avenue, from south of the intersection of Minnesota and 27th Street SE. E.Comer, Photographer.



Photo 8. View looking southeast from the northwest corner of L'Enfant Square roadways, across NPS greenspace. E.Comer, Photographer.

ATTACHMENT E- PHOTOGRAPHS, 12-11-2010, ARCHITECTURAL APE-INDIRECT



Photo 9. View looking southeast down the northern leg of the L'Enfant Square roadway from the intersection of the northern leg and the western leg. E.Comer, Photographer.



Photo 10. View looking southwest down the western leg of the L'Enfant Square roadway from the intersection of the northern leg and the western leg. E.Comer, Photographer.

ATTACHMENT E- PHOTOGRAPHS, 12-11-2010, ARCHITECTURAL APE-INDIRECT

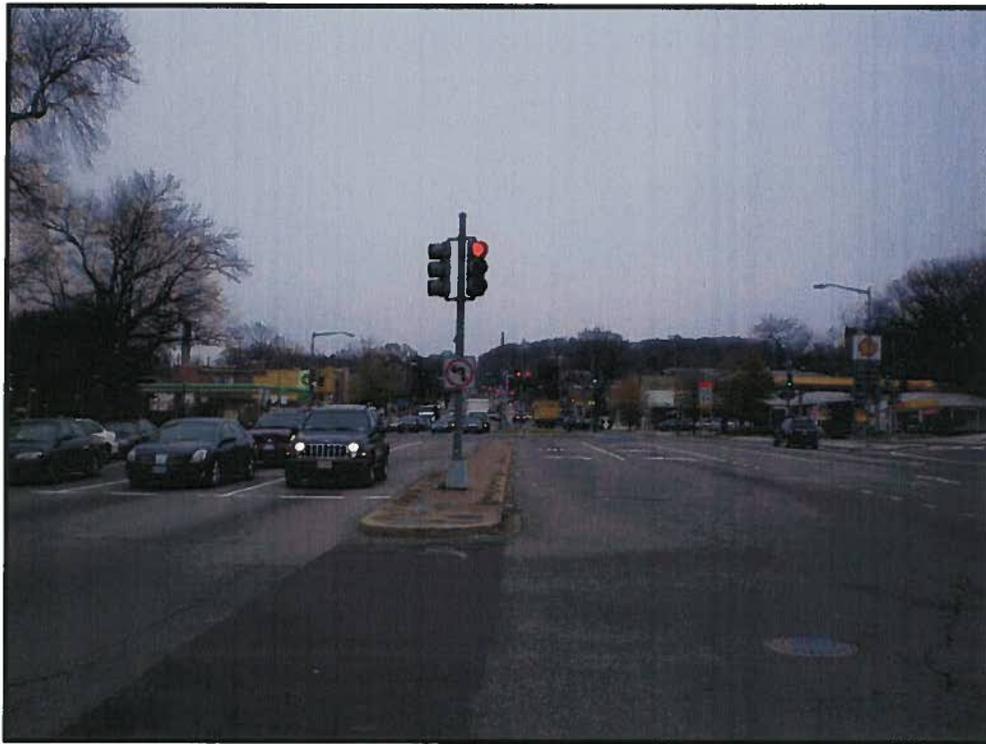


Photo 11. View looking southeast from the median of Pennsylvania Avenue, at the western end of Twining/L'Enfant Square. E.Comer, Photographer.



Photo 12. View looking south from the median of Pennsylvania Avenue, at the western end of Twining/L'Enfant Square. E.Comer, Photographer.

ATTACHMENT E- PHOTOGRAPHS, 12-11-2010, ARCHITECTURAL APE-INDIRECT



Photo 13. View looking northwest from the median of Pennsylvania Avenue, at the western end of Twining/L'Enfant Square. E.Comer, Photographer.



Photo 14. View looking north by northwest from the median of Pennsylvania Avenue, at the western end of Twining/L'Enfant Square. E.Comer, Photographer.

ATTACHMENT E- PHOTOGRAPHS, 12-11-2010, ARCHITECTURAL APE-INDIRECT



Photo 15. View looking north by northwest from the median of Pennsylvania Avenue, at the western end of Twining/L'Enfant Square. E.Comer, Photographer.



Photo 16. View looking east by northeast from the median of Pennsylvania Avenue, at the western end of Twining/L'Enfant Square. E.Comer, Photographer.

ATTACHMENT E- PHOTOGRAPHS, 12-11-2010, ARCHITECTURAL APE-INDIRECT

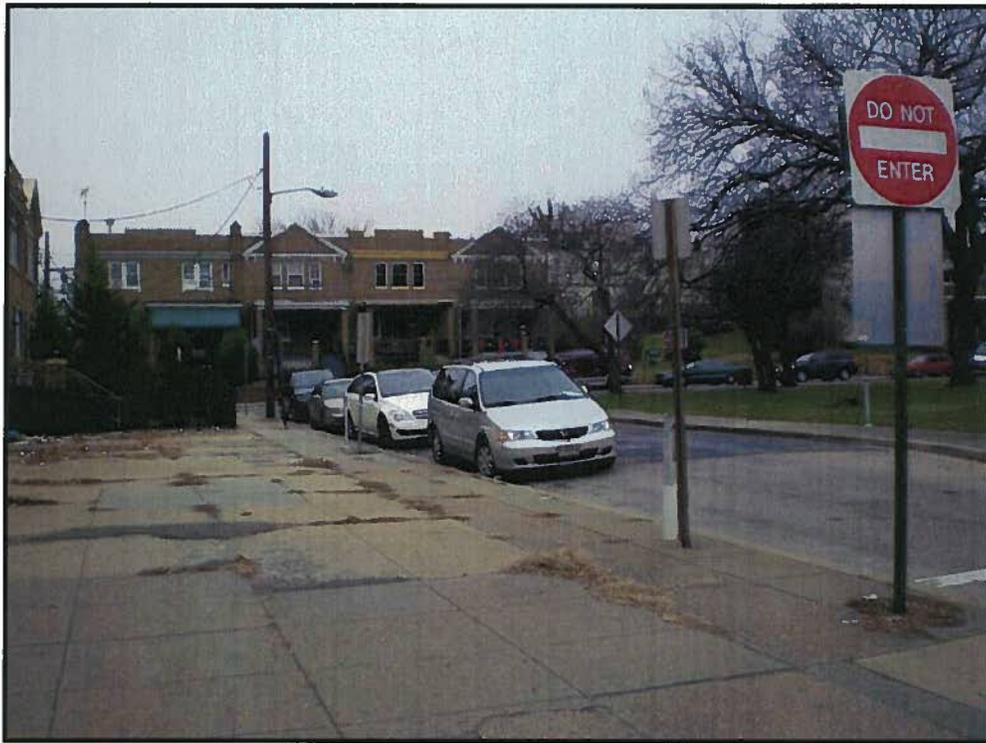


Photo 17. View looking northeast from the north side of Pennsylvania Avenue, at the western end of Twining/L'Enfant Square. E.Comer, Photographer.

GOVERNMENT OF THE DISTRICT OF COLUMBIA
STATE HISTORIC PRESERVATION OFFICER



April 8, 2011

Mr. Maduabuchi Udeh
Team 4 Program Manager, IPMA
District Department of Transportation
64 New York Avenue, NE
Washington, DC 20006

RE: Area of Potential Effect; Pennsylvania and Minnesota Avenues, SE Intersection Improvements

Dear Mr. Udeh:

Thank you for contacting the DC State Historic Preservation Office (SHPO) regarding the above-referenced undertaking. We are writing in accordance with Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations, 36 CFR 800, to provide our initial comments regarding effects on historic properties.

Since August 2010, staff from the DC SHPO has participated in a site visit and a meeting regarding the proposed intersection improvements project. Based upon the results of that earlier consultation and our review of the recently submitted project information, we concur that the Areas of Potential Effect (APE) are appropriate to adequately take into account the effects of the undertaking on historic properties. As you are aware, an APE has been defined for direct effects on architectural resources, for indirect effects on architectural resources, and for direct effects on archaeological resources (see attached).

At this time, the only previously identified historic property within the APE is the Anacostia Historic District. Further identification and evaluation of historic properties may be necessary depending upon the selected alternative and the proposed scope of work. In order to continue the Section 106 process, please provide a list of parties that may be interested in participating as consulting parties and the additional information about the various alternatives that will be necessary to apply the criteria of adverse effect pursuant to 36 CFR 800.5(a).

We look forward to working with you to provide further comments regarding effects on historic properties. In the meantime, please contact me at andrew.lewis@dc.gov or 202-442-8841 if you should have any questions or comments regarding the historic built environment. Questions or comments relating to archaeology should be directed to Ruth Troccoli at ruth.troccoli@dc.gov or 202-442-8836. Thank you for providing this initial opportunity to review and comment.

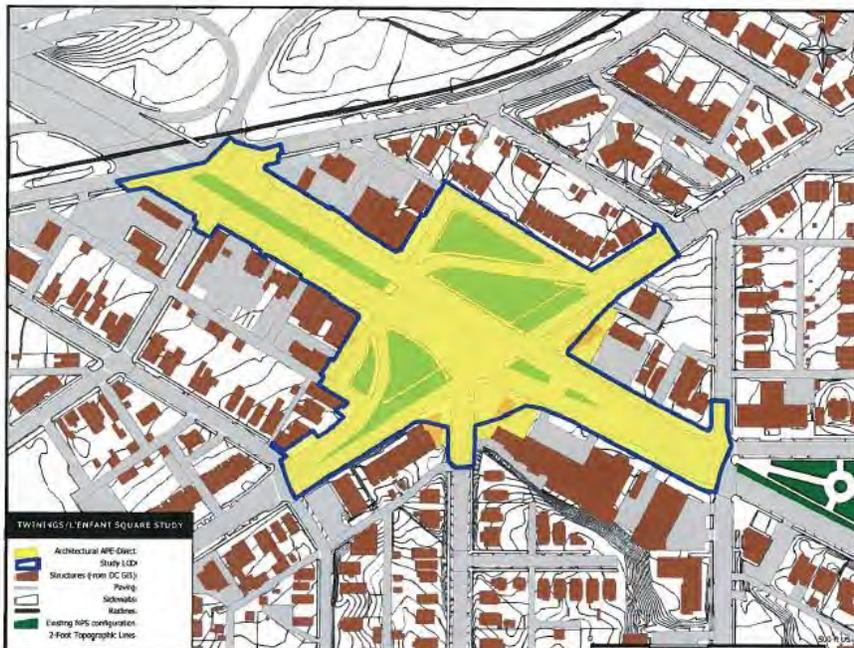
Sincerely,

C. Andrew Lewis
Senior Historic Preservation Specialist
DC State Historic Preservation Office

ATTACHMENT C- ARCHAEOLOGICAL APE-DIRECT



ATTACHMENT C- ARCHITECTURAL APE-DIRECT



ATTACHMENT D- APE-INDIRECT (ARCHITECTURAL ONLY)



GOVERNMENT OF THE DISTRICT OF COLUMBIA
STATE HISTORIC PRESERVATION OFFICER



October 26, 2011

Mr. Giles Njumbe
Acting Program Manager, DDOT /IPMA Program Manager Team 4
District Department of Transportation
55 M Street, SE
Washington, DC 20003

RE: Additional Section 106 Comments on the Pennsylvania and Minnesota Avenues, SE Intersection Improvements Project

Dear Mr. Njumbe:

Thank you for providing the DC State Historic Preservation Office (SHPO) with additional information regarding the above-referenced undertaking. We are writing in accordance with Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations, 36 CFR 800, to provide additional comments regarding effects on historic properties.

Historic Built Environment:

As pointed out in previous correspondence, DC SHPO staff has participated in several site visits and meetings to discuss this project in some detail. We also concurred with the proposed Areas of Potential Effects (APE) in April of this year and noted that the only previously identified historic property within the APE was the Anacostia Historic District. It was our intent to state that the *Anacostia Park* Historic District was the only previously identified historic property in the APE but, upon closer inspection, the boundaries of the Anacostia Park Historic District are not actually located in either the direct or indirect Areas of Potential Effect. Therefore, no previously identified historic properties are located in the APE.

However, we have further evaluated the properties in the APE since our earlier letter and determined that three buildings are eligible for the National Register of Historic Places (National Register) for purposes of compliance with Section 106 for this project. These properties include the Morton's Department Store Building at 2324 Pennsylvania Avenue, SE; the Highland Theater Building at 2523 Pennsylvania Avenue, SE; and the Little Tavern Building at 2537 Pennsylvania Avenue, SE.

Despite the existence of three newly-identified historic properties, the general plans that DDOT has submitted for its "preferred" Modified Square Alternative continue to suggest that this project is likely to have "no adverse effect" on historic properties. Therefore, we do not believe that a separate assessment of effects report on architectural resources will be necessary. Instead, we will use the information that will be provided in the forthcoming Environmental Assessment (EA) to evaluate effects on the historic built environment. If any alternative other than the Modified Square is selected as the "preferred" alternative, additional assessment studies may be necessary for Section 106 purposes. If not, we look forward to receiving the EA and the formal determination of effect from FHWA/DDOT once they are prepared.

Archaeology:

We have also reviewed the study entitled *Archaeological Assessment of Potential for the Proposed Pennsylvania Avenue and Minnesota Avenue Land Exchange and Intersection Improvements Project* and we concur with recommendations that archaeological investigations are needed for this undertaking. However, we do not agree with the recommended strategy because it does not address all of our concerns regarding locations of potential archaeological resources. Additional comments and questions are included in a separate document.

First, we believe that geoarchaeological coring is the appropriate first step for this parcel. It is a relatively cheap and cost effective method for determining whether intact soil columns are present in the project area needing subsequent archaeological testing. In some instances, it has shown that soils containing archaeological soil deposits are not present making additional testing unnecessary. Part of our concern is that a buried stream course is present in the APE and it is possible that early stream terraces remain to either side of the stream, as was the case recently at Pope Branch. These terraces have high prehistoric archaeological potential, so identification of whether they are present/ survive and have intact soils is the initial step, best done by a geoarchaeologist. Once geoarchaeological analysis of the APE is complete, areas having soils and deposits of archaeological interest (if any are present) can then be tested. This is our standard model for conducting archaeological investigations where documented filling has occurred.

We suggest that geoarchaeological investigations be initiated for the not only the preferred alternative for this project, but for all the alternatives. This provides the information DDOT will need to make informed decisions on selection of a final alternative with regards to cultural resources, provide some wiggle room for the LOD to be adjusted. We suspect that the results of the geoarchaeological testing will demonstrate that intact archaeological deposits are not present in places, and thus, no future archaeological investigations would be needed in those locations, and DDOT could use them without any additional archaeological investigations. Locations where potential archaeological resources could be located could then be tested only if they would be impacted by construction. The table below presents a summary of our evaluations by area.

Area	EAC/A Evaluation	SHPO Evaluation	Comment
Northern Reservation	No testing	Geoarchaeology needed	Verify lack of early prehistoric deposits
Southern Reservation	Shovel testing	Geoarchaeology first	Verify lack of disturbance
New ROW	Monitoring	Geoarchaeology needed (can do through pavement)	Verify disturbance
Under roadbeds	No testing	No testing	Presence of utilities, etc.

The Northern Reservation area is shown as marsh on the 1888/1892 topo map. For that reason, it is possible it was a loci for prehistoric occupation during periods when the water table was lower. Geoarchaeological testing would verify presence/absence of occupation surfaces that may have been inundated when the water table rose.

Geoarchaeological analysis at the Southern Reservation would define the undisturbed areas needing testing. In the areas of new ROW acquisition, portions of which are paved, geoarchaeological analysis would show presence/absence of deposits beneath the pavements and could obviate need for additional investigations.

We agree with the analysis of the impacts that 20th century roadbed construction & utility placement have had on archaeological potential.

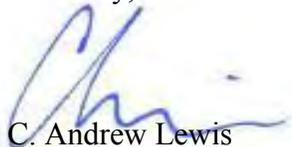
The final paragraph on page 44 is unclear and imprecise – the discussion concerns the area north of Pennsylvania Ave. that is shown as marshy in 1888 and the adjacent stream valley. Along other incised and entrenched tributary stream valleys of the Anacostia River intact terraces have been identified by geoarchaeological testing.

Consulting Parties:

Finally, we have reviewed the list of parties that DDOT will be inviting to participate in the Section 106 process as consulting parties and we believe that it the list is sufficient to include all of the parties that are likely to have concerns about effects on historic properties. If necessary, this list can be revised based upon expressions of interest from other parties.

Please contact me at andrew.lewis@dc.gov or 202-442-8841 if you should have any questions or comments regarding the historic built environment. Questions or comments relating to archaeology should be directed to Ruth Troccoli at ruth.troccoli@dc.gov or 202-442-8836. Thank you for providing this additional opportunity to comment.

Sincerely,



C. Andrew Lewis
Senior Historic Preservation Specialist
DC State Historic Preservation Office

11-111

GOVERNMENT OF THE DISTRICT OF COLUMBIA
STATE HISTORIC PRESERVATION OFFICE



DC STATE HISTORIC PRESERVATION OFFICE
SECTION 106 REVIEW FORM

TO: Austina Casey, Environmental Policy Analyst, DDOT

PROJECT NAME/DESCRIPTION: Reconfigure Intersection at Pennsylvania and Minnesota Avenues, SE, Twining Sq.

PROJECT ADDRESS/LOCATION DESCRIPTION: : Pennsylvania & Minnesota Ave, SE, Washington, D.C., Squares: 5553, 5556, 5559, 5560; Reservation 487

DC SHPO PROJECT NUMBER: 11-111

The DC State Historic Preservation Office (DC SHPO) has reviewed the above-referenced federal undertaking(s) in accordance with Section 106 of the National Historic Preservation Act and has determined that:

- This project will have **no effect** on historic properties. No further DC SHPO review or comment will be necessary.
- There are **no historic properties** that will be affected by this project. No further DC SHPO review or comment will be necessary.
- This project will have **no adverse effect** on historic properties. No further DC SHPO review or comment will be necessary.
- This project will have **no adverse effect on historic properties conditioned upon fulfillment of the measures stipulated below.**
- Other Comments / Additional Comments (see below):**

The proposed project will result in transfer of land from NPS to DC DOT for the purposes of reconfiguring the Twining Sq. intersection. An Environmental Assessment is in preparation and among the alternatives is a modified or revised square, which our analysis shows will not likely result in an adverse effect to the historic built environment if it becomes the preferred alternative. Reestablishment of the square as it was originally planned when the streets were laid out is most compatible historically and would not constitute an adverse effect on the built environment. Archaeological investigations started but are not yet complete. Phase IA study including geoarchaeological testing were completed in December 2012 and only one small area within Reservation 487 south of Pennsylvania Ave. was found to have archaeological potential and will need subsequent Phase IB/ II archaeological survey.

The DC SHPO has issued a finding of **Conditional No Adverse Effect** for this undertaking with the following conditions: 1) Per Andrew Lewis letter to FHWA/ DDOT 10/26/2011, the alternative selected is the modified/ revised square that reestablishes most closely the original configuration of the streets and reservations (see letter attached); 2) Conduct Phase IB/ II/ archaeological testing of an area within Res. 487 near geoarchaeological boring # 4 where an intact historic surface was identified at approximately 0.7 feet below ground surface (see attached map); 3) Continued consultation with the SHPO on the project if there are any changes to the project footprint as the designs are finalized and for treatment of any NRHP-eligible archaeological resources identified during Phase IB/II testing; and 4) Completion of archaeological reporting

requirements for the project following District and federal guidelines, curation of resulting collections, records, images, and geospatial data.

Should unanticipated archaeological discoveries be encountered during any activity associated with this undertaking please contact Dr. Troccoli at 202-442-8836 or ruth.troccoli@dc.gov.

Ruth Troccoli

BY: _____
Ruth Troccoli, Ph.D.
State Historic Preservation Office Archaeologist

DATE: 17 April 2013



Figure 1. The Twining Sq. project area shown overlaid on the 1892 USC&GS topo map. The black lines show the original outline of the Reservation 487, and the red lines the proposed modified square alternative. The numbered points show the locations of the geoaerchaeological borings. Boring #4 is the location meriting further archaeological testing.

Casey, Austina (DDOT)

From: Lewis, Andrew (OP)
Sent: Monday, June 02, 2014 4:20 PM
To: Casey, Austina (DDOT); Troccoli, Ruth (OP)
Cc: Hameed, Faisal (DDOT)
Subject: RE: Preferred Alternative for Penn-Minn Project and Section 106

All:

Based upon a quick review of the illustration, I do not see any reason why implementing Alternative 2 would alter our earlier determination of “no adverse effect” for the historic built environment. Once Ruth weighs in about archaeology, we can determine the next steps – which should probably consist of a formal letter from FHWA to document the revision and the final determination of effect, as appropriate.

C. Andrew Lewis
Senior Historic Preservation Specialist
DC State Historic Preservation Office
Office of Planning
1100 4th Street, SW
Suite E650
Washington, DC 20024
Phone: 202-442-8841
Fax: 202-442-7638
andrew.lewis@dc.gov
www.planning.dc.gov/hpo

From: Casey, Austina (DDOT)
Sent: Friday, May 23, 2014 3:39 PM
To: Lewis, Andrew (OP); Troccoli, Ruth (OP)
Cc: Hameed, Faisal (DDOT)
Subject: RE: Preferred Alternative for Penn-Minn Project and Section 106

Hi Andrew and Ruth,

Here is the project brochure. We are going with Alternative 2 as our Preferred Alternative.

Please let me know if you have any questions.

Thanks,
-Tina

From: Casey, Austina (DDOT)
Sent: Wednesday, May 21, 2014 12:35 PM
To: Lewis, Andrew (OP); Troccoli, Ruth (OP)
Cc: Khan, Saadat (DDOT)
Subject: RE: Preferred Alternative for Penn-Minn Project and Section 106

Thanks Andrew!

I look forward to hearing from you soon.

Take care!

From: Lewis, Andrew (OP)
Sent: Wednesday, May 21, 2014 12:31 PM
To: Casey, Austina (DDOT); Troccoli, Ruth (OP)
Cc: Khan, Saadat (DDOT)
Subject: RE: Preferred Alternative for Penn-Minn Project and Section 106

Hello Tina:

My schedule is very nearly booked over the next couple of weeks but I will coordinate with Ruth and get back to you with some potential dates and times as soon as I can.

Hope all is well,

C. Andrew Lewis
Senior Historic Preservation Specialist
DC State Historic Preservation Office
Office of Planning
1100 4th Street, SW
Suite E650
Washington, DC 20024
Phone: 202-442-8841
Fax: 202-442-7638
andrew.lewis@dc.gov
www.planning.dc.gov/hpo

From: Casey, Austina (DDOT)
Sent: Tuesday, May 20, 2014 9:07 AM
To: Troccoli, Ruth (OP); Lewis, Andrew (OP)
Cc: Khan, Saadat (DDOT)
Subject: Preferred Alternative for Penn-Minn Project and Section 106

Hello Ruth and Andrew,

Hope you are well. I am contacting you regarding the Pennsylvania Avenue/Minnesota Ave, SE. Intersection Improvement Project. Based on extensive public outreach and following response from the public, as well as internal DDOT discussions in the past several months, DDOT and FHWA selected the *Build Alternative 2- Conventional Intersection Alternative as the Preferred Alternative*.

We had anticipated that *Build Alternative 1 - Revised Square Alternative* would be selected as the Preferred Alternative for the Final EA based on previous public outreach and preferences when the 2007 Great Streets Framework Plan and Great Streets Final Design Report for Pennsylvania Avenue, SE were prepared. To that end, DC SHPO had provided a *Conditional No Adverse Effect* (see attached correspondences) for this project based on the assumption that *Build Alternative 1 - Revised Square Alternative* would be selected as the Preferred Alternative.

I would like to meet with you to discuss further what the DC SHPO conditions/requirements based on these new developments. Please let me know if you will be available:

Later this week –
Thursday 5/22, from 11am to noon or after 2:30pm
Friday 5/23, anytime

OR

Next week –
Tuesday 5/27, anytime

Hope to hear from you soon. Please let me know if you have any questions.

Thanks,
-Tina



Austina Casey

Environmental Policy Analyst

Project Development & Environment Division

Infrastructure Project Management Administration (IPMA)

55 M Street SE, Suite 500, Washington, DC 20003

office: 202.671.0494 | cell: 202.391-8513 | www.ddot.dc.gov



U.S. Department
of Transportation
**Federal Highway
Administration**

District of Columbia Division
(202) 219-3570 FAX 219-3545

1990 K Street, NW
Suite 510
Washington, DC 20006-1103

October 9, 2014

In Reply Refer To: HDA-DC

Mr. David Maloney
State Historic Preservation Officer
District of Columbia State Historic Preservation Office
1100 4th Street, SW, Suite E650
Washington, D.C. 20024

Dear Mr. Maloney:

In accordance with Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, its implementing regulations, 36 CFR Part 800, and the National Environmental Policy Act of 1969 (NEPA), the District Department of Transportation (DDOT) in conjunction with the Federal Highway Administration (FHWA) is proposing improvements to the Pennsylvania Avenue and Minnesota Avenue SE intersection, also known as the "Twining Square" area in Southeast Washington, DC. This action includes the transfer of land from the National Park Service (NPS) to DDOT. The land transfer would facilitate the proposed reconfiguration of the intersection. A letter to initiate the Section 106 process was sent to District of Columbia State Historic Preservation Office (DC SHPO) in December 2010. Consultations on the effects of this project have since taken place with the DC SHPO staff and have assisted in the determination of effects on historic and archaeological resources located in the vicinity of the project.

As a first step in assessing the effects of this undertaking on historic properties, DDOT determined the Area of Potential Effects (APE), as documented in a letter to DC SHPO dated March 1, 2011. In a letter dated April 8, 2011, DC SHPO concurred with DDOT's determination of the APE. The archaeological APE encompasses the area that would experience direct impact from proposed ground disturbing activities. The historic built environment APE encompasses the area that is directly adjacent to the proposed undertaking, identified by a site visit and line-of-sight survey. The DC SHPO initially identified the Anacostia Park Historic District as a historic property within the APE; however, DC SHPO clarified in a letter dated October 26, 2011, that the APE did not extend into the boundaries of the Anacostia Park Historic District. However, DC SHPO identified the following three historic properties, which were determined eligible for listing in the National Register of Historic Places as part of the consultation process: the Morton's Department Store Building, the Highland Theater Building; and the Little Tavern Building. Twining Square (NPS Reservation 487) is not listed in the National Register, nor is it eligible for listing in the National Register. Phase IA study including geo-archaeological testing were completed in December 2012 and only one small area within Reservation 487 south of Pennsylvania Avenue was found to have archaeological potential and will need subsequent Phase IB/ II archaeological survey.

DDOT is considering two Build alternatives for the Pennsylvania Avenue and Minnesota Avenue, SE intersection. These alternatives were developed in accordance with the project objectives established to meet the project purpose and need. Both alternatives will require a jurisdictional land transfer of approximately 1.44 acres from NPS to DDOT to facilitate reconfiguration of the intersection to improve safety, mobility, and connectivity for pedestrians and motorists at the intersection in keeping with the District of Columbia's Great Streets Initiative. No private right-of-way would be impacted or acquired by the Proposed Action. Under Build Alternative 1, Revised Square, the intersection would be improved to create a "traffic square" concept, which would require all vehicles, with the exception of through-movements on Pennsylvania Avenue, SE, to go around the expanded central park area. Under Build Alternative 2, Conventional Intersection, the intersection would be redesigned into a typical at-grade intersection with all vehicle turning movements permitted for all approaches, with the exception of 25th Street, which would remain a one-way street going southbound.

It is anticipated that the proposed undertaking will not diminish the integrity of location, design, setting, materials, workmanship, feeling or association for historic resources in the project vicinity. The project will require the transfer of NPS land to DDOT, however, the land that is to be transferred is not historically significant. Therefore, FHWA has determined that the proposed build alternatives for the improvements to the Pennsylvania Avenue and Minnesota Avenue SE intersection will have "no adverse effect", as defined in 36 CFR 800, on the referenced historic resources.

In a letter from DC SHPO to DDOT dated October 26, 2011, DC SHPO suggested that Build Alternative 1 was the alternative that most closely resembled the modified/revised square recommended by the Great Street study, and that implementation of Build Alternative 1 would reestablish the original configuration of the streets and reservations and have "no adverse effect" on the historic built environment (see enclosed letter). However, after further review of historic data for Twining Square, DC SHPO clarified in an email dated June 2, 2014, that Build Alternatives 1 and 2 were similar enough in design that implementation of Build Alternative 2 would not alter the earlier determination of "no adverse effect" for the historic built environment.

Consistent with the memorandum from your office dated April 17, 2013 (enclosed), DDOT and FHWA agree to modify the undertaking in accordance with the following conditions to ensure that the undertaking will have "no adverse effect" on archaeological resources:

- 1) DDOT will conduct a Phase IB/II/archaeological testing of an area within Reservation 487 near the Phase IA geo-archaeological boring # 4, where an intact historic surface was identified at approximately 0.7 feet below ground surface (see enclosed map). The Phase IB/II archaeological study would be used to determine whether intact landforms are present within the limit of disturbance, including landforms currently covered by the existing road.
- 2) DDOT will continued consultation with the DC SHPO on the project if there are any changes to the project footprint as the designs are finalized and for treatment of any National Register of Historic Property-eligible archaeological resources identified during Phase IB/II testing; and
- 3) DDOT will complete the archaeological reporting requirement for the project, following the District and federal guidelines, curation of resulting collections, records, images, and geospatial data. If unanticipated archaeological discoveries are encountered during any activity associated with this

undertaking, DDOT will continue consultation with DC SHPO on measures to avoid or mitigate the potential adverse impacts to these resources.

If you have further questions or comments, please contact me (202) 219-3519 or michael.hicks@dot.gov; or Faisal Hameed (DDOT) at (202) 671-2326 or faisal.hameed@dc.gov. Thank you for your input and cooperation on this project.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Hicks". The signature is written in a cursive style with a large, stylized initial "M".

Michael Hicks
Environmental Manager

Enclosures: Correspondences between DDOT and DC SHPO regarding Section 106 consultation;
Appendix E: Section 106 Consultation and Cultural Resources Information

Cc: Andrew Lewis (DC SHPO)
Ruth Trocolli (DC SHPO)
Faisal Hameed (DDOT)
Austina Casey (DDOT)

HISTORIC RESOURCE REPORT



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Historic Resources

EAC/Archaeology, Inc.

May 2013

**Pennsylvania and Minnesota Avenues, SE
Intersection Improvement Project
Environmental Assessment**

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The Highland Theater Building at 2523 Pennsylvania Avenue, SE	3
The Site of the Former Little Tavern Building at 2537 Pennsylvania Avenue, SE	5

Morton's Department Store Building at 2324 Pennsylvania Avenue, SE

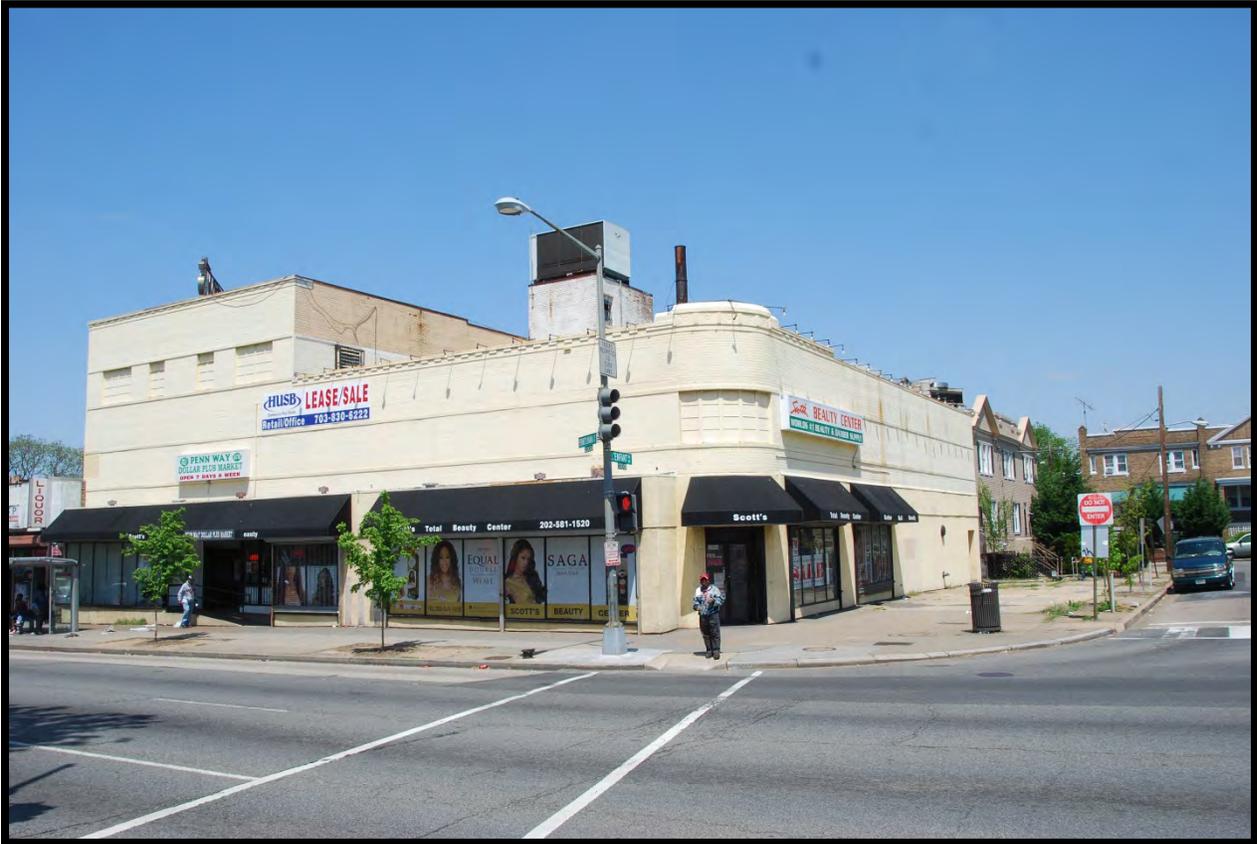
The building formerly occupied by Morton's Department Store at 2324 Pennsylvania Avenue SE, Washington, D.C., is a commercial Art Moderne building. The building is set in an urban location, within a residential and commercial area. There is a park across the street, and the sidewalks are spacious. The two-story main building is primarily stretcher course brick on the second level, stucco on the first level, and header course brick on the second story, at the curved corner abutting Pennsylvania Avenue and L'Enfant Square. The flat roof is capped with a cornice and dentils. At the corner of the building, the roof line exhibits a raised cornice with decorative molding. At the second level, at the corner of building, twenty recessed closed panes are located just above the entryway on the first floor. The entryway is covered with a canvas awning and contains two double one-pane glass doors. Panes of glass windows extend for almost the entire length of the Pennsylvania Avenue side of the building and are capped with awnings. The L'Enfant Square elevation has two smaller sets of glass windows, capped with awnings, close to the Pennsylvania Avenue intersection.

The accessory building, which is shown on historic maps as being present adjacent to the main building, but is a separate building nonetheless, does not have the same physical address as 2324 Pennsylvania Avenue SE, Washington, D.C. It does echo the form of 2324 Pennsylvania Avenue, but it has three stories. The building is stretcher bond brick masonry. The roof line of the façade again has a dentiled cornice, although the elevation facing L'Enfant Square does not. Four sets of recessed closed rectangle details are present at the third story level. Sixteen rectangle blocks are on either side, and two eight-rectangle blocks are located centrally. The entryway to the market located at this address is accessible by a ramp and is flanked by one-pane windows, similar to those of the main building. An awning stretches the length of the facade.

Mortimer Charles Lebowitz opened his first Morton's Department store in 1933, at Seventh and D Streets NW, Washington, D.C. The stores and their services are remembered as non-discriminatory in an era of segregation (Washington Post 1997). Morton's Department Stores were early manifestations of the discount department store. Advertising through bold signs, they touted cheap prices. Customers, African-American and white, were offered the same dressing rooms and bathrooms, while many contemporary retailers were afraid to lose white customers. The decline of the store can be attributed to the construction of the Metro and growth of the suburbs (Washington Post 1993). In the 1950s and 1960s, many African-American customers went across the river to shop at the 2324 Pennsylvania Avenue SE location. All stores closed in 1993.

Morton's Department Store appears in the 1950 Baist Atlas, but not on the 1927 Sanborn Atlas (Baist 1950; Sanborn 1927). The property underwent a long chain of ownership, beginning in 1922 with the sale of the lot from R F Bradbury Incorporated to Samuel Taylor. The building was probably constructed during the ownership of Iris K. and Samuel Del Vecchio, following the transfer of ownership from Annie Mezzanotte. In 1994, just after all Morton's Department Stores closed, Frank Morton deeded Morton's Department Store to L'Enfant Square Associates (Washington DC Recorder of Deeds 2013). See **Photo 1**.

Photo 1. Morton's Department Store Building



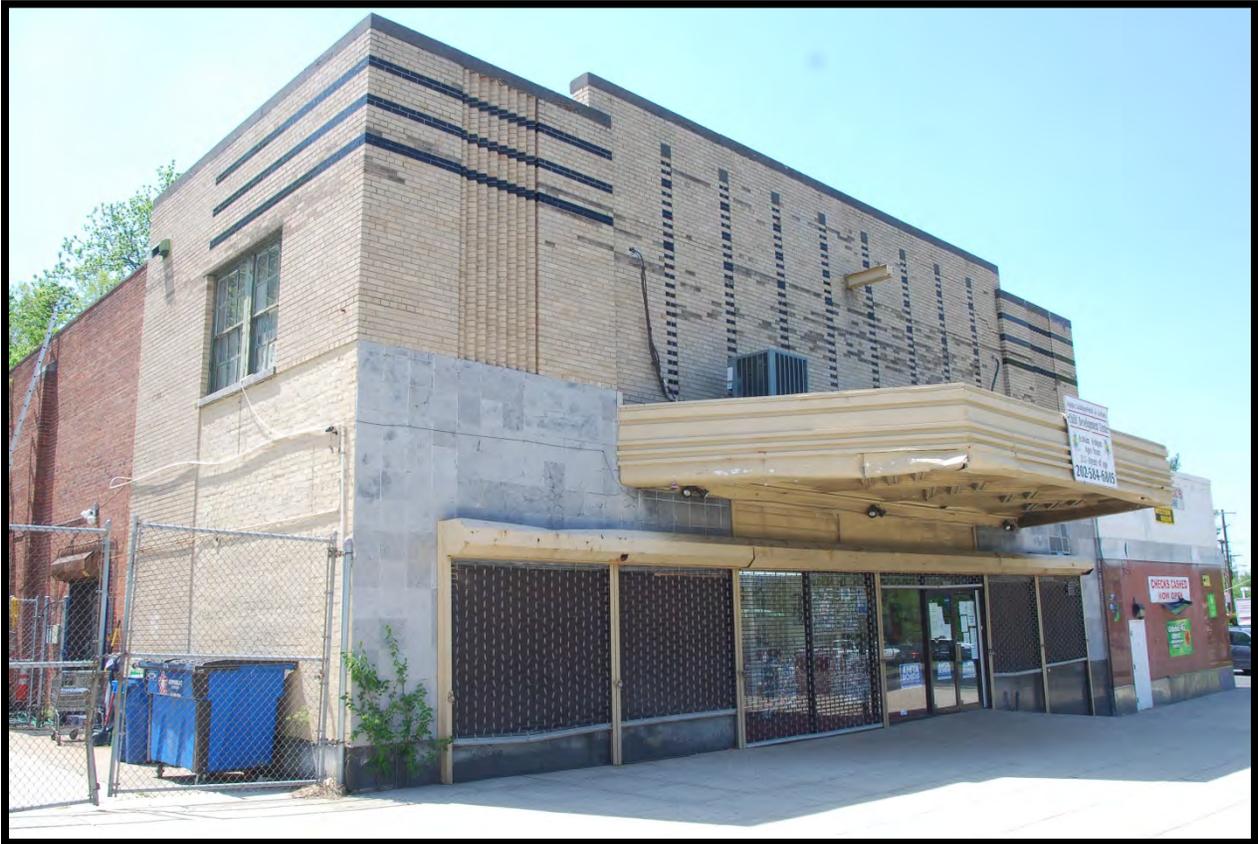
Source: Suzanne Stasiulatis, Photographer.

The Highland Theater Building at 2523 Pennsylvania Avenue, SE

The Highland Theater Building is an Art Moderne style theater located at 2523 Pennsylvania Avenue SE, Washington, D.C. The building is set in an urban neighborhood, with a park across high-traffic Pennsylvania Avenue. Several other one-story and two-story buildings are in the area. Wide, spacious sidewalks are present. The building has two stories, constructed of mostly common bond masonry. A simple, common bond, interior end chimney is present on the southeast elevation. Many decorative elements are present on the building. Eight vertical bands of header course brick, alternating in color, are placed above the theater awning, on a central parapet section of the façade. Flanking the parapet section are two lowered sections with three horizontal bands in alternating color, which continue into the adjacent elevations. In the center of these sections are eight vertical bands of stacked, header course bricks on edge. The entryway to the building is covered with a thick, flat-roofed awning with angled sides. Two glass entry doors are centrally placed below the awning. It appears that several other windows are present, but they have been closed up and covered with security fencing. The exposed foundation is masonry block. Tile cladding appears to be present and covering the brick masonry at the first floor level. This cladding is not apparent on the southeast elevation, where recessed brick is present. On the southeast elevation, there are two windows below the horizontal banding close to Pennsylvania Avenue. Two paired, six-over-six sash windows are at the second story level. The section of the southeast elevation with the banding and sash windows is slightly elevated above the rest of the unpainted, common bond brick building, indicating it could also have a parapet.

The Highland Theater was commissioned and maintained by Lloyd Wineland. It was designed by John Ebersson and opened its doors in 1940 at 2523 Pennsylvania Avenue SE, Washington, D.C. The theater was located within the Hillcrest Community (Washington Syndicate 2011). It had a seating capacity of 600. The building footprint is present on the 1950 Baist Atlas, but not the 1921 Baist Atlas (Baist 1950; Baist 1921). According to deed records, the doors of the Highland Theater were opened in 1940. In 1946, the previous owner, Fairlawn Amusement Company, transferred the property to new ownership, the Highland Theatre Company. In 1969, ownership was placed with Henry Corp (DC Recorder of Deeds 2013). The theater closed in 1977, became a clothing store, and currently functions as Agape Cabbage Patch & Le Mae's, a children's daycare center. See **Photo 2**.

Photo 2. Highland Theater Building



Source: Suzanne Stasiulatis, Photographer.

The Site of the Former Little Tavern Building at 2537 Pennsylvania Avenue, SE

No extant property is currently located at 2537 Pennsylvania Avenue SE, Washington, D.C. The area is urban, but parks, spacious sidewalks, residences, and buildings exist in the immediate area. A black metal fence and gate is present across one-half of the Pennsylvania Avenue side of the lot. A chain link fence is located on the northwest side of the lot. A brick building is located at the southeast side of the lot. A few large trees are present and the pavement is uneven from demolition of the last building that stood on the lot, the 1948 Little Tavern #24 Building. See **Photo 3**.

Photo3. Site of Former Little Tavern Building



Source: Suzanne Stasiulatis, Photographer.

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INTERIM MANAGEMENT SUMMARY
FEBRUARY 2011

**Interim Management Summary,
Assessment of Archaeological Potential,
Pennsylvania at Minnesota Avenues Improvements Project.**

Previously Report Archaeological Sites and Cultural Resources Studies

Review of the DCHPO archaeological site files indicates that there are ten previously reported archaeological sites within the immediate project vicinity (within a half-mile distance). None of these sites are located within the project LOD, but one possible location for the Twining City site is less than 400 feet to the southwest of the defined APE. All ten of these reported sites represent prehistoric resources, although one (51SE003) is reported as Contact Period remains mixed with historic period materials. The best represented of these sites is probably 51SE015, a multi-component prehistoric site reported as located in the vicinity of the eastern end of the Sousa Bridge. The site itself was identified based on materials collected in the final decades of the 19th century by John Bury, who recovered almost 800 prehistoric items including projectile points, ceramic sherds, ground stone tools, and stone pendants (Krakker n.d.).

There have been no previous cultural resources studies of the present project area. Previous CRM studies in the vicinity have largely been concentrated along the Anacostia shore. Three projects have conducted studies which included consideration of the eastern Anacostia shore. One of these included archival research only, although it is an extensive archival study of the Anacostia Park area (Engineering Science 1989). The second project included both Phase I and Phase II investigations along the proposed alignment of road improvements under the Barney Circle project (Artemel *et al.* 1989 and Bromberg *et al.* 1990). Finally, the WSSC Anacostia Forcemain Project conducted archival and reconnaissance investigations (Hume 1975). Both of the later two projects identified prehistoric resources within their study limits.

Assessment of Potential for Prehistoric Archaeological Resources

Review of published information about the settlement and subsistence patterns of prehistoric populations within the District and adjacent portions of Maryland and Virginia provides ample evidence of prehistoric utilization of the area, especially the Anacostia and Potomac valleys during the Archaic and Woodland Periods of prehistory. Some evidence is available of at least intermittent utilization of the area during the Paleoindian Period, but this evidence is sparse and largely consists of fluted points recovered as surface finds out of context. Given the accepted models of Archaic and Woodland subsistence and settlement, and the historically documented landscape of the project vicinity, it is logical to assume that the uplands of the project vicinity would have been utilized during both periods. It is almost certain that the floodplains and low terraces along the Anacostia were heavily utilized during the later Woodland Period.

The commonly accepted predictive model for prehistoric sites utilized four factors: slope (less than 15%), soil type (well to moderately well-drained), distance to potable water (generally less than 200 meters), and availability of valued resources (such as high quality lithics and special faunal or botanical resources). These factors are examined and weighed against each other to define zones of high, medium, or low potential for prehistoric resources.

Archaic subsistence and settlement patterns reflect utilization of an increasingly broad range of habitats and hence physical settings across time. Archaic populations did practice a settlement system which included larger aggregation base camps typically associated with particularly dense concentrations of food resources, such as fish runs, and seem statistically to favor river

terrace or floodplain locations in the Coastal Plain, especially at confluences of tributaries and major water ways.

Woodland Period populations exhibited a strong preference for river terrace and floodplain settings, and Woodland period sites are well documented along the banks of both the Potomac and Anacostia Rivers in the vicinity of the District of Columbia. As the main settlements are anticipated to be associated with these floodplains, and smaller micro-group base camps with interior upland settings, it is anticipated that if Woodland Period archaeological resources are present within the APE they will consist of special use satellite sites associated with larger floodplain settlements.

Currently, dense urban development has largely obscured both the original topography and the original surface drainage pattern. The 1975 District of Columbia Soil Survey indicates that the bulk of the Study LOD was classified as Urban land-Galestown complex soils, with Keyport-Urban land complex located in the northeast extension of the LOD and along the eastern side, with very small areas of Sassafras-Urban land complex and Christiana-Urban land complex to the south. All of the base soils noted in these classifications represent well drained or moderately well drained coastal soils.

The best available depiction of pre-development conditions is found on the 1888 and 1892 USGS topographic sheets (identical). Based on these sources the Study LOD consisted of a combination of coastal flat in the south and low lying marsh to the north in a deeply cut and wide stream valley (Attachment A).

The coastal flat appears to have ranged from roughly 55 feet amsl in the south and southeast to roughly 15 amsl in the extreme northwestern extension of the LOD. Most of this represents consistent but gradual slope towards the Anacostia to the northwest; the southern portion of Minnesota Avenue and 25th Street sit on an area originally composed of stronger slope leading up to one of a series of upland ridges and knolls south and east of the Study LOD. As an elevated area adjacent to shoreline, at the confluence of a major tributary, and overlooking marshes in at least the later period of prehistory, this coastal flat would have represented an extremely attractive prehistoric environment, and is classified as a high potential zone for prehistoric resources from all periods of prehistory. Present elevations are roughly equivalent to those reported in 1892, suggesting minimal filling of the coastal flat.

The adjacent marshy area was roughly 65 meters wide at the depicted bases of the stream valley. The marsh itself is indicated as lying between sea level and 5 feet above sea level, and probably represents periodically inundated tidal marsh. The rise from the valley is quite steep in 1892, suggesting that even if this area was inundated late in the prehistoric period, it still represents a deeply cut and scoured environment, with a poor potential for surviving *in situ* prehistoric resources. This stream valley has almost completely disappeared from the modern landscape, with current elevations around 30 feet amsl, indicating early 20th century filling approaching 20 to 25 feet in this area.

Assessment of Potential for Historic Period Archaeological Resources

Predictive models for historic periods are rarely as rigorous as those developed for prehistoric sites. In part this is because few statistical studies have been conducted linking historic site location to specific variables, and in part because historic period site locations correlate with both ecological and cultural landscape variables. In rural settings, the placement of early roads and navigable waterways are a primary locational factor in the periods before the late eighteenth century. Additional important factors in historic site location include: proximity to resources of value in a market economy, proximity to transportation routes, and proximity to centers of commerce, government, or industry. Therefore, predictive models for historic period resources are generally built based on documentary resources, both primary and secondary. Historic maps are used to plot the location of older roads, and where possible, used to identify the location of historic structures and landscape features such as dams and mill ponds. In urban settings these predictive factors are of reduced value, as they apply nearly equally to all of the city's fabric once the city is fully developed. As such, the current predictive model relies almost exclusively on historic map information.

The earliest cartographic information available about historic development is the 1861 Boshcke map of the District of Columbia, and this suggests that the primary development in this area was the 19th Century antecedent to Minnesota Avenue, a more winding road cut along the same rough alignment as lower Minnesota Avenue and called Anacostia Road at the time. Also present is a single structure and a small orchard, within a larger parcel which is one of several belonging to a H. Naylor at the time (Attachment B). A second structure is indicated to the northwest of the LOD, but it is outside the APE.

By 1879 the APE contains two structures: the Eliza Howard residence (the older house to the south of the road), and a newer house north of the road which is one of several belonging to Henry Naylor (Attachment C). Naylor also owned the house located just to the northwest outside the APE. The Alexandria Branch of the B & O Railroad has also been completed along the northwest of the LOD, in roughly the alignment of the railroad ROW present today. Both structures within the APE persisted through 1892, although the third structure outside the APE appears to have been removed prior to 1888. The 1888/1892 USGS topographic plates also indicate an orchard within the southwestern extension of the APE, and are the first to depict the Twining City subdivision (approved in 1888), although none of the street grid or lot division is depicted. The 1888/1892 topographic sheets also depict a proposed extension of Pennsylvania Avenue, but it is well north of the present location, and there is no indication of any intersection or formal square at the present location of the Twining /L'Enfant Square location.

The 1903 Baist Real Estate Atlas is the first cartographic resource to depict the Twining Circle/L'Enfant Square alignment (Attachment D), and this source indicates both a true circle road alignment and a true square green space (illustration distortion is an artifact of the georeferencing process). Both nineteenth century farmsteads have been removed prior development of the square, as has the orchard. There is a single frame structure noted within the APE, at the intersection of Minnesota Avenue and Nicholson Street. A single 12" utility (probably water supply but possibly a sewer line) runs southeast down the center of Pennsylvania Avenue and turns to run southwest down the center of Minnesota Avenue.

By 1907 the interior road circle, and the perfect square has both been abandoned (suggesting the 1903 Atlas depict plans rather than existing conditions), and a configuration similar to the present appears to be in place (Attachment E). Development to the north and east of the APE appears to be non-existent, while the southwestern portion of the Twining City subdivision is slowly filling in. The only development visible within the APE is restricted to the south, where four structures facing Minnesota Avenue between Nicholson Street and Pennsylvania Avenue may extend into the APE, but it seems unlikely. Conditions in 1913 are similar to 1907, with the addition of a single structure in the northeast corner of the Pennsylvania and Minnesota Avenues intersection which may extend into the APE, and three new, larger, utilities alignments (Attachment F). By this time, both the northern and southern reservations appear to be present.

A 1917 USGS map of Washington and its vicinity documents the addition of a structure in the southern portion of the APE, between Pennsylvania Avenue and the southern extension of 25th Street (Attachment G), but provides little detail. By 1921 there are two structures at that location (Attachment H), as well as significant reconfiguration of the utility alignments passing through the APE. The 1921 Baist Atlas is also the first to indicate actual green space within the reserves, although this is restricted to the southern reserve. NPS research indicates that the Twining/L'Enfant Square reserve was not transferred to federal jurisdiction by the DC City Commissioners until 1929 (Stevens 2007). The name "Twining Square" was officially adopted in 1933 (Stevens 2007). The reservations were reduced once in 1938, to provide street side parking (NPS-NCP Land Transfer Order 497), and again sometime between 1951 and 1956 to create the internal traffic lanes currently present (NPS-NCP Land Transfer Order 463).

By 1954, the surrounding streets are almost completely developed, although the early 20th century structures within the APE have all been removed, and all mid-twentieth century structures appear to have been outside (if adjacent) to the defined APE. There has been another fairly significant realignment of utilities within the APE, and addition of a few new utility lines primarily beneath the Minnesota and Pennsylvania Avenue roadbeds (Attachment I). The 1954 Sanborn does not indicate the present configuration of internal traffic lanes, which must of have been implemented after this period.

By 1969 most of the present roadbed configuration was established with the APE, although there appears to be significant differences in the size and configuration of median strips along Pennsylvania Avenue (Attachment J). The primary change noted within the APE is the proliferation of utilities. Most of the utilities appear to have been restrained to under the roadbeds, but the dense nature of these lines, and their location alongside older, abandoned utilities, suggests that areas under Pennsylvania Avenue and Minnesota Avenue will have little soil integrity. The presence of a 72" sewer cutting northwest to southeast through the northern reservation suggests at least one major disturbance has taken place in this area as well.

Summary of the Assessment of Potential for Defined Project APE and Recommendations for Further Treatment.

The study area lends itself to four primary divisions based on the character of current conditions: the northern reservation (green space north of Pennsylvania Avenue); the southern reservation (bifurcated green space south of Pennsylvania Avenue); the area of new ROW acquisition (the

developed area south of Pennsylvania Avenue and East of Minnesota Avenue which spans 25th Street); and areas of roadbed.

The Northern Reservation

Overall, the northern reservation appears to have little potential for archaeological resources. Based on the most accurate detailed map available (the 1888/1892 topographic plate) the area north of Pennsylvania Avenue consisted primarily of marsh prior to infilling for the late 19th century development of the Twining City subdivision. This area is indicated in blue on Attachment K. This landform reconstruction should be tested against any available soil boring information, and if confirmed, no further cultural resources consideration in this area appears warranted. If soil boring information appears to contradict this interpretation, than it is recommended that a limited geomorphological study be instituted to identify the depth of fill and assess the potential for surviving prehistoric and historic land surfaces in this area.

The Southern Reservation

The southern reservation is considered a zone of high potential for prehistoric resources, as well as historic resources associated with a nineteenth century residence. Subsequent establishment of the right turn lane which bisects the reservation represents a substantial source of disturbance, but does not appear to have affected the entire reservation. Utility disturbance in this area appears to have been restricted to the early 20th century, and consisted of one or at most two alignments established prior to 1913, when excavation would have consisted of less destructive manual labor (Attachment L). By 1921, maps indicate a marked preference for utility placement under the adjacent street beds, which may have minimized disturbance in this area.

The primary anticipated project impact under all alternatives except the Conventional Intersection Alternative will be to the smaller western portion of the southern reservation. Under the Conventional Intersection Alternative anticipated impact will be include the northern and eastern edges of the larger eastern portion and most of the smaller western portion of the southern reservation. Given the high potential for previously unidentified resources in southern reservation and the lack of archivally documented large scale disturbance beyond the traffic lane, EAC/A recommends Phase I survey investigations be conducted in this area. Soil profiles are not anticipated to be deep, which will permit the use of standard hand excavated STP sampling. It should also be noted that although archival documentation of disturbance has not been found, it is anticipated that the demolition of a nineteenth century structure in the early 20th century will have resulted in some soil disturbance, and it may prove that Phase I survey will identify only disturbed soils with mixed resources.

Area of New ROW Acquisition

This very small area consists primarily of the developed lot between 25th St and Pennsylvania Avenue (a gas station), and by default also includes the smaller sidewalk area between 25th St and Minnesota Avenue. Both areas are nearly completely paved at present. This reflects a zone of high potential for prehistoric resources, and historic resource associated both with the nineteenth century Naylor/Howard residence and with early twentieth century structures from the early development period of Twining City.

There is little documented disturbance in this area, but substantial disturbance can be inferred from the development sequence, starting with the construction of two structures between 1913 and 1921, and the subsequent demolition of both structures between 1921 and 1954. By 1954 a gas station had been constructed on the lot, complete with inferred underground storage tanks. The placement of the current main structure is consistent with the mid-20th century structure, but it is a reasonable expectation that the pump structure, mechanism, feed lines, and storage tanks have been replaced at least once during the last half of the twentieth century in order to comply with environmental regulations. As such, it seems quite unlikely that large areas of intact soil survive in this area. Impact to this area is anticipated under the Traffic Circle Alternative, and Large Square Alternative. If either of these alternatives is chosen, then review of any soil borings placed for geotechnical testing would be advised, and monitoring of construction may be appropriate. However, EAC/A does not believe that sufficient potential for intact resources exists to warrant paving removal and Phase I survey testing.

Areas under Existing Roadbeds

This includes the Pennsylvania and Minnesota Avenue roadbeds, and small connecting segments of 25th and 27th Streets, as well as the Twining/L'Enfant Square access roads (both internal and external). Most of these pass over areas of high potential, but archival documentation indicates that the Pennsylvania Avenue, Minnesota Avenue, and 25th Street roadbeds have all been substantially disturbed by the mid and late twentieth century preference for placing utilities under them. Three of the four Twining/L'Enfant Square access roads pass exclusively of areas considered to have little potential for intact resources due to prior stream scrubbing and erosion, and the final southern internal access road will be tested with the southern reservation area. No information about prior disturbance under 27th Street was found during the archival research, but as project impacts in this area would appear to be largely cosmetic changes to blend into the proposed new Pennsylvania Avenue configuration, no testing seems warranted at this location.

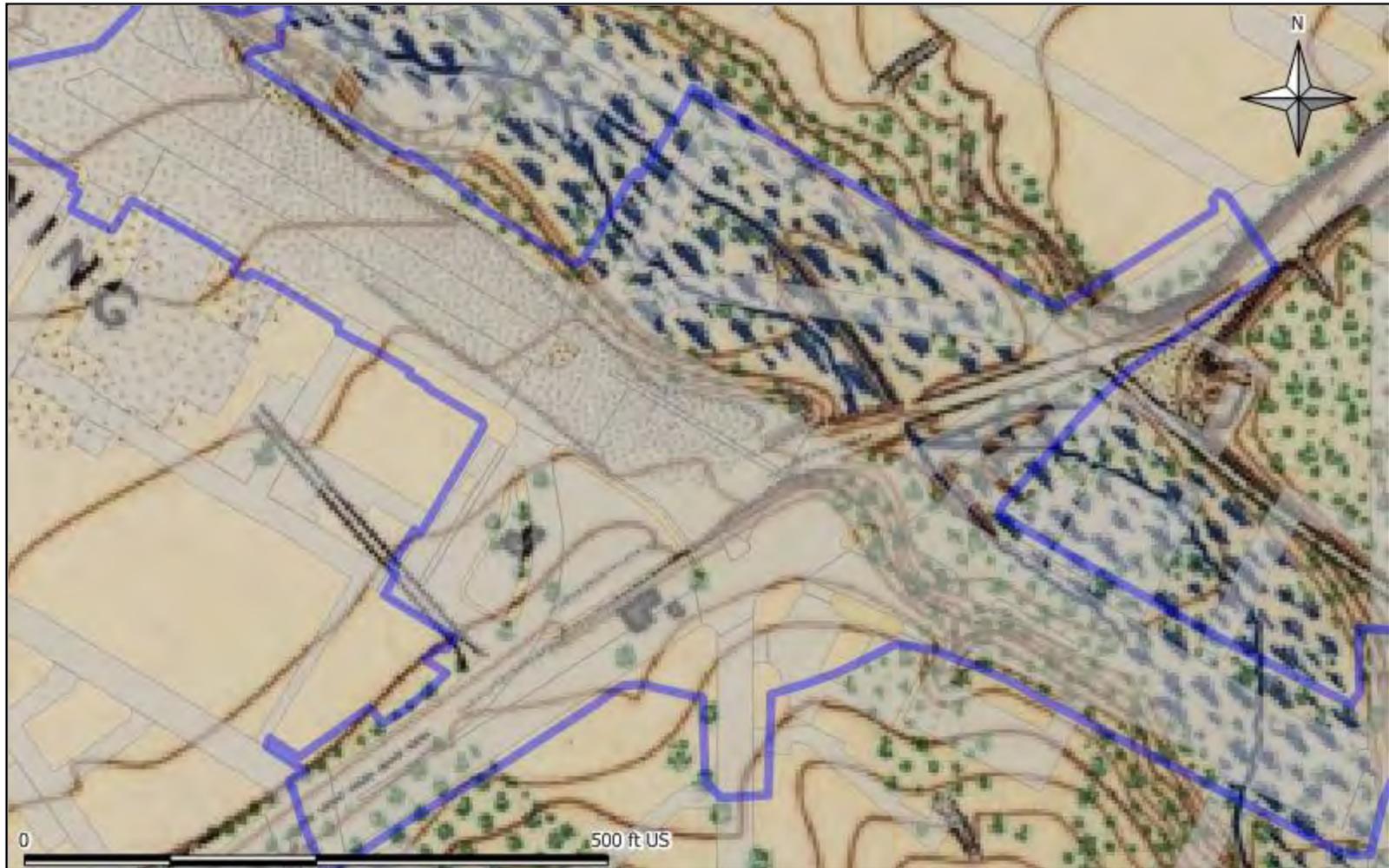
Summary of Recommendations for Further Treatment

Further cultural resources investigation is recommended for one area: the southern reservation area. This area has been classified as having a high potential for prehistoric resources and historic resources associated with nineteenth century farmsteads and early twentieth century residential development of Twining City. Archival research found limited evidence of past disturbance. Therefore Phase I survey investigations of this small area are recommended prior to final design decisions and construction of the proposed improvements project.

A second location, the area of new ROW acquisition south of Pennsylvania Avenue and East of Minnesota Avenue, may warrant archaeological monitoring if either the Traffic Circle or Large Square Alternatives are selected. Otherwise, impact to the area is anticipated and no further work is considered warranted.

All other areas of the APE, including the northern reservations, are considered to have low potential for intact archaeological resources, either due to pre-development environmental conditions such as stream scouring and slope erosion, or due to dense later twentieth century utility placement.

ATTACHMENT A- APE CONDITIONS IN 1888/1892 (United States Geological Survey topographic plate)



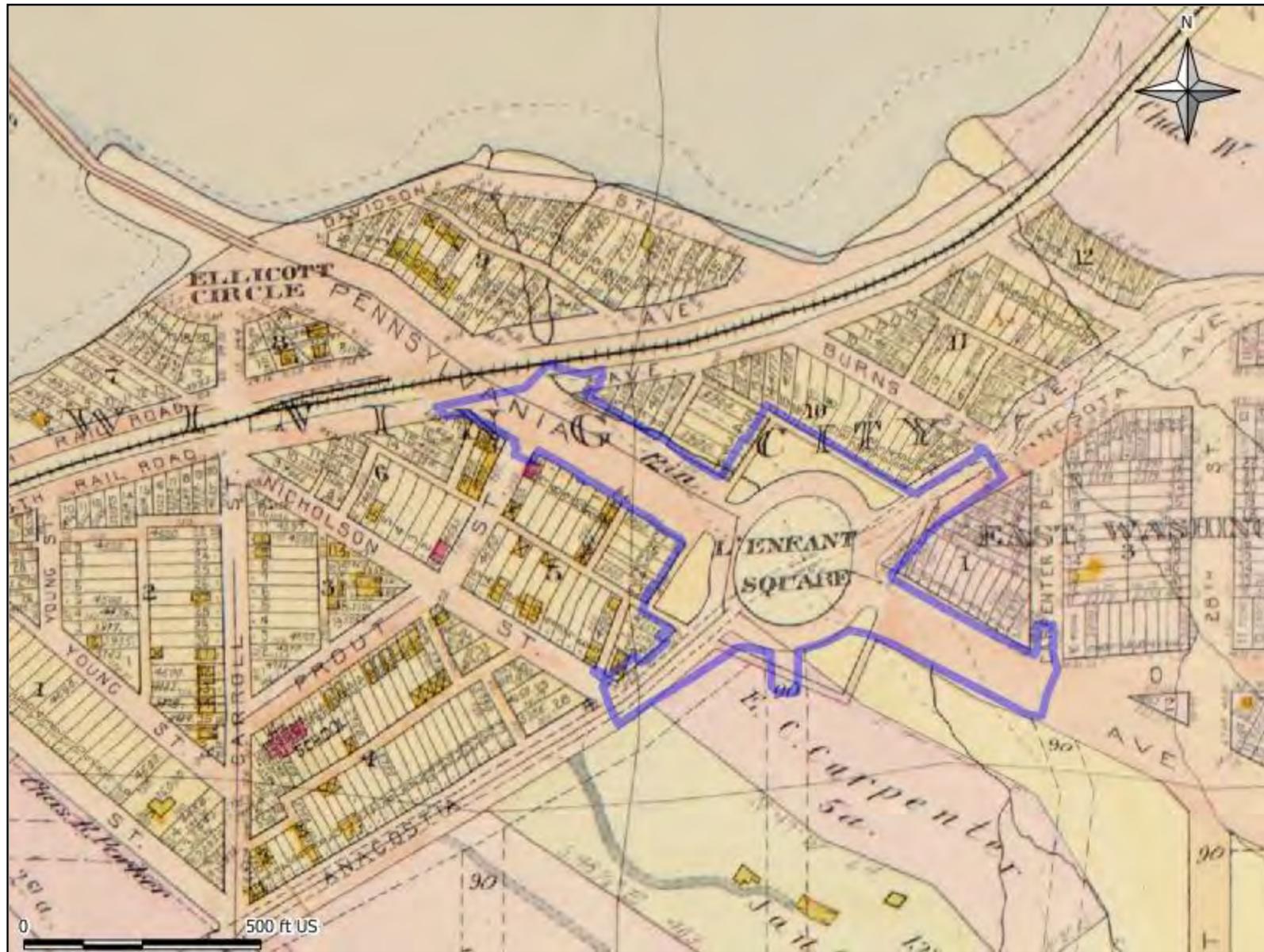
ATTACHMENT B- APE CONDITIONS IN 1858 (Boschke 1861)



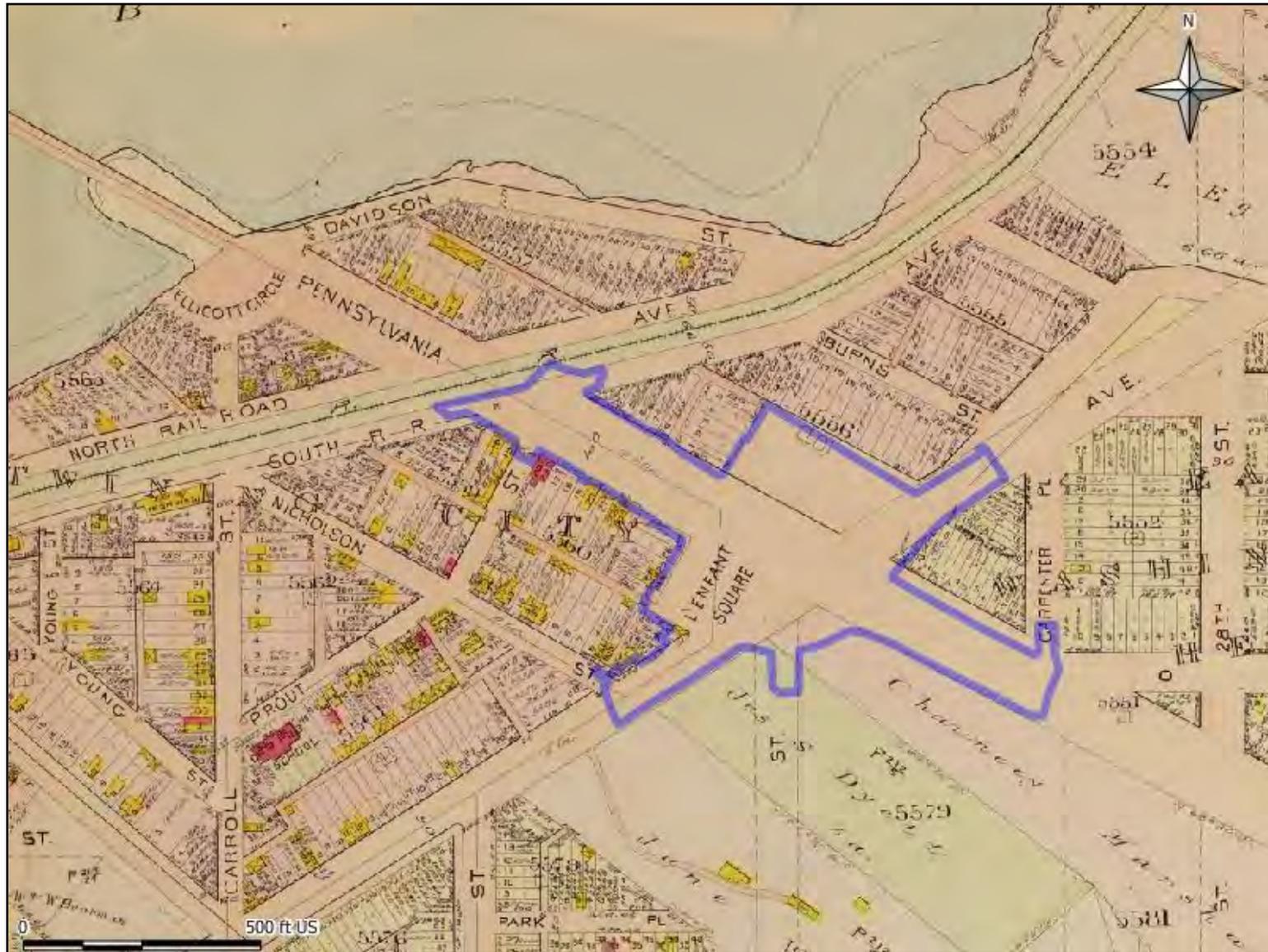
ATTACHMENT C- APE CONDITIONS IN 1878 (Hopkins 1879)



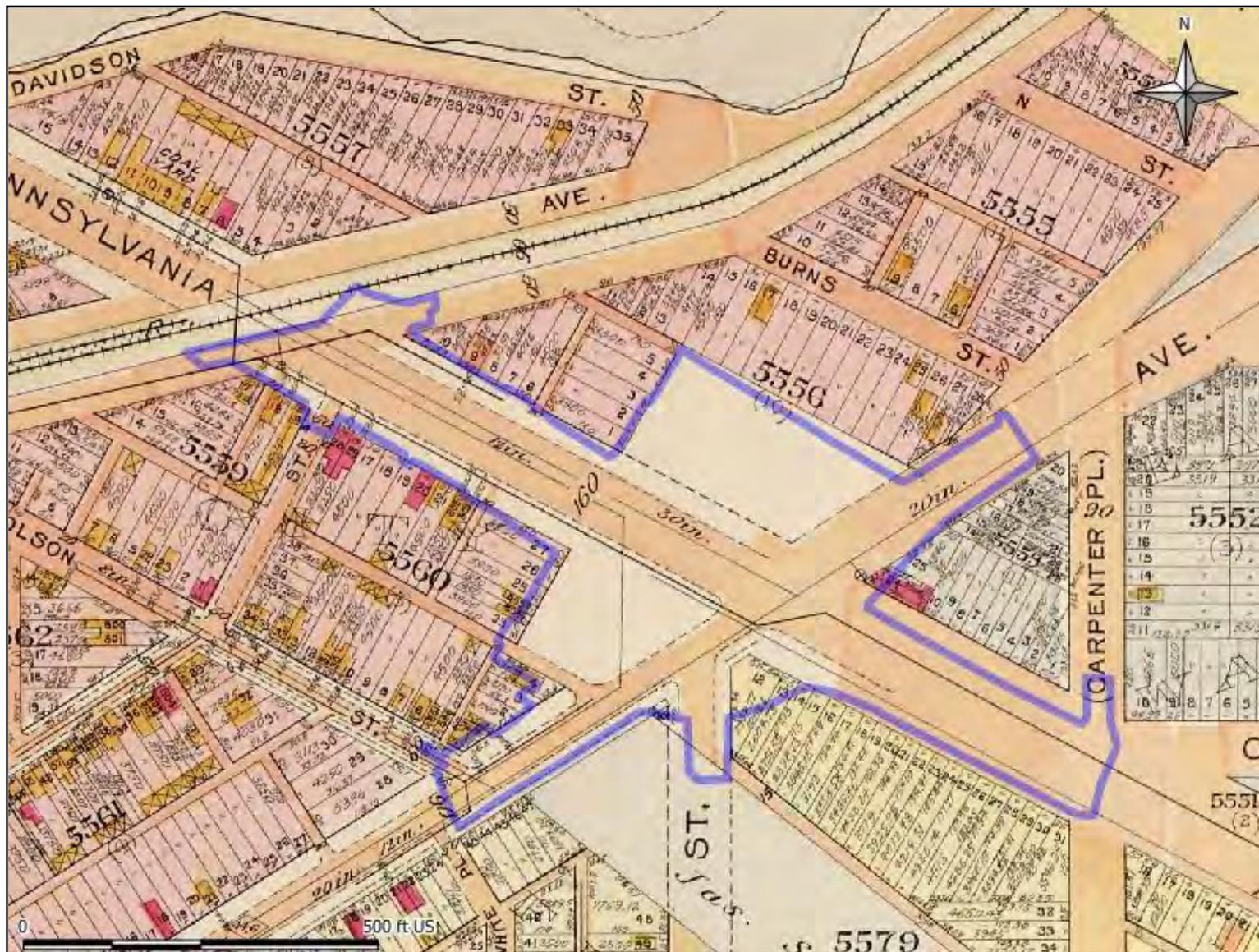
ATTACHMENT D- APE CONDITIONS IN 1903 (Baist 1903)



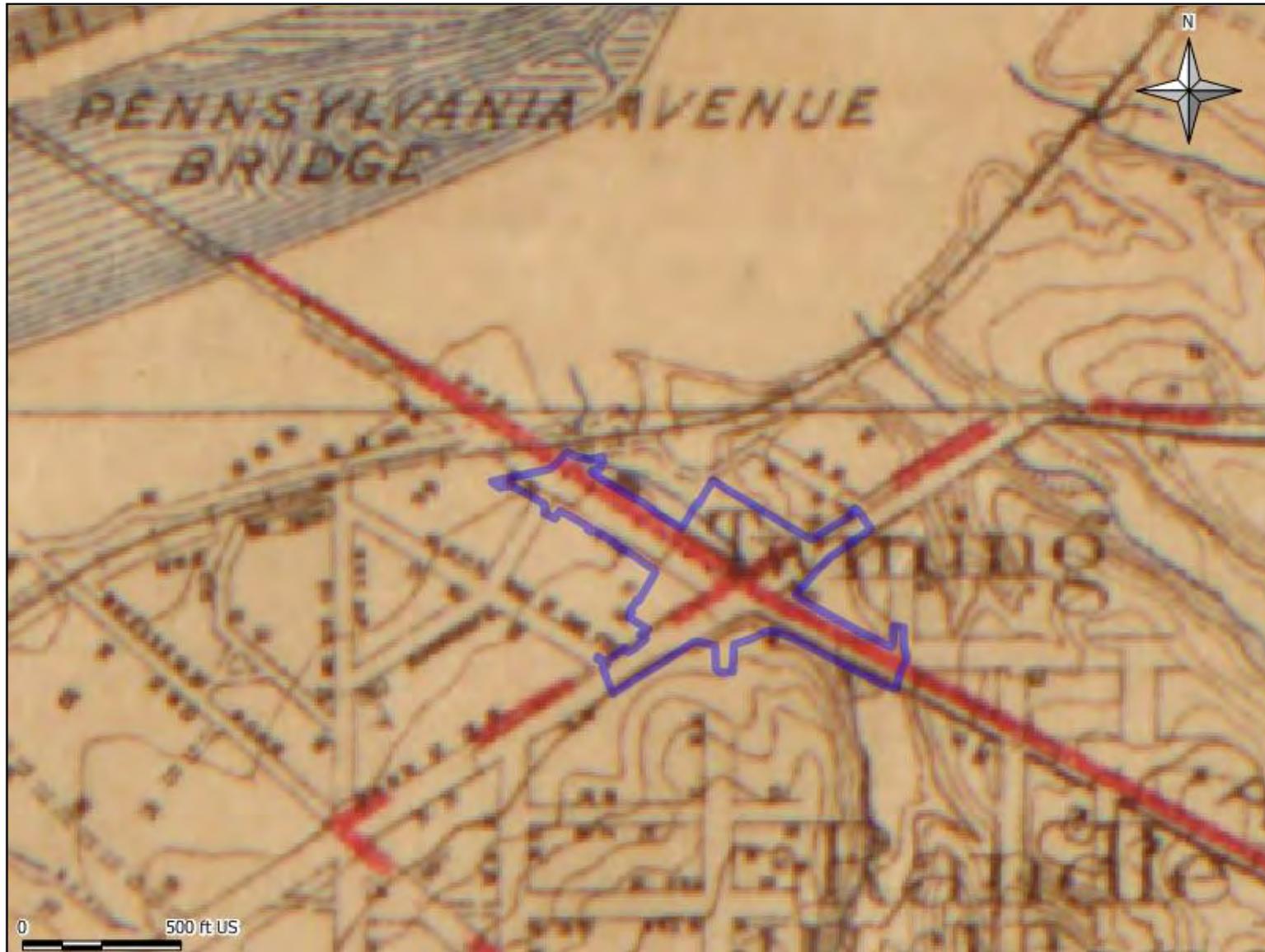
ATTACHMENT E- APE CONDITIONS IN 1907 (Baist 1907)



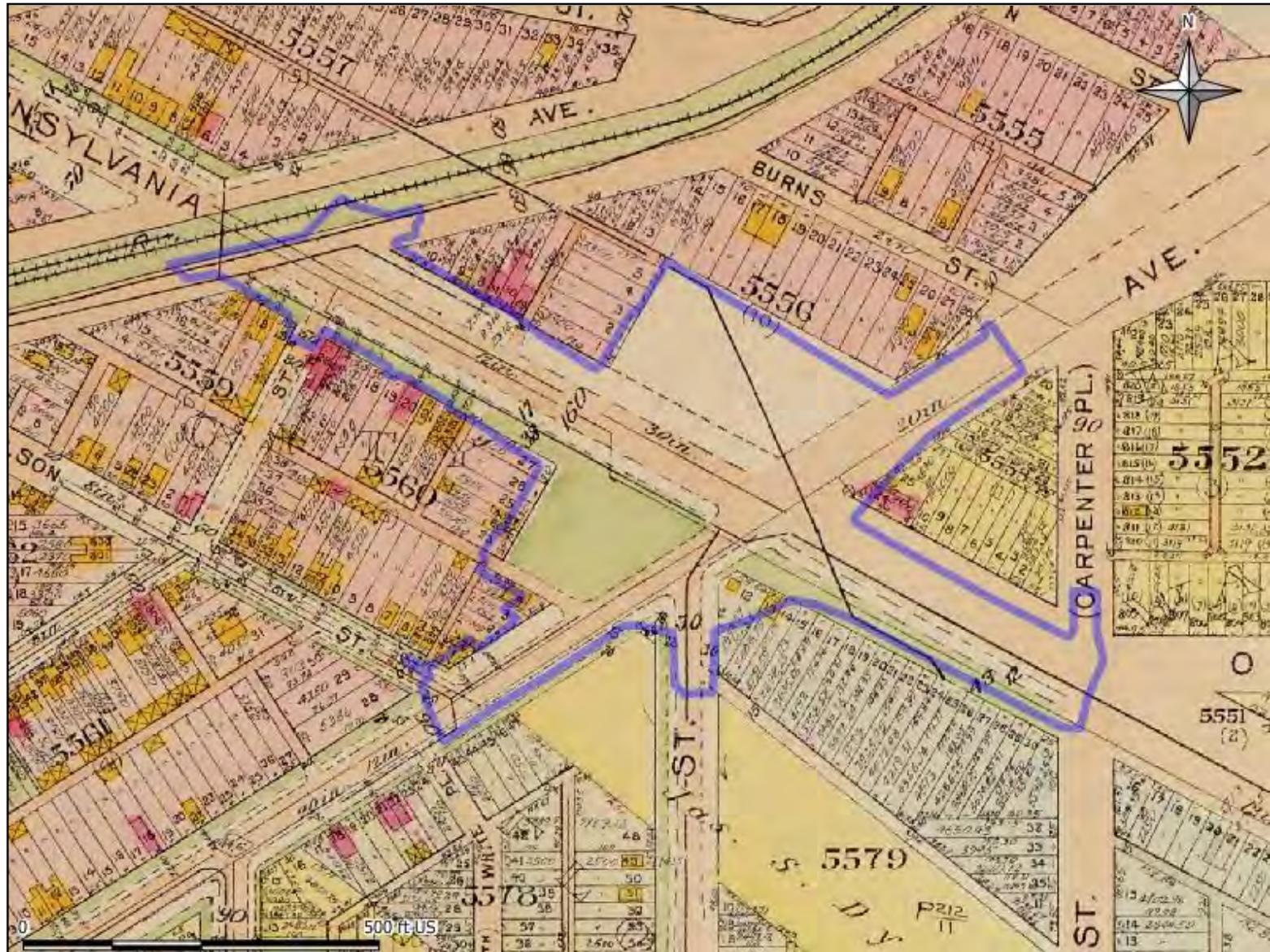
ATTACHMENT F- APE CONDITIONS IN 1913 (Baist 1913)



ATTACHMENT G- APE CONDITIONS IN 1917 (USGS 1917)



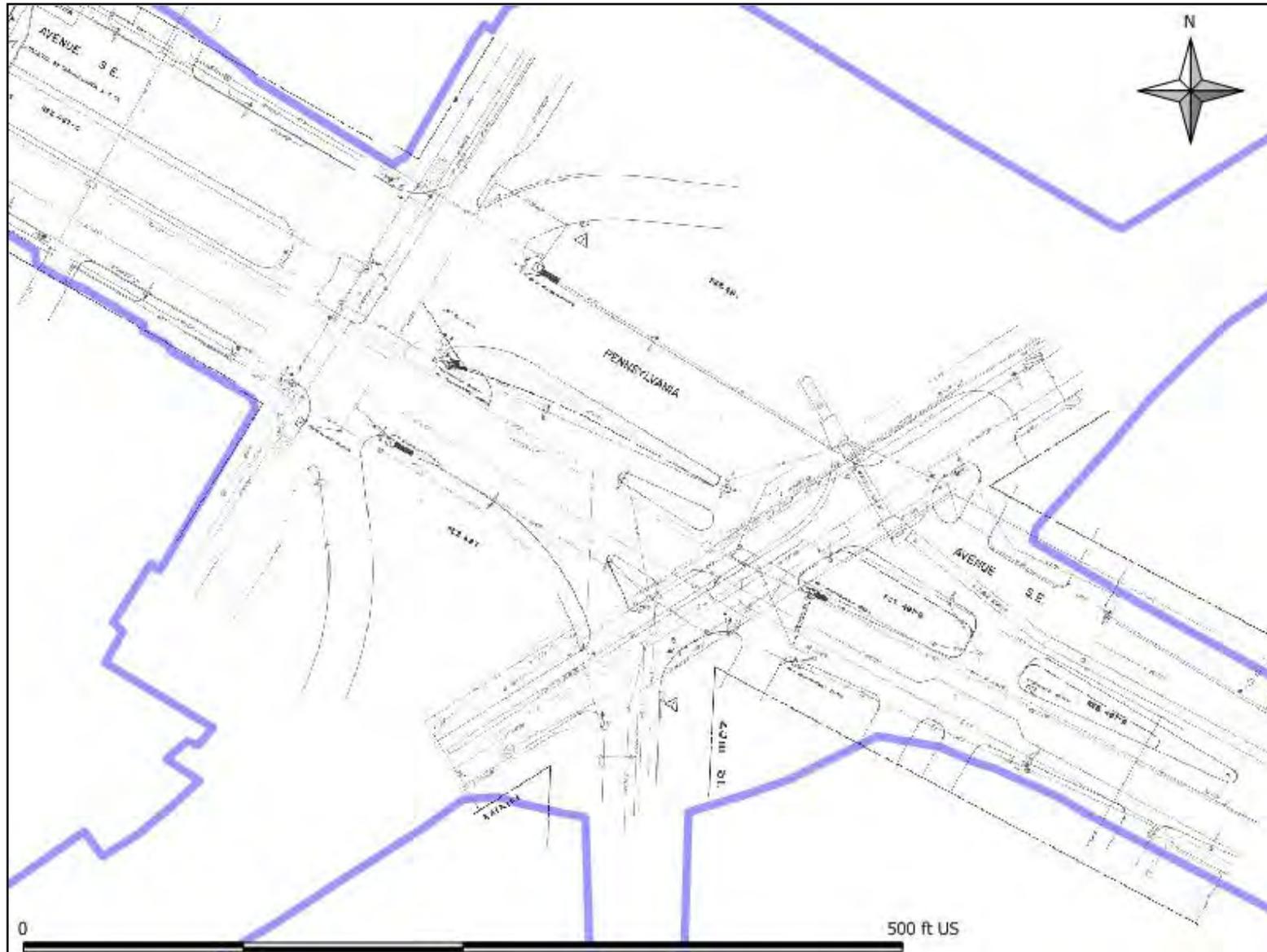
ATTACHMENT H- APE CONDITIONS IN 1921 (Baist 1921)



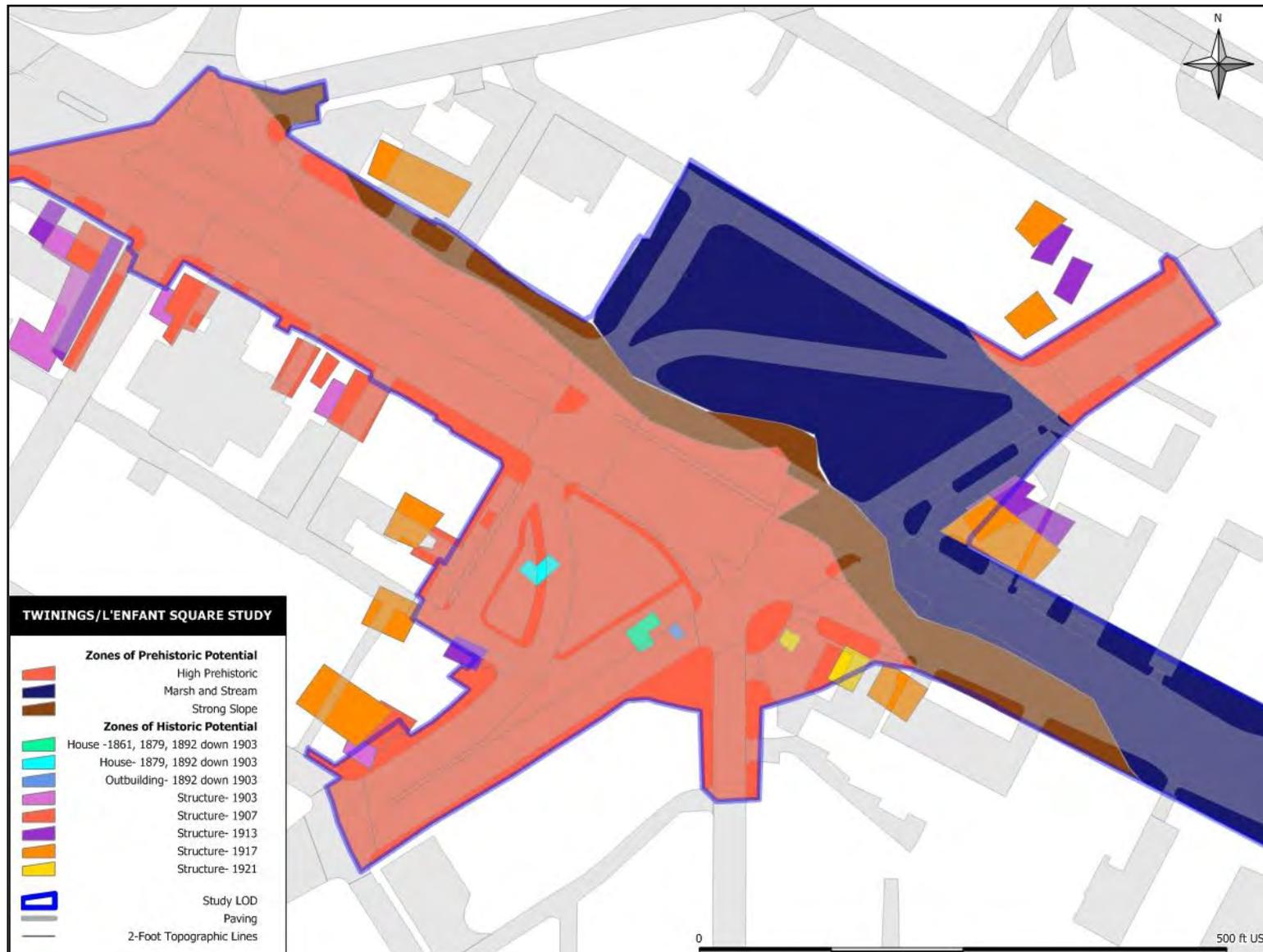
ATTACHMENT I- APE CONDITIONS IN 1954 (Sanborn 1954)



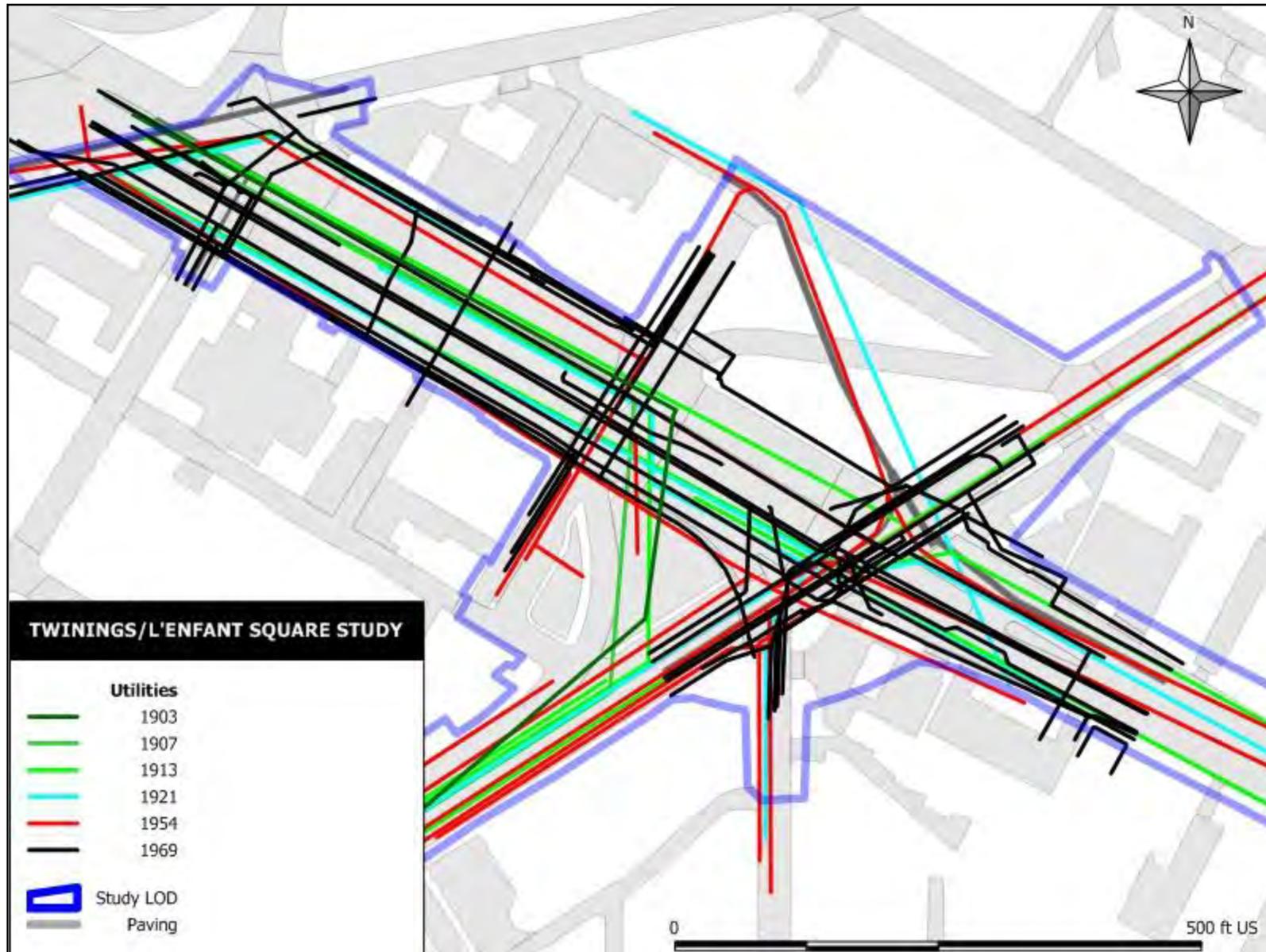
ATTACHMENT J- APE CONDITIONS IN 1969 (As Built Construction Plans courtesy of DDOT)



ATTACHMENT K- Zones of Archaeological Potential Within the APE



ATTACHMENT L- Utility Placement within the APE, Over Time



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ARCHAEOLOGICAL ASSESSMENT OF POTENTIAL
JULY 2011

Archaeological Assessment of Potential
for the Proposed Pennsylvania Avenue and Minnesota Avenue
Land Exchange and Intersection Improvements Project

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Abstract

EAC/A conducted an archival review and historical research to assess the potential for the Area of Potential Effects-Direct (APE-Direct) to contain archaeological resources. Based on the reconstructed historic development of the APE, EAC/A finds the northern portion of the landscape to have been a poorly drained environment prior to urban development, and thus unlikely to contain archaeological resources from any period before the second decade of the twentieth century. The southern portion of the APE, however, represents a highly favored environment for prehistoric settlement, situated on both the wide shore of the Anacostia River and overlooking a tidal marsh area. Review of the DC Historic Preservation Office archaeological site files, and information supplied from the Smithsonian Institute's Museum of Natural History collection indicates that several prehistoric sites were reported in the general vicinity during the late nineteenth century and at least one Smithsonian collection was recovered from within or adjacent to the APE.

Historically, there appears to have been settlement within the southern portion of the APE from at least the mid-nineteenth century. The APE was completely subdivided in the late nineteenth century, but not actively settled until the second and third decades of the twentieth century. Although the APE will certainly contain resources from the mid-and late twentieth century, these resources are considered too recent to represent potentially significant cultural resources.

Between the early twentieth century and the present, much of the central APE, comprised of the Pennsylvania Avenue roadbed, has been deeply disturbed by buried utility placement and relocation. Redevelopment along Pennsylvania Avenue in the mid-to-late twentieth century has had a similar effect on most of the eastern and western portions of the APE. In final consideration, EAC/A finds that only one portion of the APE appears to retain potential for *in situ* archaeological deposits and features, consisting of the southern park reservation presently administered by the National Park Service (NPS). This area includes part of the acreage slated for transfer from NPS to the District of Columbia, and will be partially impacted by proposed intersection improvements under any of the four build alternatives under consideration. EAC/A recommends that a Phase I Identification Survey be conducted within this reservation in order to confirm or refute the presence of archaeological resources, and, if present, delineate their limits in order to evaluate project impact to them or allow redesign to avoid them.

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Introduction

EAC/A was contracted by HNTB and District Department of Transportation (DDOT) to prepare an assessment for the potential for intact archaeological resources within the delineated Area of Potential Effect for Direct Effects (APE-Direct) for proposed improvements to the Pennsylvania Avenue SE, Minnesota Avenue SE, and 25th Street SE intersection, in Southeast District of Columbia (Figure 1). The project also includes the green space area designated as Twining Circle (commonly called L'Enfant Square), and two small side streets designated as L'Enfant Square SE. Proposed improvements will come in to, but not completely encompass, the intersection of Fairlawn Ave SE and Pennsylvania Ave SE.

This project will utilize federal funds from the Federal Highways Administration (FHWA) and the proposed improvements will also require an exchange of land between DDOT and the National Park Service (NPS). Both conditions make the project subject to the provisions of the National Environmental Policy Act of 1969 (NEPA), as well as the National Historic Preservation Act of 1966 (as amended) and related regulations (36CFR800). The project will be reviewed by the District of Columbia Historic Preservation Office (DC HPO) under Section 106. Prior to the proposed land exchange the FHWA and NPS have agreed to collaboratively prepare an Environmental Assessment (EA), in accordance with NEPA, with NPS as the lead agency and FHWA as the cooperating agency. The present Archaeological Assessment Study has been completed as part of that EA. All work conducted meets the *Guidelines for Archaeological Investigations in the District of Columbia* (D.C. Preservation League 1998).

Project Description

DDOT proposes to improve the traffic flow and pedestrian safety at the intersection of Pennsylvania Avenue SE and Minnesota Avenue SE by reconfiguring the road alignments and traffic patterns at this major intersection. The project area is currently a mixture of residential rowhouses and commercial structures. A multi-story mixed-use condominium complex has been constructed recently along the Pennsylvania Avenue frontage.

DDOT has specified development of five alternatives; a No Build alternative, a conventional intersection alternative, a traffic circle alternative, a traffic square alternative, and a modified square alternative (the current Recommended Alternative) (Figures 2 to 5). The Study Limit of Disturbance (LOD) has been developed using a composite of all proposed alternative, representing the widest possible LOD. Figure 6 delineated the proposed project LOD against all proposed build alternatives.

Project activities which will result in ground disturbance include removal of existing pavement and sidewalks, construction of new traffic lanes and sidewalks, relocation of traffic control signals, street lights, landscaping and utilities. Direct impact to an existing structure is anticipated under two alternatives (the Traffic Circle Alternative and the Traffic Square Alternative).

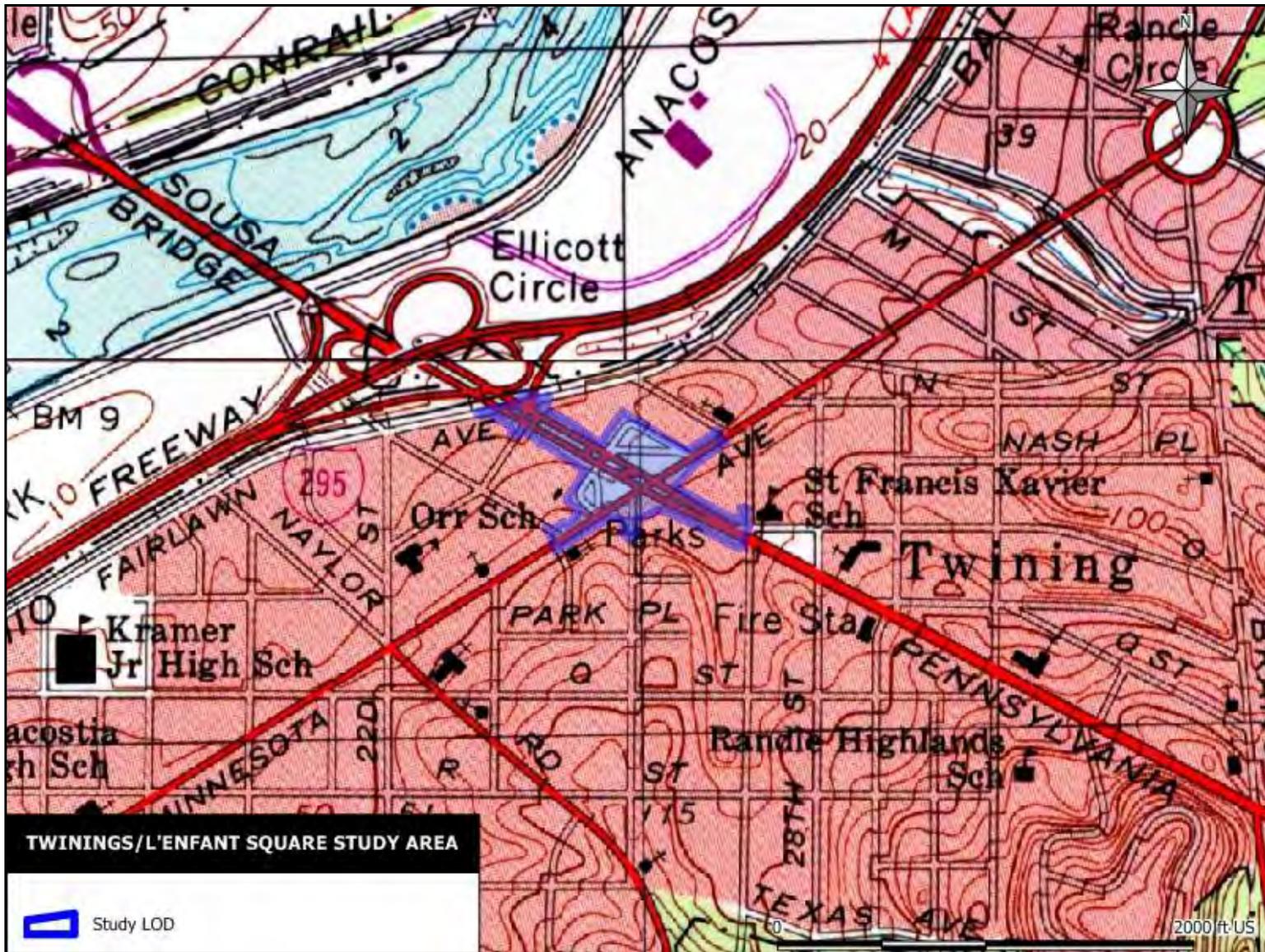


Figure 1. Project Location on the Washington East and Anacostia USGS 7.5 Minute Quadrangles.



Figure 2. Conventional Intersection Alternative.



Figure 3. Traffic Circle Alternative.



Figure 4. Traffic Square Alternative.



Figure 5. Modified Square Alternative (Recommended Alternative).

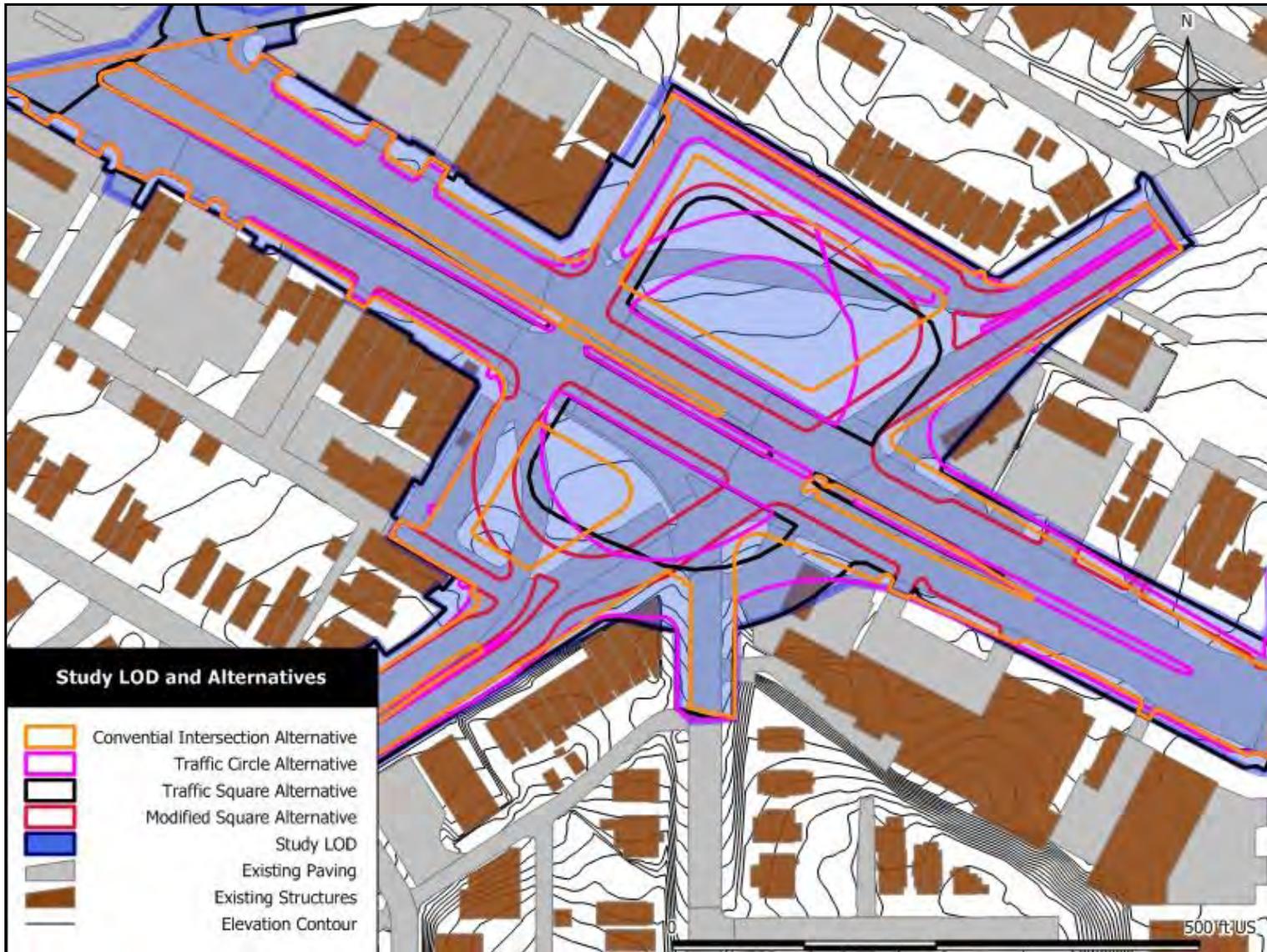


Figure 6. Study LOD in Relation to All Alternatives.

Project History

The Pennsylvania Avenue at Minnesota Avenue improvement project was initially conceived as part of the larger Pennsylvania Avenue Great Streets Initiative Project. The present area of study has been included in at least three previous planning studies, including the Pennsylvania Avenue, SE Transportation Study, the Middle Anacostia River Crossing Transportation Study, and the Bolan Smart Market Study for L'Enfant Square. During this period, several alternative alignments for improvements to the intersection were considered in unpublished DDOT documentation, and the Traffic Circle, Traffic Square, and Conventional Intersection Alternatives were put out for public comment. These three alternatives were evaluated in the 2007 *Revitalization of Pennsylvania Avenue, SE for the Great Streets Initiative Concept Design – Final Report* (DDOT 2007). The current Recommended Alternative, the Modified Traffic Square, was subsequently developed from the alternative rated highest in that report, to address concerns about impact to private property outside the existing ROW.

Description of the APE-Direct

A proposed APE-Direct was defined and submitted to the DC City Archaeologist on March 7, 2011 and approval was received April 8, 2011. The archaeological APE is restricted to the area of direct impact from proposed ground disturbing activities. The project has no known non-contiguous wet lands remediation or storage and staging areas for consideration. As such, the archaeological APE has been defined as the Study LOD, indicated in blue on Figure 6.

The APE-Direct presently consists of a sloped streetscape, with the northern and southern extensions up Minnesota Avenue and the eastern extension up Pennsylvania Avenue rising in elevation, while the western extension has a very gentle slope down. Development is primarily commercial along Pennsylvania Avenue and the southern portion of Minnesota Avenue, while the northern extension of Minnesota Avenue and the other cross streets host residential development (Figures 7 to 10).

Soils and Geology

The project area is located within the Coastal Plain physiographic province, although the Fall Line marking the transition into the Piedmont province is located in the western portion of the District of Columbia (Smith 1976). The Coastal Plain is characterized by unconsolidated interleaved deposits of gravel, sand, silt, and clay, with the surface soils of the specific project area vicinity formed in reworked river terrace deposits from the Pliocene and Pleistocene (Smith 1976).

Soils within the APE have been recorded primarily as Urban land-Galestown complex, which is found in the western, central, and part of the northern sections of the APE (Smith 1976). The northern and eastern edges of the APE are reported as Keyport-Urban land complex. Small segments of Sassafras-Urban land complex and Christiana-Urban land complex are found along the southern edge of the APE.

Urban land- Galestown complex represents areas where roughly 70 percent of the soil surface is covered with impervious surfaces, with smaller areas of graded and reworked Galestown series



Figure 7. Commercial Development, Southside of Pennsylvania Avenue, looking southwest from 25th Street.



Figure 8. Northern NPS Reservation, looking southeast from intersection of two L-shaped Square roadways.



Figure 9. Residential Development, west side of Minnesota Avenue, northern extension, looking southwest.



Figure 10. Residential Development, northern L'Enfant Square roadway, northside. Photograph taken facing east.

soils exposed. The 1976 District soil survey notes that roughly 5 percent of Urban land-Galestown mapping units are relatively undisturbed Galestown soils. Galestown soils developed out of old marine deposits of sand and found on uplands and terraces along the Coastal Plain. They are generally deep and somewhat excessively drained. The typical profile includes a thick two-layer A Horizon of loamy sand over a very thick, coarse loamy sand B Horizon. The substratum is generally more than three feet below the surface.

Christiana series soils are deep, well drained soils formed in silty material deposited over older clay deposits (Smith 1976). They are generally found on well-dissected uplands, and within the APE are reported as part of the Christiana- Urban land complex, where roughly 40 percent of the area is covered with impervious surfaces, 20 percent consists of reworked or graded Christiana series soils, and 20 percent consists of relatively undisturbed Christiana series soils. The remaining 20 percent includes a mixture of associated soil series and areas of eroded Christian series soils where the clayey subsoil is exposed.

The typical profile for Christiana series soils includes a thin silt loam A Horizon over a two-layer subsoil. In its upper layer, the subsoil is a heavy yellowish brown silt loam, but changes to a red silty clay within a foot of the surface.

Keyport soils are generally deep, moderately well drained soil developed in silty material over older clay deposits. They are typically found in lower settings in the Coastal Uplands. Areas in the APE which are reported as Keyport- Urban land complex consists of strongly sloped areas where roughly 40 percent of the area is covered with impervious surfaces, 20 percent consists of reworked or graded Keyport series soils, and 20 percent consists of relatively undisturbed Keyport series soils. The remaining 20 percent includes a mixture of associated soil series and areas of severely eroded Keyport series soils where the grey clayey subsoil is exposed.

The typical soil profile for Keyport series soils includes a thin silt loam A Horizon, and a thick, multi-layered subsoil which is dominated by clay within a foot of the surface due to erosion deflation.

Sassafras series soils are deep, well drained soils formed in marine sediments, and found on side slopes and ridges tops in upland settings (Smith 1976). Sassafras series soils reported within the APE are included in Sassafras- Urban land complex mapping units where roughly 40 percent of the mapping unit is impervious surfaces, 20 percent is disturbed Sassafras series soils, 20 percent is undisturbed Sassafras series soils, and 20 percent consists of associated soils types.

Typical soil profiles in strongly sloped areas of Sassafras soils consists of a sandy loam A Horizon less than a foot thick, over a multi-layer subsoil which approached two feet in thickness. Subsoil grades from sandy loam to sandy clay loam and back.

Based on the anticipated soil types in the APE, cultural deposits should be within the upper foot of the natural profile. However, given the development history of the project area, most of the APE is expected to represent completely or partially disturbed soil sequences.

Previous Research

In August, 2010 EAC/A received information from the DC HPO City Archaeologist that there were no known sites within or adjacent to the APE-Direct, and no previous cultural resource studies which included the current APE (DC HPO, Personal Communication, August, 2010). The DC HPO does note two sites in the immediate vicinity: 51SE015 and temporary site designation P21. A cluster of six additional sites (one with two possible locations) is located on the east side of the Anacostia well north of the project, associated with the historic river shore and tributary streams, while two additional sites associated with the historic river shore are located well to the southwest. These eight sites (and one alternative location) range from roughly 170 feet outside the project APE to the researched limit of one mile outside the APE. All of these sites are listed as prehistoric resources. None have been subject to controlled testing.

On-going research conducted by the DC HPO amended this finding in early March, 2011, noting that at least one Smithsonian collection attributed to Proudfit has been linked to the burrow pit associated with the extension of Pennsylvania Avenue at the east end of the Pennsylvania Avenue bridge, and therefore would have been within or adjacent to the current APE (Troccoli and Krakker, Personal Communication, March 4, 2011). Additional information about the W. Selby and the Armistad Peters collections is also being researched by the DC City Archaeologist, as these collections may also be from the project vicinity.

Site 51SE015, located roughly 250 feet north of the APE, is officially listed as Unidentified Prehistoric, but the Bury collection in the Smithsonian's holdings includes Potomac Creek pottery sherds, some "leached shell" tempered sherds, and a variety of project points suggesting at least a Late Archaic and Woodland Period occupation span.

P21 (roughly 170 feet south of the APE) is a possible relocation of the Twining City (SE14) site as noted in Hume 1975, officially listed as Unidentified Prehistoric, but noted with Middle Archaic, Late Archaic, and Middle Woodland components.

The Smithsonian Institute's Proudfit collection also includes materials reported as collected from the borrow pit for construction of the eastern extension of Pennsylvania Avenue (J. Krakker, Personal Communication, March 4, 2011). This collection (Accession No. 022631, Catalog No. 146563) consists of nearly one hundred pieces of lithic debitage and tools, as well as a small number of aboriginal ceramics. The collection includes multiple lithic materials but appears to be predominately quartz and quartzite. Tools include a number of general bifaces as well as stemmed points. No detailed catalog appears to be available for this collection.

Two studies were conducted in the general project vicinity, both primarily along the Anacostia shore line. The first was a Phase I (Reconnaissance) conducted for the WSSC Anacostia Force Main (Hume 1975). Hume's study consisted of both surface reconnaissance and subsurface investigation. It also included extensive review of existing collections and collections documentation, some of which is no longer publicly available. The study area stretched from the pumping station just north of the District boundary in the Kenilworth area, south and west to the Blue Plains treatment plant, primarily following an alignment within Anacostia Park. The present project falls within Hume's Survey Area E, starting just south of the Pennsylvania Railroad bridge over the Anacostia and continuing to just east of the Douglas Bridge.

Although the full study identified 75 potentially reported artifact finds or concentrations, none were within the current proposed project APE. Nine of the concentrations identified by Hume's archival research fall within a one-mile radius of the present project APE. Hume grouped seven of these into what he refers to as "a single major collection area or site (Hume 1975:6)" stretching along the historic Anacostia shore line. Two of these sites (GWU 8 and 51SE003) were subsequently tested during Hume's survey, as they fell within or adjacent to the survey alignment.

Hume's site GWU 8 (Bruce Powell 21) was described as a multi-component site, with late nineteenth-century foundation remains and unidentifiable prehistoric remains, possibly including oyster midden. The site was classified as potentially significant primary deposition, but does not appear to have been assigned an official trinomial designation. It was located within Anacostia Park, north of the Anacostia Freeway and more than 1,800' from the limits of the project APE.

Site 51SE003 (Bruce Powell site 20), a contact period mixed component site, was re-plotted based on Hume's archival research, and then subject to surface examination during Hume's survey. Examination of open construction trenches during the survey determined the area was covered with up to 5 feet of demolition- debris laden fill, leading him to conclude the prehistoric site had been previously badly disturbed or destroyed.

The second cultural resources study previously conducted in the project vicinity consisted of an archaeological and historical study of Anacostia Park on the south or east bank of the Anacostia River (Engineering Science 1989). This study was restricted to archival research. Based on that archival research, shore area along both shores of the Anacostia River was classified as high potential for prehistoric resources, including a possible Woodland village site. Historic settlement was more sporadic and consisted of several large land holdings whose main houses were generally located more inland.

Additional studies conducted further from the current APE but in similar settings were associated with proposed improvements to Barney Circle (Artemel *et al.* 1989). The physical testing conducted during the Phase II study identified three potentially eligible prehistoric sites along the floodplain of the Anacostia River, adjacent to tributary stream confluences.

Prehistoric Context

The period of history prior to sustained European contact is discussed below. By convention, this long span of human occupation is commonly divided into three broad periods: Paleoindian (12,000-7,500 B.C.), Archaic (7,500-1,000 B.C.), and Woodland (1,000 B.C.-A.D. 1608). The Archaic and Woodland Periods are commonly subdivided into Early, Middle, and Late subperiods. These temporal divisions are based on similarities in artifact types and technology. Diagnostic artifacts for each period are discussed below along with a broad discussion of regional settlement and subsistence patterns.

The Paleoindian Period

In a recent review of Paleoindian research Boyd notes that a combination of advances in dating studies, paleoenvironmental reconstruction, and archaeological studies have all changed the

timelines currently hypothesized for the initial migrations and subsequent diffusion of human populations in the New World (Boyd 2003). Although still debated, dated Paleoindian components from recent studies have pushed back the span of recorded history along the eastern seaboard. These include sites like Saltville (44SM37) which may have produced culturally altered bone in deposits capped some 13,500 year ago; Cactus Hill (44SX202) which has produced features dating from roughly 16,000 years before present; and Brook Run (44CU122) which has produced hearth features dating from roughly 10,000 and 11,000 years before present. Recent discoveries such as these represent an early Pre-Clovis Paleoindian occupation of the eastern seaboard. Based on the Cactus Hill Pre-Clovis component, tool assemblages include prismatic blades and blade cores made from local fine grained lithic materials (McAvoy and McAvoy 1997, Johnson 1997). Boyd cites immunological evidence of utilization of musk ox, bison, deer, elk, and small mammals such as rabbits (Boyd 2003: 68).

The initial human occupation of the region is generally thought to be concurrent with retreating glacial conditions and the emergence of a Holocene environment. A mosaic of deciduous, boreal, and grassland biomes with a uniformly cold climate characterized the late-glacial environment. The final stages of rapid Potomac down-cutting were active during this period, and sea levels were rising rapidly after the lows of the glacial periods. Human adaptation to the late Pleistocene/early Holocene environmental conditions involved small, mobile bands of hunter-gatherers with movements related to the exploitation of different localized environments and resources. Subsistence appears to have been largely focused on the hunting of not megafauna but rather large game, such as elk, caribou, and deer. The Piedmont-Coastal Plain interface (fall zone) is thought to have contained a wide variety of resources attractive to Paleoindian inhabitants, who utilized a variety of base camps, hunting sites, and quarry-related locations (Gardner 1989; Custer 1984:52-53).

Paleoindian sites have been identified in all physiographic zones of the Potomac Valley and in the surrounding region. Cultural deposits at Meadowcroft Rockshelter in Pennsylvania have been dated to this era, although they have not been universally accepted (Adovasio 1976). Late Pleistocene cultural deposits have also been uncovered at Cactus Hill, Virginia (McAvoy and McAvoy 1997; Johnson 1997). Perhaps one of the most significant Paleoindian site on the Coastal Plain is the Higgins Site in Anne Arundel County, Maryland, where over a hundred Paleoindian stone tools were found (Dent 1995:170-171; Ebright 1992).

Paleoindian activity in the Piedmont appears to have focused on quarrying quality materials for stone tools. Another rich Paleoindian site, in the Virginia Piedmont (Culpeper County), is the Brook Run Site (44CU122). This site is a quarrying site where jasper was extracted from a small exposed seam (VDOT 2001). The Thunderbird site complex is another significant locus of Paleoindian activity in northern Virginia (located in Front Royal, Warren County, VA). This site complex included a base camp and jasper workshop (44WR11), and a hunting camp (44WR50)(Gardner 1989). On the western side of the Potomac Fall zone is the Catoctin Creek Site. This site has a diverse Paleoindian assemblage and is situated at the mouth of perennial stream (Dent 1991). The Pierpoint site is located nearby, on the eastern bank of the Potomac, but as the site is know primarily through surface collection less information is currently available.

A factor influencing Paleoindian site identification in the region is the rise in sea level between 13,000 B.C. and 4,000 B.C. During this period, Holocene warming led to coastal and riverine inundation, flooding the lower reaches of the Susquehanna River and its tributaries and creating the Chesapeake Bay (Ebright 1992). It is currently believed that many coastal sites from the Paleoindian Period are inaccessible as they are off shore on the coastal shelf.

Artifact assemblages associated with the Paleoindian Period include fluted points (most notably the Clovis and Dalton types) and a variety of non-diagnostic unifacial and bifacial stone tools (Dent 1995:170). Humphrey and Chambers note that three fluted points from the banks of the Anacostia and a fourth from northwest Washington were recovered during the late nineteenth century (Humphrey and Chambers 1977). Flanagan *et al.* subsequently reported that two were manufactured from non-local chert and one from locally available quartz (Flanagan *et al.* 1985).

The Archaic Period

This culture period covers a great amount of time (7,500 to 1,000 B.C.) and covers very substantial cultural change. It is traditionally divided into three sub-periods: Early, Middle, and Late. Regional models link the shift from Paleoindian patterns into Early Archaic patterns with environmental changes during the Pleistocene to Holocene transition. Changes in technology and subsistence patterns are seen as directly reflecting adaptation to newly available resources. These represent a series of adaptations that were increasingly sedentary and focused on large rivers and major tributaries. Other, often smaller, sites located away from the main streams probably represent seasonal or other specialized activities. Increasing territoriality and regional diversity are reflected in the varieties of artifacts, especially projectile points, through the Early, Middle, and Late Archaic periods.

Classical models see Early Archaic patterns as largely continuing the traditions of those from the Paleoindian Period (Gardner 1989; Custer 1990). Settlements expanded into more diverse environments, apparently utilizing a wider variety fish, game, and other plant food resources, such as nuts, berries, and roots (Johnson 1983, Custer 1990; Petraglia *et al.* 1993, Dent 1995:165-166). The appearance of corner-notched projectile points or knives (ca. 7,500-6,800 B.C.) is considered a marker of the Early Archaic period. Point types in the Early Archaic include the Hardaway, Palmer, and Kirk types, and bifurcate forms such as LeCroy (Custer 2000).

The Middle Archaic Period is marked by a fully developed Holocene environment, one that was generally warm and moist (Gardner 1989). Oak/hemlock forests dominated during this period, and grasslands were much smaller in size (Gardner 1989). This is thought to have led to an expansion of the available food base and a broadening of human foraging patterns (Gardner 1989). The population appears to have expanded over larger geographic areas and to have become more sedentary, with a limited degree of territoriality (Custer 1984; Perlman 1981).

The warm and wet climate may have dramatically influenced the western periphery of the Coastal Plain and the Eastern Piedmont. The increased rainfall during this period likely led to a rise in the water table (Custer 1984:63). Embayment of the lower Susquehanna drainage began

during this period, and gradually more riverine and estuarine environments developed. Custer reports that marshes expanded in the region during this period (Custer 1984:69-70).

Gathering and processing of plant resources and fishing appear to have played increasingly important roles in subsistence systems throughout the Middle Archaic Period. This is reflected in an expansion of tool forms to include grinding stones, net-sinkers, mortars, pestles, axes, and adzes. Artifact assemblages from this period are diverse. In this region, assemblages may include Kirk Stemmed, bifurcates (several types), Stanley, Brewerton (several sub-types), Morrow Mountain (several types), Guilford, and Archaic triangles projectile points (Custer 2000; Katz 2000). Flanagan *et al.* report both Stanley and Morrow Mountain types in late nineteenth century collections from the Anacostia River vicinity (Flanagan *et al.* 1989). A variety of non-diagnostic unifacial and bifacial stone tools were also produced during this period. Groundstone tools became common during this period, including mortars and pestles (Dent 1995:170).

The development of artifacts that are not easily portable, such as grinding stones and groundstone tools, supports the hypothesis that Archaic Period populations developed more sedentary settlement systems. The emerging settlement pattern included large base camps located along major drainage systems. Small procurement camps were typically situated in upland areas, possibly indicating the presence of social fusion/fission mechanisms, with small kin groups leaving larger base camps for seasonal exploitation of resources in other environmental niches (Gardner 1978; Custer 1984:67).

The Late Archaic Period is marked by a greater emphasis on local resource exploitation. Settlement patterns tended to focus more along interior drainages of first-order streams (Mouer 1991; Steponaitis 1980). At least one researcher has suggested that the inherently linear nature of resource zones in such a system would motivate greater social interaction between groups (Mouer 1991:14). Regionally, evidence for permanent housing began to appear at this time (Griffin 1978:231). The establishment of extensive trade networks and the introduction of complex mortuary practices are also characteristics of this period.

By the end of the Archaic Period, shallow estuarine zones were established along the Bay shores and lower tributaries, and intensive exploitation of the oyster began (Dent 1995:212). Fish were also intensively harvested during this period, including the use of fish weirs. Shell middens abound where indigenous people discarded oyster shells and other fish remains. Large base camps were established at the fall lines of major freshwater streams, where fish-spawning runs were most productive, and at saltwater estuaries for collecting oysters (Dent 1995:212). These camps represent seasonal fusion locations. Winter fission produced a pattern of “upland hollow” hunting and foraging camps located in the Piedmont interior (Johnson 1991 cited in Johnson 2001:82).

Classically, researchers have classified the diverse tool assemblages of the Late Archaic Period into groups, or traditions, most notably the Laurentian and the Piedmont traditions. More recently researchers have interpreted differences in assemblages as functionally dictated, in addition to representing differences in cultural derivation or extra-regional stylistic influences.

Carved, lug-handled steatite bowls are one of the most distinctive artifact types to be introduced to assemblages during the Late Archaic Period (Dent 1995:182-183). The use of the heavy steatite bowls also suggests increased sedentism (Dent 1995:213; Tuck 1978:38).

Late Archaic Period projectile point types include Brewerton (first dating to the late Middle Archaic Period), Savannah River, Bare Island, Susquehanna Broadspears (and other broadspear types), Calvert, Hellgrammite, Lamoka, Piscataway, Halifax, and Orient Fishtail types (Custer 2000). The flaked tool industry included small bifaces, drills, scrapers, and utilized flakes. Antler and bone tools have been recovered as well (Dent 1995:161,182). Flanagan *et al.* note that material from the Late Archaic represents a significant portion of the late nineteenth century local collections held by the Smithsonian Institute, and appears to provide evidence of dense Late Archaic occupation of the Anacostia River vicinity (Flanagan *et al.* 1989). Humphrey and Chambers report similar assemblages from southeast Washington along the Potomac River (Humphrey and Chambers 1977).

The Woodland Period

An intensification of social structure and social hierarchy began during the Late Archaic Period and was expanded in the Woodland Periods (Dent 1995:218). Like the Archaic, the Woodland Period is usually divided into Early, Middle, and Late segments. The defining characteristic of the Woodland is the use of ceramics, which began circa 1000 B.C. Arguably as important was the cultivation of crops. Horticulture appears to have intensified after 300 B.C., accompanied by a less nomadic existence and a noted increase in population.

The Early Woodland (1,000 B.C.–300 B.C.) and Middle Woodland Periods (300 B.C. –A.D. 1,000) were noted for the development of longer-term habitation sites, a gradual shift to the exploitation of cultigens, and the extensive use of a wide variety of environments and resources (Gardner 1982; Custer 1984; Johnson 1991). McNett and Gardner (1971) believe that there is increased population size and increased sedentism during the Early Woodland Period. Most researchers believe that there was a generally increase in social complexity and social interactions during the Middle Woodland Period (300 B.C. to A.D. 900). By the Middle Woodland Period, crop cultivation is evident in the archeological record. Crops such as maize and squashes arrived in the area from the vicinity of Mexico. Local plants like sunflower, goose foot, pigweed, and marsh elder were also domesticated (Humphrey and Chambers 1977:17).

Various cultural changes occurred around A.D. 900, marking the beginning of the Late Woodland Period. The shifts include changes in settlement patterns (such as increased settlement size, and in some areas fortification of settlements) and a marked shift in subsistence patterns reflected in increased reliance on domesticated crops. Settlement patterns for the Late Woodland Period shifted to more commonly include permanent villages and hamlets. Floodplain locales were the favored locations for settlements, likely based on the availability of fertile bottomland soils. Smaller base camps and procurement sites were located in diverse settings and tended to have periods of multiple re-use (Custer 1986). Subsistence practices included the cultivation of foodstuffs, especially corn, beans, and squash. Diverse wild food sources were also utilized, including nuts, starchy tubers, amaranth, goosefoot, shellfish, fish, elk, bear, turkey, squirrel, duck, bobcat, raccoon, rabbit, skunk and wolf (Dent 1995).

Evidence of extended habitation sites is indicated by domestic features, such as the utilization of above-ground storage facilities, special warehouses and granaries, in addition to subterranean storage pits (Dent 1995:249). House structures commonly followed an oval-shaped pattern. The longhouse was another type of domestic structure that had interior partitions. Smaller house patterns have been found to range in size from about 5.5 to 9.0 meters in length and 4.0 to 5.0 meters in width (Dent 1995:249).

Warfare between the local groups in the region is evident in the archeological record after A.D. 900 and particularly after A.D. 1200. Overlapping post molds and palisade lines at sites such as the Accokeek Creek and Potomac Creek sites indicate that the local indigenous groups frequently rebuilt and expanded their fortifications (Dent 1995: 250; Rountree and Davidson 1997:46).

Projectile point diversity steadily decreased during the Woodland Period. Early Woodland Period projectile point types include: Adena, Calvert, Hellgrammite, Meadowood, Piscataway, and Rossville (Custer 2000; Kavanaugh 1983:49). Projectile points in use during the Middle Woodland Period included Piscataway and Rossville types, and Fox Creek points. In the Late Woodland Period, there was nearly exclusive use of triangular projectile points (also known as the Madison and Levanna types) (Custer 1986; Stewart 1990).

Ceramic diversity expanded during the Woodland Period, with a number of design motifs apparently circulated through the Eastern Woodlands. The earliest ceramics in the region are Marcey Creek and Selden Island ware types, both steatite-tempered and resembling steatite bowls. Other ware types include Accokeek, Popes Creek, and Mockley ceramics (Early-to-Middle Woodland). Later ware types include Sheppard, Keyser, Rappahannock, and Potomac Creek wares (Late Woodland).

Chipped-stone tool assemblages of the Woodland Period contain small bifaces, utilized flakes, drills, perforators, and scraping implements. Assemblages also include rough-stone or ground-stone artifacts such as grubbing tools, hammerstones, anvil stones, net sinkers, mortars, pestles, manos and metates (Dent 1995:228-229). Other artifacts typically found in the region are ground-stone celts and adzes, ground-slate pendants, gorgets, bone awls and projectile points manufactured from bone, antler, turkey spurs, stingray barbs, and shark's teeth (Dent 1995:228-229).

The Contact Period

The first documented European contact in the region was the exploration of the Potomac River by Captain John Smith in 1608. He reportedly explored as far upstream as Little Falls. His voyage marked the beginning of English trading with indigenous peoples in the area, and his maps provide an essential picture of indigenous settlement at the time of European contact.

Numerous villages were noted by Captain John Smith along the Potomac (Smith 1608 [1624], Figure 11). Several villages are indicated on the map in the Washington vicinity, including Namoraughquend, a settlement on the Virginia shore opposite Washington D.C. north of the mouth of the Anacostia (Smith 1612). Mooney also noted the small villages of Assaomeck in the Alexandria area and Namassingakent below Alexandria (Mooney 1889:260). The more



Figure 11. Smith 1608 [1624] *Map of Virginia*.

important villages in the region included Nacotchanck, Moyaons, and Tauxenent. The inhabitants of Nacotchanck are thought to be part of the Piscataway chiefdom while Moyaons was the chief village (Cissna 1990: 28). The village of Tauxenent was situated on the Virginia side of the river near the mouth of the Occoquan River. The village of Nacotchanck was located on the Maryland side of the Potomac, along the Anacostia, and has been variously placed around Giesboro Point, Poplar Point (Scisco 1955 and McCord 1957), and at the base of the Sousa Bridge (Mayre 1938). Proudfit probably more accurately described it as a diffuse settlement area stretching from Giesboro Point to a point just short of Bladensburg (Proudfit 1989:242). The Maryland based Piscataway were generally closely allied with the Powhatan Confederacy, sharing a common language stock (Algonquian). Some scholars dispute this interpretation, suggesting that the groups between the Rappahannock and Potomac rivers were instead relatively independent (Potter 1993:18-19).

The early seventeenth century was marked by a series of conflicts between English settlers and the Powhatan Confederacy, with conflicts in 1609, and periodically from 1622 through 1632 (Cissna 1990: 30). Indian-European hostilities generally subsided in the middle of the 17th century when Indian treaties and reservations were offered, and European settlement spread. In contrast, conflict with the Susquehannocs of the northern Bay and between the Powhatan and Monacan confederacies dated to periods before permanent English settlement and continued through the later seventeenth century (Mooney 1889). Virginia established reservations in the 1650s. Maryland established a reservation for the Piscataway Indians and associated tribes slightly later in 1669 (Cissna 1990: 30). Most indigenous groups had migrated out the project vicinity by the early eighteenth century (Mooney 1889).

Historic Context

The following summary of historical development within the District of Columbia is not intended to serve as a complete history of the City, but rather to provide some general context within which to understand the more specific project area history subsequently provided.

Contact and Settlement Period (1570-1791)

The majority of the present day District of Columbia was originally settled as part of Maryland. When the Capital was formed in 1791, the bulk of the territory was carved out of Prince Georges County, while the western portions of the 10-mile square territory were pulled out of Montgomery County, Maryland and Fairfax County, Virginia. The territory west of the Potomac was returned to Virginia in 1847.

European settlement of the study area dates to the mid-to-late seventeenth century, when early land patents were granted along the Potomac and Anacostia Rivers. Many early grants were speculative ventures, and physical settlement of the land delayed until tenant farmers took up smaller farms within the patents. Few towns were established in the region during the seventeenth and eighteenth centuries due to the dispersed nature of the plantation system settlement (Petraglia et al.1989).

The warrant and patent system functioned to restrict access to lands to the very wealthy and influential classes, as the warrants required political influence and initial lump sums to obtain, and once patented, the grants required payment of an annual quit-rent. Sale or lease of smaller

tenancies helped defray the cost of the patent. Tenants were frequently required to make improvements under their lease, providing inexpensive but potentially lucrative enhancements for the patent holder (MacMasters and Hiebert 1976: 7-11, 14-18).

Some of the earliest grants in the Washington vicinity were along the south side of the Anacostia: “Chichester” granted to John Meeks in 1664; “Greens Purchase” granted to Joseph Harrison (through Luke Green) in 1668; and “Aaron” granted to William Hutchinson (through John Adison) in 1687. Freidlander and LeeDecker note that the area to the northwest, across the river from the project intersection (south of 14th St and Virginia Avenue) was the location of the late seventeenth and eighteenth century Wheeler Ferry across the Anacostia (Freidlander and LeeDecker 1985: 11). This ferry was connected to Georgetown, Upper Marlboro, and Bladensburg by well established roads, making it an important hub in the early historical development of the area.

Tobacco was the mainstay of the Tidewater and Potomac Regions throughout most of the seventeenth and eighteenth centuries. River Road and the Georgetown Pike provided inland transportation routes to the docks in Georgetown, and the Potomac River itself represented a primary transportation route for goods, south of Great Falls. In the project vicinity, the Anacostia provided access to the Potomac River and ready transportation of tobacco harvests to the port at Georgetown for international shipments.

As practiced in the region, tobacco agriculture proved destructive to the soils, and soil depletion was a serious issue in the later eighteenth century. After a short period of inflated prices immediately after the Revolutionary War, the tobacco export market failed. Inland farming areas, especially in adjacent Montgomery and Fairfax Counties, turned to wheat and to a mixed agricultural system.

Commercial and industrial development in the area was limited during this settlement period. Most commercial ventures were related to tobacco export, with other ventures primarily representing supporting services such as taverns along the major travel routes and small mills to process local agricultural produce. Mills served as important collection points in the rural agricultural economy, and as social gathering points. Quarries were another early industry.

Early Federal Period (1790-1840)

In 1790 Congress authorized the creation of a seat of federal government not to exceed a ten-mile square area (100 square miles), to be located on the Potomac somewhere between the Eastern Branch (the Anacostia River) and the Conococheague River. The final selection of the location of this city was relegated to the President, and Washington announced the Eastern Branch location in January of 1791. Once announced, the site was surveyed by Andrew Ellicott using calculations derived by Benjamin Banneker, and Pierre L’Enfant designed a baroque pattern of radial and orthogonal streets which also used the existing landscape to direct lines of sight and emphasize ceremonial spaces. Although the outer ten-mile District boundary had been marked with boundary stones, the City of Washington proper was restricted to a smaller area defined by Rock Creek, the Potomac, and the Anacostia on three sides, and by present day Florida Avenue (originally Boundary Street) on the fourth.

At the time of the survey, all of the smaller City of Washington was taken from territory within Prince George's County, Maryland. The existing population consisted of 20 households, representing 720 people (Plan of the City of Washington National Historic Landmark Nomination Draft 2000), including the surveyed but barely settled towns of Hamburg and Carrollsburg. Just outside the City, Georgetown to the northwest and Alexandria to the southwest, represented well established commercial interests.

Initial sales of the City lots in late 1791 were disappointing, with only 35 lots sold. To help encourage sales, batches of lots were sold to investors (usually land speculators) at lower than intended prices (Green 1962). Additional settlement occurred in the decade between survey of the Capital district, and the installation of the federal government in 1800, with an estimated 372 inhabitable structures and a population of roughly 14,000 within the District in 1800 (Green 1972:20-21). Yet the much anticipated real estate market failed to materialize. Instead, speculators who did construct housing within their holdings found a rental market in government officials not yet prepared to subject their families to the isolation of social life in Washington, and who rented primarily as boarders. For much of the first three decades of Washington's development, the rentals formed a significant portion of the city's economic base. During this period, primary development was restricted to the city core, and the areas across the Anacostia River remained rural areas, supplying agricultural goods to the city's markets.

During the first decades of Washington development, the Navy Yard on the Anacostia represented a substantial contributor to the economy of the city, and one of several areas of early development grew up around its location. It was one of the few areas inside the City of Washington which included commercial development, focused on services used by the Navy. It also included residential development housing Navy and Marine personnel, and non-military "mechanics" also working at the Navy Yard. Between 1805 and 1814 the Washington Navy Yard may have been the busiest economic center in the city (Green 1962, Washington Navy Yard Nomination Form 1975). Private industrial ventures remained largely small scale (Green 1972:35).

By the end of the third decade of the nineteenth century, the City of Washington exhibited three areas of coherent development (see for instance, Tanner 1836): the central government core with associated commercial and residential areas; the area east and south of the Capital; and the area surrounding the Navy Yard. Despite early expectations, Washington continued to fill in towards the west and the Potomac rather than towards the Anacostia. Surrounding areas, such as the present project location, remained primarily rural.

The Federal Village Period (1840-1861)

During the period between 1820 and 1840 the rate of population increase within the District seems to have held relatively static, just as the population increase within the City of Washington remained relatively stable throughout the first five decades at roughly 5,000 new inhabitants each decade (Green 1972: 21). After 1840 both the District and the City of Washington experienced more rapid population growth: Washington for instance grew by nearly 20,000 inhabitants in the decade between 1840 and 1850 alone (Green 1972:21). Commercial development also picked up speed, supported in part by the completion of long segments of the Chesapeake and Ohio Canal between Georgetown and Hancock in the previous decade. In addition to several flour mills

constructed along the canal in Georgetown, this period also witnessed the establishment of the Pioneer Cotton Company along the canal, and the adoption of steam power by a number of District industries and commercial ventures (Green 1972:157, 192). After 1847 the Navy Yard again represented a significant economic force within the city (Washington Navy Yard Nomination Form 1975). The early part of the period represented a period of notable economic prosperity (Green 1972).

By the late 1850s the central city was densely developed (Boschke 1857). South of the Mall and east through the vicinity of the Navy Yard as far as 12th St SE most city squares were at least partially developed if not as densely as the area around the White House. However, development still exhibited a marked preference for the areas west of the Capital. The eastern edge of the City of Washington, and most of the eastern and southern portion of the District remained rural. These agricultural areas continued to produce garden crops suitable for the urban markets but also produced grains for the mills in Georgetown and Alexandria.

This period was one of improvements to infrastructure. In the 1840s the City undertook some street improvements, even in the absence of federal aid (Green 1972:164). Water lines would follow a decade later; in the interim some wealthy citizens had private wells and lines installed (Green 1972: 202-203). After 1853, continuing improvements to the city streets also included the installation of gas lights along major routes and the installation of sewers (Green 1972:208). Although no map of the sewer and street improvements from this period was available for review, subsequent maps from the 1870s and 1880s make it clear that these improvements were restricted to the central areas of dense development; no sewer or water main extended beyond the 12th Street SE boundary.

The Civil War (1861-1865)

On the eve of the Civil War, Washington stood as a city of some 61,000 inhabitants. By the summer of 1861, the nature of those inhabitants became more flexible, as southern officials and southern families left the District and new officials flooded in to handle the preparations and logistics of a nation at war. Troops in the District waxed and waned. And it was a population divided not just in loyalties to North or South, but also government opposed to resident (Green 1972:248-250).

Much of the previously improved infrastructure suffered during this period, through both neglect and overloading. Street improvement ceased and maintenance was restricted to streets considered critical to government needs. Water pipes newly laid fell dry during some periods, as the feeder reservoirs ran dry, and the city's sewer system, always dependent on river or stream flow to remove waste at the end of the lines, was rapidly overloaded resulting in large fields of exposed waste which subsequently had to be carted outside the city limits (Green 1972: 254-257).

Economic development suffered at first during the War, for although massive amounts of goods were passing through the Capital, little of it was being produced by Washington ventures except for the Navy Yard (Green 1972:244-245). By the second year of the War however, the demand for labor to handle commodities flowing through the Capital and build structures to house those

commodities, and a demand for services and real estate brought money back into the District economy (Green 1972:263).

The Post War Boom (1865-1874)

The resolution of the Civil War brought forth a number of critical changes to the District of Columbia, including changes in the nature of her population as former slaves settled in the city; changes in her economy as the heavy market, service, and labor demands of the military and the government dropped precipitously; and changes to her form of government as a territorial government was adopted and then discarded. City officials also found themselves faced with the task of improving the city to provide services which inhabitants of more prosperous northern cities had come to accept as expected conveniences: mass transportation, paved and well-lit streets, decent education, and effective sanitation (Green 1972:293).

By special census, the population in Washington in 1867 included roughly 74,000 whites and 32,000 “colored” (Green 1972:306), a relatively minor gain in white population but a roughly 225% gain in the African-American population. By 1870 these figures were up to 88,000 and 43,000 respectively. Many of these new residents were severely economically challenged, as many freedmen had few marketable skills. Much of the older population also found itself facing poverty as well, as prices rapidly inflating during the war years severely impacted low income and fixed income residents. It was during this period that Washington began to develop patterns of poverty and ghetto formation which would continue well into the twentieth century.

Government expansion and construction helped offset lost markets during the late 1860s, especially the expanded role of the Printing Office and the Department of Agriculture (Green 1972:294). But production at the Navy Yard dropped after the War, remaining low until it was named as the center of ordnance manufacture for the Navy in the late 1880s. Real estate and private construction increased rapidly after completion of a massive city improvements program in the early 1870s. Washingtonians looked forward to an economic boom until a nationwide crash resulted in not only bank failures, but a failure of the District Government. In 1874, with the District on its way to \$20,000,000 in debt, Congress opened a second inquiry into the District’s finances and oversight.

Little progress on repair and improvement to infrastructure was accomplished in the late 1860s. Despite Mayor Bowen’s hope to utilize the large pool of labor available from the influx of freedmen to the District (and thereby also reducing the need for poor relief), actual improvement during his administration seems to have been restricted to carrying 9th Street down to the riverfront and laying 15 miles of sidewalk and four miles of sewer line (Green 1972:318). The 1870s were a vastly different story, as a massive program of improvements was instituted under Alexander “Boss” Shepherd. As with most improvement projects in the past, this program concentrated on the more densely developed central core of Washington, although plans to install combined storm and sewer drains did extend through Georgetown (Green 1972). Other than paving of all the main traffic arteries, little improvement was planned for the outlying areas.

Despite strenuous opposition, staggering debts, and sometimes colossal ineptitude, many of these improvements were completed, and by 1873 new sewers had been laid, water mains extended, cement or brick sidewalks placed, and wooden, macadam or concrete paving covered the city’s

roads (Green 1972: 354). However, none of these much needed improvements were extended across the Anacostia.

Extension of streetcar routes to the north, west, and east encouraged development of new residential sections outside the historic city core. At the same time improvement programs were changing the physical nature of the city, the establishment of a Board of Health served to alleviate some of the other long standing problems in the city, impounding loose animals, calling for infilling of waste-laden tidal marshes along the Potomac, and condemning hundreds of buildings considered to be unsanitary. The Board had less success dealing with the growing “alley problem”, and this overcrowded, unsanitary, substandard housing would continue to serve the city’s poorest residents in to the twentieth century.

The Federal District (1874-1930)

Despite a national depression, declining real estate values in the city, increasing unemployment and poverty, Washington managed to carry through some its gain from the post war boom. City improvements begun under Shepherd were completed under Congressional oversight in the late 1870s, including completion of the sewer system, and replacement of the miles of the wooden road pavement which had quickly proven susceptible to rot (Green 1972:390). The Board of Health continued to make progress for several years, although by the late 1870s general resistance to its dictates had increased and in 1877 the Board found its budget halved by the Commissioners.

In 1886 the Navy Yard was named as the center for ordnance manufacture, and production demands were exceeding its capabilities by 1900. As production work was shifted to private contractors, the Yard itself continued to employ skilled mechanics and craftsmen and became a center of research and development. The rest of the city’s economy largely depended on service ventures and real estate (Green 1963:9, 12). Manufacturing was primarily small scale; the mills earlier seated in Georgetown largely shut down after the 1889 flood of the Potomac severely damaged the canal. Local production of building materials (closely associated with the real estate boom), breweries, and printing (both government and private) were the only large scale industries in the District during this period (Green 1963: 9-10, 27).

Land speculation commonly took the form of residential building for sale, or more popularly, to rent (Green 1963:13-16). Such speculation occurred as both small scale and large scale ventures; successful government clerks might develop one or two lots and profit from the rental fees, while large concerns developed whole suburbs such as Chevy Chase. As most of this speculative development was aimed at the wealthy or at least comfortable inhabitants of the city, the less comfortable government workers, laborers, and mechanics found themselves facing a shortage of affordable housing. This in turn resulted in patterns of modest boarding houses, and movement of lower income families out of the developed city to areas across the Anacostia, north of Boundary Street, and east of the Capitol. It was during this period that Uniontown, first laid out in 1854 but largely undeveloped through the Civil War, experienced a building boom after the 1875 opening of horsecar service across the 11th St Bridge (Gillette 1988:99). The 1888-1890 construction of the Pennsylvania Avenue extension bridge provided similar motivation for the development of several late nineteenth century subdivisions in the project vicinity, including Twining (circa 1888) and Randal Highlands (early 1890s).

During this period the District population continued to grow sharply: 177,000 in 1880, 230,000 in 1890, 278,000 in 1900, 331,000 in 1910, and 437,000 in 1920. Unlikely many American cities in the period, comparatively little of that population increase represented African-American or immigrant populations (Green 1963:89). A significant peak near the end of the period was motivated by an influx of workers during the World War I period, with a District population of 525,000 reported in 1918 (Plan of the City of Washington Nomination Form 1994).

The decade after World War I was a period of rapid development for suburban Washington, especially for the area south of the Anacostia River. Gillette notes that in 1920 roughly 7,000 residents lived in the Uniontown (now Anacostia), Randal Heights, and Barry Farm areas south of Pennsylvania Avenue. By 1930 this number had doubled (Gillette 1988:101). By the mid-twentieth century, the area had fully transformed from rural farmland to urban suburb.

Changes to the District's physical structure during the early portion of this period were predictable outcomes of the real estate and construction boom. Expansion of the water and sewer system to the north is the most easily documented change beyond the addition of hundreds of new structures (DC Bureau of Public Works 1873, Green 1880). Some consideration of the long term consequence of new construction was apparent in legislation instructing that all new subdivision must conform to the existing plan of Washington Streets, but it was not until the 1901 Senate Park Commission that the government sought to enact procedures and controls to establish a basic plan for the future development the District. The McMillan Plan specifically aimed to preserve and enhance what the Commission saw as key elements of L'Enfant's baroque city plan. Like many plans before, the McMillan Plan placed more focus on the central core of the City and the Potomac, although the Commission's recommendations did include filling of the extensive pollute tidal marshes along the Anacostia (Green 1963: 137-138). Few strictures for the continued development along the city's borders were incorporated in the Commission's recommendations beyond an insistence that future development should respect and if possible enhance the L'Enfant Plan.

The Modern City (1930-Present)

Mid-twentieth century developments included several notable changes which came to define modern life in the District: increasing racial segregation within the District; deterioration of older urban neighborhoods as new development focused on outlying suburbs both in Maryland and Virginia; the wholesale adoption of the automobile by the American public; world recognition of the United States as a world power; and a rapidly expanding government presence. Attempts to adapt to the repercussion of these developments have more or less continued to the present.

Several national events during this period had noted physical effects on the District. The Great Depression gave birth to the New Deal, which in turn supplied the labor which reshaped the Mall into its a park like setting and landscaped many of the federal reservations throughout the city (Plan of the City of Washington Nomination Form 1994). That was quickly followed by the massive population spike which accompanied the World War II period (Green 1963). Dense population and rapidly expanding government interacted to result in removal of many government departments to the suburbs such as Arlington and Rockville, which in turn, due to

strong reliance on the automobile, led to street widening and straightening (Green 1963). The movement of both residential populations and government offices out of the City proper was the impetus behind development of plans for Washington's highways, including the Capital Beltway routed through the major suburban areas.

During the late 1940s and the 1950s the District government attempted to address another problem within the District; the neglect and deterioration of the residential urban core, especially the segregated largely African American sections rife with alley housing. The urban redevelopment ideal in fact served to strengthen segregation, as the displaced homeowners of Southwest and Foggy Bottom could not afford the new housing in the City, and many were forced to relocate to outlying areas or suburbs (Green 1963). Subsequent work in the 1960s redeveloped corridors of ageing development along L'Enfant's grand avenues.

The effect of both these initiatives was particularly strong in the areas south of the Anacostia, as largely low-income populations displaced by urban redevelopment in southwest DC and highway construction in southeast DC came across the River and settled into Anacostia, Twining, Benning, and other southeastern suburbs. As displaced low-income primarily African-American populations moved in, many of the previously existing business and middle class residents moved out. The area lost almost 30% of its population between 1970 and 1980, and suffered from cuts to crucial government services and infrastructure maintenance (Gillette 1988:104). The area southeast of the Anacostia has subsequently been the focus of economic initiatives and redevelopment since the 1990s.

Project Area Historic Development

The following present a narrative of the development history of the specific project vicinity, based on historic maps available for review. It is provided to document the basis on which the presence or absence of historic period archaeological resources are predicted within the APE for direct effects.

Little specific information was found addressing the period prior to the mid-nineteenth century. Based on a reconstruction of early land grants prepared as part of an archival study prepared for adjacent Anacostia Park, the present project area appears to have been primarily within "Green's Purchase", acquired by Luke Green in 1668 (Figure 12) (Engineering Science 1989: 18-19). Small portions of the APE crossed into "Ship's Landing" and "Aaron". Although constructing a chain of title was not within the scope of this assessment, Green's Purchase was likely subdivided into smaller tenancies and periodically transferred, and subsequently sold off as smaller parcels in the late eighteenth and early nineteenth centuries. Unfortunately the available late eighteenth and early nineteenth century maps of the District of Columbia do not depict the area south of the Anacostia River.

The first available cartographic source which depicted detail on the south side of the Anacostia River is Boschke's 1861 topographic map of Washington D.C. (Figure 13). Based on the features indicated on this map, the APE is largely surrounded by undeveloped or rural land, although there is what appears to be small structure and orchard present in the southern section of the APE, while a second structure was present outside the northwest APE extension.

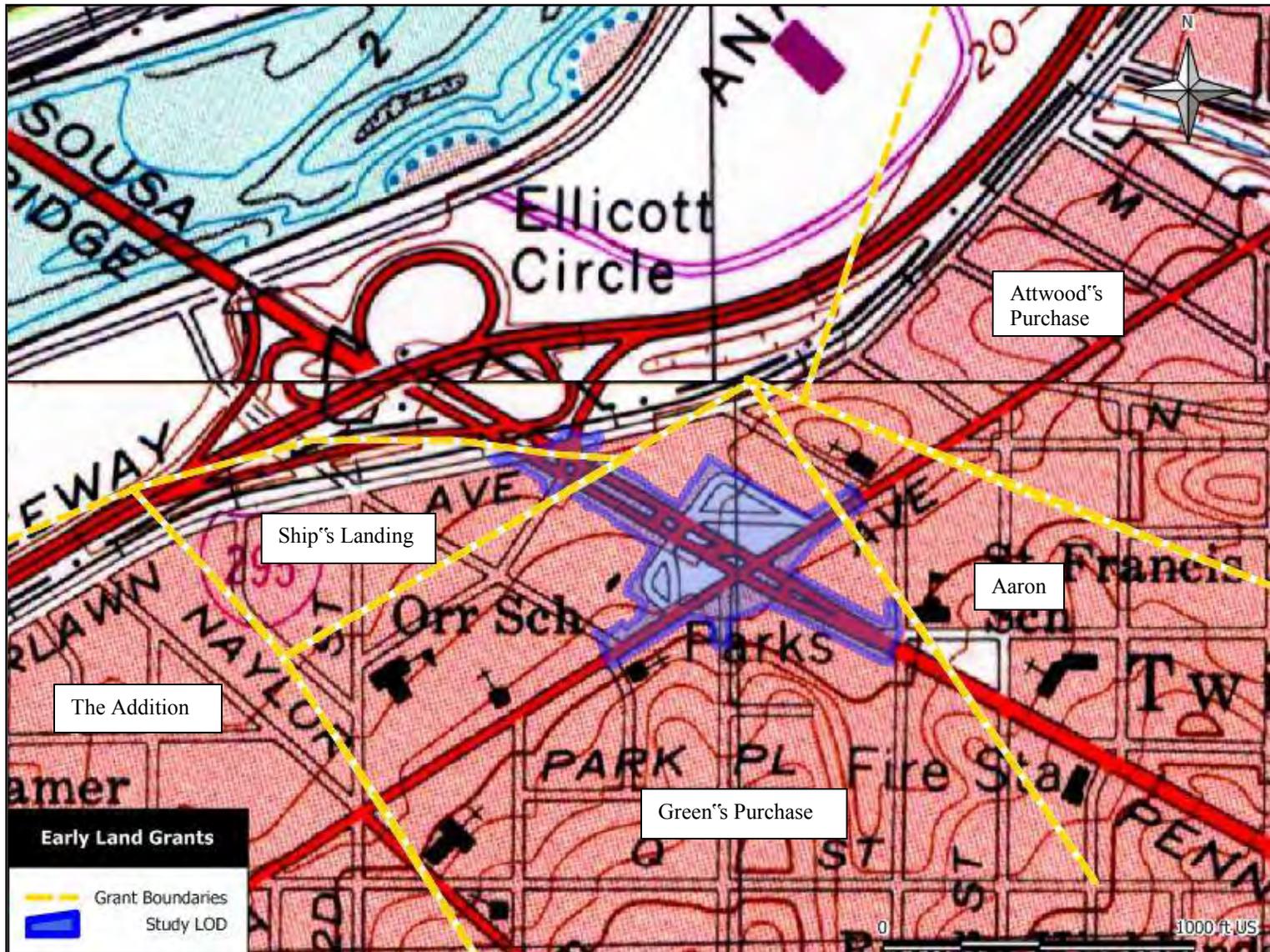


Figure 12. Early Land Grants (From Engineering Science 1989, Figure 5).

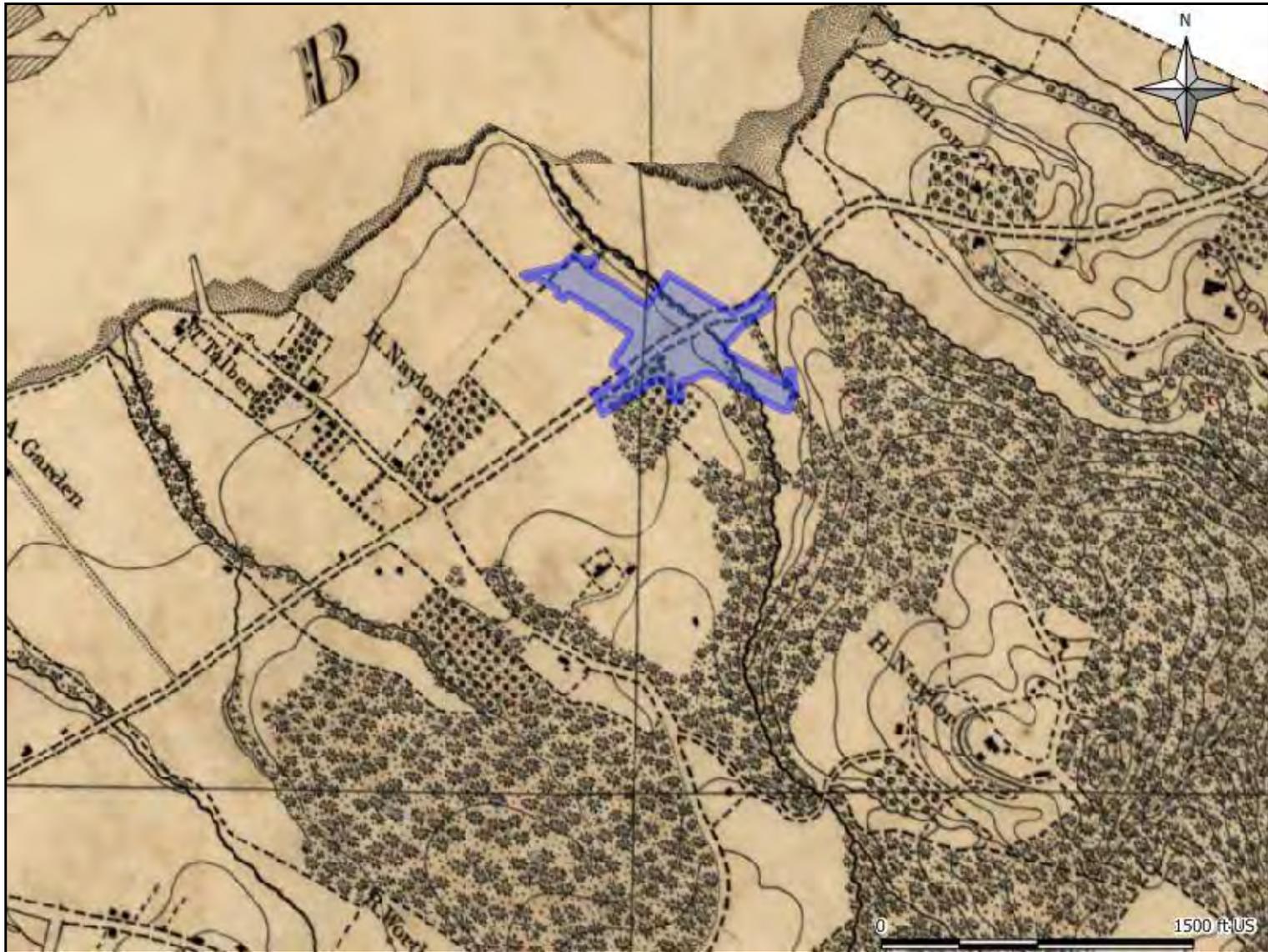


Figure 13. 1861 Boschke *Topographic Map of the District of Columbia*.

There are five well developed and identified farm complexes in the wider vicinity, but the owner of the structure and orchard within the APE is not identified. Anacostia Road, a precursor to present day Minnesota Avenue, is also clearly well established by this date. The less detailed picture provided by the 1879 Hopkins *Atlas of 15 Miles Around Washington* suggests that the orchard property belonged to Elizabeth Howard, while the structure off the northwestern APE extension belongs to Henry Naylor, one of eight he is depicted as owning in the project vicinity. One of those eight is the additional structure, built along the Anacostia-Bladensburg Road between 1861 and 1879, now visible within the southern portion of the APE (Figure 14). Another important development in the project vicinity was the establishment of Alexandria Branch of the B&O Railroad alignment passing to the west of the APE.

Additional detailed information available on the 1888 USCGS topographic sheets for the District of Columbia indicates that both mid-nineteenth century structures within the APE, and the Howard orchard, survived into the last part of the nineteenth century (Figure 15). This highly detailed and accurate map also indicates that the present project area included a deeply incised stream valley filled with marsh, and bordered by a sand dune or possibly elevated fill along the subsequent alignment of the Pennsylvania Avenue extension. During this period a new Pennsylvania Avenue bridge was under construction, and plans were underway to develop the area south of the proposed Pennsylvania Avenue extension as Twining City. Overall, the topographic sheets indicate minimal additional development in the area north of old Uniontown, and the immediate project vicinity remained rural, with large segments of woodland to the east.

By 1903 the project vicinity is actively being developed as a suburb of the District, fully subdivided but only partially developed (Figure 16). The 1903 Baist *Real Estate Atlas of Surveys of Washington* indicates that neither of the mid-nineteenth century structures survived the extension of Pennsylvania Avenue and the development of the Twining City subdevelopment. This particular cartographic source appears to have been either poorly drafted or relied upon proposed street alignments rather than actually survey- georeferencing against the existing street grid resulting in significant distortion. However, several modern elements of the study LOD are present on this source. The most significant is the depict of L'Enfant Circle, although it is indicated as a perfect square reservation with a circular road exchange within it, a configuration which is not supported by any other cartographic source reviewed during this study. Most of the present lot configuration is also present on this source. However, very few structures had been constructed prior to 1903, and those handful of primarily wooden structures was restricted to the area south and west of the project intersection. Only one structure, in Lot 1 of Square 5560 (shown as "5"), appears to fall within the present APE, and that may be an artifact of the georeferencing distortion.

Based on the sequence of Baist Real Estate Atlases, subsequent development of the project vicinity was relatively slow but consistent (Figure 17 to Figure 19). Prior to 1913 development was only present south of the Pennsylvania Avenue, in 1913 a single structure was present along the north of Pennsylvania Avenue, and a small handful of frame structures had been completed along the south side of Burns Street on lots backing onto the square. Within the APE a brick structure had been constructed on Lot 24 of Square 553, which extends into the present APE. Additional structures appear within the APE in 1921, in the southeastern corner, on Lots 12 and 13 of Square 5579.

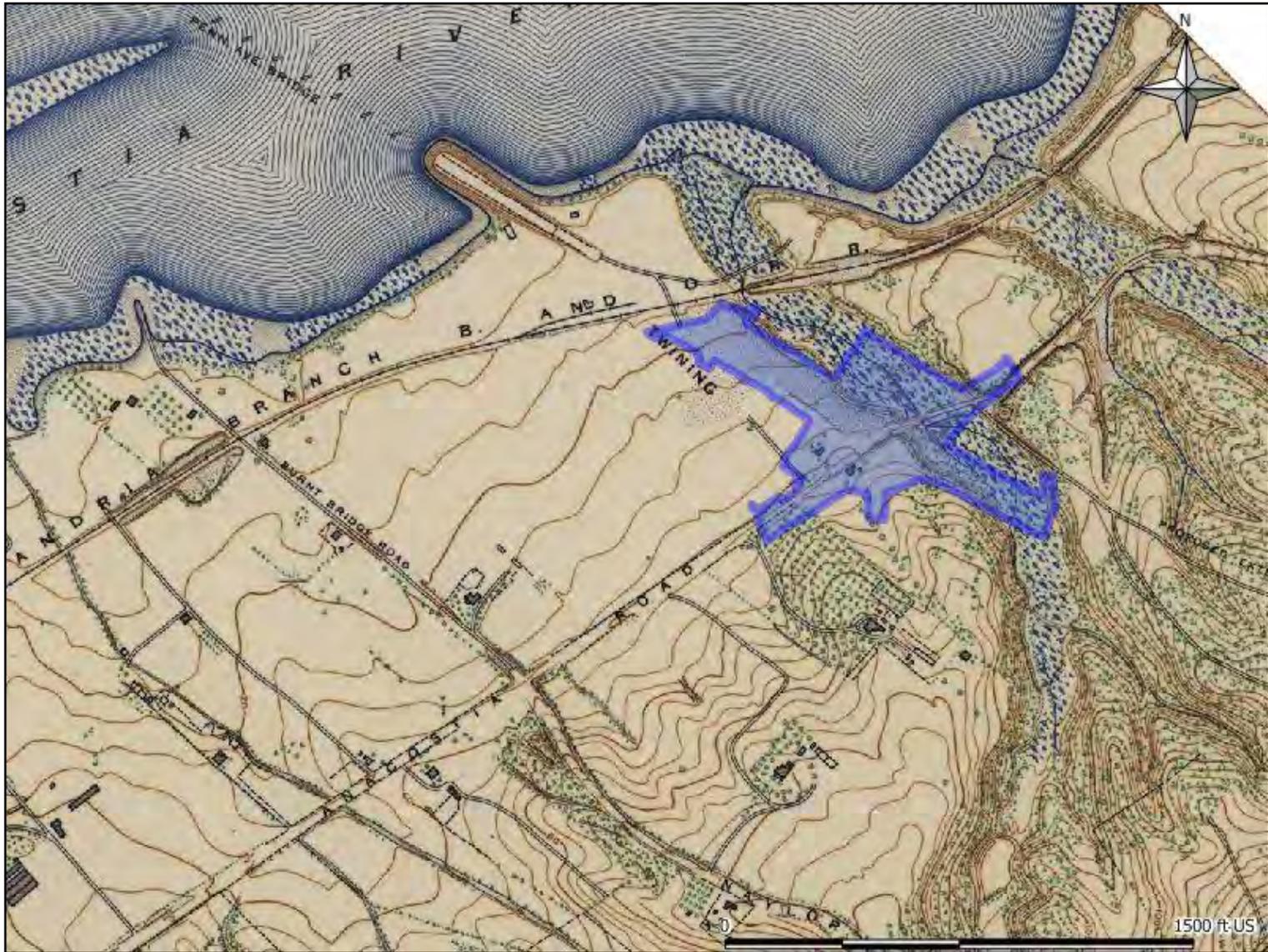


Figure 15. 1892 edition, 1888 United States Coast and Geodetic Survey Topographic Sheets of the District of Columbia, Sheet 39.

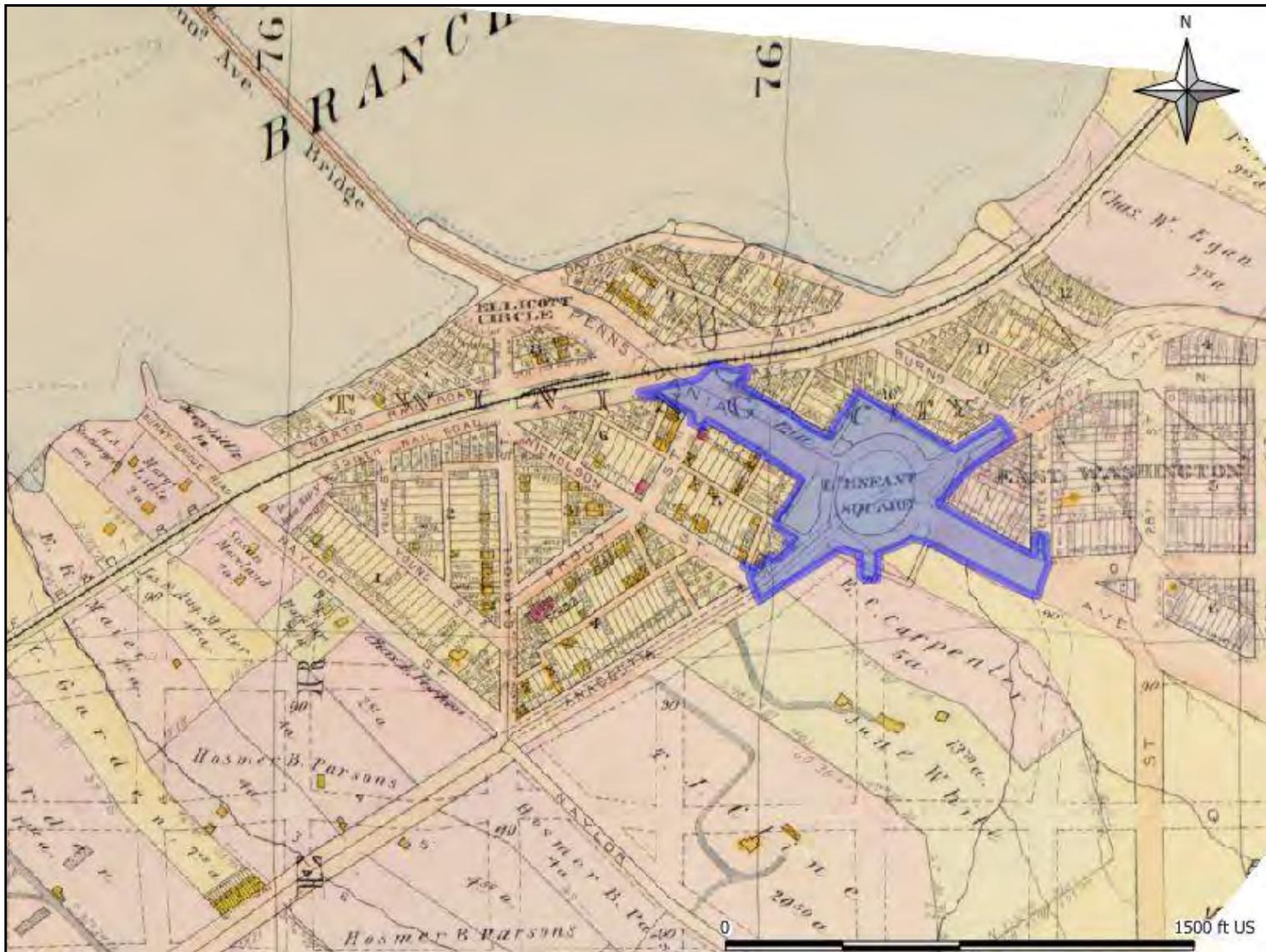


Figure 16. 1903 Baist's Real Estate Atlas of Surveys of Washington, District of Columbia Plate 34.



Figure 17. 1907 Baist's Real Estate Atlas of Surveys of Washington, District of Columbia Plate 18.

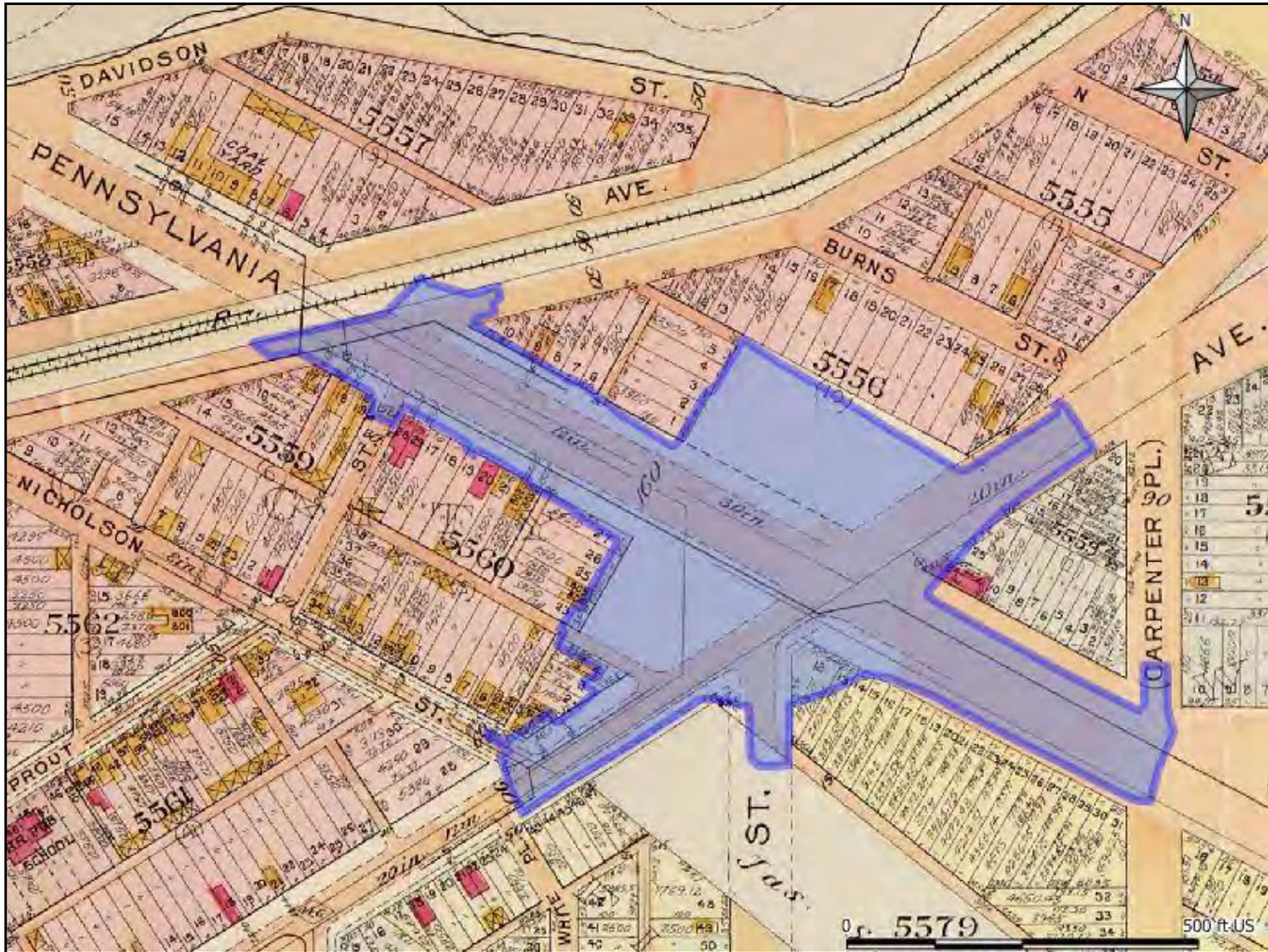


Figure 18. 1913 Baist's Real Estate Atlas of Surveys of Washington, District of Columbia Plate 18.

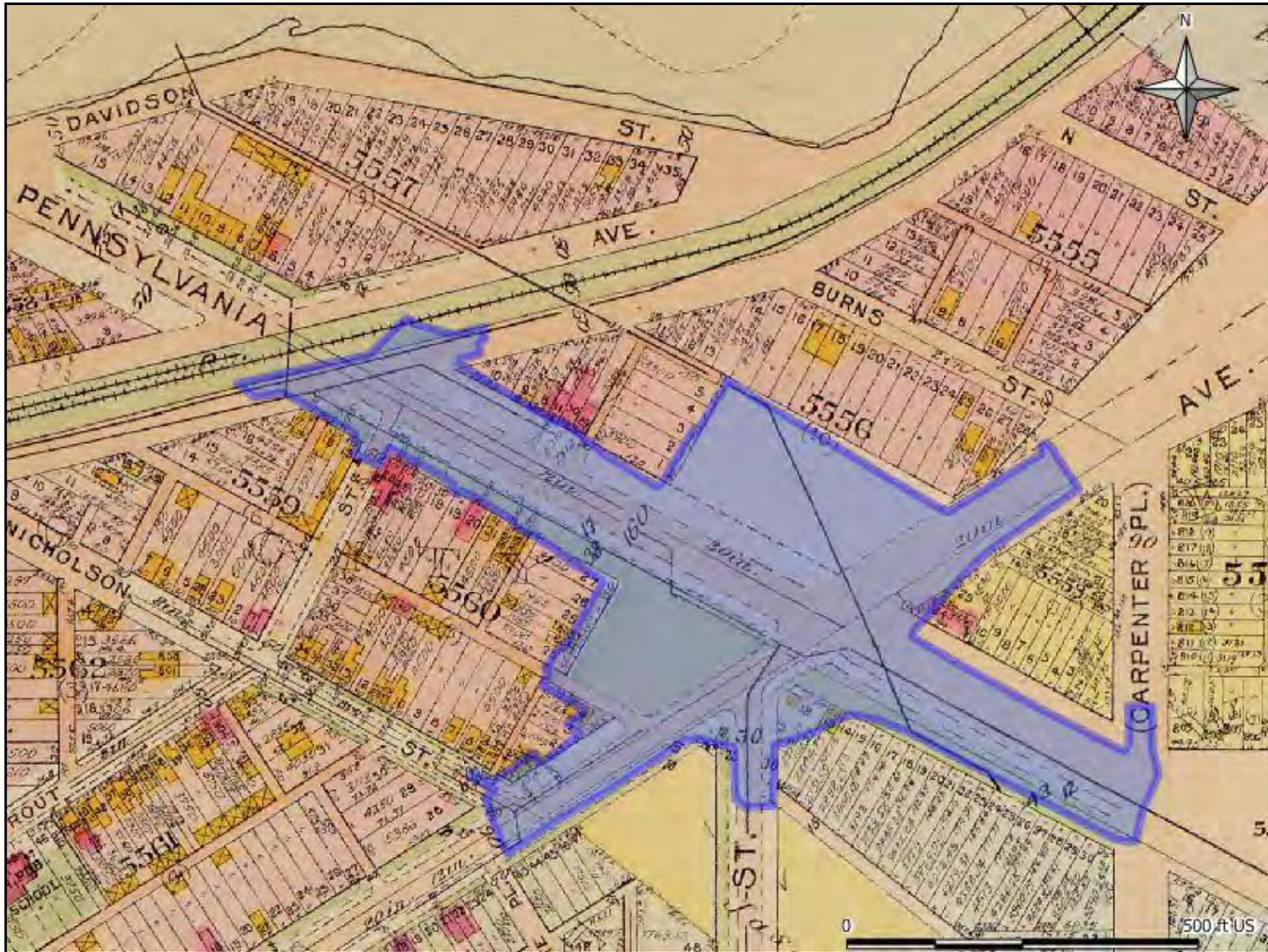


Figure 19. 1921 Baist's Real Estate Atlas of Surveys of Washington, District of Columbia Plate 18

The Baist series also indicates that the parkland reservation was established early in the twentieth century as an irregular rectangle which remained stable into the 1940s.

As can be expected, utilities within the APE multiplied during the early twentieth century. In 1903 a single 12” pipeline (probably a water line) is indicated passing down Pennsylvania Avenue and onto the southern portion of Minnesota Avenue. By 1913 a 20” and a 30” pipeline had also been established through the APE, with the main line passing under Pennsylvania Avenue and the smaller 20” pipeline following under the Minnesota Avenue roadbed. An unidentified 8” pipeline was also installed beneath the southern sidewalk along the western stretch of Pennsylvania Avenue. By 1921 two additional large pipelines had been installed, one passing through the northern NPS reservation, and the second running south under 25th St.

Fewer mid-twentieth century cartographic resources were identified during the archival research. Aerial photographs from 1949, 1951, 1957, and 1963 were examined but provided little useful information about the interior of the APE beyond documenting the construction of access lanes within the reservation (Figure 20). Land transfer to and from the D.C. Commissioners modified the reservation space in 1938 (along the outer edges, Land Order 487), and again prior to 1949 to construct the internal access lanes (recorded in 1951, Land Order 463). A 1954 Baist map is available, but appears to have used an older base map, as the internal access lanes are not indicated on it (Figure 21). It does however suggest that redevelopment had already begun in the project vicinity, as the three early twentieth century frame structures on the south side of Burns Street had been removed to make room for a row of brick rowhouses. The structures previously present on either side of Pennsylvania Avenue east of Minnesota were also demolished in the mid-twentieth century, and service stations constructed in their place. Finally, a second utility line was installed under Pennsylvania Avenue east of Minnesota Avenue.

The final archival information obtained for consideration consisted of 1969 As-Built plans for improvements along Pennsylvania Avenue within the APE (Figure 22). In addition to additional utility lines for underground telephone and electrical lines, the major mid-twentieth century addition consisted of a 72” sewer main which runs west along Pennsylvania Avenue up to the Minnesota Avenue intersection, and then passes northwest through the northern NPS reservation.

Subsequent disturbance from the 1970s to present is more difficult to track, as few archival sources were readily available for review and most last 20th century maps do not identify specific building footprints. Aerial photographs suggest redevelopment of the northeastern corner of Fairlawn and Pennsylvania Avenue between 1957 and 1963, the northeast corner of the Pennsylvania Avenue and Minnesota Avenue sometime between 1963 and 1980, and the northeastern corner of Fairlawn and Pennsylvania Avenue was again redeveloped between 1963 and 1980. The northeastern corner of Fairlawn and Pennsylvania Avenue is outside but adjacent to the APE, but the redeveloped lot on the northeastern corner of Pennsylvania and Minnesota extends into the study LOD.



Figure 20. 1949 Aerial Photograph of Washington, District of Columbia.

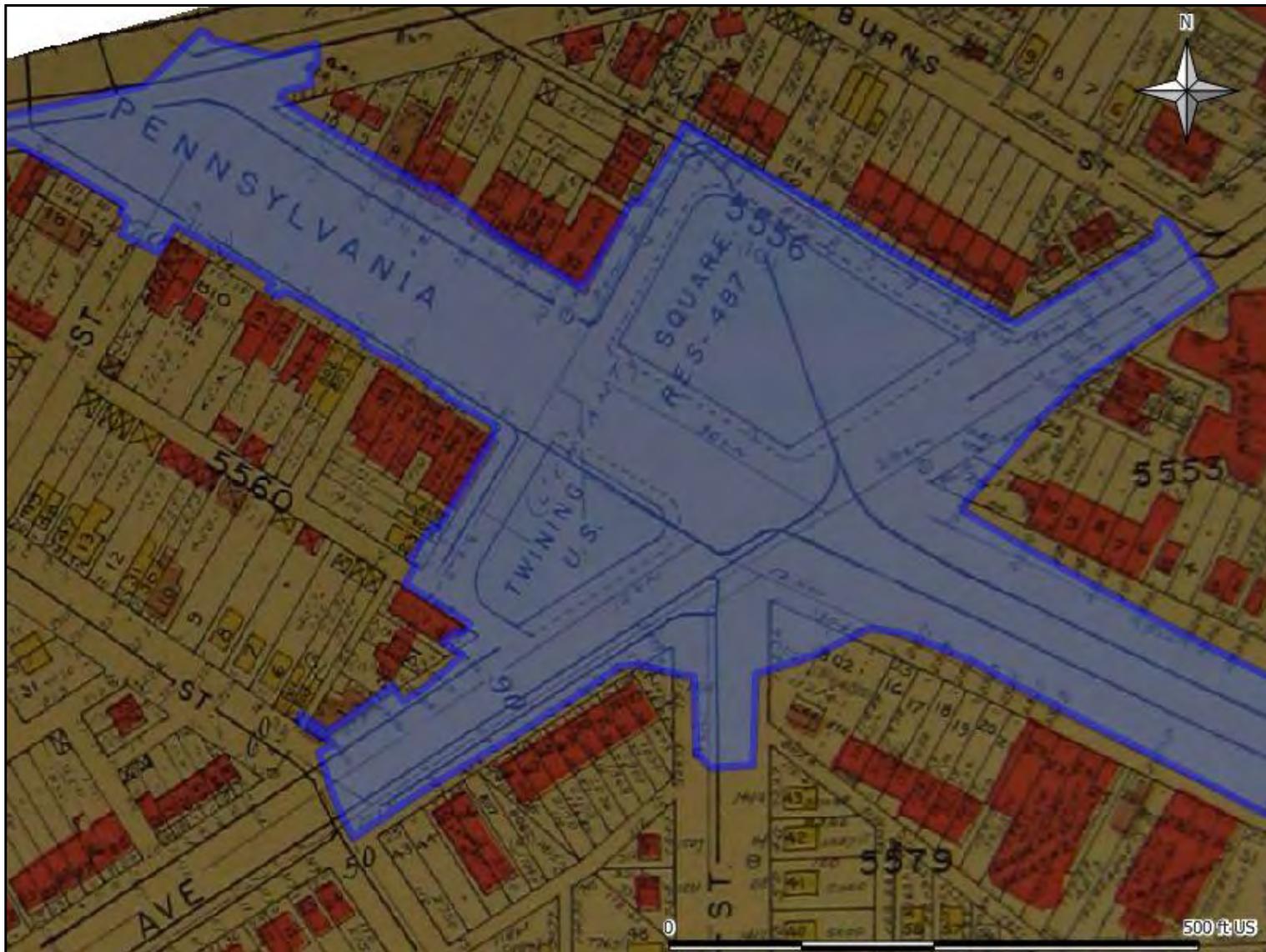


Figure 21. 1954 Baist's Real Estate Atlas of Surveys of Washington, District of Columbia Plate 18.

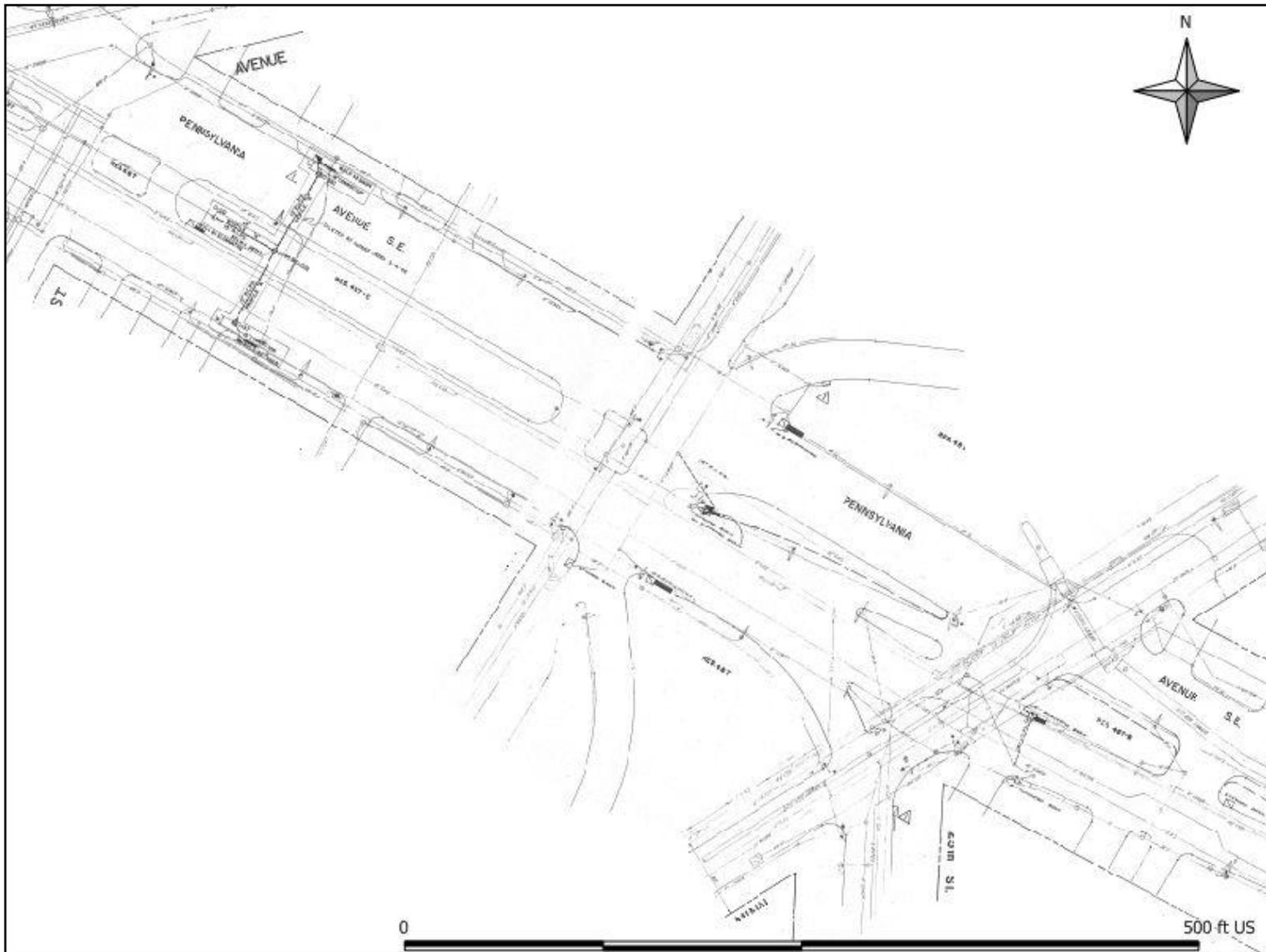


Figure 22. 1969 As-Built and Planned Improvements, Pennsylvania Avenue.

This archival review did not address landscape photographs during research, but did review a small number of historic photographs supplied by DDOT and by NPS. The NPS photographs were associated with the 1938 Land Order transferring the outer north and western portions of the reservation to the District Commissioners. These included copies of three photographs, two dated 1929, taken looking from Pennsylvania Avenue across each portion of the reservation. However, all copies are badly blurred and it is only possible to get a sense of open space to the north. The southern side appears wooded.

DDOT provided three clear photographs from the mid 1940s. The oldest, dated 1945, captures the southern reservation, looking northwest from a point on Minnesota Avenue near the Nicholson Street intersection (Figure 23). Both portions of the reservation appear to be essentially devoid of trees. Construction work, possibly for utilities or sidewalk installation, is underway along Minnesota Avenue, and appears to consist of relatively shallow disturbance generating sizable spoil piles, implying a large surface area. The other two photographs, dated 1947 shows views east and west along Pennsylvania Avenue. Figure 24 is the view looking west along Pennsylvania Avenue, presumably from the roof or upper floors of a multi-story structure, looking across a tree-less reservation and commercial development on Pennsylvania Avenue. The front entrances of both Minnesota Avenue service stations are visible. Figure 25 is the corresponding view looking east along Pennsylvania Avenue from a point west of the Fairlawn intersection, again documenting the essentially commercial nature of development in this area. Neither portion of the reservation is visible in this photograph.

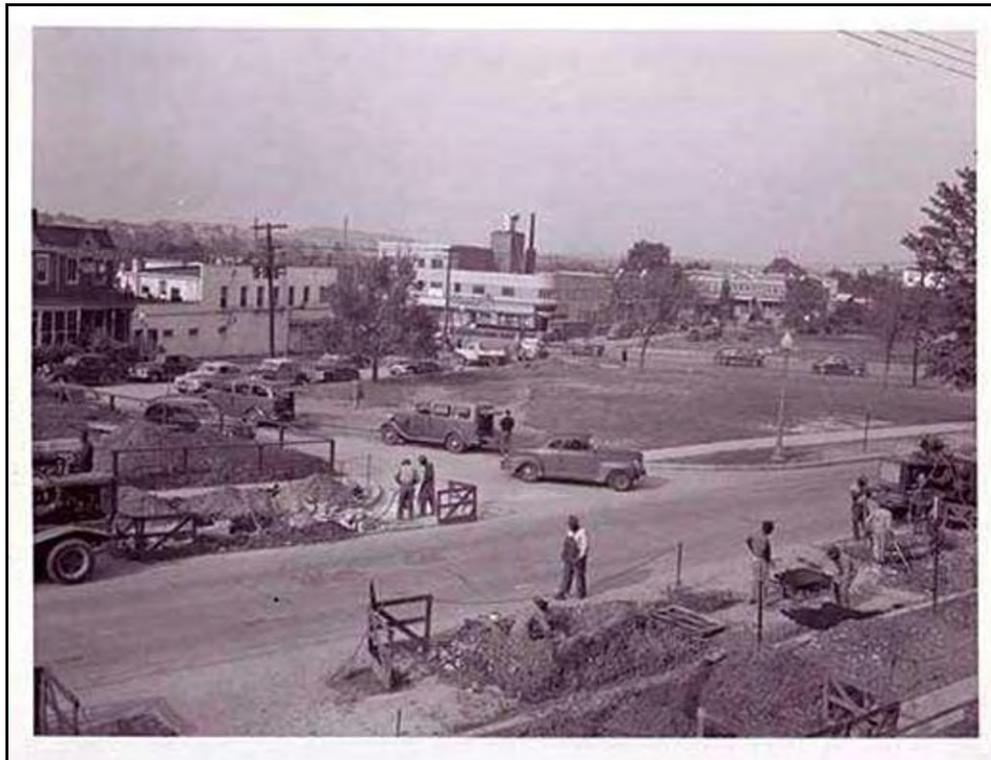


Figure 23. 1945 Photograph looking northwest across the southern portion of Reservation 487.
(Photograph courtesy of DDOT)

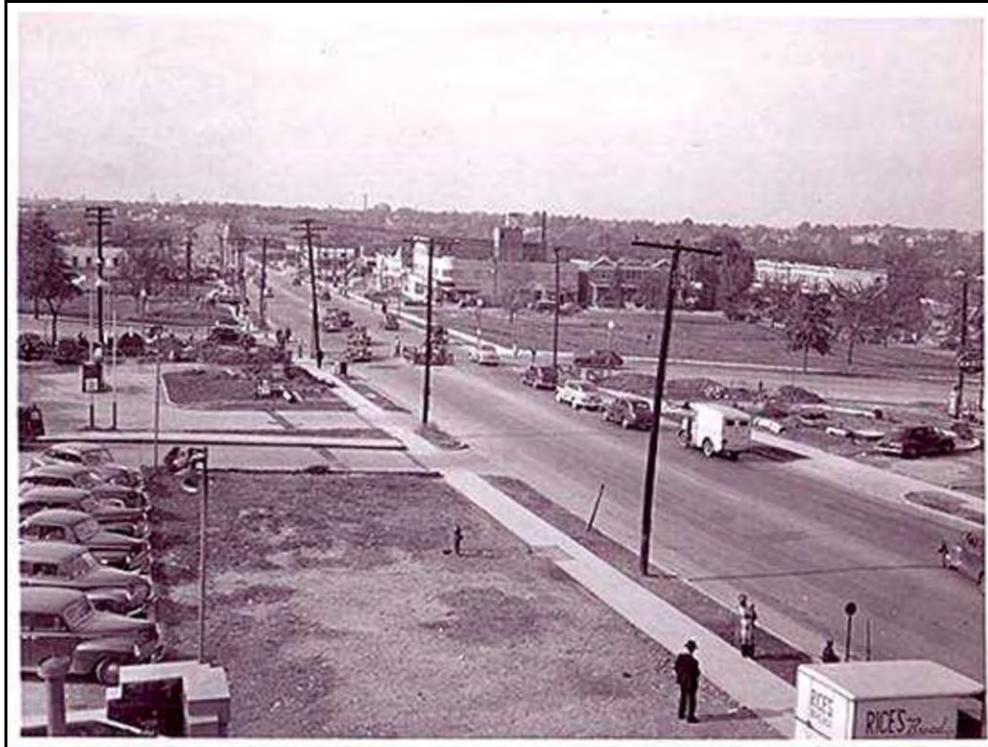


Figure 24. 1947 Photograph looking along Pennsylvania Avenue.
(Photograph courtesy of DDOT)

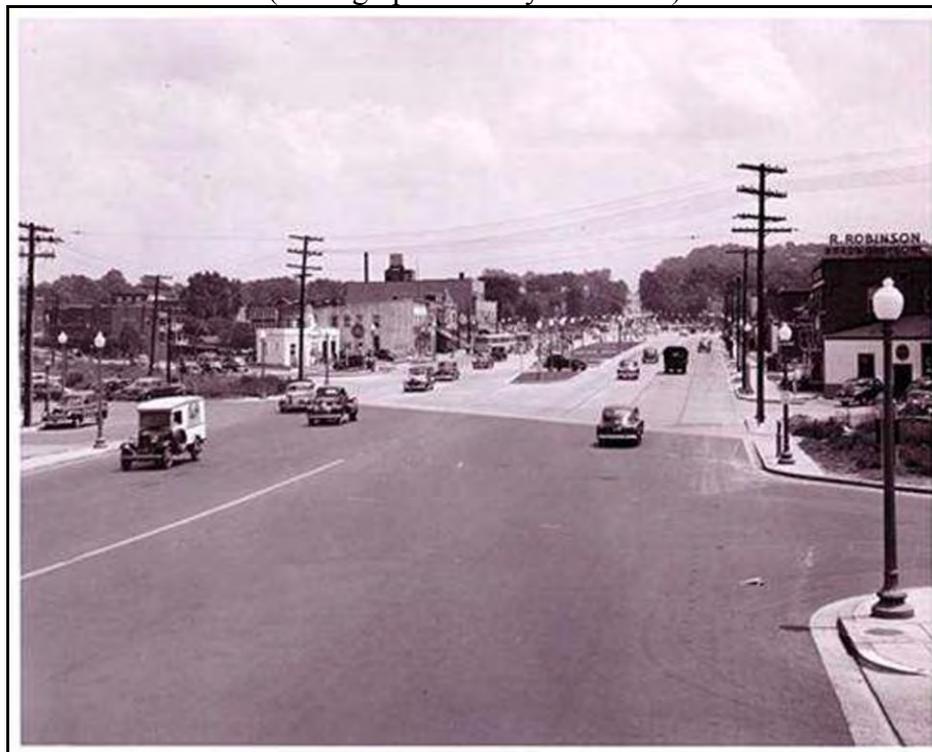


Figure 25. 1947 View looking east along Pennsylvania Avenue.
(Photograph courtesy of DDOT)

Assessment of Archaeological Potential

Assessment of Potential for Prehistoric Archaeological Resources

Review of published information about the settlement and subsistence patterns of prehistoric populations within the District and adjacent portions of Maryland and Virginia provides ample evidence of prehistoric utilization of the area, especially the Anacostia and Potomac valleys during the Archaic and Woodland Periods of prehistory. Some evidence is available of at least intermittent utilization of the area during the Paleoindian Period, but this evidence is sparse and largely consists of fluted points recovered as surface finds out of context. Given the accepted models of Archaic and Woodland subsistence and settlement, and the historically documented landscape of the project vicinity, it is logical to assume that the uplands of the project vicinity would have been utilized during both periods. It is almost certain that the floodplains and low terraces along the Anacostia were heavily utilized during the later Woodland Period.

The commonly accepted predictive model for prehistoric sites utilized four factors: slope (less than 15%), soil type (well to moderately well-drained), distance to potable water (generally less than 200 meters), and availability of valued resources (such as high quality lithics and special faunal or botanical resources). These factors are examined and weighed against each other to define zones of high, medium, or low potential for prehistoric resources.

Archaic subsistence and settlement patterns reflect utilization of an increasingly broad range of habitats and hence physical settings across time. Archaic populations did practice a settlement system which included larger aggregation base camps typically associated with particularly dense concentrations of food resources, such as fish runs, and seem statistically to favor river terrace or floodplain locations in the Coastal Plain, especially at confluences of tributaries and major water ways. This model suggests that the present Study LOD would be one favored by Archaic populations for at least seasonal periods, and could be the setting of both small fission period camps or larger fission period camps.

Woodland Period populations exhibited a strong preference for river terrace and floodplain settings, and Woodland period sites are well documented along the banks of both the Potomac and Anacostia Rivers in the vicinity of the District of Columbia. The main settlements are anticipated to be associated with these floodplains, and past researchers have suggested that the eastern or southern shore of the Anacostia was the location of the Contact Period Nacotchanck settlement reported by John Smith. Smaller micro-group base camps were associated with interior upland settings. Given the essentially shoreline setting of the APE, and the recovery of large artifact collections in the vicinity by both Bury and Proudfit in the late nineteenth century, it is anticipated that Woodland Period archaeological resources are present within the APE, most likely representing small superimposed concentrations from the dispersed village patterns associated with larger floodplain settlements.

Currently, dense urban development has largely obscured both the original topography and the original surface drainage pattern. The 1975 District of Columbia Soil Survey indicates that the bulk of the Study LOD was classified as Urban land-Galestown complex soils, with Keyport-Urban land complex located in the northeast extension of the LOD and along the eastern side, with very small areas of Sassafras-Urban land complex and Christiana-Urban land complex to

the south. All of the base soils noted in these classifications represent well drained or moderately well drained coastal soils.

The best available depiction of pre-development conditions is found on the 1888/1892 USCGS topographic sheets (Figure 26). Based on this source the Study LOD consisted of a combination of coastal flat in the south and low lying marsh to the north in a deeply cut and wide stream valley. The standard USCGS chart symbolism indicates that the hatching present along the present Pennsylvania Avenue roadbed should represent sand dunes, but its use for areas of the nearby railroad embankment suggest that it may also represent fill embankments.

The coastal flat appears to have ranged from roughly 55 feet amsl in the south and southeast to roughly 15 amsl in the extreme northwestern extension of the LOD. Most of this represents consistent but gradual slope towards the Anacostia to the northwest; the southern portion of Minnesota Avenue and 25th Street sit on an area originally composed of stronger slope leading up to one of a series of upland ridges and knolls south and east of the Study LOD. As an elevated area adjacent to shoreline, at the confluence of a major tributary, and overlooking marshes in at least the later period of prehistory, this coastal flat would have represented an extremely attractive prehistoric environment, and is classified as a high potential zone for prehistoric resources from all periods of prehistory. Present elevations are roughly equivalent to those reported in 1888, suggesting minimal filling of the coastal flat, except in the area of the former stream valley.

The adjacent marshy area was roughly 65 meters wide at the depicted bases of the stream valley. The marsh itself is indicated as lying between sea level and 5 feet above sea level, and probably represents periodically inundated tidal marsh. The rise from the valley is quite steep in 1888, suggesting that even if this area was inundated late in the prehistoric period, it still represents a deeply cut and scoured environment, with a poor potential for surviving *in situ* prehistoric resources. This stream valley has almost completely disappeared from the modern landscape, with current elevations around 30 feet amsl, indicating early 20th century filling approaching 20 to 25 feet in this area.



Figure 26. Detail of APE conditions in 1881 (1892 USCGS edition).

Assessment of Potential for Historic Period Archaeological Resources

Predictive models for historic periods are rarely as rigorous as those developed for prehistoric sites. In part this is because few statistical studies have been conducted linking historic site location to specific variables, and in part because historic period site locations correlate with both ecological and cultural landscape variables. In rural settings, the placement of early roads and navigable waterways are a primary locational factor in the periods before the late eighteenth century. Additional important factors in historic site location include: proximity to resources of value in a market economy, proximity to transportation routes, and proximity to centers of commerce, government, or industry. Therefore, predictive models for historic period resources are generally built based on documentary resources, both primary and secondary. Historic maps are used to plot the location of older roads, and where possible, used to identify the location of historic structures and landscape features such as dams and mill ponds. In urban settings these predictive factors are of reduced value, as they apply nearly equally to all of the city's fabric once the city is fully developed. As such, the current predictive model relies almost exclusively on historic map information.

The earliest cartographic information available about historic development is the 1861 Boshcke map of the District of Columbia, and this suggests that the primary development in this area was the 19th Century antecedent to Minnesota Avenue, a more winding road cut along the same rough alignment as lower Minnesota Avenue and called Anacostia Road at the time. Also present is a single structure and a small orchard. A second structure is indicated to the northwest of the LOD, but it is outside the APE.

By 1879 the APE contains two structures: the Elizabeth Howard residence (the older house to the south of the road), and a newer house north of the road which is one of several belonging to Henry Naylor. Naylor also owned the house located just to the northwest outside the APE. Both structures within the APE persisted through 1888, although the third structure just outside the APE appears to have been removed prior to 1888.

The 1903 Baist Real Estate Atlas indicates that both nineteenth century farmsteads had been removed prior to development of the project vicinity as part of Twining City. There is a single frame structure noted within the APE, at the intersection of Minnesota Avenue and Nicholson Street. A single 12" utility (probably water supply but possibly a sewer line) runs southeast down the center of Pennsylvania Avenue and turns to run southwest down the center of Minnesota Avenue.

By 1907 a reservation configured similar to the present Reservation 487 appears to be in place. The only development visible within the APE is restricted to the south, where four structures facing Minnesota Avenue between Nicholson Street and Pennsylvania Avenue may extend into the APE, but it seems unlikely. Conditions in 1913 are similar to 1907, with the addition of a single structure in the northeast corner of the Pennsylvania and Minnesota Avenues intersection which may extend into the APE, and three new, larger, utilities alignments.

A 1917 USGS map of Washington and its vicinity documents the addition of a structure in the southern portion of the APE, between Pennsylvania Avenue and the southern extension of 25th Street (Figure 27), but provides little detail. By 1921 there are two structures at that location

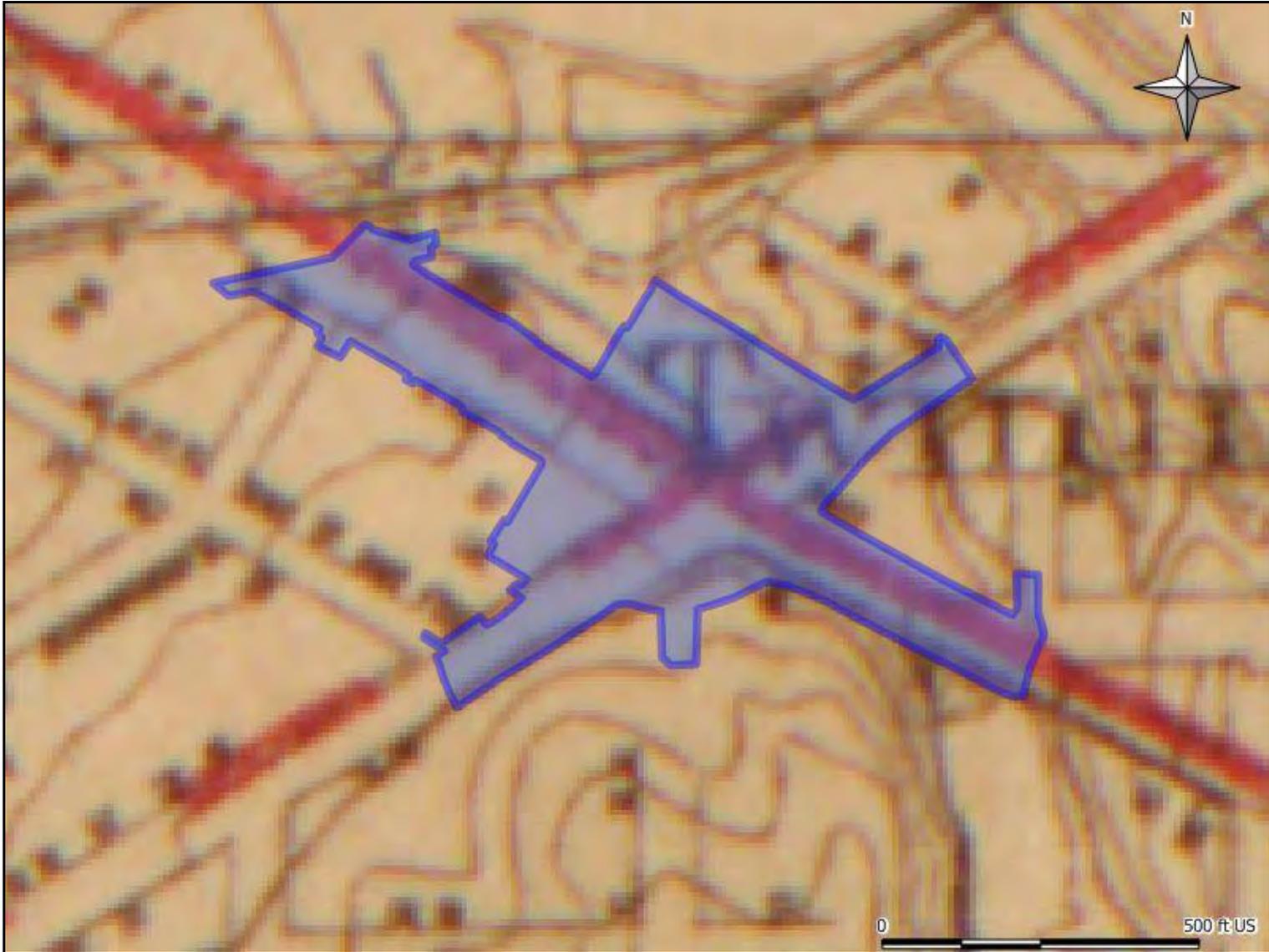


Figure 27. 1917 USGS *Washington and vicinity, Maryland, District of Columbia, Virginia.*

as well as significant reconfiguration of the utility alignments passing through the APE. The 1921 Baist Atlas is also the first to indicate actual green space within the reserves, although this is restricted to the southern reserve. NPS research indicates that the Twining/L'Enfant Square reserve was not transferred to federal jurisdiction by the DC City Commissioners until 1929 (Stevens 2007). The name "Twining Square" was officially adopted in 1933 (Stevens 2007). The reservations were reduced once in 1938, to provide street side parking (NPS-NCP Land Transfer Order 497), and again sometime before 1949 to create the internal traffic lanes currently present (NPS-NCP Land Transfer Order 463, Figure 20).

By 1954, the surrounding streets are almost completely developed, although the early twentieth century structures within the APE have all been removed, and all mid-twentieth century structures appear to have been outside (if adjacent) to the defined APE. There has been another fairly significant realignment of utilities within the APE, and addition of a few new utility lines primarily beneath the Minnesota and Pennsylvania Avenue roadbeds.

By 1969 most of the present roadbed configuration was established within the APE, although there appears to be significant differences in the size and configuration of median strips along Pennsylvania Avenue (Figure 22). The primary change noted within the APE is the proliferation of utilities. Most of the utilities appear to have been restrained to under the roadbeds, but the dense nature of these lines, and their location alongside older, abandoned utilities, suggests that areas under Pennsylvania Avenue and Minnesota Avenue will have little soil integrity (Figure 28). The presence of a 72" sewer cutting northwest to southeast through the northern reservation suggests at least one major disturbance has taken place in this area, in addition to deep fill added in the early twentieth century.

Summary of the Assessment of Potential for Defined Project APE and Recommendations for Further Treatment.

The project APE lends itself to four primary divisions based on the character of current conditions: the northern reservation (green space north of Pennsylvania Avenue); the southern reservation (bifurcated green space south of Pennsylvania Avenue); the area of new ROW acquisition (the developed area south of Pennsylvania Avenue and East of Minnesota Avenue which spans 25th Street); and areas of roadbed.

The Northern Reservation

Overall, the northern reservation appears to have little potential for archaeological resources. Based on the most accurate detailed map available (the 1888/1892 topographic plate) the area north of Pennsylvania Avenue consisted primarily of marsh prior to infilling for the late nineteenth-early twentieth century development of the Twining City subdivision. Based on the 1888 topographic sheet, this stream valley was deeply cut suggesting removal of considerable amounts of soil and reflected a deep erosion environment prior to inundation. Once flooded, there is little likelihood of human occupation. As such, no further cultural resources consideration in this area appears warranted. If subsequent geotechnical information from soil borings appears to contradict this interpretation, then it is recommended that a limited geomorphological study be instituted to identify the depth of fill and assess the potential for surviving prehistoric and historic land surfaces in this area.

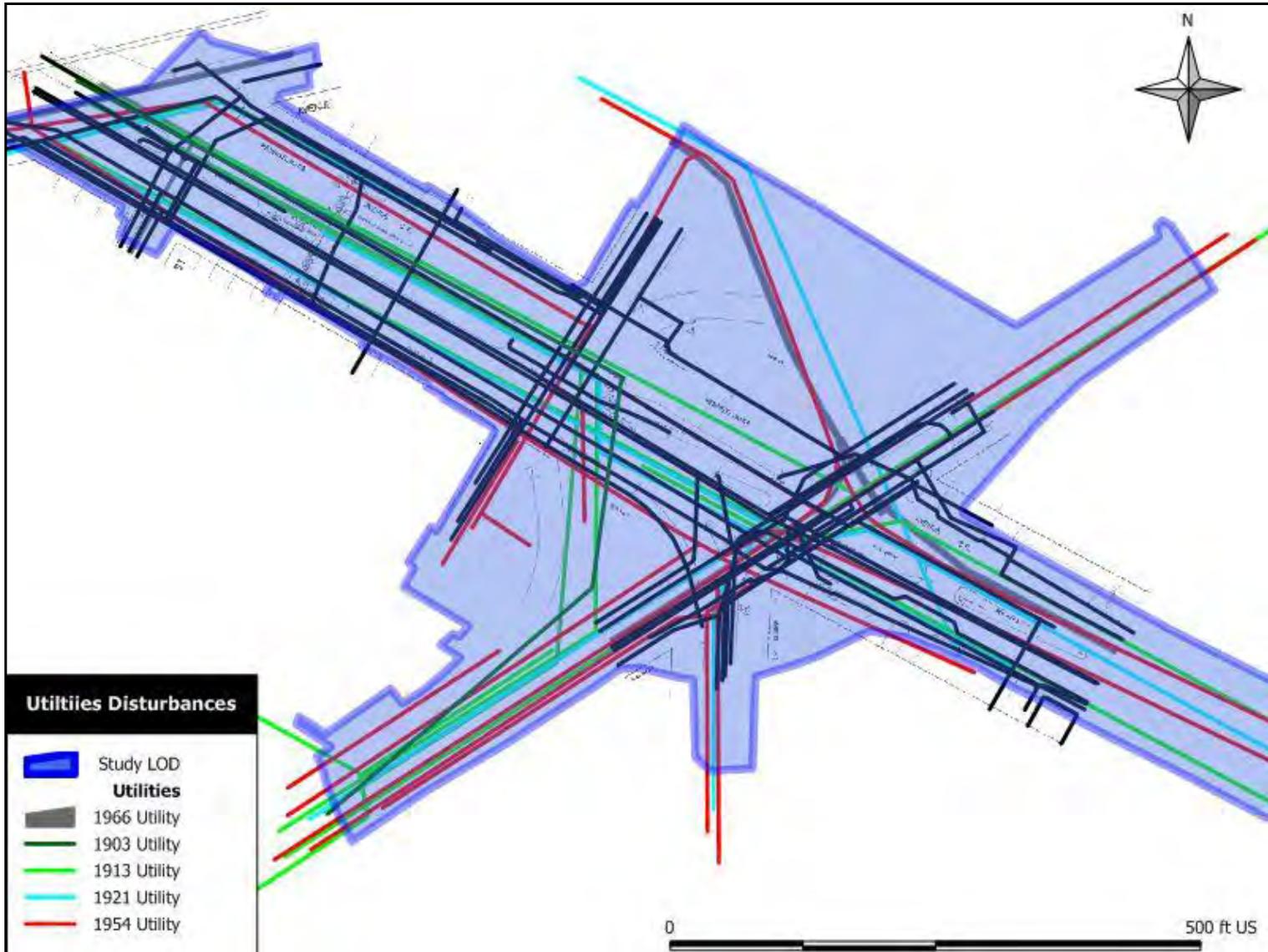


Figure 28. Documented utility disturbances within the APE.

The Southern Reservation

The southern reservation is considered a zone of high potential for prehistoric resources, as well as historic resources associated with nineteenth century residences. Subsequent establishment of the right turn lane which bisects the reservation represents a substantial source of disturbance, but does not appear to have affected the entire reservation. Utility disturbance in this area appears to have been restricted to the early twentieth century, and consisted of one or at most two alignments established prior to 1913, when excavation would have consisted of less destructive manual labor. By 1921, maps indicate a marked preference for utility placement under the adjacent street beds, which may have minimized subsequent disturbance in this area.

The primary anticipated project impact under all alternatives except the Conventional Intersection Alternative will be to the smaller western portion of the southern reservation. Under the Conventional Intersection Alternative anticipated impact will include the northern and eastern edges of the larger eastern portion and most of the smaller western portion of the southern reservation. Given the high potential for previously unidentified resources in the southern reservation and the lack of archivally documented large scale disturbance beyond the traffic lane, EAC/A recommends Phase I survey investigations be conducted in this area. Soil profiles are not anticipated to be deep, which will permit the use of standard hand excavated Shovel Test Pits (STP) sampling. It should also be noted that although archival documentation of disturbance has not been found, it is anticipated that the demolition of a nineteenth century structure in the early twentieth century will have resulted in some soil disturbance, and it may prove that Phase I survey will identify only disturbed soils with mixed resources.

Area of New ROW Acquisition

This very small area consists primarily of the developed lot between 25th St and Pennsylvania Avenue (a gas station), and by default also includes the smaller sidewalk area between 25th St and Minnesota Avenue. Both areas are nearly completely paved at present. This reflects a zone of high potential for prehistoric resources, and historic resource associated both with the nineteenth century Howard residence and with early twentieth century structures from the early development period of Twining City.

There is little documented disturbance in this area, but substantial disturbance can be inferred from the development sequence, starting with the construction of two structures between 1913 and 1921, and the subsequent demolition of both structures between 1921 and 1954. By 1954 a gas station had been constructed on the lot, complete with inferred underground storage tanks. The placement of the current main structure is consistent with the mid-twentieth century structure, but it is a reasonable expectation that the pump structure, mechanism, feed lines, and storage tanks have been replaced at least once during the last half of the twentieth century in order to comply with environmental regulations. As such, it seems quite unlikely that large areas of intact soil survive in this area. Impact to this area is anticipated under the Traffic Circle Alternative, and Traffic Square Alternative. If either of these alternatives is chosen, then review of any soil borings placed for geotechnical testing would be advised, and monitoring of construction may be appropriate. However, EAC/A does not believe that sufficient potential for intact resources exists to warrant paving removal and Phase I survey testing.

Areas under Existing Roadbeds

This includes the Pennsylvania and Minnesota Avenue roadbeds, and small connecting segments of 25th and 27th Streets, as well as the Twining/L'Enfant Square access roads (both internal and external). Most of these pass over areas of high potential, but archival documentation indicates that the Pennsylvania Avenue, Minnesota Avenue, and 25th Street roadbeds have all been substantially disturbed by the mid and late twentieth century preference for placing utilities under them. Three of the four Twining/L'Enfant Square access roads pass exclusively over areas considered to have little potential for intact resources due to prior stream scrubbing and erosion, and the final southern internal access road will be tested with the southern reservation area. No information about prior disturbance under 27th Street was found during the archival research, but as project impacts in this area would appear to be largely cosmetic changes to blend into the proposed new Pennsylvania Avenue configuration, no testing seems warranted at this location.

Summary of Recommendations for Further Treatment

Further cultural resources investigation is recommended for one area: the southern reservation area (Figure 29). This area has been classified as having a high potential for prehistoric resources and historic resources associated with nineteenth century farmsteads and early twentieth century residential development of Twining City. Archival research found limited evidence of past disturbance. Therefore Phase I survey investigations of this small area are recommended prior to final design decisions and construction of the proposed improvements project.

A second location, the area of new ROW acquisition south of Pennsylvania Avenue and East of Minnesota Avenue, may warrant archaeological monitoring if either the Traffic Circle or Traffic Square Alternatives are selected. Otherwise, no impact to the area is anticipated and no further work is considered warranted.

All other areas of the APE, including the northern reservations, are considered to have low potential for intact archaeological resources, either due to pre-development environmental conditions such as stream scouring and slope erosion, or due to dense later twentieth century utility placement.



Figure 29. Future treatment recommendations, including provisional recommendations.

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SPECIAL USE PERMIT



United States Department of the Interior

NATIONAL PARK SERVICE

National Capital Parks-East
1900 Anacostia Drive, S.E.
Washington, D.C. 20020

IN REPLY REFER TO:

L30 (NCR-NACE)

October 10, 2012

Austina Casey
Environmental Policy Analyst
District of Columbia Department of Transportation
55 M Street, S.E.
Suite 500
Washington, D.C. 20003

RE: Request for Special Use Permit for the Geoarchaeology Survey, Reservation 487 at Pennsylvania Avenue and Minnesota Avenue, SE, Washington, DC (Twining Square).

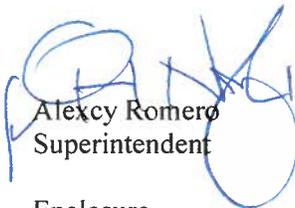
Dear Ms. Casey:

I have reviewed your request, to conduct geoarchaeology survey testing in multiple areas at Reservation 487, Pennsylvania Avenue and Minnesota Avenue (Twining Square). In response to your request for permission to conduct the activities specified in your request letter, I am providing you the enclosed Special Use Permit (SUP) NCR NACE 6000 1210 for your review.

This SUP authorizes access to those areas as identified by the submitted diagram, in order to conduct the specified geoarchaeological work as specified in the SUP request. The SUP allows minimally intrusive soil boring, sampling, and testing, which has been determined necessary for DDOT in their preliminary design for the Pennsylvania Avenue and Minnesota Avenue Intersection Improvement Project.

Please read the permit and the attached conditions carefully. Please sign as the permittee and promptly return the copies to this office. Copies of this permit, should be in the possession of you and/or any sub-permittees or contractors performing the above referenced activities on park property. As a matter of policy for local governmental partners, we have waived all fees for this permit. If you have further questions or concerns, do not hesitate to call. Thank you for your cooperation.

Sincerely,



Alexcy Romero
Superintendent

Enclosure

UNITED STATES DEPARTMENT OF THE INTERIOR
National Park Service

Special Use Permit

Name of Use Access: Geoarchaeology Survey

Date Permit Reviewed 20
Reviewed 20
Reviewed 20
Expires 2013 10/09

Long Term

Permit# NCR NACE 6000 1210
Region Park Type No. #

Short Term

Reservation 487

Name of Area

Austina Casey

55 M Street, SE, Suite 500

District of Columbia Department of Transportation of
Name or Permittee

Washington, DC 20032
Address

202-673-6813
Phone

is hereby authorized during the period from (Time 0730hrs day 09 Month 10 2012), through (Time 1600hrs day 09 Month 10 2013), to use the following described land or facilities in the above named area:

Twining Squares, US Reservation 487, Pennsylvania Avenue and Minnesota Avenue, SE, Washington, DC.

For the purpose(s) of:

Access to drill 6 geo-probe borings, 3" to 6" soil boring cores using a direct driven mechanism mounted to an ATV to minimize disturbance to the park resources and pedestrians and visitor foot traffic, per "Request for Special Use Permit for the Geoarchaeology Survey, Reservation 487 at Pennsylvania Avenue and Minnesota Avenue, SE, Washington, DC (Twining Square)" dated July 20, 2012 (work plan) Additional borings and related work may be added by written request and subject to NPS field approval and written confirmation. Further subject to appended conditions.

Authorizing legislation or other authority (RE - DO-53): 16 USC 1 et seq.

NEPA Compliance: CATEGORICALLY EXCLUDED EA/FONSI EIS OTHER APPROVED PLANS

PERFORMANCE BOND: Required Not Required Amount \$ _____

LIABILITY INSURANCE: Required Not Required Amount \$ see permit conditions

ISSUANCE of this permit is subject to the conditions on the reverse hereof and appended pages and when appropriate to the payment to the U.S. Dept. of the Interior, National park Service of the sum of \$ fee waived. The undersigned hereby accepts this permit subject to the terms, covenants, obligations, and reservations, expressed or implied herein.

PERMITTEE

Signature

Date

Authorizing Official

Signature

Superintendent

Date

CONDITIONS OF THIS PERMIT

- 1. The permittee shall exercise this privilege subject to the supervision of the Superintendent, and shall comply with all applicable laws and regulations of the area.**
- 2. Damages - The permittee shall pay the United States for any damage resulting from this use which would not reasonably be inherent in the use which the permittee is authorized to make of the land described in this permit.**
- 3. Benefit - Neither Members of, nor Delegates to Congress, or Resident Commissioners shall be admitted to any share or part of this permit or derive, either directly or indirectly, any pecuniary benefits to arise therefrom: Provided, however, that nothing herein contained shall be construed to extend to any incorporated company, if the permit be for the benefit of such corporation.**
- 4. Assignment - This permit may not be transferred or assigned without the consent of the Superintendent, in writing.**
- 5. Revocation - This permit may be terminated upon breach of any of the conditions herein or at the discretion of the Superintendent.**
- 6. The permittee is prohibited from giving false information; to do so will be considered a breach of conditions and be grounds for revocation [Re: 36 CFR 2.32(a)(4)].**
- 7. Permittee will comply with applicable public health and sanitation standards and codes.**
- 8. Unless otherwise authorized in writing, work times shall be 7:30 a.m. to 4:00 p.m, Monday through Friday, excepting Federal Holidays.**
- 9. Work/staging areas shall be kept clean and adequate measures to prevent public access to potentially hazardous work areas will be taken. Fencing/screening materials must meet with Superintendent's (or her representative's) approval.**
- 10. All data derived from testing and sampling activities associated with this project will be shared with this office (James Hemsley, 202-690-5163). Data shall be provided in both hard copy and digital formats.**
- 11. Permittee shall restore all work sites to prior condition to the satisfaction of the Superintendent or his designated representatives. Permittee shall provide written and photographic documentation of the stability of the restoration work and/or sites in need of further restoration. Contact: James Hemsley 202-690-5163.**
- 12. In the event of emergency or incident, notify this office (James Hemsley, 202-690-5163) and the United States Park Police (202-610-7500).**
- 13. When operating or parking vehicles on unpaved park property, operators shall exercise care not to damage turf. Permittee agrees to restore any such damage**
- 14. SAVE HARMLESS/LIABILITY. This permit is made upon the express condition that the National Park Service, its agents and employees shall be free from all liabilities and claims for damages and/or suits for or by reason of any injury, injuries, or death to any person or persons or property of any kind whatsoever, whether to the person or property of the permittee or its contractors, its agents or employees, or third parties, from any cause or causes whatsoever while in or upon said premises or any**

part thereof during the term of this permit or occasioned by any occupancy or use of said premises or any activity carried on by the permittee or its contractors.

To the extent allowed by applicable law, including the anti-deficiency statutes, e.g., 31 U.S.C. § 1341, the permittee hereby covenants and agrees to indemnify, defend, save and hold harmless the National Park Service and the United States, its agents and employees from all liabilities, charges, expenses, and costs on account of or by reason of any such injuries, deaths, liabilities, claims, suits or losses to the extent arising out of any error or negligent or intentionally wrongful act or omission of the permittee, its agents, employees and assigns. In the event insufficient appropriations are available to the permittee to address such matters in full, the permittee will, in good faith, seek additional appropriations to rectify the matter fully.

15. The permittee shall ensure that the contractors' liability insurance remains in full force during the entirety of the period covered by this permit. The permittee hereby agrees to be fully responsible for the management, performance, use and safety of the parkland authorized for use under this permit and hereby accepts responsibility and assumes liability for any and all tort claims arising out of any error or negligent or intentionally wrongful act or omission of its representatives or employees in connection with the work performed, or the maintenance or use of this facility, to the extent permitted by applicable law and the anti-deficiency statutes, e.g., 31 U.S.C. § 1341. To the extent that work is performed by non-Government entities, the permittee shall require such entities to:

- a) Procure public and employee liability insurance from responsible companies with a minimum limitation of \$1,000,000 (one million dollars) per person for any one claim and an aggregate limit of \$3,000,000 (three million dollars) for any number of claims arising from any one incident. The United States of America shall be named as an additional insured on all policies. The permit number will be included on said policy. All such policies shall specify that the insured shall have no right of subrogation against the United States for payments of any premiums or deductibles, thereunder, and such insurance policies shall be at the insured's sole risk.
- b) Pay the United States the full value for all damages to the lands or other property of the United States caused by the permittee or the permittee's employees, contractors, or employees of the contractors.
- c) Indemnify, save and hold harmless and defend the United States against all fines, claims, damages, losses, judgments, and expenses arising out of any error or negligent or intentionally wrongful act or omission of such entity.

16. An NPS representative may observe all activities on NPS property, or those activities that are or may be impacting NPS property and resources.

17. If relocation of boring and or hand digging is necessary, please Contact: James Hemsley 202-690-5163.

18. The Permittee shall take adequate measures as directed and approved by NPS to prevent or minimize damage to all park resources during all activities conducted pursuant to this Permit. This may include but not be limited to restoration, soil conservation and erosion protection measures, landscaping, and repairing roads, trails, signs, etc. Any trees damaged or removed will be replanted as directed by NPS.

The Permittee is responsible for the cost and repairs to any structures, facilities, installation, sod, soils, or landscape vegetation on parkland damaged by the work authorized under this permit and shall, at the direction of NPS, submit detailed plans for the repair, restoration and/or replacement of such. Traditional, non-intrusive ground surveys associated with planned borings are permitted; any disturbance of vegetation requires field consultation with NPS contacts.

Geoarchaeological testing will address areas of the project LOD which are not under current roadway, where past utility work has already extensively disturbed the soils. Since deep fill is anticipated to be present in at least the northern portion of Reservation 487, the proposed approach is mechanical Geo-probe borings, a method which obtains 3" to 6" soil boring cores using a direct driven mechanism generally mounted on a standard pickup truck or small all-terrain vehicle. This method will allow evaluation of the deep soil profile with minimal disturbance to either the existing NPS greenspace or the surrounding traffic. Six boring locations (Figure 2) are proposed for the initial test, three each in the northern and southern portions of Reservation 487. Two additional boring locations are reserved for use and placement at the discretion of Dr. Wagner based on the results from the initial six borings.

The proposed study should require no more than two days to complete. We anticipate conducting the study in July or August of 2012.

Sincerely,



Austina Casey
Environmental Policy Analyst
District Department of Transportation
Infrastructure Projects Management Administration

Attachments: 2

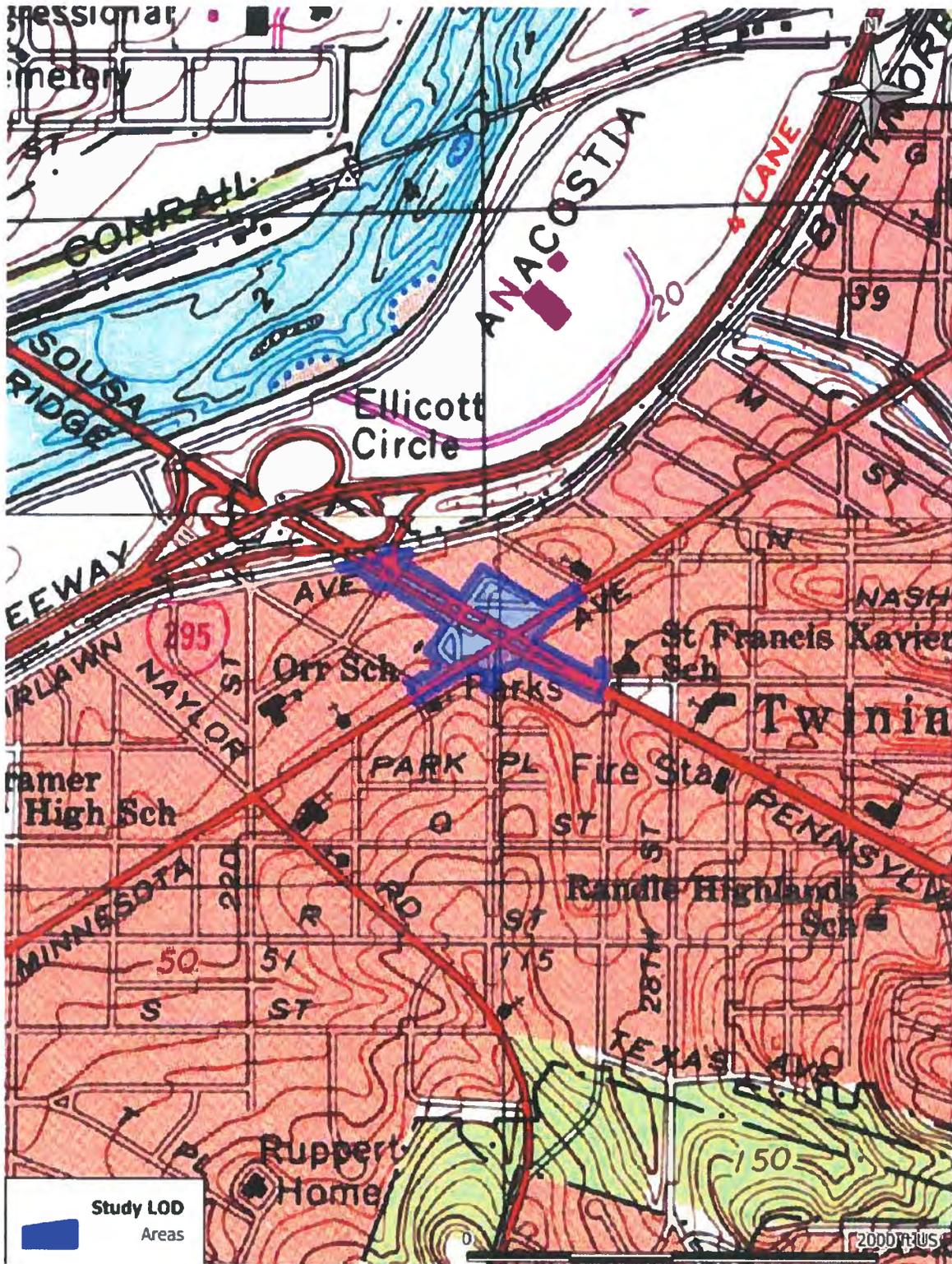


Figure 1. Project Location on Anacostia and Washington West USGS 7.5 Minute Quadrangles

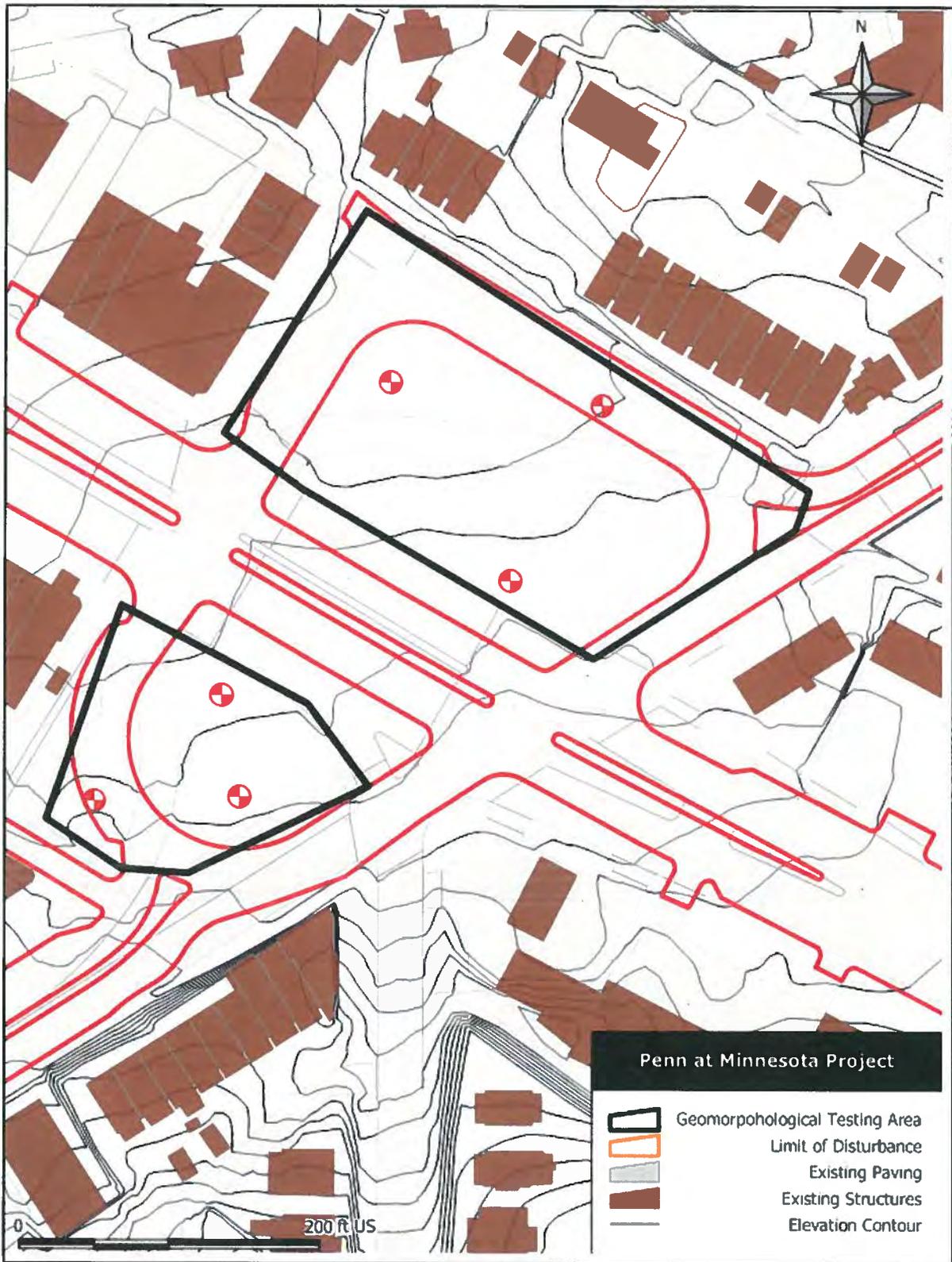
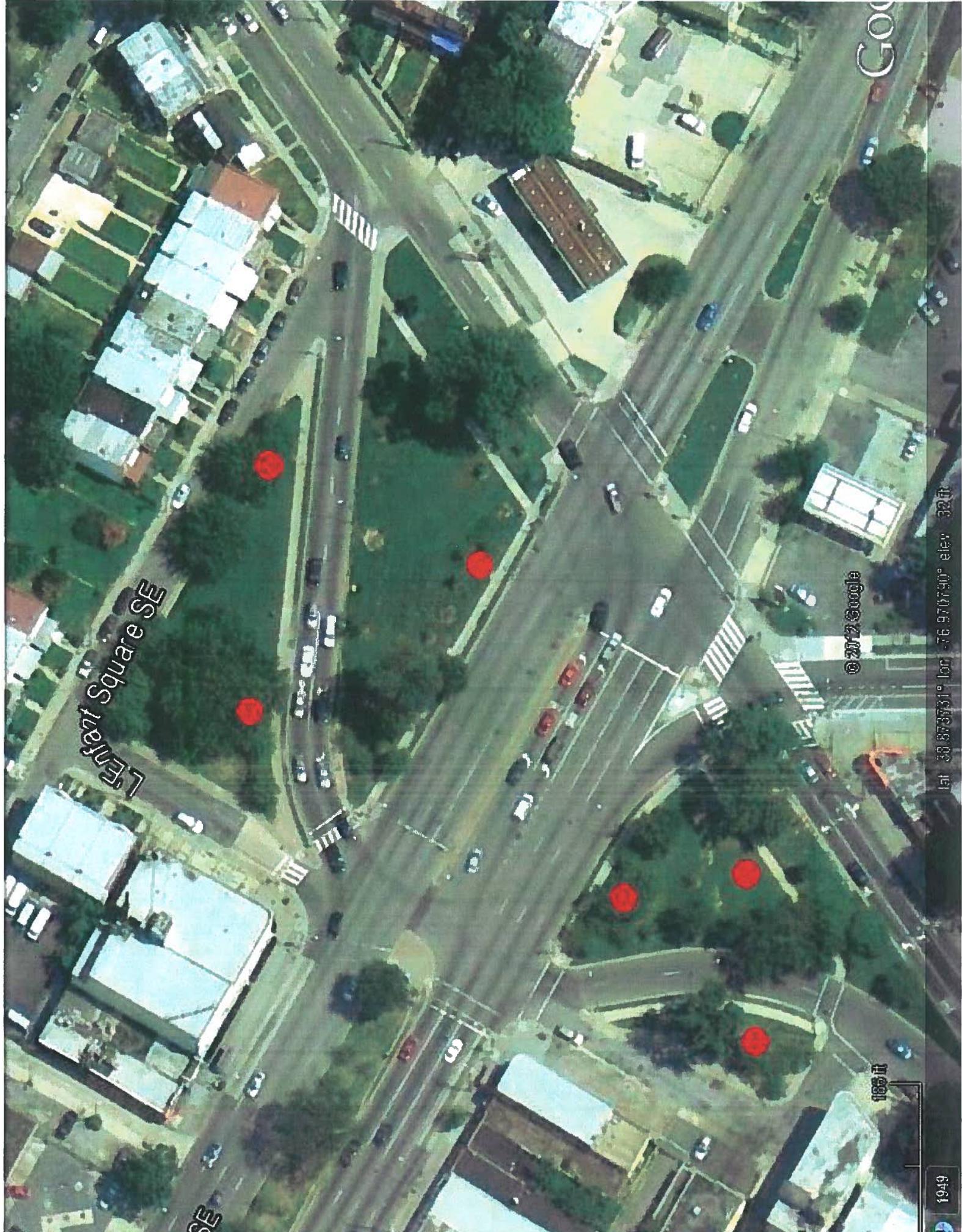


Figure 2. Proposed Boring Locations.



GOO

Lefant Square SE

© 2017 Google

lat 38.873731° lon -76.970740° elev 320ft

185 ft

1949



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**GEOARCHAEOLOGICAL INTERPRETATIONS
IN THE VICINITY OF PENNSYLVANIA AND MINNESOTA
AVENUES
DECEMBER 2012**

Geo-Sci Consultants, LLC

4410 Van Buren Street, University Park, Maryland 20782
tel: 301 277 3731

fax: 301 277 2147

GEOARCHAEOLOGICAL INTERPRETATIONS
IN THE VICINITY OF THE INTERSECTION OF
PENNSYLVANIA AND MINNESOTA AVENUES
IN THE ANACOSTIA SECTION
OF WASHINGTON, D.C.

Submitted to
The EAC/Archaeology, Inc.

By
Daniel P. Wagner, Ph.D.
Pedologist

December 14, 2012

Introduction

The following is a discussion of pedological and geomorphological investigations in the area for planned improvements to the intersection of Pennsylvania and Minnesota Avenues located in the Anacostia section of Washington, D.C. The principal objectives of the study were to assess the soils and landscapes available to prehistoric populations, as well as the extent of historic impacts accrued since the initiation of European settlement over 300 years ago. Investigations were directed toward examinations and analyses of soil and geomorphic features for indications of landscape stability, buried surface levels, deposit types, and environmental conditions relating to human utilization of a landscape.

Field investigation of the project area was made on November 14, 2012, and entailed examinations of soils by means of Geo-probe borings. These were made at selected locations determined on the basis of historic mapping showing a wetland northeast of Pennsylvania Avenue and apparent uplands to the southwest. Three borings were made on each side of the road, and approximate locations of the borings are shown in Figure 1. Examined soil materials were described employing standard pedological designations for soil horizons, as well as standard descriptive terminology such as Munsell color notations and USDA soil textural classes. Logs for the borings are attached at the end of the report.

Physiology and Geology

The project is situated within the Coastal Plain Physiographic Province within which all of eastern Washington, D.C. is contained. Geologically, this province is characterized by variously textured, unconsolidated sediments derived both from marine and fluvial sedimentary regimes as well as more recent alluviation in association with modern stream valleys and drainageways. In the study area the predominant geologic materials consist of stratified deposits of clay, sand and gravel laid down by an ancient deltaic system of the Lower Cretaceous period. Collectively, these deltaic deposits are designated as the Potomac Group of sediments.

In addition to the natural complexity of Coastal Plain deposits, human activities have also greatly contributed to existing soil and landscape relationships. Of obvious significance for the study area are historic impacts related to urbanization. However, even before this a prolonged history of agriculture in the region would also have greatly impacted the area landscape. Widespread tillage-induced erosion would have variably deflated nearly all upland landscapes, and stream systems would have been subject both to increased rates of run off as well as choking contributions of recent alluvium derived from the eroded farmlands. These processes are likely to have greatly altered the former wetland northeast of Pennsylvania Avenue well before the eventual placement of fill that effectively obliterated all surface traces of it. Only the southern upland bears any

resemblance to the setting that prehistoric inhabitants would have known for thousands of years.



Figure 1. Boring locations and project area superimposed on an 1892 map.

Soils and Geomorphology

The findings of this study were in close accord with historic mapping, and original landscapes within the project area were indeed found to be distributed between both upland and alluvial positions. Hence, the desirable environmental setting of a well drained upland adjacent to a wetland was confirmed. The location was undoubtedly an attractive draw for generations of potential human occupations, thus offering enhanced prospects for cultural materials. Unfortunately, these prospects have, of course, been all but totally compromised by the severe landscape alterations.

Whereas the wetland north of Pennsylvania Avenue is deeply (11 to 15 ft) buried by fill, a remnant of the original upland still forms the existing surface south of the road.

This upland has, however, suffered significant disturbances; and in two of the examinations here (Borings 5 and 6) episodes of grading had destroyed original surface horizons and even extended into lower subsoil horizons (Bt). Shallow fills of some historic interest overlie these truncated subsoils, but due to the Pleistocene antiquity of the regional uplands and no indications of later episodes of natural deposition, any prehistoric or even early historic cultural materials that may originally have been present would have been destroyed at these locations.

Elsewhere on the upland the degree of disturbance is not so definitive, and limited areas may still have some potential for early cultural resources. This case is presented by the soil of Boring 4, which unlike those of Borings 5 and 6 may not have been as deeply graded. As indicated by the horizonation sequence of the plow zone (Ap) resting directly on the subsoil argillic horizon (Bt) with no intervening upper transitional subsoil horizons (ie. E or BE), there has been at least some soil loss even at this location. The loss could possibly be due to localized more shallow grading, but surface horizon is not obvious fill, and the amount of soil removal would also be compatible with that typically attributable to a past history of tillage (Figure 2). In the latter situation some compromise of context typical of plow zones would have occurred; however, cultural artifacts would still have been retained as lag deposits even as finer soil particles were lost to erosion.



Figure 2. The upland soil of Boring 4 has suffered some agricultural deflation or shallow grading, but is not as disturbed as those of two other examined locations. Grayer colors near the base of the core are due to drainage mottling. Soil drainage is, however, not sufficiently impeded to restrict occupation.

The wetland north of Pennsylvania Avenue likely provided a desirable spectrum of floral and faunal resources, but was far too poorly drained for occupation. Buried wetland surfaces were intercepted in each of the three borings made north of the road. These surfaces were mostly dark colored and varied in both texture as well as organic content (Figure 3). Comprised of recent alluvium almost surely accumulated subsequent to European settlement, the uppermost wetland sediments still testify to the very poor drainage typical of such settings, and saturated levels occurred within a foot or less of the buried surface at each location.



Figure 3. In Boring 1 the surface of the former wetland is marked by dark, viably organic deposits below the depth of 11.1 ft. The lowest increment of overlying fill at the depth of 9.7 ft is also darkly colored and contains coal, broken glass, and a fragment of rubber seal, probably that of a mason jar.

Oddly, depths to the wetland surface were not consistent and exhibited a range too wide for a natural gradient. Although the deepest fill (15.2 ft) was found at the most downstream location of Boring 2, the increase of about 4 ft over the thickness at Boring 1 (11.1 ft) and even the 1.5 ft over that in Boring 3 (13.7 ft) are more suggestive of artificial disturbance than a natural slope. A wetland surface by definition would be essentially flat over so short a distance, and given the nearly level grade of the modern park surface the amount of depth variability should be considered inordinate.

Summary

Upland and wetland environments originally characterized the project area, which almost everywhere has significant limitations for cultural resource potential. As would be expected in such an urban setting the upland south of Pennsylvania Avenue has been variably disturbed, and consequently although this ancient landscape would have been well suited for occupation, it has only very limited prospects for early cultural resources. Depending on when most of the grading was done later historic era deposits might still be of interest.

Much too poorly drained for occupation, the wetland north of Pennsylvania Avenue would likely have been an attractive draw throughout the Holocene. Probably altered by a century or more of agricultural run off and then intentionally filled, the wetland identified on a historic map is still present, but now lies as much as 15 ft below the modern surface.

Descriptions for Core Borings

Depth (ft)	Pedologic Horizon (If Present)	Characteristics
Boring 1		
0 - 9.7		Mixed earthen fill, mainly yellowish brown (10 YR 5/6) sandy clay loam and clay loam
9.7 - 11.1		Earthen fill, black (7.5YR 2.5/1) sandy loam; coal glass, and rubber (broken mason jar) truncated ~3 to 4 ft
11.1 - 11.9		Recent alluvium, black (10YR 2/1) sandy loam
11.9 - 12.3		Recent alluvium, light olive brown (2.5Y 5/3) fine sandy loam
12.3 - 16.0+		No retrieval
Boring 2		
0 - 15.2		Mixed earthen fill, same as above
15.2 - 16.0+		Recent alluvium, dark grayish brown (2.5Y 4/2) loamy sand; thin organic mat at surface; saturated
Boring 3		
0 - 13.7		Mixed earthen fill, same as above
13.7 - 15.6		Recent alluvium, strong brown (7.5YR 5/6) and yellowish brown (10YR 5/4) stratified sandy loam, sand and loamy sand
15.6 - 16.0+		Recent alluvium, grayish brown (2.5Y 5/2) silt loam; contains organic fibers; probable pre-Contact surface
Boring 4		
0 - 0.7	Ap	Dark brown (7.5YR 3/3) loam
0.7 - 1.4	Bt1	Yellowish red (5YR 4/6) clay loam
1.4 - 2.4	Bt2	Strong brown (7.5YR 5/6) heavy loam; common, medium distinct mottles of brown (7.5YR 5/3)
2.4 - 4.0+	BC	Brown (7.5YR 5/3) fine sandy loam; many, medium distinct mottles of pinkish gray (7.5YR 6/2)
Boring 5		

0 - 0.8	Ap	Fill; dark brown (10YR 3/3) and dark yellowish brown (10YR 4/4) loam
0.8 - 2.2	C	Fill; mostly dark yellowish brown (10YR 4/6) mixed sandy clay loam, loam, and silt loam
2.2 - 4.0+	2Btb	Yellowish red (5YR 4/6) clay loam; graded

Boring 6

0 - 0.9	Ap	Fill; dark brown (10YR 3/3) sandy loam
0.9 - 7.6	C	Fill; mostly dark yellowish brown (10YR 4/6) mixed loamy sand, sandy loam, and sand
7.6 - 8.0+	2Btb	Dark yellowish brown (10YR 4/6) loam to silt loam; common, coarse distinct mottles of light brownish gray (10YR 6/2); graded

Appendix

F

Traffic Analysis
Report

Traffic Analysis Report

HNTB Corporation

May 2013

**Pennsylvania and Minnesota Avenues, SE
Intersection Improvement Project
Environmental Assessment**

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Attachments

Attachment 1: Maintenance of Traffic: Revised Square (Example)

1.0 TRAFFIC IMPACT ANALYSIS

1.1 Purpose

An important aspect of the alternatives evaluation is the impacts to vehicle, pedestrian and bicyclist traffic and transit services. A traffic analysis was conducted to assess the impact of each alternative, including vehicular delays, queues, travel times, pedestrian and bicyclist safety, transit services, etc. This chapter describes the analysis methodology and presents the results.

The purpose of the Proposed Action is to provide improvements to the Pennsylvania and Minnesota Avenues, SE intersection in keeping with the District of Columbia's Great Streets Initiative as set forth in the 2007 *Great Streets Framework Plan* and the 2007 *Revitalization of Pennsylvania Avenue, SE for the Great Streets Initiative Concepts Design Final Report (Great Streets Design Final Report)*.

1.2 Existing Conditions

Road Network

The study intersection is located on a major commuter route, Pennsylvania Avenue SE, in an urban environment at its crossing with the local travel route of Minnesota Avenue SE. The adjacent land use is a mix of townhome residences, one or two level retail shops and park space. To assess the traffic impacts to the surrounding area, the adjacent intersections to the subject intersection were also included in the traffic analysis.

The streets included in the study are described below:

- Pennsylvania Avenue SE is a median-separated Principle Arterial according to the DDOT Roadway Functional Classification with average annual daily traffic (AADT) of 42,500 vehicles per day. It is one of the few major gateways used by motorists to reach downtown Washington D.C. from southeast region of D.C. east of Anacostia River and Maryland.
- Minnesota Avenue SE is as a Minor Arterial with AADT of 10,200 vehicles per day.
- 25th Street is a Minor Arterial with AADT of 5,800 vehicles per day. It is a one-way street going southbound within the study area.

The intersections in the study are provided in **Table 1** and shown in **Figure 1**. The subject intersection includes ID 1A and 1B in the table. Note that Intersection ID Numbers 2-5 in the table are intersections adjacent to the subject intersection that would not be modified by any of the alternatives; however, nearby impacts to these adjacent intersections due to each of the alternatives are being considered in the evaluation of alternatives for this study.

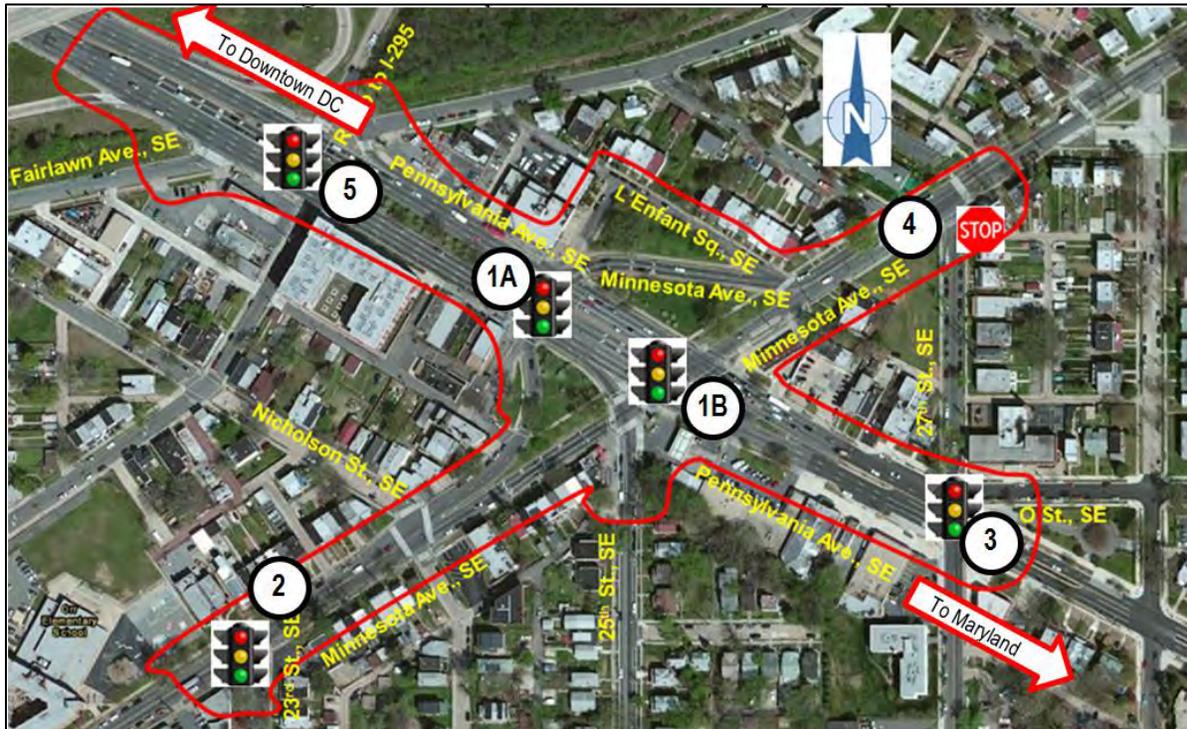
Table 1: List of Intersections in the Study Area

ID	Intersection	Traffic Control
1A	Pennsylvania Ave. and Minnesota Ave., SE West	Signalized
1B	Pennsylvania Ave. and Minnesota Ave., SE East	Signalized
2	Minnesota Ave. and 23 rd St., SE	Signalized
3	Pennsylvania Ave., 27 th St. and O St., SE	Signalized
4	Minnesota Ave. and 27 th St., SE	Un-signalized
5	Pennsylvania Ave., I-295 N.B. On Ramp and Fairlawn Ave., SE	Signalized

Source: HNTB Corporation, 2013.

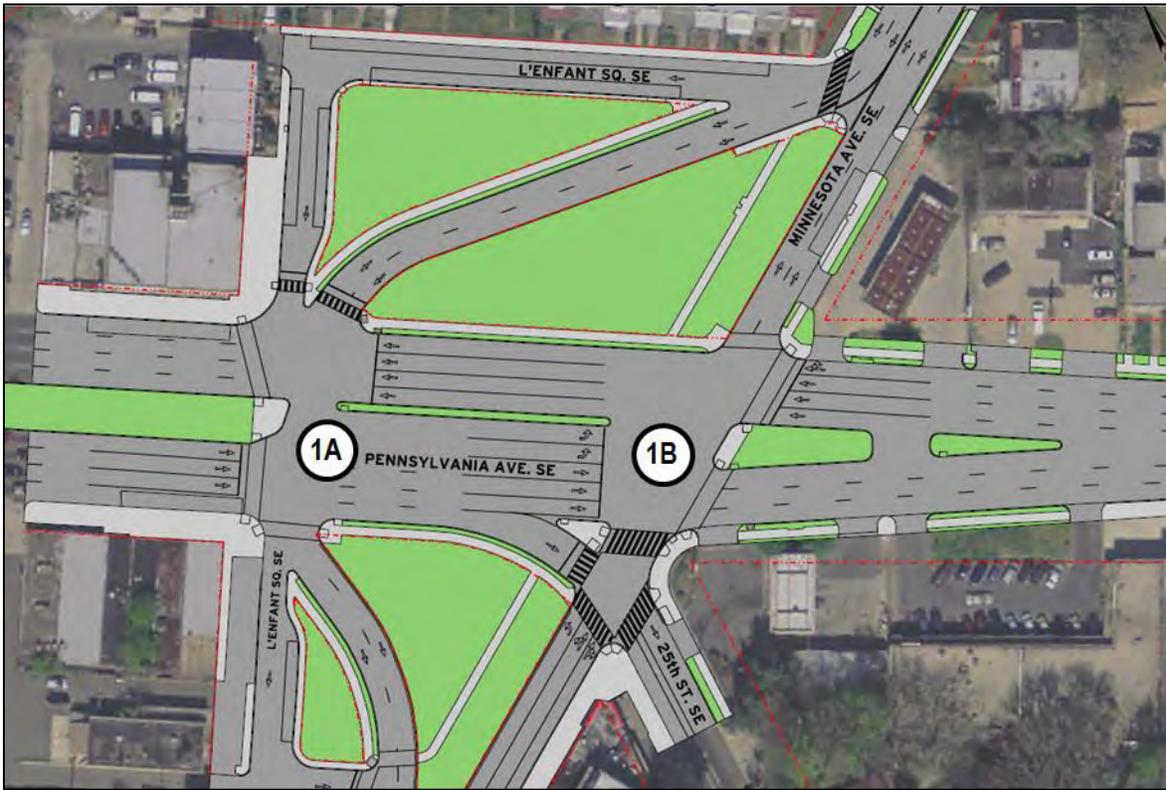
In the existing configuration, shown in **Figure 2**, Pennsylvania Avenue SE is two-way with a concrete median; it has three or four travel lanes in each direction with two added lanes at the left turn onto northbound Minnesota Avenue SE. Minnesota Avenue SE is a two-way undivided road south of Nicholson Street and north of L’Enfant Square SE. Within the study area, a National Park Service (NPS)-owned park space separates Minnesota Avenue into two one-way roads and this forms two signalized intersections on Pennsylvania Avenue (1A and 1B). L’Enfant Square is a one-lane one-way street with on-street parking on both sides, providing access to the local residences and shops; it joins the west Pennsylvania Avenue & Minnesota Avenue intersection (1A) however it is not controlled by any traffic signals – only right turns are allowed and they are controlled by a Stop sign.

Figure 1: Study Area for Traffic Impact Analysis



Source: ESRI (Aerial), and HNTB Corporation, 2013.

Figure 2: Existing Configuration



Source: HNTB Corporation, 2013.

Transit Network

Currently there are twelve bus routes (32, 34, 36, 39, A11, B2, J13, K11, M6, V7, V8 and V9) using Pennsylvania Avenue, five routes (B2, U2, V7, V8 and V9) on Minnesota Avenue and two (32 and 34) on 25th Street, as shown in **Figure 3**. While not shown on Figure 3-13, bus route 39 is an express bus route that runs along Pennsylvania Avenue. The nearest Metro station is the Potomac Avenue Station which is located one mile to the west of the Study Area.

Figure 3: Bus Routes within the Study Area and Vicinity



Source: Washington Metropolitan Area Transit Authority website www.wmata.com, 2013.

1.3 Alternatives

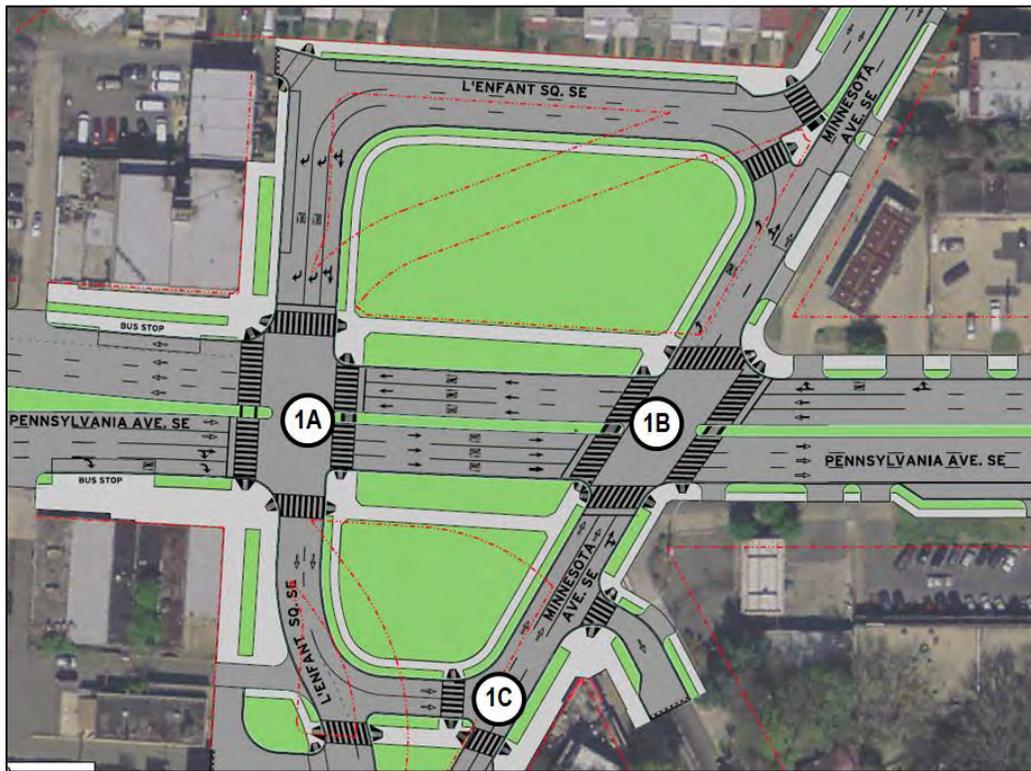
1.3.1 No Build Alternative

In the No Build Alternative, the roadway configuration and traffic operational characteristics would remain unchanged from the existing condition, as shown in Figure 2.

1.3.2 Revised Square Alternative

The Revised Square Alternative, shown in **Figure 4**, would require all vehicles, with the exception of through movements on Pennsylvania Avenue, to go around the expanded center islands. The following key traffic improvements are proposed in this alternative:

- Prohibit left turning movements on Pennsylvania Avenue in the center of the square and require all turning vehicles circulate around the square;
- Prohibit left turns from both directions of Minnesota Avenue onto Pennsylvania Avenue, directing them around the square, and reduce vehicular conflicts with pedestrians on the crosswalks;
- Expand L'Enfant Square to three lanes on the north side of the square and combine with southbound Minnesota Avenue, providing parking spaces for residents and retail patrons;
- Expand L'Enfant Square to two lanes on the south side of the square and realign the roadway to add the connection to northbound Minnesota Avenue and 25th Street;
- Add wider sidewalks and additional crosswalks to provide safe and convenient access for pedestrians; and
- Add traffic signal control at the new south intersection 1C to improve traffic flow.

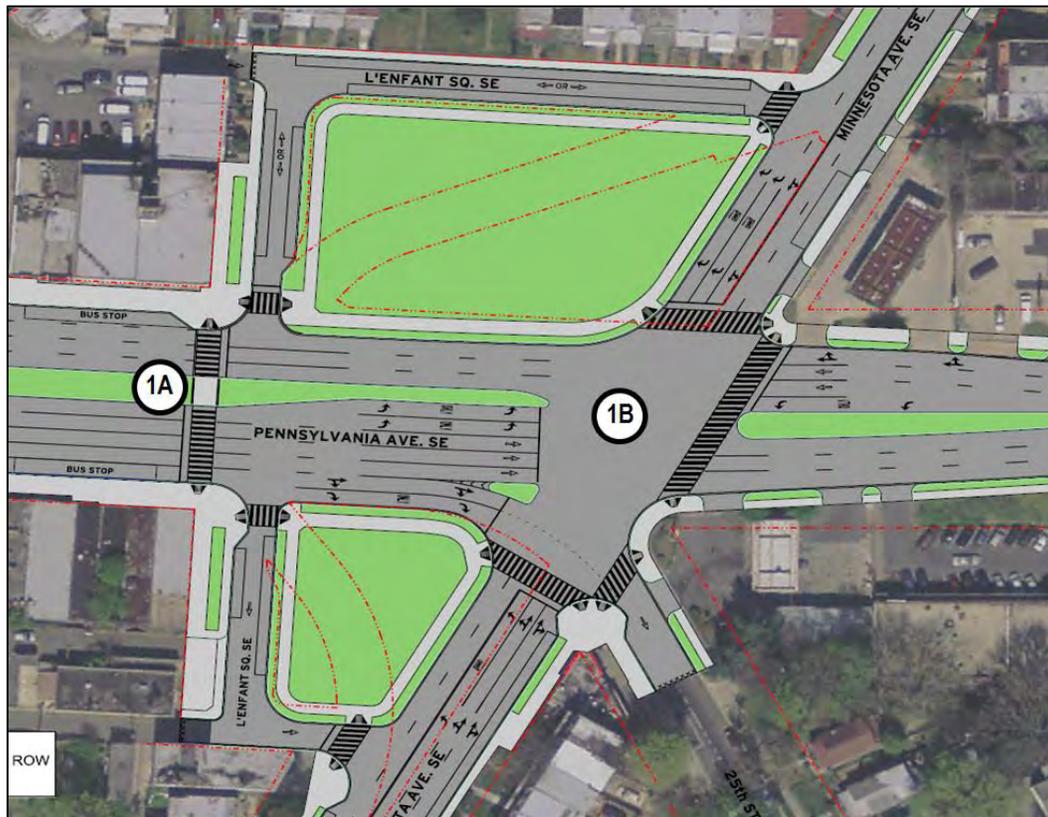
Figure 4: Revised Square Alternative

Source: HNTB Corporation, 2013.

1.3.3 Conventional Intersection Alternative

The Conventional Intersection Alternative, shown in **Figure 5**, is a typical at-grade intersection allowing all turning movements for all approaches, except that 25th Street would still be a one-way street going southbound. The existing west side intersection (1A) in the square would be reconfigured by building a continuous median along Pennsylvania Avenue, eliminating vehicular crossings; a crosswalk with a pedestrian-activated traffic signal would also be provided at this location (1A) to allow safe crossing for pedestrians. Other key traffic improvements include:

- Turn Minnesota Avenue SE into a five-lane roadway through the intersection,
- Provide a new left turn bay on westbound Pennsylvania Avenue for access to southbound Minnesota Avenue and 25th Street, and
- Add bulb-outs at multiple intersection corners to shorten pedestrian crossing distance, protect parked vehicles and reduce traffic impact caused by bus pullovers.

Figure 5: Conventional Intersection Alternative

Source: HNTB Corporation, 2013.

1.3.4 Analysis Methodology

Analysis Scenarios and Tools

This study analyzes traffic operations during AM and PM peak hours when vehicular and pedestrian traffic reach the highest levels and most accidents occur. It is important to capture these study periods, as it represents the most intense period of use for the study area.

Per FHWA and DDOT requirements, the following years were included in the analysis for all alternatives:

- 2012 (Existing Year)
- 2015 (Opening Year)
- 2040 (Design Year)

Table 2 summarizes the scenarios included in the analysis.

Table 2: List of Scenarios Included in Traffic Analysis

Scenario	Analysis Year					
	2012		2015		2040	
	AM	PM	AM	PM	AM	PM
Existing Condition	X	X	-	-	-	-
Alt 1 - No Build	-	-	X	X	X	X
Alt 2 - Revised Square	-	-	X	X	X	X
Alt 3 - Conventional Intersection	-	-	X	X	X	X

Notes:

X : included in the analysis.

- : not included in the analysis.

To evaluate and compare the vehicular traffic operations of all alternatives, the following measures of effectiveness (MOE's) were selected for this study:

- Intersection Delay
- Intersection Level of Service (LOS)
- Approach Delay
- Approach LOS
- Queues on key approaches
- Travel times

Per FHWA guidance¹, traffic simulation was used to model, analyze and compare the traffic operations the two alternatives. Synchro software (version 8.0) was used to model and analyze the traffic signal operations including delays, LOS and queues. VISSIM software (version 5.3) was used to provide the travel time results.

For pedestrian traffic, a qualitative analysis was performed that identified the deficiency of the current configuration based on the existing field observations and discuss the improvements proposed by the alternatives.

Data Collection and Traffic Volume Development

The existing traffic signal timing plans at all signalized intersections were received from DDOT Traffic Operation Administration (TOA) and coded in the simulation models. For the proposed alternatives, signal timing was optimized based on forecasted traffic demand to improve traffic operation at individual signals as well as along the corridor.

Available traffic counts within the last three years were collected from DDOT and the existing year (2012) volumes were developed using an annual growth rate of 0.5 percent. Based on the data and field observations, the peak hours of traffic are identified as 7:30 -8:30 in the morning and 4:30 – 5:30 in the evening. At intersections with missing data, data were collected for one-hour period during the AM and PM peak hours. To account for the traffic pattern change caused by the newly constructed I-295 NB

¹ USDOT Federal Highway Administration: Traffic Analysis Toolbox Volume II: Decision Support Methodology for Selecting Traffic Analysis Tools, FHWA-HRT-04-039

ramps at the adjacent 11th Street Bridge, traffic counts were collected again in 2013. Using this data, a balanced set of peak hour traffic volumes were developed for the analysis of Existing Conditions. Volumes for the year 2015 were also developed using the 0.5 percent annual growth rate.

For the year 2040, the corridor-level traffic forecasts provided by Metropolitan Washington Council of Government (MWCOCG) were used to generate the growth rate between the existing year and 2040. This rate was applied to the existing year volumes to develop 2040 traffic.

Multiple field visits have been conducted to monitor the existing peak hour traffic operations and to verify field conditions. Average and maximum queue lengths, peak condition durations, posted speed limits, bottleneck locations and typical driving behaviors were recorded and were used for simulation base model development and calibration.

The peak hour turning movement volumes used in this study are presented in **Figures 6 through 12**.

Figure 6: Peak Hour Volumes –Existing Conditions

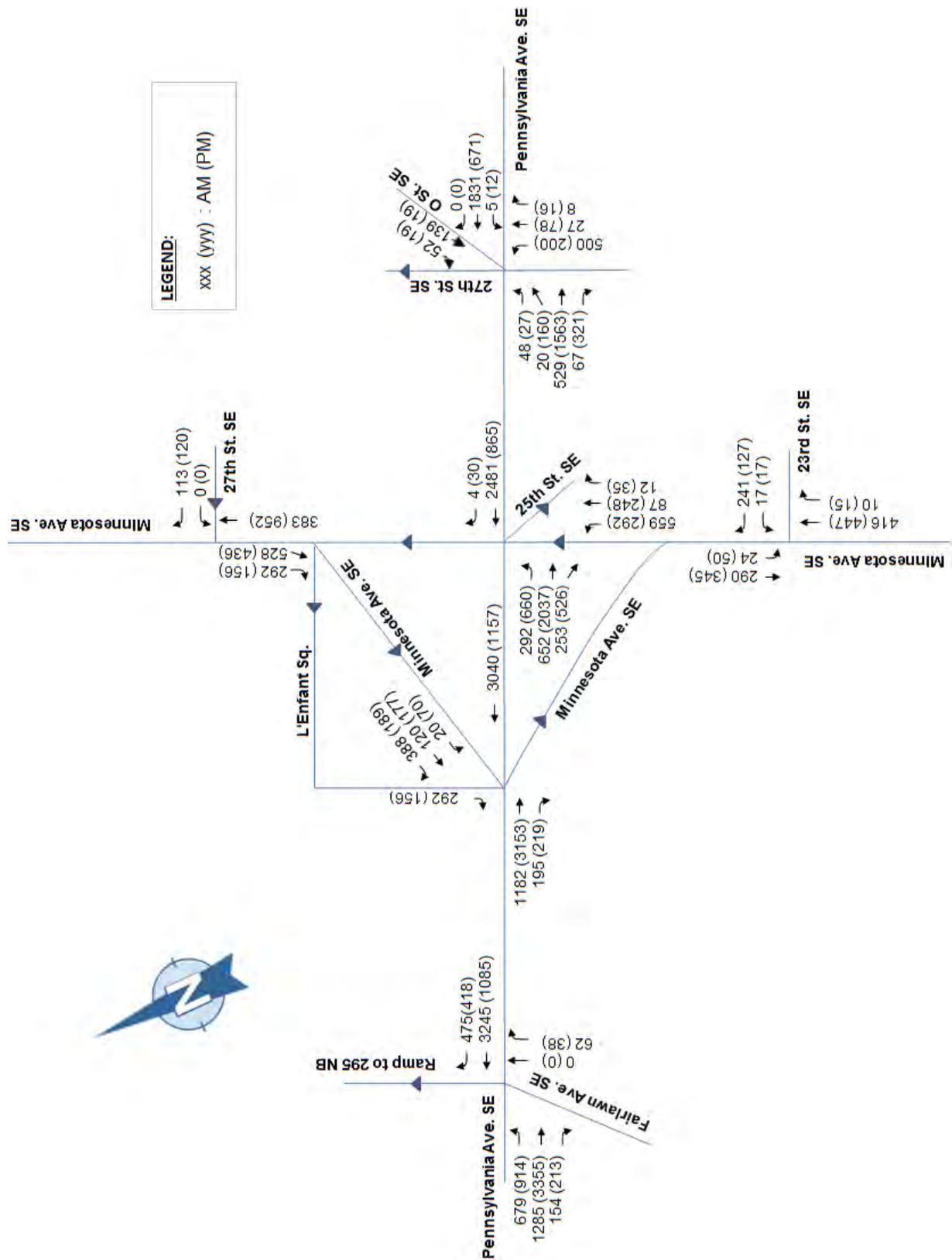


Figure 7: Peak Hour Volumes – 2015 No Build Alternative

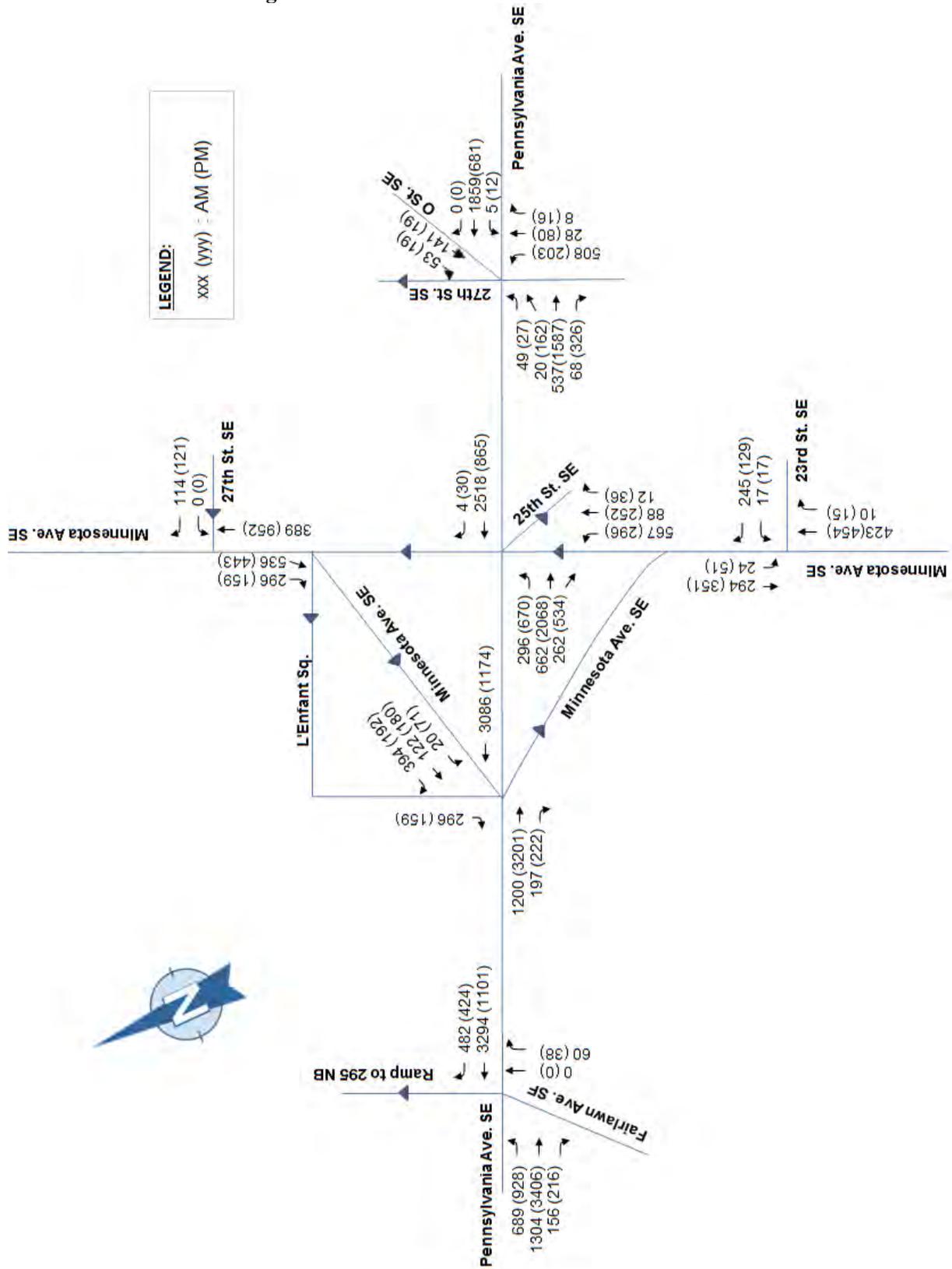


Figure 9: Peak Hour Volumes – 2015 Conventional Intersection Alternative

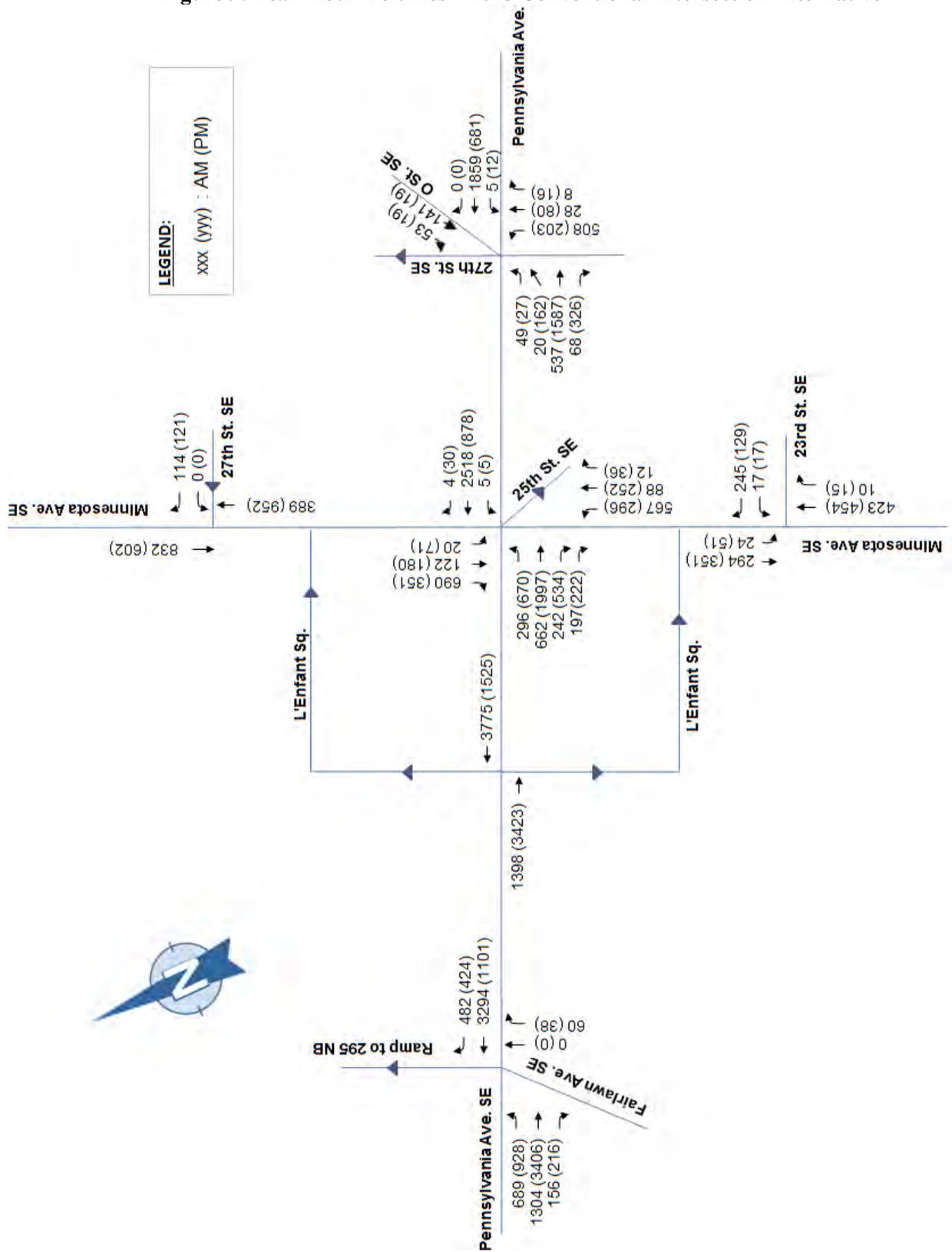


Figure 10: Peak Hour Volumes – 2040 No Build Alternative

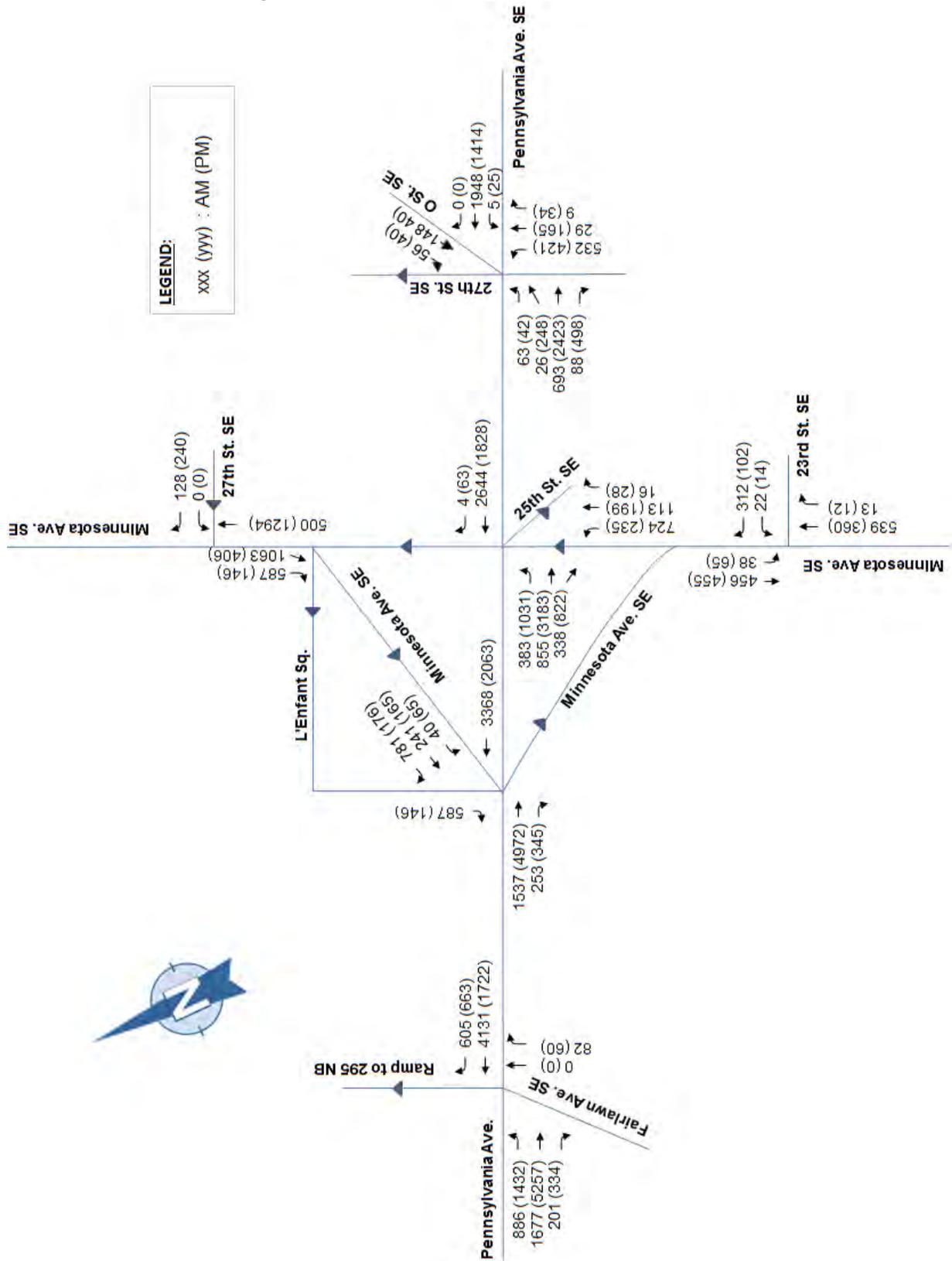


Figure 11: Peak Hour Volumes – 2040 Revised Square Alternative

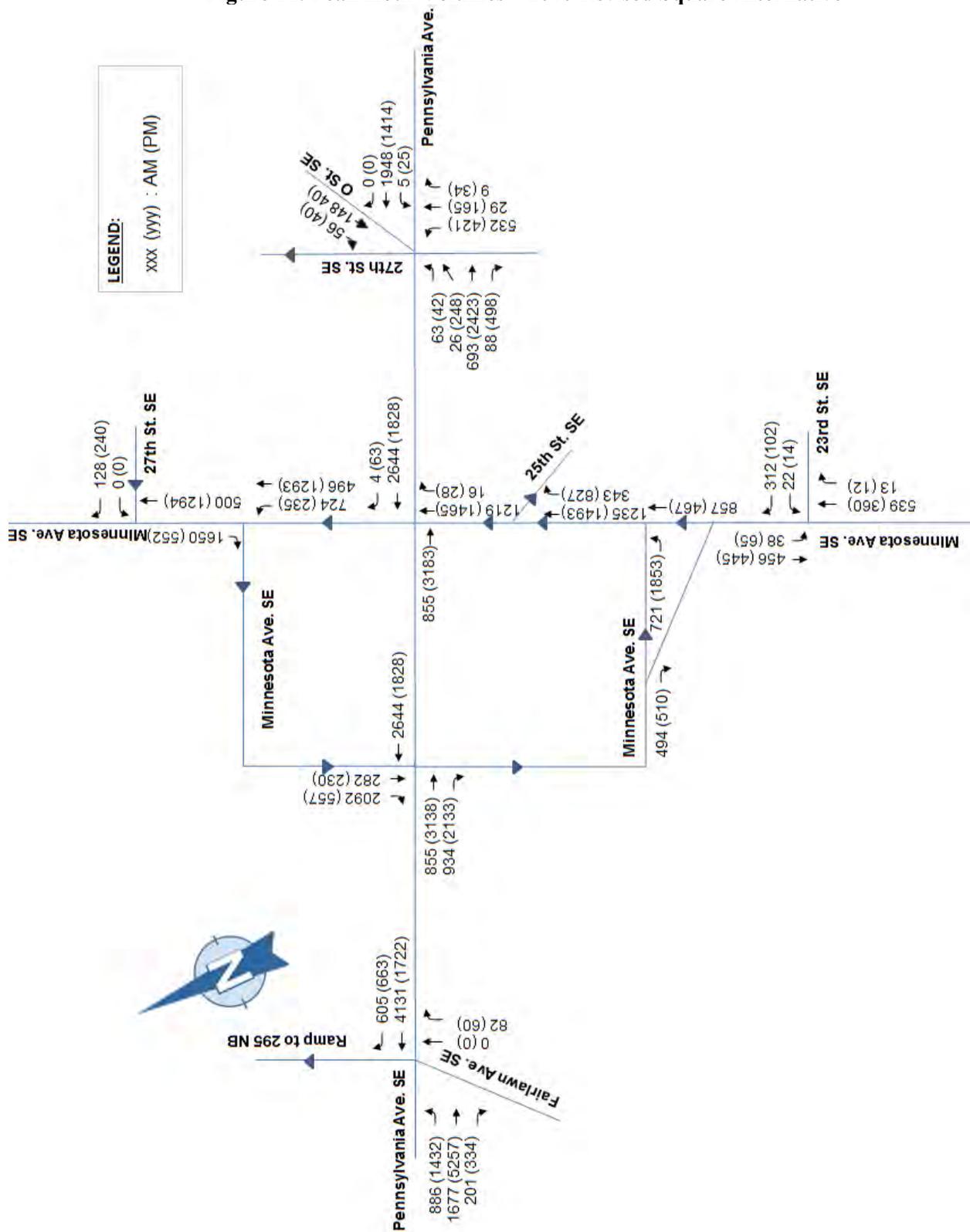
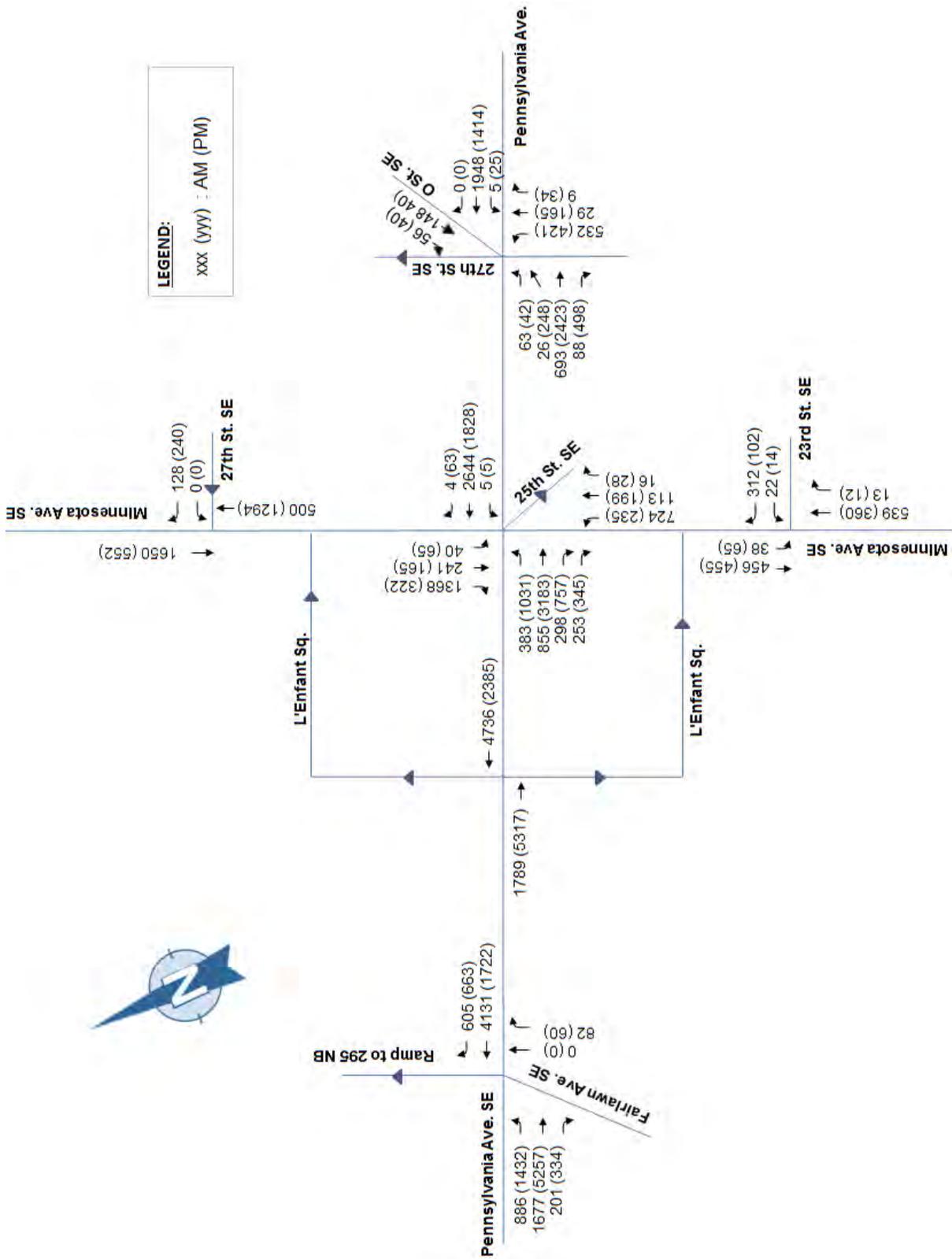


Figure 12: Peak Hour Volumes – 2040 Conventional Intersection



1.3.5 Traffic Simulation Model Calibration

The Federal Highway Administration's (FHWA's) *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software* were used as a guideline for the development of the VISSIM models. **Table 3** shows the key parameters in the modeling process. **Figure 13** depicts the workflow in the VISSIM modeling and traffic analysis.

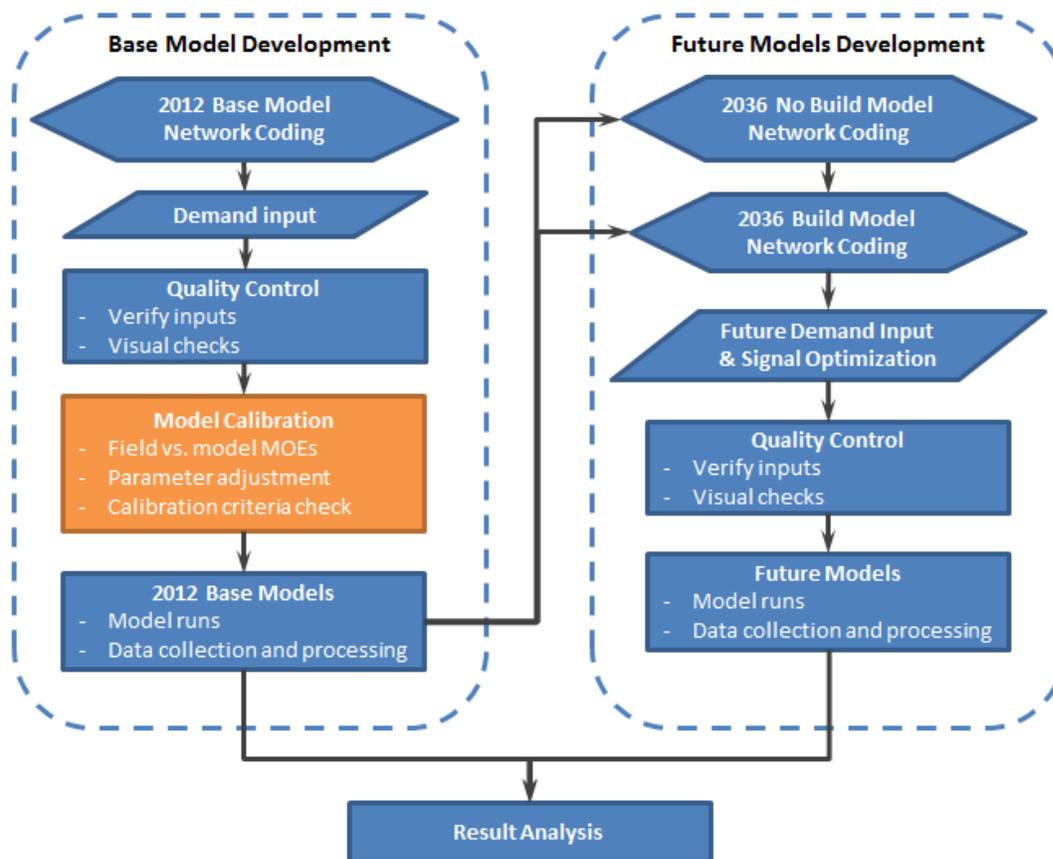
Table 3: Key Parameters in the VISSIM Modeling

Parameter	Value
VISSIM Version	5.4
Simulation Resolution	10 time steps/sec
Seeding Time	0-900 seconds
Recording Time	900 - 4500 seconds
Number of Runs	6 runs (determined based on statistical tests)
Random Seeds	Starting 1 with increment of 1

Source: FHWA, *Traffic Analysis Toolbox Volume III*, June 2004.

Based on the recommendations from the FHWA's Toolbox², 15 minutes (900 simulation seconds) were used as the seeding period for the VISSIM models. After the seeding period, the simulation time was 1 hour for each run.

² Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software, Appendix C: Estimation of Simulation Initialization Period. Federal Highway Administration, June 2004.

Figure 13: VISSIM Model Development Process

Given the stochastic nature of the micro-simulation, VISSIM models need to be run with several different random seeds. For a 95 percent confidence level, four runs were required for the AM peak period model and six runs for the PM peak period model. To be conservative, the numbers of runs were decided to be six for all scenarios.

Calibration criteria³ recommended in FHWA's Toolbox were used in determining when calibration was achieved. Calibration results and FHWA's criteria are presented in **Table 4**. In this study, three key measures of effectiveness (MOEs) were used to verify the adequacy of the calibration:

- Hourly throughput volumes served
- Travel times in both directions on Pennsylvania Avenue and
- Queue lengths on each movement of the intersections

Throughput volume was the primary calibration MOE, and queue lengths and travel times were used as the system performance MOEs. Additionally, visual audits were used as a fourth means to validate the models.

³ Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software, p. 63. Federal Highway Administration, June 2004.

The model parameters were adjusted to reflect actual network performance and driver behaviors in an iterative process. The models were run with adjusted parameters, and the outputs were examined against field measurements. In the models for this study, values of driving behavior parameters for most links used the default values. Then based on field observations and iterative calibration experiment, parameter values at several locations were modified to reflect the real driving behaviors.

Table 4: VISSIM Modeling Calibration Criteria and Results

Criterion	Calibration Target	Results	
		AM	PM
<u>Throughput</u>			
Individual Link Flows			
Within 15% (Flow from 700 to 2700 veh/h)	> 85% of cases	100%	100%
Within 100 veh/h (Flow < 700 veh/h)	> 85% of cases	100%	100%
Within 400 veh/h (Flow > 2700 veh/h)	> 85% of cases	100%	100%
GEH Statistic < 5 for Individual Link Flows	> 85% of cases	100%	100%
Sum of All Link Flows			
GEH Statistic for Sum of All Link Flows	GEH < 4	< 1	< 2
<u>Travel Times</u>			
Within 15%	> 85% of cases	90%	95%
<u>Queuing</u>		Match field observations	
<u>Visual Audits of Speed and Bottlenecks</u>		Match field observations	

For both peak hours, the GEH statistic of all the movements at each intersection in the study area were less than five and the GEH of sum of total volumes were less than four. Therefore, the link/intersection volume MOE reached the calibration acceptance targets defined in FHWA's toolbox.

Similarly, the queue lengths from VISSIM matched field observations matched. VISSIM models of Existing conditions are calibrated to satisfactorily reproduce the existing field queuing conditions at key approaches. Visual inspections were also performed to check the simulation animations to ensure the overall VISSIM models appropriately simulate the field conditions through the network.

To maintain a consistent base for traffic operational analyses of all the scenarios, driver behavior parameters in the calibrated existing models were largely retained in the future No-Build and Build models. However, under certain particular conditions, such as significantly high demand growth, or major changes to the network, some parameters were adjusted to reflect drivers' responses to these changes. Initial model assessments were performed using a review of simulation outputs and a visual inspection of animation to ensure the future models generated outputs.

1.4 Analysis Results

1.4.1 Roadway Network and Traffic

Vehicular Delays and LOS

A key metric used for traffic operation is Level of Service (LOS). LOS is an estimate of the performance efficiency and quality of an intersection or roadway as established by the *Highway Capacity Manual (HCM)*⁴ methodology. The HCM methodology measures the degree of delay at intersections using a letter scale from A to F, A being the free flow condition and F being total gridlock. LOS D or better is desirable for urban corridors.

Table 5 shows the LOS scales and their descriptions for signalized intersections.

Table 5: Level of Service Definitions

LOS	Vehicular Delay	Description
A	< 10 sec/veh	Desirable - free flow
B	10 – 20 sec/veh	Desirable - nearly free flow
C	20 - 35 sec/veh	Desirable - stable traffic flow
D	35 – 55 sec/veh	Acceptable - unstable traffic flow
E	55 – 80 sec/veh	Congestion - operation at capacity
F	> 80 sec/veh	Gridlock - over capacity

Source: Transportation Research Board, *Highway Capacity Manual*, 2000.

The traffic delay and LOS results for the AM and PM peak hours are presented in **Tables 6 through 11** and discussed in the following sections.

AM Peak Hour

In the existing year, shown in **Table 6**, all intersections operate at acceptable level of service during the AM peak hour, except that the Pennsylvania Avenue & 27th Street intersection is LOS E, slightly beyond the threshold of LOS D (55.0 sec/veh). The peak travel direction, northwest Pennsylvania Avenue towards downtown DC is LOS B except at 27th Street.

⁴ * Highway Capacity Manual 2000, Transportation Research Board, 2000

Table 6: Traffic Delay (in Second/Vehicle) and LOS Results – Existing AM

ID	INTERSECTION	APPROACH	EXISTING			
			APPROACH		INTERSECTION	
			DELAY	LOS	DELAY	LOS
1A	L'Enfant Sq & Pennsylvania Ave	SWB	287.5	F	39.5	D
		SWR (L'Enfant Sq.)	0.4	A		
		SEB	12.6	B		
		NWB	12.4	B		
1B	Pennsylvania Ave & Minnesota Ave	SEB	18.4	B	18.4	B
		NWB	19.5	B		
		NEB	14.1	B		
		SWB	-			
1C*	L'Enfant Sq South & Minnesota Ave NB	NET	-		-	
		SEL	-		-	
2	Minnesota Ave & 23rd St	EB	4.5	A	10.8	B
		WB	4.0	A		
		NB	29.3	C		
3	Pennsylvania Ave & 27th St	WB	101.1	F	59.4	E
		NB	108.1	F		
		SEB	14.4	B		
		NWB	57.1	E		
4	Minnesota Ave & 27th St	NB	10.4	B	0.9	A
		NEB	0.0	A		
		SWB	0.0	A		
5	Pennsylvania Ave & NB 295 Ramp	SEB	24.9	C	23.4	C
		NWB	23.0	C		

*Note: Intersection 1C only exists in the Revised Square Alternative.
 Source: HNTB Corporation, 2013.

In 2015, shown in **Table 7**, in the No Build Alternative, all other intersections would remain the same LOS as the existing condition, except the intersection of Pennsylvania Avenue and 27th Street, east of the project would deteriorate to LOS F due to increased traffic.

For the Revised Square Alternative, all three intersections (1A, 1B and 1C) in the square would operate at LOS B or C.

The Conventional Intersection Alternative would drop to F, as all movements would be accommodated at the reconfigured Pennsylvania Avenue and Minnesota Avenue intersection (1B). The new pedestrian-activated signal (1A) would be at LOS A.

The four adjacent intersections (2 through 5) would operate nearly the same in all three alternatives.

Table 7: Traffic Delay (in Second/Vehicle) and LOS Results – 2015 AM

ID	INTERSECTION	APPROACH	2015 NO BUILD				2015 REVISED SQUARE				2015 CONV. INTERSECTION			
			APPROACH		INTERSECTION		APPROACH		INTERSECTION		APPROACH		INTERSECTION	
			DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
1A	L'Enfant Sq & Pennsylvania Ave	SWB	295.2	F	40.7	D	74.7	E	25.7	C	-		0.1	A
		SWR (L'Enfant Sq.)	0.4	A			-	-			-	-		
		SEB	12.7	B			14.2	B			0.1	A		
		NWB	13.1	B			4.8	A			0.2	A		
1B	Pennsylvania Ave & Minnesota Ave	SEB	18.6	B	19.1	B	4.2	A	23.4	C	46.8	D	117.5	F
		NWB	20.2	C			23.9	C			97.1	F		
		NEB	15.5	B			35.2	D			124.4	F		
		SWB	-	-			-	-			292.4	F		
1C*	L'Enfant Sq South & Minnesota Ave NB	NET	-	-	-	-	19.9	B	18.8	B	-		-	
		SEL	-	-	-	-	17.4	B						
2	Minnesota Ave & 23rd St	EB	4.6	A	10.8	B	4.6	A	10.8	B	4.6	A	10.8	B
		WB	4.0	A			4.0	A			4.0	A		
		NB	29.3	C			29.3	C			29.3	C		
3	Pennsylvania Ave & 27th St	WB	367.0	F	86.3	F	367.0	F	86.6	F	367.0	F	86.1	F
		NB	158.1	F			158.1	F			158.1	F		
		SEB	14.3	B			15.8	B			13.3	B		
		NWB	62.2	E			62.2	E			62.2	E		
4	Minnesota Ave & 27th St	NB	10.4	B	0.9	A	10.4	B	0.9	A	10.4	B	0.9	A
		NEB	0.0	A			0.0	A			0.0	A		
		SWB	0.0	A			0.0	A			0.0	A		
5	Pennsylvania Ave & NB 295 Ramp	SEB	26.0	C	26.6	C	26.0	C	29.6	C	26.0	C	31.1	C
		NWB	27.4	C			32.2	C			34.5	C		

*Note: Intersection 1C only exists in the Revised Square Alternative.

Source: HNTB Corporation, 2013.

In 2040, shown in **Table 8**, the increased traffic demand would cause LOS to deteriorate at most intersections compared to 2015.

At the Pennsylvania Avenue and L'Enfant Square intersection (1A), the No Build Alternative would experience the worse delay of nearly 158 sec/veh at LOS F. The Revised Square Alternative would also operate at LOS F, with a 116 sec/veh delay, better than the No Build.

The east side intersection (1B) in both No Build and Revised Square alternatives would operate adequately at LOS D or C. The Conventional Intersection Alternative would operate at LOS F with a 274 sec/veh delay.

Table 8: Traffic Delay (in Second/Vehicle) and LOS Results – 2040 AM

ID	INTERSECTION	APPROACH	2040 NO BUILD				2040 REVISED SQUARE				2040 CONV. INTERSECTION			
			APPROACH		INTERSECTION		APPROACH		INTERSECTION		APPROACH		INTERSECTION	
			DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
1A	L'Enfant Sq & Pennsylvania Ave	SWB	932.9	F	158.1	F	296.5	F	115.9	F	-		58.4	E
		SWR (L'Enfant Sq.)	1.3	A			-	-			-	-		
		SEB	14.2	B			19.5	B			0.1	A		
		NWB	17.6	B			18.9	B			80.4	F		
1B	Pennsylvania Ave & Minnesota Ave	SEB	29.7	C	32.7	C	4.4	A	48.6	D	47.7	D	274.1	F
		NWB	21.8	C			70.5	E			153.1	F		
		NEB	70.7	E			23.3	C			309.1	F		
		SWB	-	-			-	-			696.1	F		
1C*	L'Enfant Sq South & Minnesota Ave NB	NET	-	-	-	-	21.7	C	23.4	C	-		-	-
		SEL	-	-	-	-	25.4	C			-	-		
2	Minnesota Ave & 23rd St	EB	6.2	A	12.0	B	6.2	A	12.0	B	6.2	A	12.0	B
		WB	5.9	A			5.9	A			5.9	A		
		NB	30.4	C			30.4	C			30.4	C		
3	Pennsylvania Ave & 27th St	WB	404.5	F	103.5	F	404.5	F	103.7	F	404.5	F	102.6	F
		NB	178.9	F			178.9	F			178.9	F		
		SEB	14.7	B			15.0	B			10.7	B		
		NWB	89.7	F			89.7	F			89.7	F		
4	Minnesota Ave & 27th St	NB	11.2	B	0.6	A	11.2	B	0.6	A	11.2	B	0.6	A
		NEB	0.0	A			0.0	A			0.0	A		
		SWB	0.0	A			0.0	A			0.0	A		
5	Pennsylvania Ave & NB 295 Ramp	SEB	59.1	E	101.9	F	59.1	E	109.2	F	59.1	E	106.9	F
		NWB	128.6	F			140.3	F			136.5	F		

*Note: Intersection 1C only exists in the Revised Square Alternative.

Source: HNTB Corporation, 2013.

PM Peak Hour

In the existing year, shown in **Table 9**, all intersections in the study area operate at acceptable LOS D or better during the PM peak hour. The southwest bound approach at intersection 1A experience heavy delay and LOS F. The peak travel direction during the PM rush hour is southeast on Pennsylvania Avenue, operates at LOS C or better.

In 2015, shown in **Table 10**, all intersections in all three alternatives would operate at an acceptable LOS D or better. The LOS of the heaviest southeast bound traffic would also be comparable, LOS D or better, in the No Build, Revised Square and Conventional Intersection alternatives.

In 2040, shown in **Table 11**, the increased traffic volumes would cause the two signals (1A and 1B) at Pennsylvania Avenue at Minnesota Avenue/L'Enfant Square to deteriorate to LOS F in the No Build Alternative. The Revised Square Alternative would reduce the delays at the east signal (1B) from 105 to 62 sec/veh and improve the LOS from F to E. The Conventional Intersection Alternative would eliminate the heavy delays at the west signal (1A) by moving all vehicular traffic to the east side signal (1B) which would remain the same LOS F with comparable delays; however, all four approaches at the east side signal (1B) would experience LOS F, while there is only one approach at LOS F in the No Build scenario.

Table 9: Traffic Delay (in Second/Vehicle) and LOS Results – Existing PM

ID	INTERSECTION	APPROACH	EXISTING			
			APPROACH		INTERSECTION	
			DELAY	LOS	DELAY	LOS
1A	L'Enfant Sq & Pennsylvania Ave	SWB	186.2	F	35.2	D
		SWR (L'Enfant Sq.)	0.2	A		
		SEB	27.9	C		
		NWB	4.2	A		
1B	Pennsylvania Ave & Minnesota Ave	SEB	3.6	A	24.8	C
		NWB	73.0	E		
		NEB	49.3	D		
		SWB	-			
1C*	L'Enfant Sq South & Minnesota Ave NB	NET	-		-	
		SEL	-		-	
2	Minnesota Ave & 23rd St	EB	4.7	A	8.1	A
		WB	4.4	A		
		NB	29.0	C		
3	Pennsylvania Ave & 27th St	WB	57.1	E	17.3	B
		NB	51.8	D		
		SEB	10.8	B		
		NWB	19.9	B		
4	Minnesota Ave & 27th St	NB	14.7	B	1.1	A
		NEB	0.0	A		
		SWB	0.0	A		
5	Pennsylvania Ave & NB 295 Ramp	SEB	5.8	A	7.3	A
		NWB	11.9	B		

*Note: Intersection 1C only exists in the Revised Square Alternative.

Source: HNTB Corporation, 2013.

Table 10: Traffic Delay (in Second/Vehicle) and LOS Results – 2015 PM

ID	INTERSECTION	APPROACH	2015 NO BUILD				2015 REVISED SQUARE				2015 CONV. INTERSECTION			
			APPROACH		INTERSECTION		APPROACH		INTERSECTION		APPROACH		INTERSECTION	
			DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
1A	L'Enfant Sq & Pennsylvania Ave	SWB	193.9	F	37.0	D	51.0	D	33.2	C	-		0.3	A
		SWR (L'Enfant Sq.)	0.2	A			-				-	-		
		SEB	29.6	C			36.6	D			0.4	A		
		NWB	4.2	A			1.9	A			0.1	A		
1B	Pennsylvania Ave & Minnesota Ave	SEB	3.6	A	25.0	C	3.6	A	24.2	C	33.1	C	45.2	D
		NWB	73.6	E			8.8	A			38.5	D		
		NEB	49.6	D			65.9	E			78.6	E		
		SWB	-	-			-	-			91.8	F		
1C*	L'Enfant Sq South & Minnesota Ave NB	NET	-		-		39.3	D	27.7	C	-		-	
		SEL	-		-		22.3	C			-		-	
2	Minnesota Ave & 23rd St	EB	4.7	A	8.1	A	4.7	A	8.1	A	4.7	A	8.1	A
		WB	4.5	A			4.5	A			4.5	A		
		NB	29.0	C			29.0	C			29.0	C		
3	Pennsylvania Ave & 27th St	WB	57.1	E	17.8	B	57.1	E	19.0	B	57.1	E	13.1	B
		NB	52.0	D			52.0	D			52.0	D		
		SEB	11.5	B			13.3	B			4.4	A		
		NWB	20.1	C			20.1	C			20.1	C		
4	Minnesota Ave & 27th St	NB	14.9	B	1.1	A	14.9	B	1.1	A	14.9	B	1.1	A
		NEB	0.0	A			0.0	A			0.0	A		
		SWB	0.0	A			0.0	A			0.0	A		
5	Pennsylvania Ave & NB 295 Ramp	SEB	5.9	A	7.4	A	5.9	A	10.7	B	5.9	A	13.2	B
		NWB	12.1	B			25.3	C			35.4	D		

*Note: Intersection 1C only exists in the Revised Square Alternative.

Source: HNTB Corporation, 2013.

Table 11: Traffic Delay (in Second/Vehicle) and LOS Results – 2040 PM

ID	INTERSECTION	APPROACH	2040 NO BUILD				2040 REVISED SQUARE				2040 CONV. INTERSECTION			
			APPROACH		INTERSECTION		APPROACH		INTERSECTION		APPROACH		INTERSECTION	
			DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
1A	L'Enfant Sq & Pennsylvania Ave	SWB	160.2	F	176.3	F	53.9	D	170.4	F	-		1.4	A
		SWR (L'Enfant Sq.)	0.2	A			-	-			-	-		
		SEB	247.7	F			245.3	F			2.0	A		
		NWB	7.7	A			3.1	A			0.0	A		
1B	Pennsylvania Ave & Minnesota Ave	SEB	11.5	B	105.3	F	41.5	D	61.7	E	104.3	F	119.4	F
		NWB	328.7	F			8.6	A			151.9	F		
		NEB	46.4	D			172.2	F			179.0	F		
		SWB	-	-			-	-			103.2	F		
1C*	L'Enfant Sq South & Minnesota Ave NB	NET	-	-	-	-	36.9	D	29.1	C	-		-	-
		SEL	-	-			27.1	C			-	-		
2	Minnesota Ave & 23rd St	EB	4.2	A	7.6	A	4.2	A	7.6	A	4.2	A	7.6	A
		WB	5.2	A			5.2	A			5.2	A		
		NB	28.8	C			28.8	C			28.8	C		
3	Pennsylvania Ave & 27th St	WB	55.8	E	144.6	F	61.1	E	147.4	F	61.1	E	147.4	F
		NB	83.7	F			106.2	F			106.2	F		
		SEB	205.5	F			205.8	F			205.8	F		
		NWB	39.7	D			39.6	D			39.6	D		
4	Minnesota Ave & 27th St	NB	34.3	D	3.9	A	34.3	D	3.9	A	33.8	D	3.9	A
		NEB	0.0	A			0.0	A			0.0	A		
		SWB	0.0	A			0.0	A			0.0	A		
5	Pennsylvania Ave & NB 295 Ramp	SEB	14.4	B	16.6	B	14.4	B	23.1	C	14.4	B	30.1	C
		NWB	23.3	C			49.4	D			77.1	E		

*Note: Intersection 1C only exists in the Revised Square Alternative.

Source: HNTB Corporation, 2013.

Vehicular Queues

Tables 12 and 13 show the queuing analysis results on key movements at the intersections for all three alternatives.

AM Peak Hour

During the AM peak hour, the northwest bound Pennsylvania Avenue carries heavy commuter traffic towards Downtown Washington, D.C. It would have longer queues at the Pennsylvania Avenue & northbound Minnesota Avenue intersection (1B) in both build alternatives in 2015 and 2040, comparing to the No Build Alternative. This is because:

- In the Revised Square Alternative, the rerouted traffic around the square would significantly increase the volumes on the northeast bound approach; additional green time would have to be taken away from the northwest bound traffic on Pennsylvania Avenue to meet the demand of Minnesota Avenue traffic. The queue on westbound Pennsylvania Avenue could be almost 760 feet long in 2015, reaching the 27th Street intersection.
- In the Conventional Intersection Alternative, all traffic crossing Minnesota Avenue would be rerouted to one intersection (1B); this would cause higher demand on all approaches and

more delays and queues in all directions. The westbound Pennsylvania Avenue queue could be over 1,000 feet long in 2015 and reach the 28th Street intersection.

Table 12: Queuing Analysis Results (in Feet) – AM

ID	INTERSECTION	DIRECTION	EXISTING	2015			2040		
				NO BUILD	REVISED SQ.	CONV. INT.	NO BUILD	REVISED SQ.	CONV. INT.
1A	L'Enfant Sq & Pennsylvania Ave	SWT	~333	~344	~328	-	~857	~1165	-
		SET	165	169	151	-	243	257	-
		NWT	619	667	73	106	842	~113	~1538
1B	Pennsylvania Ave & Minnesota Ave	SEL	136	138	-	~176	~194	-	~216
		SET	5	6	25	99	9	29	150
		NWL	-	-	-	5	-	-	4
		NWT	338	360	758	~1037	363	~1009	~1114
		NEL	~102	~109	-	~316	~481	-	~559
		NET	0	1	280	191	55	323	~308
		SWL	-	-	-	128	-	-	~372
1C*	L'Enfant Sq South & Minnesota Ave NB	NET	-	-	191	-	-	263	-
		SEL	-	-	39	-	-	150	-

*Note: Intersection 1C only exists in the Revised Square Alternative.

~: Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Source: HNTB Corporation, 2013.

PM Peak Hour

In the PM peak hour, similar queue results were found. Both build alternatives would cause longer queues in the peak travel direction compared to the No Build Alternative— southeast bound on Pennsylvania Avenue leaving Downtown Washington, D.C. However, the increase would not be as large as in the AM peak hour, as the Revised Square would have an average queue length of 64 feet in 2015, while the Conventional Intersection Alternative would see a 562 feet long queue, not reaching the I-295 northbound ramp intersection.

Table 13: Queuing Analysis Results (in Feet) – PM

ID	INTERSECTION	DIRECTION	EXISTING	2015			2040		
				NO BUILD	REVISED SQ.	CONV. INT.	NO BUILD	REVISED SQ.	CONV. INT.
1A	L'Enfant Sq & Pennsylvania Ave	SWT	~314	~323	260	-	~279	241	-
		SET	775	804	845	-	~1970	~2016	-
		NWT	79	80	13	0	154	38	73
1B	Pennsylvania Ave & Minnesota Ave	SEL	179	180	-	288	359	-	~579
		SET	12	13	64	562	~1149	~1179	~1298
		NWL	-	-	-	4	-	-	4
		NWT	250	256	101	293	~733	186	~805
		NEL	172	175	-	193	135	-	~192
		NET	170	173	~417	197	134	~624	~184
		SWL	-	-	-	~208	-	-	~265
		SWT	-	-	-	~208	-	-	~265
1C*	L'Enfant Sq South & Minnesota Ave NB	NET	-	-	236	-	-	180	-
		SEL	-	-	420	-	-	574	-

*Note: Intersection 1C only exists in the Revised Square Alternative.

~: Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

Source: HNTB Corporation, 2013.

Vehicular Travel Times

Travel time, the amount of time it takes for a motorist to travel from point A to point B, is a direct reflection of motorist experience. Therefore it is a critical and effective measure when comparing the traffic impact of alternatives. The AM and PM peak hour results of travel time analysis are shown in **Tables 14 and 15** respectively.

In the AM peak hour, a comparison among the alternatives indicates that, in the Revised Square Alternative, it would take longer for more than half of all approaches compared to the No Build, because all left turning vehicles would be required to go around the square to go to their destinations. In the Conventional Intersection Alternative, most approaches would experience shorter travel times due to the simplified configuration. However, in 2040, over half of the travel times are longer with the Conventional Intersection Alternative than with the No Build Alternative.

Table 14: Travel Time Analysis Results (in Minutes) – AM

FROM	TO	EXISTING	2015			2040		
			NO BUILD	REVISED SQ.	CONV. INT.	NO BUILD	REVISED SQ.	CONV. INT.
Penn Ave/295NB Ramp	Minn Ave/27th St	2.6	2.6	3.0	4.3	4.5	7.5	7.1
Penn Ave/295NB Ramp	Penn Ave/27th St	1.8	1.8	1.8	1.8	3.3	4.3	3.8
Penn Ave/295NB Ramp	Minn Ave/23rd St	2.3	2.3	3.1	2.2	3.9	8.1	4.0
Penn Ave/295NB Ramp	Minn Ave/25th St	1.8	1.8	3.0	1.6	3.3	7.5	3.6
Penn Ave/27th St	Penn Ave/295NB Ramp	1.3	1.3	1.2	1.4	1.3	1.4	1.5
Penn Ave/27th St	Minn Ave/23rd St	1.0	1.0	1.1	1.5	1.1	1.1	1.4
Minn Ave/23rd St	Penn Ave/295NB Ramp	6.1	6.3	7.1	3.2	7.0	9.1	6.4
Minn Ave/23rd St	Minn Ave/27th St	3.8	4.1	4.6	2.1	4.5	5.2	4.4
Minn Ave/23rd St	Penn Ave/27th St	4.3	4.6	5.0	2.4	5.2	5.2	5.2
Minn Ave/23rd St	Minn Ave/25th St	3.7	3.8	4.0	1.8	4.0	4.0	4.3
Minn Ave/27th St	Minn Ave/25th St	4.4	4.1	3.2	4.1	5.5	5.5	3.9
Minn Ave/27th St	Minn Ave/23rd St	4.5	4.3	3.5	4.7	5.6	5.7	4.5
Minn Ave/27th St	Penn Ave/295NB Ramp	4.9	5.0	3.9	4.0	5.7	5.4	3.6

Source: HNTB Corporation, 2013.

Similar to the AM comparison, in the PM peak hour, the travel times would increase in the Revised Square Alternative for most approaches, especially for northbound Minnesota Avenue traffic which could see travel times as high as 10 minutes due to the high volumes and congestion in the square. The Conventional Intersection Alternative would reduce travel times for most approaches. However in 2040, both build alternatives would cause longer travel times than the No Build.

Table 15: Travel Time Analysis Results (in Minutes) – PM

FROM	TO	EXISTING	2015			2040		
			NO BUILD	REVISED SQ.	CONV. INT.	NO BUILD	REVISED SQ.	CONV. INT.
Penn Ave/295NB Ramp	Minn Ave/27th St	3.4	3.9	7.9	2.9	5.2	6.7	5.2
Penn Ave/295NB Ramp	Penn Ave/27th St	3.4	3.9	5.4	2.2	5.4	4.9	5.5
Penn Ave/295NB Ramp	Minn Ave/23rd St	4.2	4.8	8.1	2.6	5.9	6.7	5.0
Penn Ave/295NB Ramp	Minn Ave/25th St	4.1	4.6	8.0	2.2	5.3	6.5	4.7
Penn Ave/27th St	Penn Ave/295NB Ramp	2.2	2.2	1.3	1.9	3.2	1.8	2.6
Penn Ave/27th St	Minn Ave/23rd St	1.8	1.8	1.2	1.4	2.6	1.2	1.8
Minn Ave/23rd St	Penn Ave/295NB Ramp	2.3	2.3	11.1	2.4	2.3	11.1	3.2
Minn Ave/23rd St	Minn Ave/27th St	2.4	2.6	10.9	1.9	2.1	10.3	2.3
Minn Ave/23rd St	Penn Ave/27th St	3.2	3.2	11.6	2.5	2.7	10.5	3.1
Minn Ave/23rd St	Minn Ave/25th St	2.4	2.3	10.4	1.7	1.6	10.1	1.9
Minn Ave/27th St	Minn Ave/25th St	3.0	3.3	1.8	2.5	2.8	2.2	4.1
Minn Ave/27th St	Minn Ave/23rd St	3.0	3.2	2.3	3.0	2.6	2.6	4.5
Minn Ave/27th St	Penn Ave/295NB Ramp	1.8	1.8	2.2	1.3	2.0	2.2	1.9

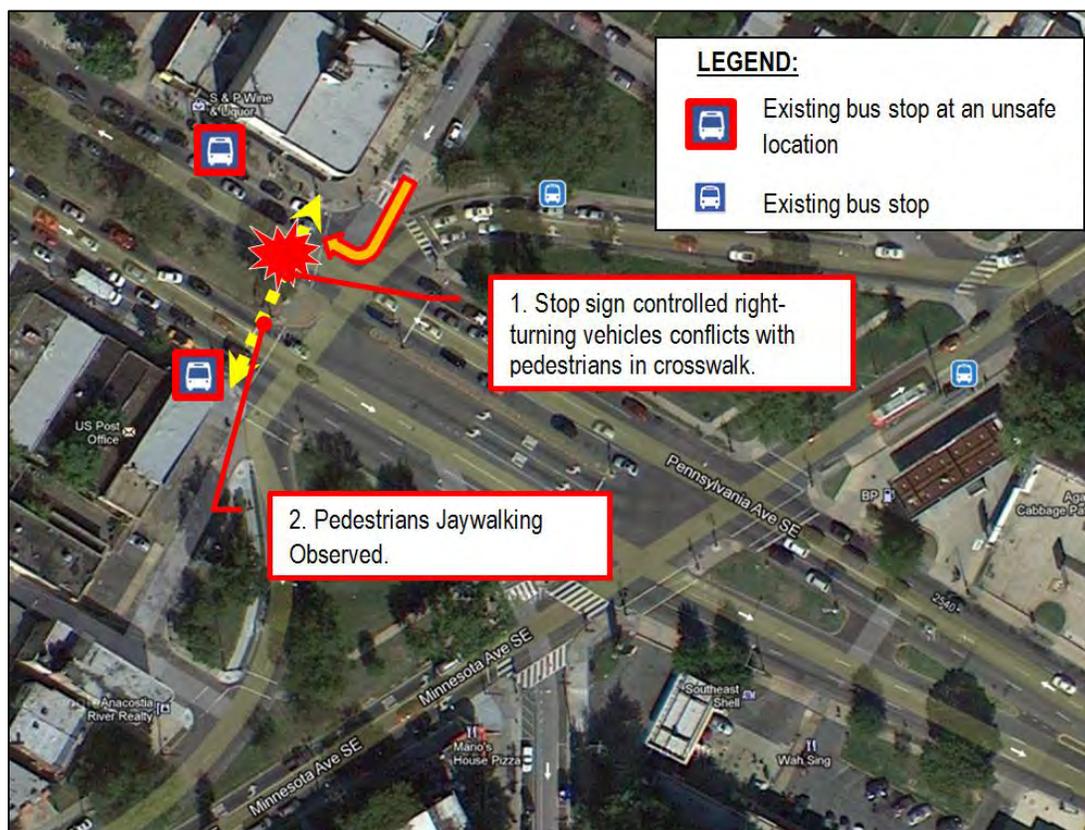
Source: HNTB Corporation, 2013.

1.4.2 Pedestrian and Bicyclist Safety

In the existing conditions, shown in **Figure 14**, there are two heavily used bus stops on Pennsylvania Avenue just west of L'Enfant Square. As observed during field observations in January of 2013, during both AM and PM peak hours, there are over 150 pedestrians crossing Pennsylvania Avenue via the west side crosswalk to access the two stops. Field observations revealed two dangerous behaviors associated with the pedestrians crossing:

1. Although an Exclusive Pedestrian Phase is provided in the signal timing to stop all vehicles and only allow pedestrians to cross Pennsylvania Avenue, the vehicles from the unsignalized local driveway still attempted to make abrupt right turns between gaps of pedestrians; any vehicles failed to finish the turn would have to suddenly stop, forcing vehicles behind to stop suddenly as well. Field observations found that in a one-hour period during the morning peak, three minor scratches were seen and dismissed without reporting to the police.
2. It was observed that some pedestrians jaywalked to cross Pennsylvania Avenue without waiting for a Walk indication, in order to get to the bus stop across the street. A review of the police crash records indicated that five pedestrians were injured at this intersection in the past three years (2010 to 2012).

Figure 14: Existing Safety Concerns for Pedestrians



Source: Google Maps and HNTB Corporation, 2013.

For bicyclists, field observations were conducted and safety records were reviewed. It was found that:

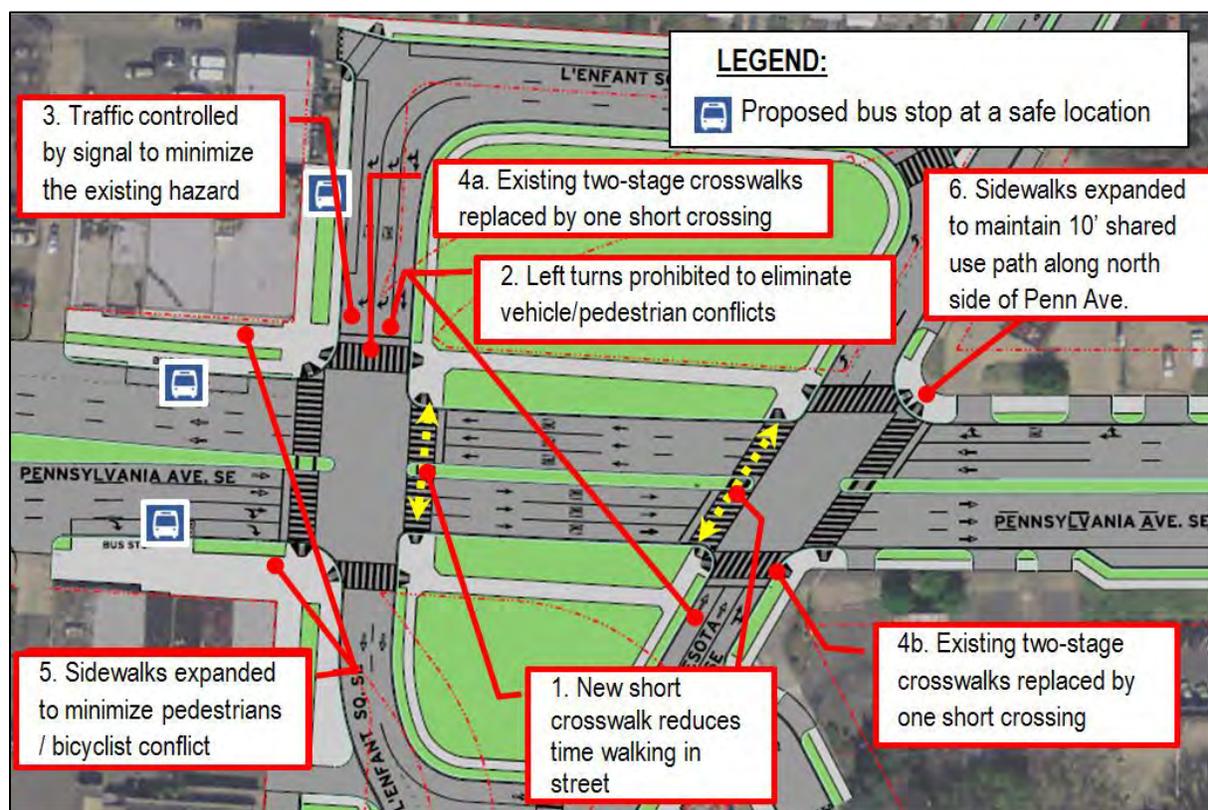
1. The majority of cyclists currently use the sidewalks and crosswalks on the south side of Pennsylvania Avenue, for two main reasons:
 - a. The vehicular traffic is heavy during peak hours and bicyclists feel safer to ride on sidewalks rather than in the roadway⁵;
 - b. Although sidewalks and crosswalks are present on both sides of Pennsylvania Avenue near Minnesota Avenue, bicyclists prefer to ride on the south side because of lacking continuous sidewalks and curb cuts on the north side at the area west of the northbound 295 on-ramp.
2. No major bicyclist safety concerns were identified in the field observation and from the accident history.

In the proposed alternatives, pedestrian and bicyclist safety was given high priority and the conflicts among vehicles, and pedestrians and bicyclists would be reduced as much as possible.

The Revised Square Alternative, shown in **Figure 15**, would include the following pedestrian and bicyclist improvements:

1. A new shorter crosswalk would be provided in the center of the square for pedestrians to cross Pennsylvania Avenue;
2. Left turn movements from southbound L'Enfant Square and northbound Minnesota Avenue into the center of the square would be prohibited to eliminate conflicts between vehicles and crossing pedestrian;
3. The southbound right-turning vehicular traffic from L'Enfant Square would be controlled by traffic signals to minimize the existing vehicle-pedestrian conflict;
4. New short crosswalks would replace the existing two-step crosswalks on northbound Minnesota Avenue and southbound L'Enfant Square to reduce the time walking in the street therefore enhance safety;
5. The expanded sidewalks at the southwest and northwest corners of Pennsylvania Ave and L'Enfant Square would minimize the conflict between pedestrians waiting at the bus stop and bicyclists traveling on the sidewalk.
6. Sidewalks would be expanded along the north side of Pennsylvania Avenue, SE to the northeast of the intersection to maintain 10' shared use path for bicycle and pedestrian convenience to and through the intersection.

⁵ Per the District of Columbia Municipal Regulations (DCMR), Title 18 (1201.9) "Vehicles and Traffic", bicyclists are allowed to use either roadways or sidewalks in the vicinity of the project area.

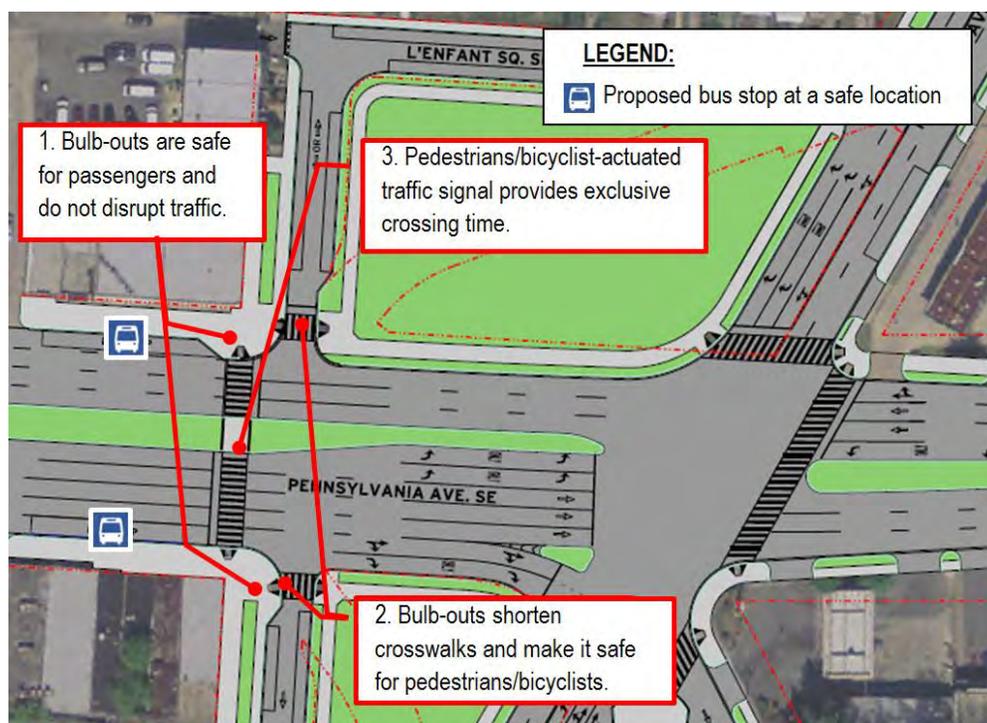
Figure 15: Proposed Pedestrian/Bicyclist Improvements – Revised Square

Source: HNTB Corporation, 2013.

The Conventional Intersection Alternative, shown in **Figure 16**, would improve pedestrian and bicyclist safety in the following ways:

1. Proposed bulb-outs would provide exclusive bus bays that eliminate interruption to traffic on travel lanes and allow safe boarding and alighting for passengers.
2. Proposed bulb-outs would shorten the crosswalk therefore reduce the time that pedestrian walk in street.
3. A proposed pedestrian/bicyclist activated traffic signal at the crosswalk would provide exclusive walk time for pedestrians and bicyclists to safely cross Pennsylvania Avenue without vehicular traffic conflict.

The crosswalk across Pennsylvania Avenue, SE connecting Minnesota Avenue, SE to the north and south of the intersection (east intersection) is a long crossing length for pedestrians. Due to the design of the Conventional Intersection Alternative and the turning radius needed to make a left turn on Pennsylvania Avenue from southbound Minnesota Avenue, there is no median or refuge area breaking up the crosswalk. Therefore the crosswalk crosses all lanes of Pennsylvania Avenue, SE without a median or refuge area. However, given the overall improvement for pedestrians and bicyclists over the No Build Alternative,

Figure 16: Proposed Pedestrian/Bicyclist Improvements – Conventional Intersection

1.4.3 Transit Services

Figure 17 shows the five existing bus stops within the project. Stops 1 and 2 are located on Pennsylvania Avenue west of L'Enfant Square; Stops 3 and 4 are on the southbound Minnesota Avenue between the two NPS-owned park spaces north of Pennsylvania Avenue; Stop 5 is on the northbound Minnesota Avenue north of Pennsylvania Avenue.

In the No Build Alternative, all five stops would remain at their current locations. Proposed bus stop locations for both build alternatives are shown in **Figures 18 and 19**.

As shown in Figure 18, Bus Stop 1 and Bus Stop 5 would remain at their existing locations. Bus Stop 2, located just west of the intersection on eastbound Pennsylvania Avenue, SE, would have to be pulled back farther west of the Pennsylvania Avenue and L'Enfant Square intersection to ensure enough space for buses to change lanes and continue traveling eastbound on Pennsylvania Avenue, SE.

Bus Stop 3 and Bus Stop 4 would also have to be moved to new locations due to their existing location along the cut-through road north of the square (and Pennsylvania Avenue, SE), which would be removed and filled in with park land under the Revised Square Alternative. All three bus routes that Bus Stop 3 serves, V7, V8 and V9, use the cut-through road from Minnesota Avenue, SE to turn right at Pennsylvania Avenue, SE; therefore Bus Stop 3 could be relocated on L'Enfant Square, SE near Pennsylvania Avenue, SE headed westbound.

The only route Stop 4 serves (U2) continues southbound on Minnesota Avenue, SE through the intersection. Due to the reconfiguration with Alternative 1, Stop 4 could be relocated further back, just prior to entering the intersection at the corner of Minnesota Avenue, SE and L'Enfant Square, SE so that

U2 buses would not have to cross two lanes in a short distance to continue straight through the intersection.

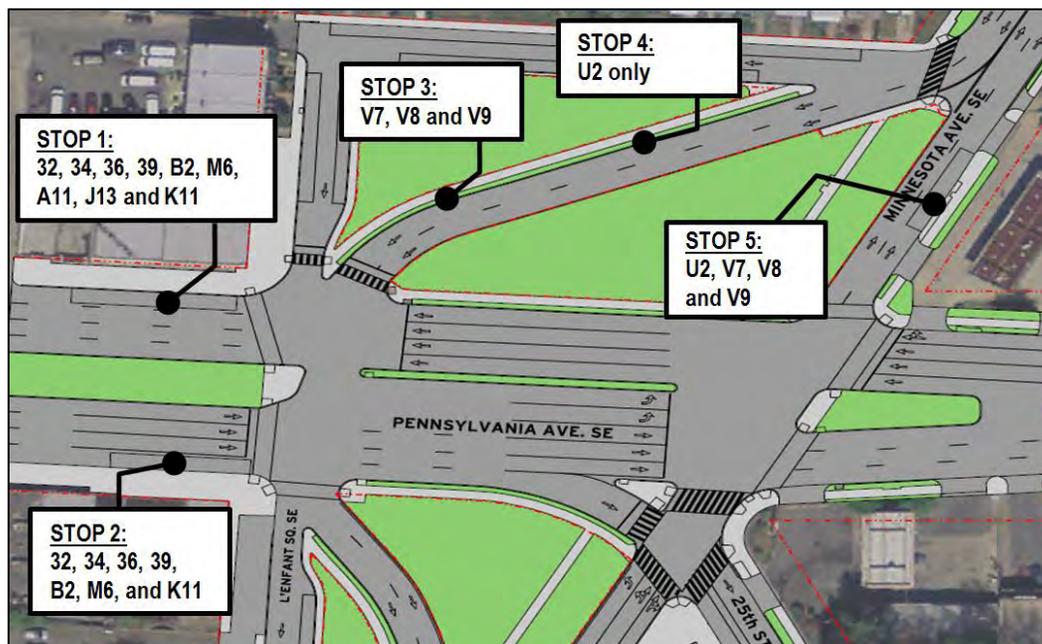
Under the Revised Square Alternative, three of the five Bus Stops would need to be relocated to locations near their current locations to accommodate the new intersection configuration. WMATA would have to adjust their bus routes to accommodate these minor bus stop relocations and bus routes would have to be adjusted to account for the revised intersection design and operations.

As shown in Figure 19, Bus Stops 1, 2 and 5 would remain at their existing locations under the Conventional Intersection Alternative. A bulb-out would be added to Bus Stop 1 to accommodate buses using this bus stop.

Bus Stop 3 and Bus Stop 4 would have to be moved to new locations due to their existing location along the cut-through road north of the square (and Pennsylvania Avenue, SE), which would be removed and filled in with park land under the Conventional Intersection Alternative. All three bus routes that Bus Stop 3 serves, V7, V8 and V9, use the cut-through road from Minnesota Avenue, SE to turn right at Pennsylvania Avenue, SE; therefore Bus Stop 3 could be relocated to Minnesota Avenue, SE, just prior to the right-turn onto Pennsylvania Avenue, SE.

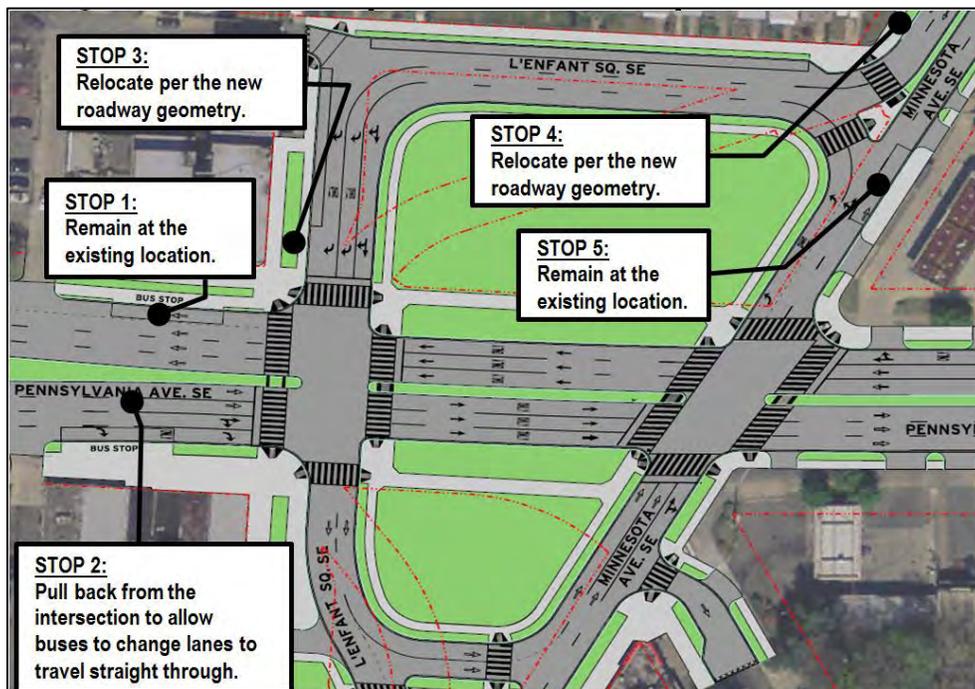
The only route Stop 4 serves (U2) continues southbound on Minnesota Avenue, SE through the intersection. Due to the reconfiguration under the Conventional Intersection Alternative, Stop 4 could be relocated to Minnesota Avenue, SE, just prior to entering the north side of the intersection at the corner of Minnesota Avenue, SE and L'Enfant Square, SE and would then have to move to the far left lane to continue southbound on Minnesota Avenue.

Figure 17: Bus Stops in the Existing Condition / No Build Alternative



Source: HNTB Corporation, 2013.

Figure 18: Possible Bus Stop Locations in the Revised Square Alternative



Source: HNTB Corporation, 2013.

Figure 19: Possible Bus Stop Locations in the Conventional Intersection Alternative



Source: HNTB Corporation, 2013.

1.4.4 Maintenance of Traffic

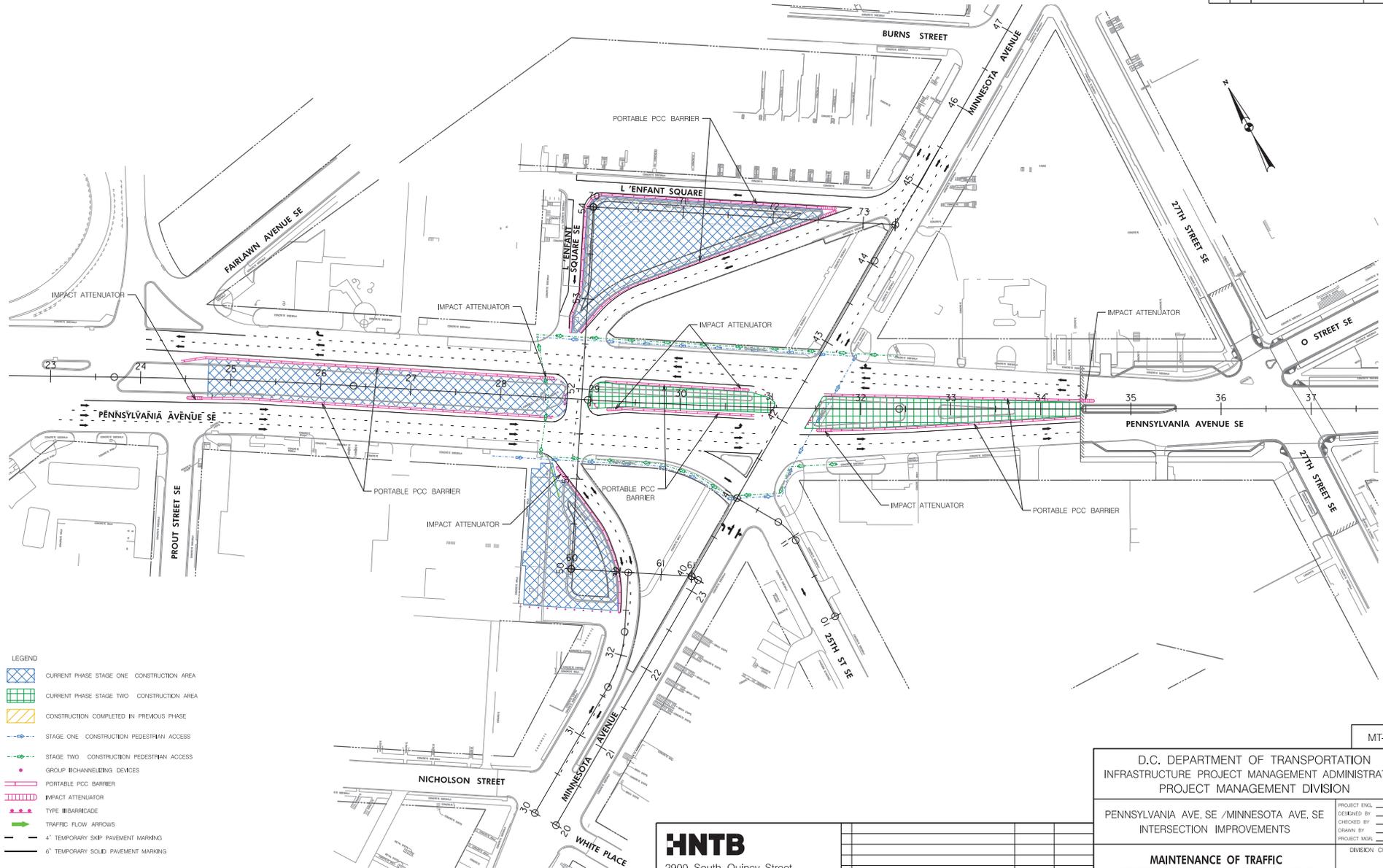
It is estimated that both of the Build Alternatives would take approximately 18-24 months to construct (two construction seasons). Potential Maintenance of Traffic (MOT) plans were developed in order to determine the approximate length of construction. The MOT plans are included as Attachment 1 to this appendix. MOT plans were developed for the Revised Square Alternative only; however the MOT for the Conventional Square Alternative would be comparable as they both have the same number of phases.

1.4.5 Summary of Key Findings

- In the opening year 2015, both the No Build and Revised Square Alternatives would operate adequately (LOS D or better) at the intersections of Pennsylvania at Minnesota Avenue and L'Enfant Square, SE. The Conventional Intersection Alternative would experience heavy congestion (LOS F) in the AM peak.
- In 2040, due to the increased traffic demand, all three alternatives would be operating at undesirable LOS F with heavy congestion.
- Both Revised Square and Conventional Intersection Alternatives would cause longer queues, compared to the No Build Alternative, on Pennsylvania Avenue at Minnesota Avenue, SE in the peak travel direction during AM and PM peak hours.
- Compared to the No Build Alternative, the Revised Square Alternative would increase travel times on most vehicular trips due to the traffic being rerouted around the square. The Conventional Intersection Alternative would reduce travel times on the majority of trips in 2015, but would have increased times over the No Build Alternative in over half of the trips by 2040.
- Both Revised Square and Conventional Intersection Alternatives would enhance pedestrian and bicyclist safety via geometry upgrades and traffic management measures, including new bulb-outs, sidewalk expansion, crosswalk reconfiguration, traffic movement restrictions and traffic signalization.
- Both Revised Square and Conventional Intersection Alternatives would relocate a few bus stops to fit in the proposed roadway geometry.

ATTACHMENT 1:
Maintenance of Traffic: Revised Square (Example)

FED.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
9	D.C.			



- LEGEND**
- CURRENT PHASE STAGE ONE CONSTRUCTION AREA
 - CURRENT PHASE STAGE TWO CONSTRUCTION AREA
 - CONSTRUCTION COMPLETED IN PREVIOUS PHASE
 - STAGE ONE CONSTRUCTION PEDESTRIAN ACCESS
 - STAGE TWO CONSTRUCTION PEDESTRIAN ACCESS
 - GROUP CHANNELLING DEVICES
 - PORTABLE PCC BARRIER
 - IMPACT ATTENUATOR
 - TYPE II BARRICADE
 - TRAFFIC FLOW ARROWS
 - 4' TEMPORARY SKIP PAVEMENT MARKING
 - 6' TEMPORARY SOLID PAVEMENT MARKING

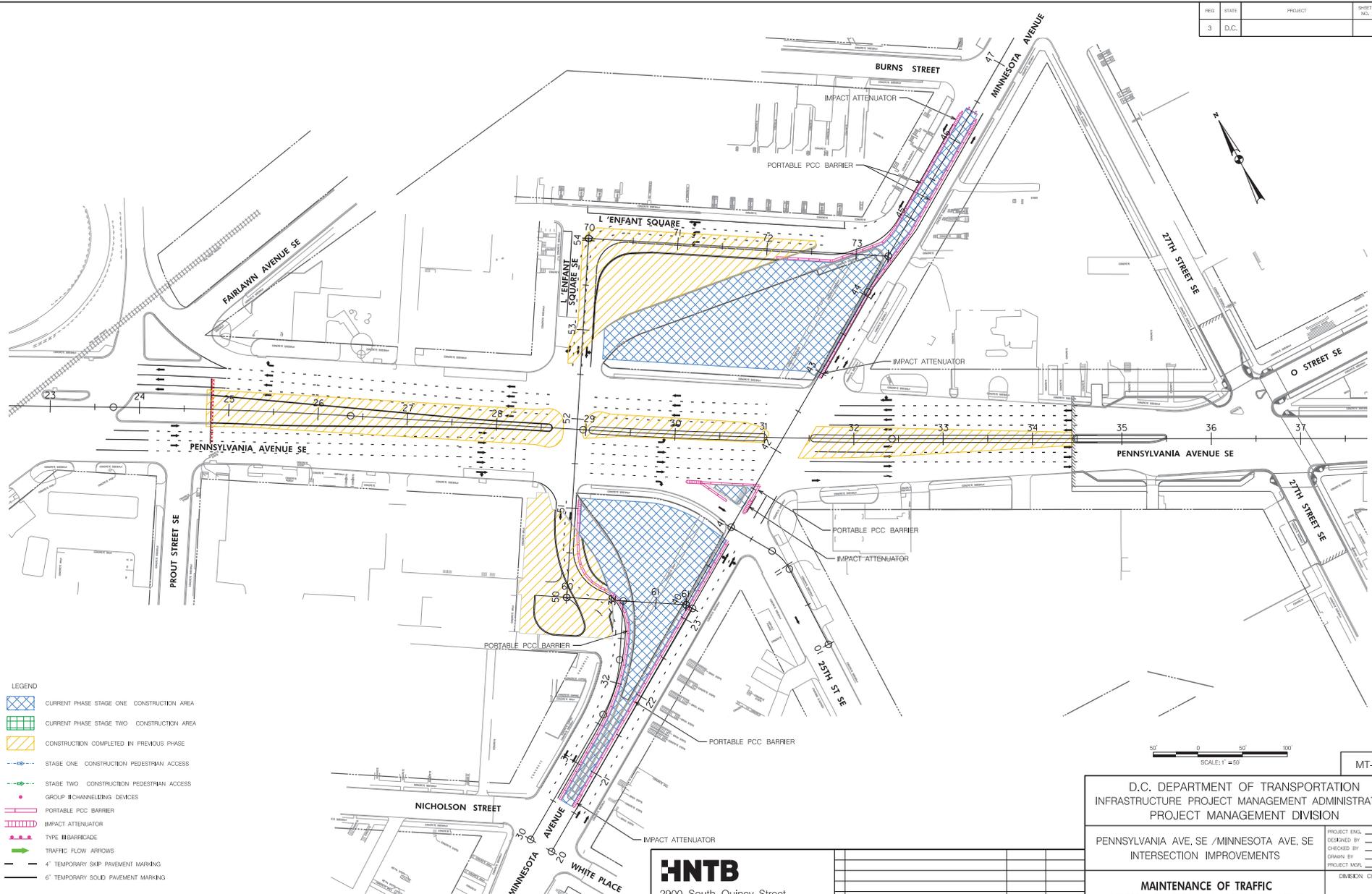
OPEN TABLES
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 4/25/2013

HNTB
 2900 South Quincy Street
 Suite 200, Arlington, VA 22206
 (703) 624-5100

NO.	DESCRIPTION	NAME	DATE

D.C. DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION PROJECT MANAGEMENT DIVISION		MT-01
PENNSYLVANIA AVE. SE / MINNESOTA AVE. SE INTERSECTION IMPROVEMENTS		PROJECT ENL. <u> </u> 00 DESIGNED BY <u> </u> 00 CHECKED BY <u> </u> 00 DRAWN BY <u> </u> 00 PROJECT MGR. <u> </u> 00
MAINTENANCE OF TRAFFIC REVISED TRAFFIC SQUARE ALTERNATIVE PHASE ONE		DIVISION CHIEF DATE <u> </u> / <u> </u> / <u> </u> FILE <u> </u> SHEET <u> </u> OF <u> </u>

FED.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
9	D.C.			



- LEGEND**
- CURRENT PHASE STAGE ONE CONSTRUCTION AREA
 - CURRENT PHASE STAGE TWO CONSTRUCTION AREA
 - CONSTRUCTION COMPLETED IN PREVIOUS PHASE
 - STAGE ONE CONSTRUCTION PEDESTRIAN ACCESS
 - STAGE TWO CONSTRUCTION PEDESTRIAN ACCESS
 - GROUP II CHANNELIZING DEVICES
 - PORTABLE PCC BARRIER
 - IMPACT ATTENUATOR
 - TYPE III BARRICADE
 - TRAFFIC FLOW ARROWS
 - 4" TEMPORARY SKIP PAVEMENT MARKING
 - 6" TEMPORARY SOLID PAVEMENT MARKING



MT-02

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
PROJECT MANAGEMENT DIVISION

PENNSYLVANIA AVE. SE / MINNESOTA AVE. SE
INTERSECTION IMPROVEMENTS

**MAINTENANCE OF TRAFFIC
REVISED TRAFFIC SQUARE ALTERNATIVE
PHASE TWO**

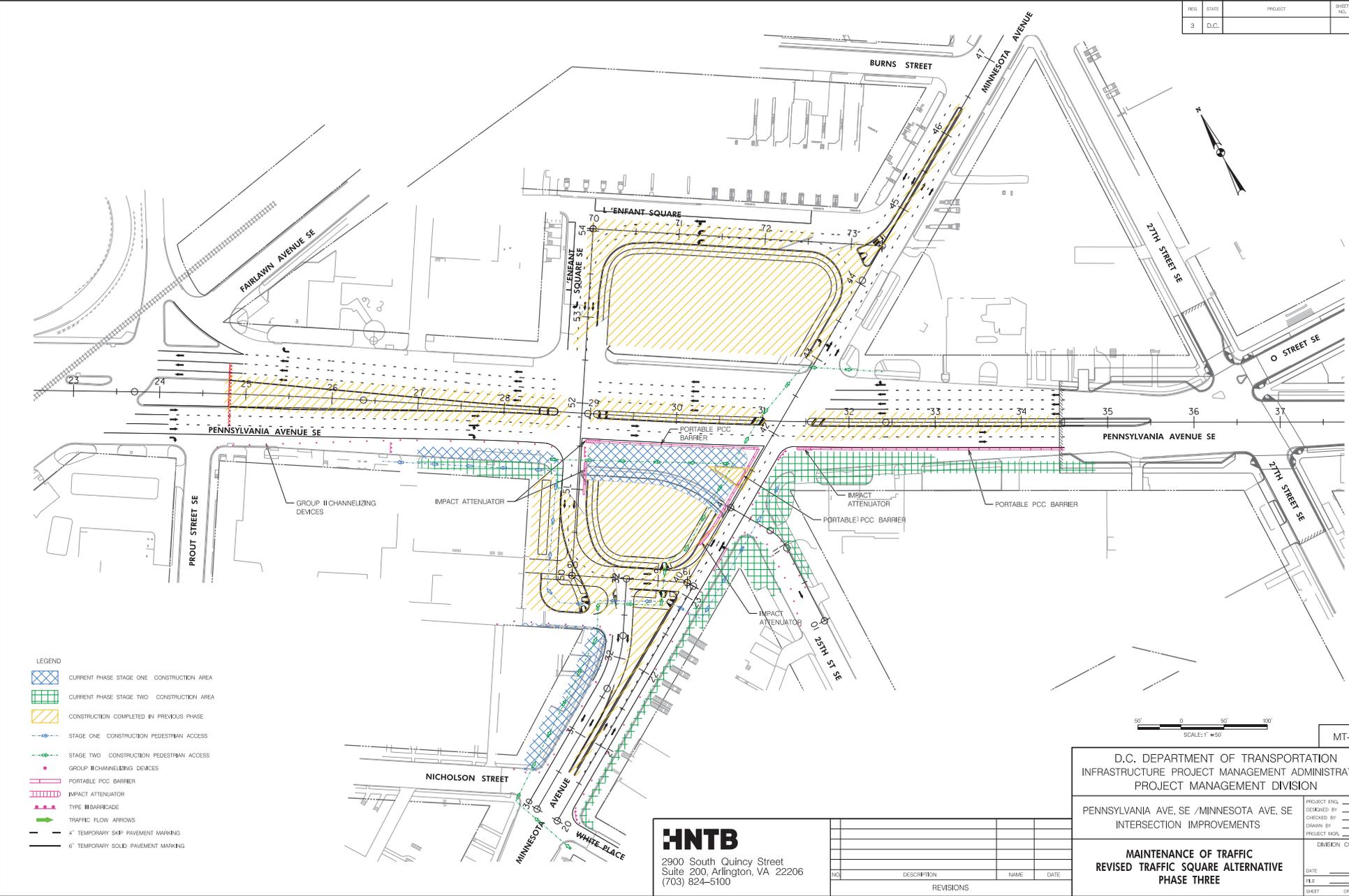
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PROJECT MGR.	XX
DIVISION CHIEF	
DATE	
FILE	
SHEET	04

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NO.	DESCRIPTION	NAME	DATE

DMT-P200_A11024.dgn 4/25/2013

FED.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
3	D.C.			



- LEGEND**
- CURRENT PHASE STAGE ONE CONSTRUCTION AREA
 - CURRENT PHASE STAGE TWO CONSTRUCTION AREA
 - CONSTRUCTION COMPLETED IN PREVIOUS PHASE
 - STAGE ONE CONSTRUCTION PEDESTRIAN ACCESS
 - STAGE TWO CONSTRUCTION PEDESTRIAN ACCESS
 - GROUP II CHANNELIZING DEVICES
 - PORTABLE PCC BARRIER
 - IMPACT ATTENUATOR
 - TYPE II BARRICADE
 - TRAFFIC FLOW ARROWS
 - 4" TEMPORARY SKIP PAVEMENT MARKING
 - 6" TEMPORARY SOLID PAVEMENT MARKING



MT-03

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
PROJECT MANAGEMENT DIVISION

PENNSYLVANIA AVE. SE / MINNESOTA AVE. SE
INTERSECTION IMPROVEMENTS

**MAINTENANCE OF TRAFFIC
REVISED TRAFFIC SQUARE ALTERNATIVE
PHASE THREE**

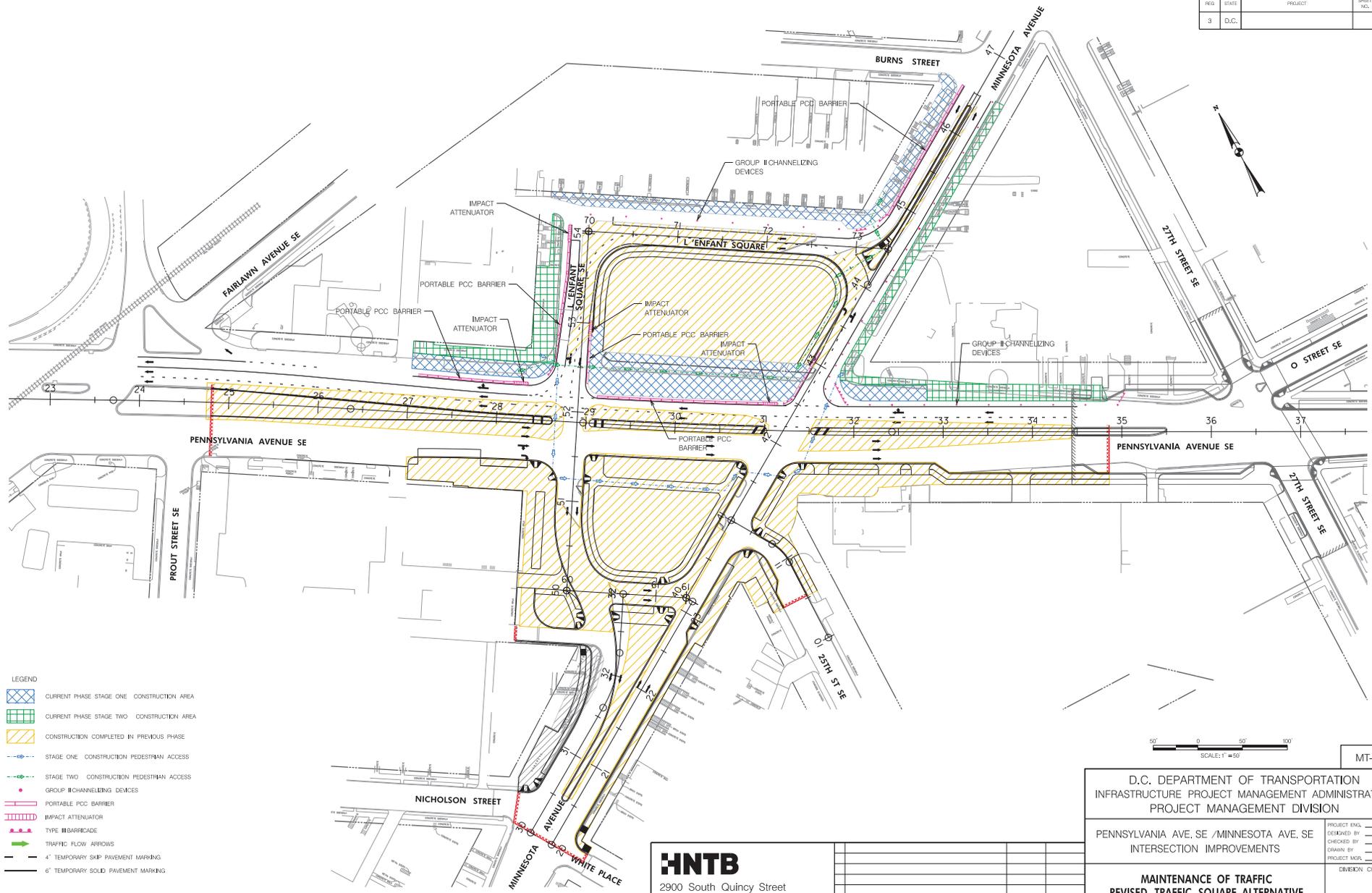
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SHEET	04

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FED.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
9	D.C.			



- LEGEND**
- CURRENT PHASE STAGE ONE CONSTRUCTION AREA
 - CURRENT PHASE STAGE TWO CONSTRUCTION AREA
 - CONSTRUCTION COMPLETED IN PREVIOUS PHASE
 - STAGE ONE CONSTRUCTION PEDESTRIAN ACCESS
 - STAGE TWO CONSTRUCTION PEDESTRIAN ACCESS
 - GROUP II CHANNELIZING DEVICES
 - PORTABLE PCC BARRIER
 - IMPACT ATTENUATOR
 - TYPE III BARRICADE
 - TRAFFIC FLOW ARROWS
 - 4" TEMPORARY SKIP PAVEMENT MARKING
 - 6" TEMPORARY SOLID PAVEMENT MARKING



MT-04

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
PROJECT MANAGEMENT DIVISION

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INTERSECTION IMPROVEMENTS

**MAINTENANCE OF TRAFFIC
REVISED TRAFFIC SQUARE ALTERNATIVE
PHASE FOUR**

PROJECT ENG.	XX
DESIGNED BY	XX
CHECKED BY	XX
DRAWN BY	XX
PROJECT MGR.	XX
DIVISION CHIEF	
DATE	
FILE	
SHEET	04

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NO.	DESCRIPTION	NAME	DATE

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 4/25/2013

Appendix

G

Air Quality
Report



Air Quality Report

Pennsylvania Avenue/Minnesota Avenue Intersection Improvements

Washington, DC

May 30, 2013

Revised October 3, 2013

Prepared by:
HNTB Corporation
2900 South Quincy Street, Suite 200
Arlington, Virginia 22206

EXECUTIVE SUMMARY

This report evaluates the potential air quality impacts of two alternatives, the Revised Square Alternative and the Conventional Intersection Alternative, being considered for the Pennsylvania and Minnesota Avenues, SE Intersection Improvements EA. It was prepared in compliance with the Clean Air Act (CAA) and its amendments, related Federal regulations, Federal Highway Administration (FHWA) and District Department of Transportation (DDOT) Guidance and addresses regional and project level conformity in accordance with 40 CFR Part 93. The report presents the results of a CO-hot-spot analysis comparing the results to the National Ambient Air Quality Standards (NAAQS). The report also discusses project level conformity for ozone and fine particulate matter (PM_{2.5}) along with information on Mobile Source Air Toxics (MSATs).

The proposed project is located at the western end of the Pennsylvania Avenue SE *Great Streets* corridor at the intersection of Pennsylvania Avenue with Minnesota Avenue, SE, in the immediate vicinity of Twining Square Park, also referred to as L'Enfant Square in the *Great Streets Framework Plan*. The study area is a complex and congested intersection and actually consists of two separate signalized intersections that are separated by 250 feet. The proposed action includes improvements to the intersection to improve safety, mobility, and connectivity for pedestrians and motorists. The study area consists of medium-density residential, limited retail services, and recreational uses.

The proposed project is located within the National Capital Interstate Air Quality Control Region (AQCR #47). This AQCR includes the District of Columbia, Maryland, and Virginia Intrastate Air Quality Control Region. The District of Columbia is currently in attainment status for 4 of the 7 criteria pollutants, Pb, NO₂, PM₁₀ and SO₂, re-classified from nonattainment to maintenance for CO, and has been classified as being in nonattainment for the 1997 and 2008 8-hour ozone, and the 1997 PM_{2.5} standards.

The FHWA and the Federal Transit Administration (FTA) reviewed the *The 2012 Constrained Long Range Plan and The Fy2013-2018 Transportation Improvement Program* for the Washington Metropolitan Region and found that the "2012 CLRP and 2013-2018 TIP conform to the region's State Implementation Plans, and that the conformity determination has been performed in accordance with the Transportation Conformity Rule (40 CFR Part 93), as amended. The Pennsylvania Avenue/Minnesota Avenue Intersection Improvements Project (*Great Streets* Improvements project) is identified as TIP ID: 2743 in the Constrained Long Range Plan.

The results of the CO microscale air quality modeling indicate that none of the concentrations at the 31 receptors modeled exceed either the 1-hour (35 ppm) or 8-hour (9 ppm) NAAQS.

Ozone project level conformity is addressed through the approval of the LRP and the TIP which was approved by the FHWA and FTA.

The transportation conformity rule, 40 CFR 93.123(b)(1) requires a PM hot-spot analysis only for projects of local air quality concern. The proposed project is an intersection improvement project at individual intersections that is being designed to improve traffic flow and operational efficiencies, does not involve any increases in idling, and the no-build and build volumes through the intersection are the same. The project would be expected to have a neutral or

positive influence on PM_{2.5} emissions. Therefore, the project is not one of local air quality concern and a hot-spot analysis is not required.

The project's purpose, as stated in the previous paragraph, meets the FHWA's definition of a project with no meaningful potential MSAT effects, as this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the no-build alternative.

Based on the air quality analysis completed for the proposed improvements, this project has met the 40 CFR Part 93 requirements for project level transportation conformity for CO, ozone and PM_{2.5}, and will not contribute to any violation of the NAAQS or result in any increase in MSAT emissions.

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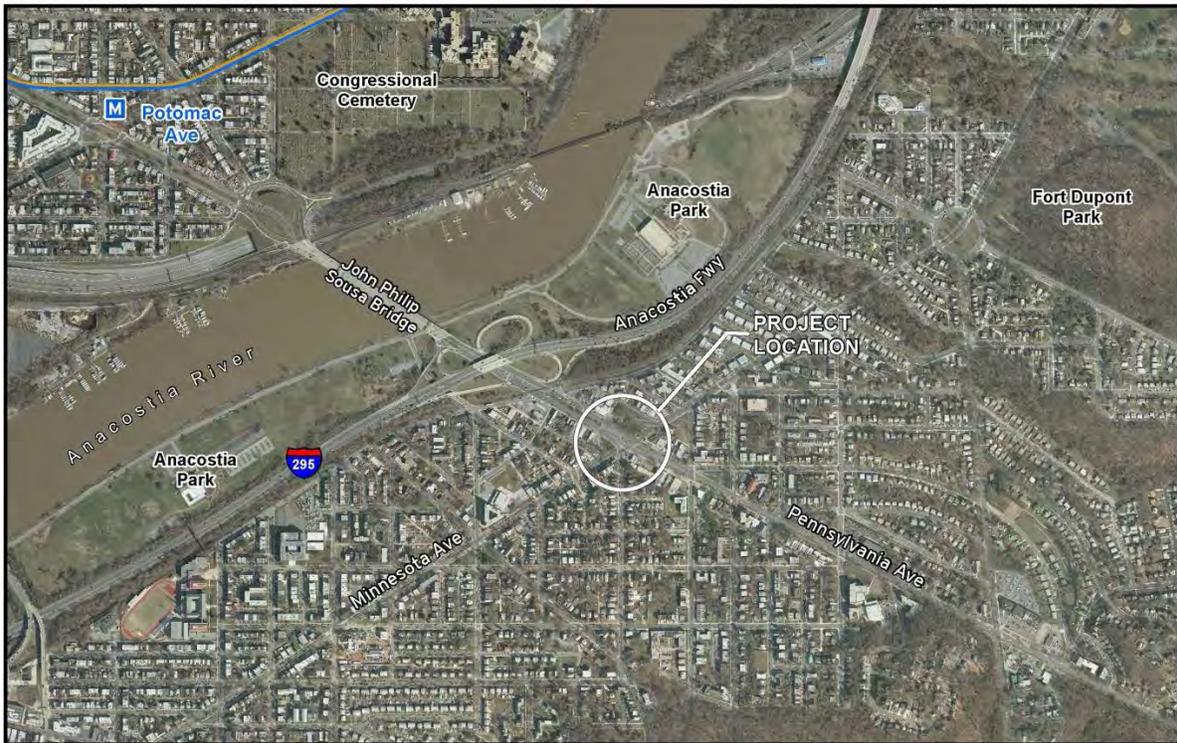
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1.0 PROJECT DESCRIPTION

The Federal Highway Administration (FHWA) in conjunction with the District Department of Transportation (DDOT) are proposing improvements to the Pennsylvania Avenue and Minnesota Avenue SE intersection that would include the transfer of land from the National Park Service (NPS) to DDOT. The land transfer would facilitate the proposed reconfiguration of this intersection, also known as the “Twining Square” area in Southeast Washington, DC.

As shown in Figure 1, the proposed project is located at the western end of the Pennsylvania Avenue SE *Great Streets* corridor at the intersection of Pennsylvania Avenue with Minnesota Avenue SE, in the immediate vicinity of Twining Square Park, also referred to as L’Enfant Square in the *Great Streets Framework Plan*. The study area is a complex and congested intersection and actually consists of two separate signalized intersections that are separated by 250 feet. The project intersection carries traffic to and from the bridges that cross the Anacostia River, as well as Minnesota Avenue SE. The proposed action includes improvements to the intersection to improve safety, mobility, and connectivity for pedestrians and motorists. A land transfer from NPS to DDOT would be necessary, pending National Capital Planning Commission (NCPC) approval, to carry out the proposed intersection improvements. Proposed improvements would not impact any private right-of-way.



**Figure 1
Project Location**

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The study area, shown in Figure 2, consists of medium-density residential, limited retail services, and recreational uses. The intersection contains four NPS reservations that are divided by roadways. The roadways split the reservations into areas that effectively function as traffic islands for pedestrians while crossing the street; the pieces of parkland are too small to function as “true” open space or green space as currently configured.



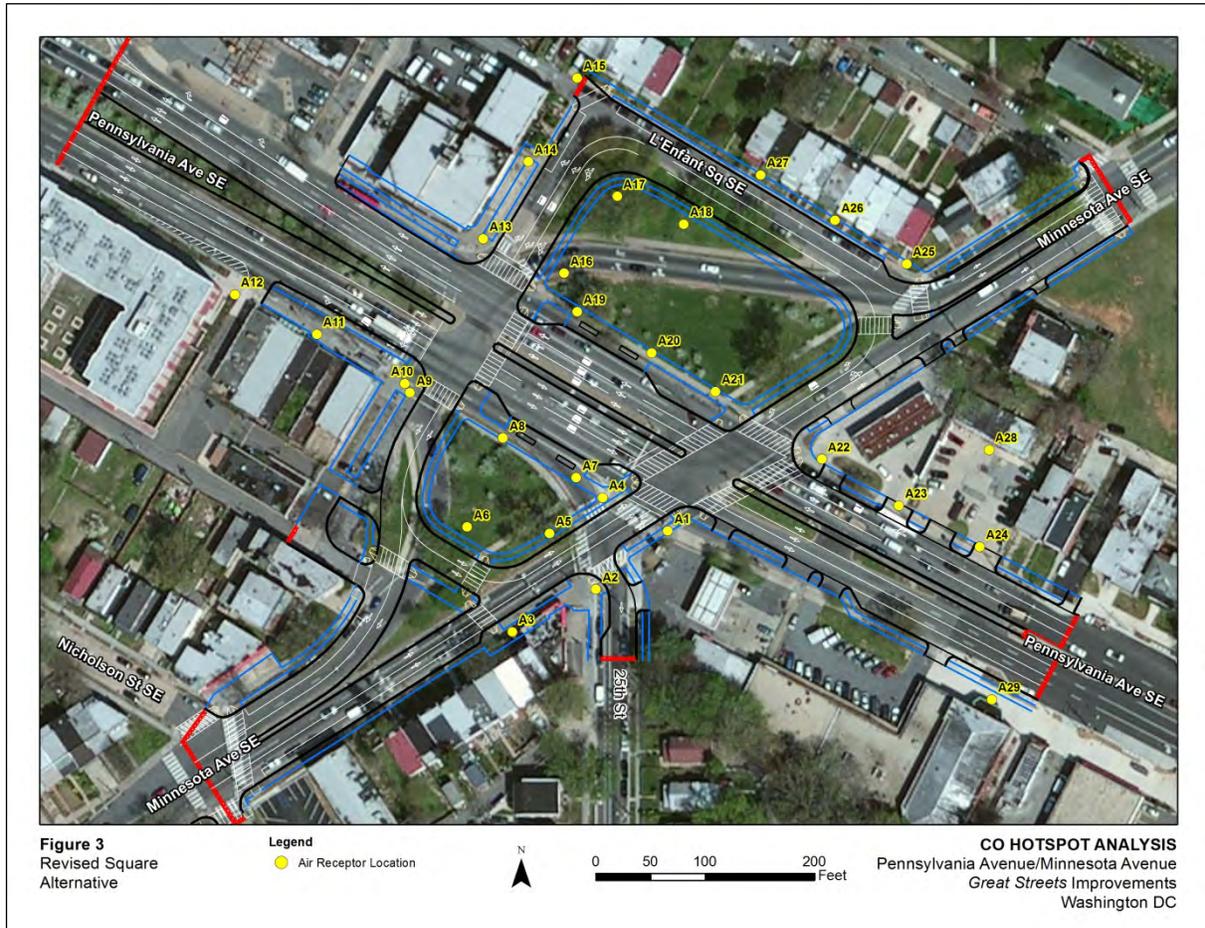
Currently, two alternatives, the Revised Square Alternative and the Conventional Intersection Alternative, are being considered for the Pennsylvania and Minnesota Avenues, SE Intersection Improvements EA.

The Revised Square Alternative, shown in Figure 3, would improve the intersection to create a “traffic square” concept, which would require all vehicles, with the exception of through-movements on Pennsylvania Avenue, to go around the expanded center islands. This alternative improves the roadway alignment and configuration to promote traffic-calming circulation to improve safety for pedestrians and vehicles at the intersection. Under this alternative, the traffic signal configuration is simplified and the left-turning conflict is removed.

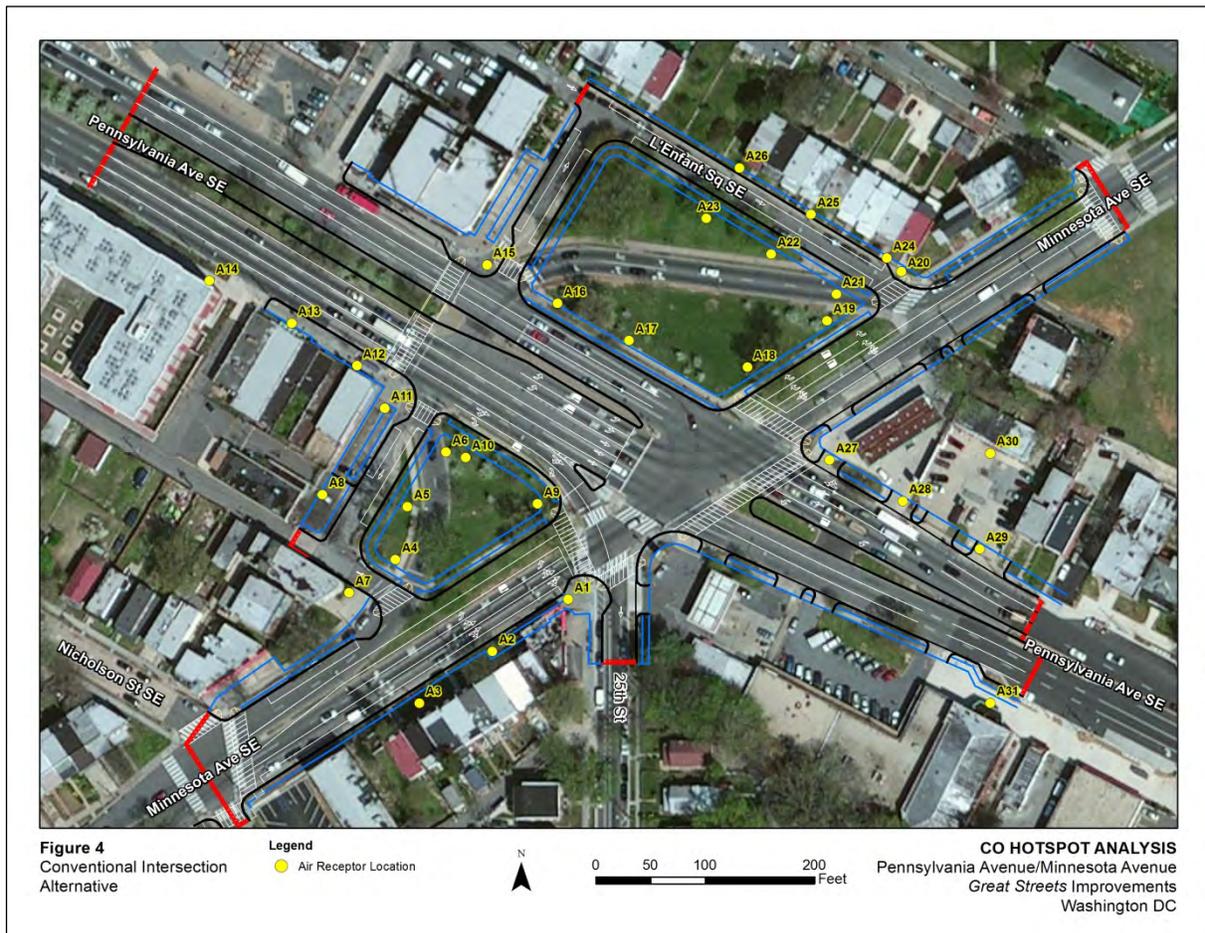
Pennsylvania Avenue would bisect the center of the “square,” and turning movements would be directed around the perimeter of the “square.” This perimeter route acts to calm the traffic, similar to how a traffic circle works by allowing vehicles to enter and exit the square at locations identified by the intersecting streets. It would also reduce vehicular speeds by

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providing short straight distances between tight radius turns, at the presumed four corners of the square. The Revised Square Alternative would reduce the interaction between pedestrians and vehicles, and would also improve the existing and new crosswalk facilities, which would be re-surfaced and re-painted to make them highly visible to motorists and pedestrians. The crosswalk alignments and refuge areas for pedestrians would be significantly enhanced and improved sidewalks and green space frontage would be provided for local residences and businesses.



The Conventional Intersection Alternative, shown in Figure 4, would be redesigned into a conventional at-grade intersection with all vehicle turning movements permitted for all approaches, with the exception of 25th Street, which would remain one-way southbound. The design would improve the existing split roadway system that currently contains two complex intersections by reducing the multiple traffic movements into one signalized intersection. This alternative would provide for left-turn movements in all directions and increases the left-turn bay storage length for vehicles. Under this alternative, the median across L'Enfant Square would be enclosed to eliminate commute cut-through traffic. This alternative increases the available street parking along L'Enfant Square SE to the north of the "square" and would reduce the traffic volume adjacent to those residences. As a whole, this alternative changes the intersection operationally, but does not improve safety at the intersection or improve the interaction between pedestrians and vehicles.



The Conventional Intersections has two options for the movement of one-way traffic to the north and west of the “square” on L’Enfant Square SE. Either one-way movement would work operationally: If traffic flows one-way to the west and south on L’Enfant Square SE, commuter traffic could cut-through the “square” to avoid the Pennsylvania/Minnesota intersection and the right-turning vehicle/pedestrian conflict to the west of the square would remain. If traffic flows one-way to the north and east on this roadway, cut-through traffic would not be an issue and the vehicle/pedestrian conflict would be greatly reduced.

2.0 PURPOSE OF THE REPORT

This report evaluates the potential air quality impacts of the proposed Revised Square and the Conventional Intersection Alternatives for the Pennsylvania and Minnesota Avenues, SE Intersection Improvements EA. It was prepared in compliance with the Clean Air Act (CAA) and its amendments, related Federal regulations, FHWA and DDOT Guidance and addresses regional and project level conformity in accordance with 40 CFR Part 93. The report presents the results of a CO-hot-spot analysis for the existing condition (2012) and No-Build (2015 and 2040) along with both Build Alternatives (2015 and 2040) comparing the results to the National Ambient Air Quality Standards (NAAQS). The proposed opening year is 2015 and the design year is 2040. The report also discusses project level conformity for ozone and fine particulate matter (PM_{2.5}) along with information on Mobile Source Air Toxics (MSATs). The document serves as the supporting technical data for the Pennsylvania Avenue/Minnesota Avenue Intersection Improvements Environmental Assessment.

3.0 AIR QUALITY – BACKGROUND INFORMATION

3.1 Criteria Pollutants

The Federal Clean Air Act of 1970 established the NAAQS (Table 1). These standards were established by the United States Environmental Protection Agency (EPA) to protect public health, safety, and welfare from known or anticipated effects of sulfur dioxide (SO₂), particulate matter (PM₁₀, 10-micron in diameter and smaller along with PM_{2.5}, 2.5 micron in diameter and smaller), carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), and lead (Pb). EPA refers to these pollutants as the “criteria” pollutants.

**TABLE 1
National Ambient Air Quality Standards (NAAQS)**

Pollutant	Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	Primary	8 – Hour	9 ppm	Not to be exceeded more than once per year
		1 – Hour	35 ppm	
Lead (Pb)	Primary and secondary	Rolling 3-Month Average	0.15 µg/m ³ (1)	Not to be exceeded
Nitrogen Dioxide (NO ₂)	Primary	1 – Hour	100 ppb ⁵⁾	98th percentile, averaged over 3 years
	Primary and secondary	Annual Mean	53 ppb (2)	Annual Mean
Ozone (O ₃)	Primary and secondary	8 – Hour	0.075 ppm (3)	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particulate Matter (PM _{2.5})	Primary	Annual	12 µg/m ³	annual mean, averaged over 3 years
	Secondary	Annual	15 µg/m ³	annual mean, averaged over 3 years
	Primary and secondary	24-hour	35 µg/m ³	98th percentile, averaged over 3 years
Particulate Matter (PM ₁₀)	Primary and secondary	24-hour	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxides (SO ₂)	Primary	1-hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

(1) Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

(2) The official level of the annual NO₂ standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.

(3) Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, EPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard (“anti-backsliding”). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.

(4) Final rule signed June 2, 2010. The 1971 annual and 24-hour SO₂ standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

Source: <http://www.epa.gov/air/criteria.html>, accessed May 29, 2013

The primary pollutants from motor vehicles are unburned hydrocarbons, NO_x, CO, and particulates. Hydrocarbons (HC) and nitrogen oxides (NO_x) can combine in a complex series of reactions catalyzed by sunlight to produce photochemical oxidants such as ozone and NO₂. Because these reactions take place over a period of several hours, maximum concentrations of photochemical oxidants are often found far downwind of the precursor sources. Ozone and NO₂ are regional problems.

Carbon monoxide is a colorless and odorless gas which is the product of incomplete combustion, and is the major pollutant from gasoline fueled motor vehicles. CO is a localized air quality issue.

Particulate matter includes both airborne solid particles and liquid droplets. These liquid particles come in a wide range of sizes. PM₁₀ particulates are coarse particles, such as windblown dust from fields and unpaved roads. PM_{2.5} particulates are fine particles generally emitted from activities such as industrial and residential combustion and from vehicle exhaust. Particulates from transportation can be a localized issue when a project is determined to be a project of air quality concern for either PM₁₀ or PM_{2.5} emissions.

An exceedance of the NAAQS pollutant level does not necessarily constitute a violation of the standard. Some of the criteria pollutants (including CO) are allowed one exceedance of the maximum level per year, while for other pollutants criteria levels cannot be exceeded. Violation criteria for other pollutants are based on past recorded exceedances. Table 1 lists the allowable exceedances for the EPA criteria pollutants.

3.1.1 Attainment Designation

The Clean Air Act Amendments (CAAA) of 1977 and 1990 required all states to submit to the EPA a list identifying those air quality regions, or portions thereof, which meet or exceed the NAAQS or cannot be classified because of insufficient data. Portions of air quality control regions which are shown by monitored data or air quality modeling to exceed the NAAQS for any criteria pollutant are designated “nonattainment” areas for that pollutant. The CAAA also established time schedules for the states to attain the NAAQS.

States that have nonattainment areas are required to prepare State Implementation Plans (SIP) that lay out a plan to show how the state will improve the air quality to attain the NAAQS. Both new and improvement highway projects must be contained in the area’s Long Range-Plan (LRP) and the Transportation Improvement Program (TIP). The Metropolitan Washington Council of Governments (MCOG) along with the District of Columbia and the states of Maryland and Virginia are responsible for preparing the LRP and TIP. Once the MPO has completed the LRP and TIP, they are submitted to the FHWA for review and approval according to the requirements of the CAAA and related implementation regulations.

The Pennsylvania Avenue/Minnesota Avenue *Great Streets* Improvements project is located within the National Capital Interstate Air Quality Control Region (AQCR #47). This AQCR includes the District of Columbia, Maryland, and Virginia Intrastate Air Quality Control Region. The District of Columbia is currently in attainment status for 4 of the 7 criteria pollutants, Pb, NO₂, PM₁₀ and SO₂, re-classified from nonattainment to maintenance for CO, and has been classified as being in nonattainment for the 1997 and 2008 8-hour ozone, and the 1997 PM_{2.5} standards.

4.0 REGIONAL CONFORMITY

Regional level transportation conformity is addressed through the approval of the LRP and the TIP. *The Air Quality Conformity Update of The 2012 Constrained Long Range Plan and The Fy2013-2018 Transportation Improvement Program* for the Washington Metropolitan Region was published on March 20, 2013. The Pennsylvania Avenue/Minnesota Avenue *Great Streets* Improvements project is identified as TIP ID: 2743 in the Constrained Long

Range Plan. The project does not appear in the *Air Quality Conformity Update* since only projects that are “regionally significant” are listed and specifically modeled.¹ However, emissions from all projects are included in the regional emissions analysis.²

The FHWA and the Federal Transit Administration (FTA) reviewed the *The 2012 Constrained Long Range Plan and The Fy2013-2018 Transportation Improvement Program* for the Washington Metropolitan Region. The FHWA and FTA found that the “2012 CLRP and 2013-2018 TIP conform to the region’s State Implementation Plans, and that the conformity determination has been performed in accordance with the Transportation Conformity Rule (40 CFR Part 93), as amended.”³

5.0 PROJECT LEVEL CONFORMITY

Project level conformity analysis evaluate whether there are air quality impacts on a smaller scale than an entire nonattainment or maintenance area. It relates a project to the NAAQS on a more localized basis. The project level analyses addresses the results of a CO hot-spot analysis for the existing condition (2012) and No-Build (2015 and 2040) along with the Revised Square and Conventional Intersection Build Alternatives (2015 and 2040) comparing the results to the National Ambient Air Quality Standards (NAAQS). The proposed opening year is 2015 and the design year is 2040. The analysis also presents a discussion on ozone, and PM_{2.5}.

5.1 CO Hot-Spot (Microscale) Analysis

CO emissions are greatest from vehicles operating at low speeds and prior to complete engine warm-up (within approximately eight minutes of starting). Congested urban roads, therefore, tend to be the principal problem areas for CO. Because the averaging times associated with the CO standards are relatively short (1 and 8 hours), CO concentrations can be modeled using simplified “worst-case” meteorological assumptions. Modeling is also simplified considerably by the stable, non-reactive nature of CO.

5.1.1 Methodology

The CO hot-spot analysis followed the modeling guidelines presented in EPA’s “Guideline for Modeling Carbon Monoxide from Roadway Intersections”⁴ and EPA’s “Using MOVES in Project-Level Carbon Monoxide Analyses”⁵. The EPA’s MOVES2010b (MOVES) and EPA’s approved CAL3QHC 2.0 (CAL3QHC)⁶ computer models were used to analyze vehicular emissions and the hourly dispersion of CO adjacent to the intersection of Pennsylvania and Minnesota Avenues. Traffic and emissions for the existing (2012) condition, No-Build (2015

¹ Elena Constantine (econstantine@mwkog.org), “Penn Ave/Minn Ave *Great Street* Improvements”, e-mail message, May 28, 2013.

² Emily Biondi (FHWA), telephone conversation with John Jaeckel (HNTB), September 30, 2013.

³ Brigid Hynes-Cherin, letter, addressed to Scott York, May 24, 2013.

⁴ “Guidelines for Modeling Carbon Monoxide from Roadway Intersections”, U.S. Environmental Protection Agency, EPA-454/R-92-005, November 1992.

⁵ “Using MOVES in Project-Level Carbon Monoxide Analyses”, U.S. Environmental Protection Agency, EPA-420-B-10-041, December 2010.

⁶ “User’s Guide to CAL3QHC Version 2.0: A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections”, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC, September 1995.

and 2040), and the anticipated first year of operation (2015) and design year (2040) for the 2 Build alternatives were modeled. EPA's MOVES2010b was used to develop vehicular emission rates. MWCOG provided District of Columbia specific input variables for MOVES.⁷

CAL3QHC is a pollutant dispersion-modeling program for predicting pollutant concentrations from motor vehicles under free-flow conditions, or in the vicinity of roadway intersections. Peak traffic volumes and average operating speeds from the traffic analysis Synchro 8 Reports were used to analyze the intersection.⁸ Thirty-one air quality receptors, A1 – A31, were placed 10 ft away from the edge of pavement, at the stop line paralleling the traffic lanes and at 82 foot intervals as shown in Figure 2, 3, and 4, on pages 2, 3, and 4, respectively. Two of the 31 receptors were located at the nearest entry doors to daycare facilities along Pennsylvania Avenue, southeast of the Pennsylvania Avenue, Minnesota Avenue intersection. In accordance with EPA procedure, average speeds for each link were used to develop the CO emission factors with MOVES. Worst-case meteorological variables and an urban background CO concentration obtained from U.S. EPA AirData for the monitoring site at 420 34th Street N.E. were used in the CAL3QHC model. The 1-hour and 8-hour background concentration were the highest second maximum values at the three CO monitoring sites in the District of Columbia for 2012. Variables used in CAL3QHC included:

- Meteorological conditions:
 - Wind speed: 1 m/s (2.2 mph), worst case.
 - Wind direction: Worst case for each receptor location, calculated every 10 degrees.
 - Atmospheric stability class: Pasquill Class "E"
- Surface roughness: 175 cm (68.9 in.), study area is a mixture of industrial and single family residential.
- Mixing height: 0 m (0 ft).
- Background CO concentrations: 2.9 ppm 1-hour and 2.5 ppm 8-hour, (2012 data, second highest concentration).⁹
- Existing 2010 and future 2020 CO emission factors from MOBILE6.2.
- Persistence factor of 0.7 was used to develop the 8-hour concentrations.

5.1.2 Results

The results of the CO microscale air quality modeling are presented in Table 2 (1-Hour concentrations) and Table 3 (8-Hour concentrations). The maximum 1-hour CO concentrations were 4.8 ppm for existing conditions (2012), 4.4 ppm for the 2015 No-Build, 5.7 ppm for the 2015 Revised Square Alternative, 4.8 ppm for the 2015 Conventional Intersection Alternative, 5.7 ppm for the 2040 No-Build, 4.9 ppm for the 2040 Revised Square Alternative, and 5.8 ppm for the 2040 Conventional Intersection Alternative. The maximum 8-hour CO concentrations were 3.8 ppm for existing conditions (2012), 3.6 ppm for the 2015 No-Build, 4.5 ppm for the 2015 Revised Square Alternative, 3.8 ppm for the 2015

⁷ Eulalie Gower-Lucas (elucas@mwco.org), "Penn Ave/Minn Ave *Great Street* Improvements", e-mail message, May 22, 2013.

⁸ Bo Yuan (byuan@hntb.com), "48934: Penn Ave Traffic", e-mail message, April 26, 2013.

⁹ <<http://www.epa.gov/airdata>>, accessed May 29, 2013.

Conventional Intersection Alternative, 4.5 ppm for the 2040 No-Build, 3.9 ppm for the 2040 Revised Square Alternative, and 4.5 ppm for the 2040 Conventional Intersection Alternative. The 1-hour concentrations include a background concentration of 2.9 ppm and the 8-hour concentrations include a background concentration of 2.5 ppm. None of these concentrations exceed either the 1-hour (35 ppm) or 8-hour (9 ppm) NAAQS. Therefore, the project meets the project level conformity requirements in 40 CFR Part 93.

The MOVES and CAL3QHC input and output files have been provided to DDOT on a CD.

**TABLE 2
MICROSCALE AIR QUALITY ANALYSIS
MAXIMUM 1-HOUR CO CONCENTRATIONS (ppm)***

Air Quality Receptor ID	2012	2015			2040		
	Existing	No Build	Revised Square	Conventional Intersection	No Build	Revised Square	Conventional Intersection
	1 hour	1 hour	1 hour	1 hour	1 hour	1 hour	1 hour
A1	3.9	3.6	4.0	3.9	4.1	3.6	3.9
A2	3.8	3.6	3.9	3.6	3.8	3.6	3.8
A3	3.8	3.6	3.8	3.7	3.7	3.5	3.7
A4	3.7	3.5	3.9	3.9	4.2	3.4	3.5
A5	3.8	3.6	4.0	3.6	3.7	3.4	3.6
A6	3.9	3.7	4.1	3.5	3.7	3.7	3.8
A7	4.0	3.8	4.1	4.0	4.2	3.3	3.4
A8	3.9	3.8	4.1	3.9	4.3	3.4	3.5
A9	4.0	3.7	4.1	3.9	4.6	3.7	3.9
A10	4.1	3.9	4.4	3.9	4.5	3.7	3.9
A11	3.7	3.5	3.9	3.8	4.5	3.6	3.9
A12	3.6	3.4	3.6	3.8	4.5	3.8	4.1
A13	4.3	4.1	4.3	4.1	4.9	3.8	4.1
A14	3.9	3.6	3.9	3.7	5.2	3.9	4.2
A15	4.5	4.1	4.3	3.6	4.6	4.9	5.8
A16	4.4	4.0	4.4	4.4	5.7	4.6	5.3
A17	4.5	4.1	4.6	3.9	5.2	4.4	4.9
A18	4.5	4.4	5.3	3.8	5.0	4.2	4.4
A19	4.6	4.4	5.0	4.8	5.4	4.1	4.2
A20	4.6	4.3	4.7	4.3	4.8	4.3	4.4
A21	4.8	4.4	5.7	4.2	4.4	3.9	4.1
A22	4.5	4.3	5.3	4.4	4.3	3.7	3.6
A23	4.6	4.4	5.1	4.2	4.2	3.6	3.6
A24	4.5	4.2	4.8	4.3	4.2	3.8	4.0
A25	4.3	4.0	4.4	3.9	5.5	3.5	3.6
A26	4.0	3.9	4.2	3.9	5.3	3.5	3.5
A27	4.4	4.0	4.5	3.8	5.2	4.2	4.6
A28	3.8	3.6	4.0	3.6	3.9	4.2	4.6
A29	3.7	3.5	3.7	3.7	3.8	4.4	4.7
A30	3.7	3.6	3.8	-	-	3.7	3.9
A31	3.7	3.6	3.9	-	-	3.6	3.8

*The National Ambient Air Quality Standard for CO is 35 ppm for a one hour average.
Concentrations include an ambient background level of 2.9 ppm (1 hour)

█ Indicates maximum concentration for each alternative and year of analysis.

Source: HNTB Corporation, May 2013

**TABLE 3
MICROSCALE AIR QUALITY ANALYSIS
MAXIMUM 8-HOUR CO CONCENTRATIONS (ppm)***

Air Quality Receptor ID	2012	2015			2040		
	Existing	No Build	Revised Square	Conventional Intersection	No Build	Revised Square	Conventional Intersection
	8 hour	8 hour	8 hour	8 hour	8 hour	8 hour	8 hour
A1	3.2	3.0	3.3	3.2	3.3	3.0	3.2
A2	3.1	3.0	3.2	3.0	3.1	3.0	3.1
A3	3.1	3.0	3.1	3.1	3.1	2.9	3.1
A4	3.1	2.9	3.2	3.2	3.4	2.9	2.9
A5	3.1	3.0	3.3	3.0	3.1	2.9	3.0
A6	3.2	3.1	3.3	2.9	3.1	3.1	3.1
A7	3.3	3.1	3.3	3.3	3.4	2.8	2.9
A8	3.2	3.1	3.3	3.2	3.5	2.9	2.9
A9	3.3	3.1	3.3	3.2	3.7	3.1	3.2
A10	3.3	3.2	3.6	3.2	3.6	3.1	3.2
A11	3.1	2.9	3.2	3.1	3.6	3.0	3.2
A12	3.0	2.9	3.0	3.1	3.6	3.1	3.3
A13	3.5	3.3	3.5	3.3	3.9	3.1	3.3
A14	3.2	3.0	3.2	3.1	4.1	3.2	3.4
A15	3.6	3.3	3.5	3.0	3.7	3.9	4.5
A16	3.6	3.3	3.6	3.6	4.5	3.7	4.2
A17	3.6	3.3	3.7	3.2	4.1	3.6	3.9
A18	3.6	3.6	4.2	3.1	4.0	3.4	3.6
A19	3.7	3.6	4.0	3.8	4.3	3.3	3.4
A20	3.7	3.5	3.8	3.5	3.8	3.5	3.6
A21	3.8	3.6	4.5	3.4	3.6	3.2	3.3
A22	3.6	3.5	4.2	3.6	3.5	3.1	3.0
A23	3.7	3.6	4.0	3.4	3.4	3.0	3.0
A24	3.6	3.4	3.8	3.5	3.4	3.1	3.3
A25	3.5	3.3	3.6	3.2	4.3	2.9	3.0
A26	3.3	3.2	3.4	3.2	4.2	2.9	2.9
A27	3.6	3.3	3.6	3.1	4.1	3.4	3.7
A28	3.1	3.0	3.3	3.0	3.2	3.4	3.7
A29	3.1	2.9	3.1	3.1	3.1	3.6	3.8
A30	3.1	3.0	3.1	-	-	3.1	3.2
A31	3.1	3.0	3.2	-	-	3.0	3.1

*The National Ambient Air Quality Standard for CO is 35 ppm for a one hour average.
Concentrations include an ambient background level of 2.5 ppm (8 hour)

█ Indicates maximum concentration for each alternative and year of analysis.

Source: HNTB Corporation, May 2013

5.2 Ozone

Ozone project level conformity is addressed through the approval of the LRP and the TIP. As stated in section 4.0 Regional Conformity, *The Air Quality Conformity Update of The 2012 Constrained Long Range Plan and The Fy2013-2018 Transportation Improvement Program* for the Washington Metropolitan Region was approved by the FHWA and FTA. Therefore, the Pennsylvania Avenue/Minnesota Avenue *Great Streets* Improvements project meets the project level conformity requirements in 40 CFR Part 93.

5.3 PM_{2.5}

The Pennsylvania Avenue/Minnesota Avenue *Great Streets* Improvements project, as stated in Section 3.1.1 – Attainment Designation, is located within a nonattainment area for PM_{2.5}. The transportation conformity rule, 40 CFR 93.123(b)(1) requires a PM hot-spot analysis only for projects of local air quality concern. The proposed project is an intersection improvement project at individual intersections that is being designed to improve traffic flow and operational efficiencies, does not involve any increases in idling, and the no-build and build volumes through the intersection are the same. The project would be expected to have a neutral or positive influence on PM_{2.5} emissions. Therefore, the project is not one of local air quality concern and a hot-spot analysis is not required.

6.0 MSAT

In addition to the criteria air pollutants presented in Table 1, EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).

“Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007) and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (<http://cfcpub.epa.gov/ncea/iris/index.cfm>). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (<http://www.epa.gov/ttn/atw/nata1999/>). These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules. The 2007 EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA’s MOBILE6.2 model, even if vehicle activity (vehicle-miles travelled, VMT) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050....”¹⁰

¹⁰ April Marchese, “Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents”, Memorandum, addressed to FHWA Division Administrators, December 6, 2012, p. 2.

“The FHWA developed a tiered approach for analyzing MSAT in NEPA documents, depending on specific project circumstances:.

1. No analysis for projects with no potential for meaningful MSAT effects;
2. Qualitative analysis for projects with low potential MSAT effects; or
3. Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects...

(1) Projects with No Meaningful Potential MSAT Effects or Exempt Projects.

“The types of projects included in this category are:

Projects qualifying as a categorical exclusion under 23 CFR 771.117(c) (subject to consideration whether unusual circumstances exist under 23 CFR 771.117(b));

Projects exempt under the Clean Air Act conformity rule under 40 CFR 93.126; or

Other projects with no meaningful impacts on traffic volumes or vehicle mix.”¹¹

The purpose of this project is to improve traffic flow and operating efficiencies through the intersection by redirecting traffic, improving pedestrian safety and in some cases eliminating left turn conflicts. “This project has been determined to generate minimal air quality impacts for CAAA criteria pollutants and has not been linked with any special MSAT concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the no-build alternative.

“Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA’s MOVES model forecasts a combined reduction of over 80 percent in the total annual emission rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by 100 percent. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.”¹²

5.0 CONSTRUCTION MITIGATION

The Pennsylvania Avenue/Minnesota Avenue *Great Streets* Improvements project construction will take place over two construction seasons. During each construction season there would be localized increased emissions from construction equipment and particulate emissions from construction activities. Particulate emissions, whether from construction equipment diesel exhaust or dust from the construction activities, should be controlled as well as possible. Contractors should follow all DDOT Standard Construction Specification Sections that address the control of construction equipment exhaust or dust during construction.

¹¹ “Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents”, p. 4.

¹² Ibid, Appendix A.

Even though construction mitigation measures are not required, there are several measures that could be considered to reduce engine activity or reduce emissions per unit of operating time. Operational agreements that reduce or redirect work or shift times to avoid community exposures can have positive benefits. Also, technological adjustments to construction equipment, such as off-road dump trucks and bulldozers, could be an appropriate strategy. The EPA recommends Best Available Diesel Retrofit Control Technology (BACT) to reduce diesel emissions. Typically, BACT requirements can be met through the retrofit of all diesel powered equipment with diesel oxidation catalysts or diesel particulate filters, and other devices that provide an after-treatment of exhaust emissions.

6.0 CONCLUSION

Based on the air quality analysis completed for the proposed improvements, this project has met the 40 CFR Part 93 requirements for project level transportation conformity for CO, ozone and PM_{2.5}, and will not contribute to any violation of the NAAQS or result in any increase in MSAT emissions.

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Appendix

H

Noise Technical
Report





Noise Technical Report

Pennsylvania Avenue/Minnesota Avenue, SE Intersection Improvements

Washington, DC

May 22, 2013

Revised September 12, 2013

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EXECUTIVE SUMMARY

This report evaluates the potential noise impacts of two alternatives, the Revised Square Alternative and the Conventional Intersection Alternative, being considered for the Pennsylvania and Minnesota Avenues, SE Intersection Improvements EA in conformance with corresponding Federal regulations and guidance, and the National Environmental Policy Act (NEPA). The noise analysis presents the existing and future acoustical environment at various receivers located along Pennsylvania Avenue and Minnesota Avenue.

The determination of noise abatement measures and locations is in compliance with the Federal Highways Administration's Procedures for Abatement of Highway Traffic Noise and Construction Noise as presented in the Code of Federal Regulations, Title 23 Part 772 (23 CFR 772) and the District Department of Transportation's (DDOT) "Noise Policy".

Existing noise level measurements were conducted on March 21, 2013 at four representative sites in the project vicinity. The measurements were made in accordance with FHWA and ODOT guidelines using an integrating sound level analyzer meeting ANSI and IEC Type 1 specifications. Traffic counts were taken at each site, concurrent with the noise measurements.

The latest version of the FHWA's Traffic Noise Model, TNM^{®2.5}¹, was used to model existing (2012), No Build (2040), Revised Square Alternative (2040), and Conventional Intersection Alternative (2040) for the peak noise hour noise levels within the study area. 22 representative noise receivers (representing 35 dwelling units), numbered N1 through N18, plus the four field sites, FS-1 through FS-4 were modeled. These receivers were selected to model representative noise impacts at areas consisting of residential, daycare, and recreational properties, as well as one place of worship.

Existing (2012) peak hour levels at the 16 residential locations, which represents 35 dwelling units, would range from 63.7 to 69.0 dBA $L_{eq}(h)$. The noise levels at the category C locations would range from 67.4 to 71.1 dBA $L_{eq}(h)$. The interior noise level at the category D location, N7, would be 41.1 dBA.

No build (2040) peak hour noise are predicted to exceed the NAC at 16 residential locations and four activity category C locations. The noise levels at the 16 residential locations would range from 65.6 to 70.3 dBA $L_{eq}(h)$ and represents 35 dwelling units. The noise levels at the category C locations would range from 69.4 to 73.2 dBA $L_{eq}(h)$.

Predicted future (2040) noise levels for the Revised Square Alternative and the Conventional Intersection Alternative would approach or exceed the NAC at 16 residential receivers and four activity category C locations. None of the predicted future noise levels would substantially exceed existing noise levels (DDOT has defined an increase over existing noise levels of 10 decibels or more as being substantial).

Based on the study completed, mitigation of noise impacts for the Pennsylvania Avenue/Minnesota Avenue improvements does not appear to be feasible or reasonable for

¹ M.C. Lau, C.S.Y. Lee, J.L. Rochat, E.R. Boeker, and G.C. Fleming. FHWA Traffic Noise Model[®] Users Guide (Version 2.5 Addendum). Federal Highway Administration, April 2004

either of the proposed alternatives. Due to the built out nature of the project area and local access requirements, noise mitigation in this urban environment is not possible. If it subsequently develops during final design that these conditions have substantially changed, noise abatement measures will be reviewed.

Noise Technical Report

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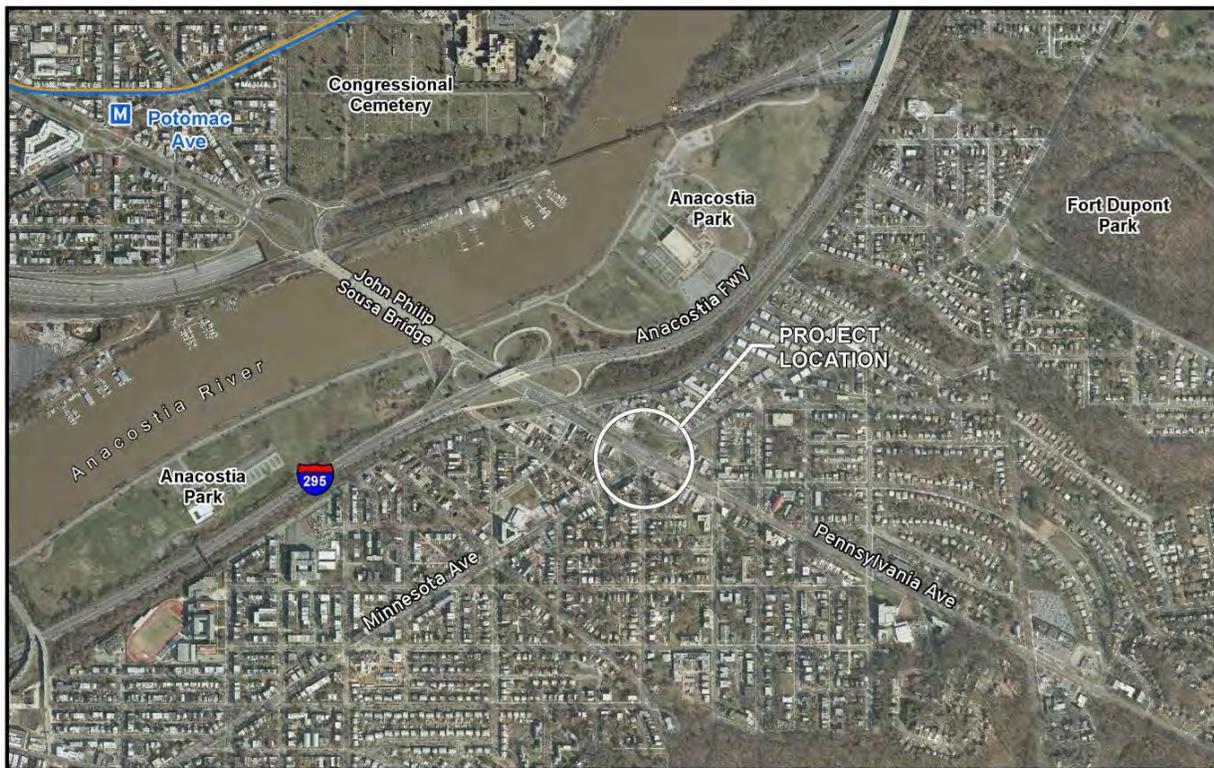
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Noise Technical Report

1.0 INTRODUCTION

The Federal Highway Administration (FHWA) in conjunction with the District Department of Transportation (DDOT) are proposing improvements to the Pennsylvania Avenue and Minnesota Avenue, SE intersection that would include the transfer of land from the National Park Service (NPS) to DDOT. The land transfer would facilitate the proposed reconfiguration of this intersection, also known as the “Twining Square” area in Southeast Washington, DC.

As shown in Figure 1, the proposed project is located at the western end of the Pennsylvania Avenue SE Great Streets corridor at the intersection of Pennsylvania Avenue with Minnesota Avenue, SE, in the immediate vicinity of Twining Square Park, also referred to as L’Enfant Square in the *Great Streets Framework Plan*. The study area is a complex and congested intersection and actually consists of two separate signalized intersections that are separated by 250 feet. The project intersection carries traffic to and from the bridges that cross the Anacostia River, as well as Minnesota Avenue SE. The proposed action includes improvements to the intersection to improve safety, mobility, and connectivity for pedestrians and motorists. A land transfer from NPS to DDOT would be necessary, pending National Capital Planning Commission (NCPCC) approval, to carry out the proposed intersection improvements. Proposed improvements would not impact any private right-of-way.



**Figure 1
Project Location**

The study area consists of medium-density residential, limited retail services, and recreational uses. The intersection contains four NPS reservations that are divided by roadways. The roadways split the reservations into areas that effectively function as traffic islands for pedestrians while crossing the street; the pieces of parkland are too small to function as “true” open space or green space as currently configured.

Currently, two alternatives, the Revised Square Alternative and the Conventional Intersection Alternative, are being considered for the Pennsylvania and Minnesota Avenues, SE Intersection Improvements EA.

The Revised Square Alternative, shown in Figure 2, would improve the intersection to create a “traffic square” concept, which would require all vehicles, with the exception of through-movements on Pennsylvania Avenue, to go around the expanded center islands. This alternative improves the roadway alignment and configuration to promote traffic-calming circulation to improve safety for pedestrians and vehicles at the intersection. Under this alternative, the traffic signal configuration is simplified and the left-turning conflict is removed.

Pennsylvania Avenue would bisect the center of the “square,” and turning movements would be directed around the perimeter of the “square.” This perimeter route acts to calm the traffic, similar to how a traffic circle works by allowing vehicles to enter and exit the square at locations identified by the intersecting streets. It would also reduce vehicular speeds by providing short straight distances between tight radius turns, at the presumed four corners of the square. The Revised Square Alternative would reduce the interaction between pedestrians and vehicles, and would also improve the existing and new crosswalk facilities, which would be re-surfaced and re-painted to make them highly visible to motorists and pedestrians. The crosswalk alignments and refuge areas for pedestrians would be significantly enhanced and improved sidewalks and green space frontage would be provided for local residences and businesses.



Figure 2
Revised Square
Alternative

Legend

- Field Measurement Site
- Noise Modeling Site



0 50 100 200 Feet

NOISE ANALYSIS
Pennsylvania Avenue/Minnesota Avenue
Great Streets Improvements
Washington DC

The Conventional Intersection Alternative, shown in Figure 3, would be redesigned into a conventional at-grade intersection with all vehicle turning movements permitted for all approaches, with the exception of 25th Street, which would remain one-way southbound. The design would improve the existing split roadway system that currently contains two complex intersections by reducing the multiple traffic movements into one signalized intersection. This alternative would provide for left-turn movements in all directions and increases the left-turn bay storage length for vehicles. Under this alternative, the median across L'Enfant Square would be enclosed to eliminate commute cut-through traffic. This alternative increases the available street parking along L'Enfant Square SE to the north of the “square” and would reduce the traffic volume adjacent to those residences. As a whole, this alternative changes the intersection operationally, but does not improve safety at the intersection or improve the interaction between pedestrians and vehicles.

The Conventional Intersections has two options for the movement of one-way traffic to the north and west of the “square” on L'Enfant Square SE. Either one-way movement would work operationally: If traffic flows one-way to the west and south on L'Enfant Square SE, commuter traffic could cut-through the “square” to avoid the Pennsylvania/Minnesota intersection and the right-turning vehicle/pedestrian conflict to the west of the square would remain. If traffic flows one-way to the north and east on this roadway, cut-through traffic would not be an issue and the vehicle/pedestrian conflict would be greatly reduced.



Figure 3
Conventional Intersection
Alternative

Legend
Field Measurement Site
Noise Modeling Site

0 50 100 200 Feet

NOISE ANALYSIS
Pennsylvania Avenue/Minnesota Avenue
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2.0 NOISE ANALYSIS OVERVIEW

This report evaluates the potential noise impacts of the alternatives within the Pennsylvania and Minnesota Avenues, SE Intersection Improvements project in conformance with corresponding Federal regulations and guidance, and the National Environmental Policy Act (NEPA). The noise analysis presents the existing and future acoustical environments at various receivers located along Pennsylvania Avenue and Minnesota Avenue.

The determination of noise abatement measures and locations is in compliance with the Federal Highways Administration’s Procedures for Abatement of Highway Traffic Noise and Construction Noise as presented in the Code of Federal Regulations, Title 23 Part 772 (23 CFR 772) and the DDOT’s “Standard Procedure for Analysis and Abatement of Highway Traffic Noise (Noise Policy)”.

Basic Noise Information

Noise is defined as unwanted and disruptive sound. The ear is sensitive to this pressure variation and perceives it as sound. The intensity of these pressure variations causes the ear to discern different levels of loudness. These pressure differences are most commonly measured in decibels.

The decibel (dB) is the unit of measurement for sound. The decibel scale audible to humans spans approximately 140 dB. A level of zero decibels corresponds to the lower limit of audibility, while 140 decibels produces a sensation more akin to pain than sound. The decibel scale is a logarithmic representation of the actual sound pressure variations. Therefore, a 26 percent change in the energy level only changes the sound level one dB. The human ear would not detect this change except in an acoustical laboratory. A doubling of the energy level would result in a three-dB increase, which would be barely perceptible in the natural environment. A tripling in energy sound level would result in a clearly noticeable change of five-dB in the sound level. A change of ten times the energy level would result in a ten-dB change in the sound level. This would be perceived as a doubling (or halving) of the apparent loudness.

The human ear has a non-linear sensitivity to noise. To account for this in noise measurements, electronic weighting scales are used to define the relative loudness of different frequencies. The "A" weighting scale is widely used in environmental work because it closely resembles the non-linearity of human hearing. Therefore, the unit of measurement for an A-weighted noise level is dBA.

Traffic noise is not constant. It varies as each vehicle passes through a certain location. The time-varying characteristics of environmental noise are analyzed statistically to determine the duration and intensity of noise exposure. In an urban environment, noise is made up of two distinct parts. One is ambient or background noise. Wind noise and distant traffic noise make up the acoustical environment surrounding the project. These sounds are not readily recognized, but combine to produce a non-irritating ambient sound level. This background sound level varies throughout the day, being lowest at night and highest during the day. The other component of urban noise is intermittent and louder than the background noise. Transportation noise and local industrial noise are examples of this type of noise. It is for these reasons that environmental noise is analyzed statistically.

The statistical descriptor used for traffic noise is Leq. Leq is the constant, average sound level, which over a period of time contains the same amount of sound energy as the varying levels of the traffic noise. The Leq correlates reasonably well the effects of noise on people. It is also easily measurable with integrating sound level meters. The time period for traffic noise is 1-hour. Therefore, the unit of measure for traffic noise is Leq(h) dBA.

Highway noise sources have been divided into five types of vehicles; automobiles (A), medium trucks (MT), heavy trucks (HT), Buses (B) and Motorcycles (MC). Each vehicle type is defined as follows²:

- Automobiles – all vehicles with two axles and four tires, includes passenger vehicles and light trucks, less than 10,000 pounds.
- Medium trucks – all vehicles having two axles and six tires, vehicle weight between 10,000 and 26,000 pounds.
- Heavy trucks – all vehicles having three or more axles, vehicle weight greater than 26,000 pounds.
- Buses – all vehicles designed to carry more than nine passengers.
- Motorcycles – all vehicles with two or three tires and an open-air driver/passenger compartment.

² G.S. Anderson, C.S.Y. Lee, G.G. Fleming and C. Menge, "FHWA Traffic Noise Model[®], Version 1.0 User's Guide", Federal Highway Administration, January 1998, p.60.

Noise levels produced by highway vehicles can be attributed to three major categories:

- Running gear and accessories (tires, drive train, fan and other auxiliary equipment)
- Engine (intake and exhaust noise, radiation from engine casing)
- Aerodynamic and body noise

Tire sound levels increase with vehicle speed but also depend upon road surface, vehicle weight, tread design and wear. Change in any of these can vary noise levels. At lower speeds, especially in trucks and buses, the dominant noise source is the engine and related accessories.

Noise Model and Analysis

The FHWA's Procedures for Abatement of Highway Traffic Noise and Construction Noise is presented in the Code of Federal Regulations, Title 23 Part 772 (23 CFR 772). This regulation, plus other guidance documents written to explain the regulation, sets forth the process for performing a traffic noise analysis. The process includes the following:

- Identify existing and proposed land uses in the study area;
- Determine existing noise levels either:
 - through modeling, or
 - noise measurements with concurrent classification counts of vehicles passing the noise monitoring site;
- Validate predicted noise levels through comparison between measured and predicted levels;
- Model future design year traffic noise levels which will yield the worst hourly traffic noise on a regular basis (PM peak hour noise levels);
- Identify locations that would be exposed to a noise impact based upon the Noise Abatement Criteria (NAC) as presented in Table 1;
- Model noise abatement measures to mitigate the predicted design year traffic noise impacts; and
- Modeling must be performed with FHWA's most recent version of the Traffic Noise Model® (TNM).

DDOT's Noise Policy is the District's tool for implementing 23 CFR 772. The NAC, which is presented in 23 CFR 772, establishes the noise abatement criteria for various land uses. The noise level descriptor used is the equivalent sound level, L_{eq} , defined as the steady state sound level which, in a stated time period (usually one hour), contains the same sound energy as the actual time-varying sound.

Noise abatement measures will be considered when the predicted noise levels approach or exceed those values shown for the appropriate activity category in Table 1, or when the predicted traffic noise levels substantially exceed the existing noise levels. DDOT has defined the approach value as being 1 dBA less than the noise levels shown in Table 1. DDOT has defined an increase over existing noise levels of 10 decibels or more as being substantial.

TNM[®] is FHWA's "computer program for highway traffic noise prediction and analysis."³ The following parameters are used in this model to calculate an hourly $L_{eq}(h)$ at a specific receiver location:

- Distance between roadway and receiver;
- Relative elevations of roadway and receiver;
- Hourly traffic volume in light-duty (two axles, four tires), medium-duty (two axles, six tires), and heavy-duty (three or more axles) vehicles;
- Vehicle speed;
- Ground absorption; and
- Topographic features, including retaining walls and berms.

The Pennsylvania Avenue/Minnesota Avenue study area consists of medium-density residential, retail, and recreational areas. The criteria stated in Table 1 below will help to determine whether or not the proposed project will impact uses throughout the corridor.

³ Ibid, Report Documentation Page.

**Table 1: Noise Abatement Criteria (NAC)
Hourly A-Weighted Sound Level-Decibels (dBA)**

Activity Category	Activity Criteria $L_{eq}(h)$	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	Exterior	Residential
C	67	Exterior	Active sport areas, amphitheatres, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, daycare centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	N/A	N/A	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	N/A	N/A	Undeveloped lands that are not permitted.

Source: "District of Columbia Department of Transportation Noise Policy", District Department of Transportation, July 11, 2011,

3.0 NOISE MEASUREMENTS

Existing noise level measurements were conducted on March 21, 2013 at four representative sites in the project vicinity. A 20-minute measurement was taken at each site. The measurements were made in accordance with FHWA and DDOT guidelines using an integrating sound level analyzer meeting ANSI and IEC Type 1 specifications. Traffic counts were taken at each site, concurrent with the noise measurements. Traffic data were obtained at all the field sites. Table 2 contains observed traffic data, a site description, date, start time and duration of the noise measurements. The measurement locations were selected adjacent to the proposed alignments. The noise measurement sites and modeled noise receiver locations are shown on Figure 2 and Figure 3. The field data sheets are presented in **Attachment 1**.

**Pennsylvania Avenue/Minnesota Avenue Intersection Improvements
Washington DC**

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**Table 2: Measured Existing Noise Levels
Pennsylvania Avenue/Minnesota Avenue Intersection Improvements
Washington, DC**

Field Site #	Site Description	Date	Start Time	Duration (minutes)	Traffic ¹⁾					Noise Level, dBA L _{eq} (h)	
					Roadway	A ^a	MT ^b	HT ^c	Buses ^d		Speed mph
FS-1	Vacant lot on north side of L'Enfant Square SE between 2404 and 2420 L'Enfant Square SE.	03/21/2013	8:00 am	20	L'Enfant Square WB	84	0	0	0	5 to 15	61.5
FS-2	Twining Square, 27 ft. north to L'Enfant Square. 29 ft. south to WB Pennsylvania Avenue, 109 ft. west to 54 ft. to SB Minnesota Avenue.	03/21/2013	8:30 am	20	Pennsylvania Avenue (EB and WB); Minnesota Avenue (SB)	1,330	17	25	23	15 to 40	73.1
FS-3	Terrace next to sidewalk. 30 ft. to EB Pennsylvania Avenue. 76 ft. to north corner of 2529 Pennsylvania Avenue.	03/21/2013	9:00 am	20	Pennsylvania Avenue (EB and WB)	931	21	14	6	25 to 35	71.1
FS-4	NPS reservation area. Surrounded by L'Enfant Square SE and SB Minnesota Avenue, south of Pennsylvania Avenue. 16 ft. east of L'Enfant Square SE, 38 ft. west of SB Minnesota Avenue.	03/21/2013	9:30 am	20	Pennsylvania Avenue (EB); Minnesota Avenue (NB and SB); L'Enfant Square SB	629	18	22	17	20 to 35	69.7

1) Vehicle counts classified as follows:

- a. Autos (A) defined as vehicles with 2-axles and 4-tires.
- b. Medium trucks (MT) defined as vehicles with 2-axles and 6-tires.
- c. Heavy trucks (HT) defined as vehicles with 3 or more axles.
- d. Buses defined as vehicles carrying more than 9 passengers.

Source: HNTB Corporation, March 2013

Measured vs. Modeled

TNM[®] 2.5 was used to validate the predicted noise levels through comparison with the measured and predicted noise levels. Traffic was counted and classified concurrently with each noise measurement by vehicle type: cars, medium trucks, heavy trucks, and buses. Traffic counts, concurrent with the noise measurements, were taken at four measurement sites. The traffic data from the four sites were used in the model. The site by site comparison is presented in Table 3. All four field site modeled data compared within 0-3 dB of the measured noise levels. This represents reasonable correlation since the human ear can barely distinguish a 3 dBA change in the L_{eq}(h) noise level in the urban environment.

**Table 3: Comparison of Measured and Modeled Noise Levels
Pennsylvania Avenue/Minnesota Avenue Intersection Improvements
Washington DC**

Field Site	Noise Level, dBA L _{eq} (h)		Difference in Noise Level, dBA L _{eq} (h) (Modeled Minus Measured)
	Measured	Modeled	
FS-1	61.5	63.8	2.3
FS-2	73.1	72.2	-0.9
FS-3	71.1	68.1	-3.0
FS-4	69.7	69.0	-0.7

Source: HNTB Corporation, March 2013

4.0 NOISE MODELING

The latest version of the FHWA’s Traffic Noise Model, TNM[®]2.5⁴, was used to model existing (2012), No Build (2040), Revised Square Alternative (2040), and Conventional Intersection Alternative (2040) for the peak noise hour noise levels within the study area. 22 representative noise receivers (representing 35 dwelling units), numbered N1 through N18, plus the four field sites, FS-1 through FS-4, as shown on Figure 2 and 3, were modeled. Modeled receivers are identical on Figure 2 and Figure 3, except for Field Site 4 (FS-4). The Revised Square Alternative alignment results in FS-4 being on the pavement. Thus, FS-4 was moved approximately 70 feet northeast for the Revised Square Alternative model. These receivers were selected to model representative noise impacts at areas consisting of residential, daycare, and recreational properties, as well as one place of worship. There are multiple commercial and retail properties throughout the project area that do not have areas of outdoor areas of frequent human use, so locations were not modeled. The results of the computer modeling are presented in Table 4.

⁴ M.C. Lau, C.S.Y. Lee, J.L. Rochat, E.R. Boeker, and G.C. Fleming. FHWA Traffic Noise Model[®] Users Guide (Version 2.5 Addendum). Federal Highway Administration, April 2004

**Table 4: PM Peak Hour Noise Levels, dBA Leq(h)
Pennsylvania Avenue/Minnesota Avenue Intersection Improvements
Washington, DC**

Receiver Location	Land Use	Activity Category	Activity Criteria	Dwelling Units	Noise Level, $L_{eq}(h)$ (dBA)			
			Leq (h)		Existing (2012)	No Build (2040)	Revised Square (2040)	Conventional Intersection (2040)
N1	Residential	B	67	3	69.0	70.3	70.3	71.0
N2	Daycare	C	67	0	67.4	69.4	69.3	69.7
FS-3	Retail	F	N/A	0	71.0	73.0	71.9	72.5
N3	Daycare	C	67	0	69.2	71.3	70.3	70.6
N4	Residential	B	67	3	67.1	68.4	68.7	69.2
N5	Residential	B	67	2	66.6	67.7	67.8	68.1
N6	Residential	B	67	3	66.1	67.1	67.1	67.1
N7	Place of Worship	D	52	0	41.1*	41.7*	41.6*	41.3*
N8	Residential	B	67	3	66.0	67.2	67.3	66.8
FS-4	Park	C	67	0	70.0	71.5	73.1	70.2
N9	Residential	B	67	1	65.4	67.3	68.0	67.7
N10	Residential	B	67	2	63.7	65.6	66.3	66.0
N11	Residential	B	67	2	63.9	65.7	66.9	66.2
FS-1	Residential	B	67	1	63.9	65.7	66.9	66.1
N12	Residential	B	67	2	64.7	66.4	67.5	66.9
N13	Residential	B	67	2	65.2	66.8	67.8	67.3
N14	Residential	B	67	2	65.9	67.4	68.2	67.9
N15	Residential	B	67	2	66.9	68.2	68.9	68.8
N16	Residential	B	67	1	67.3	68.6	69.1	69.3
N17	Residential	B	67	3	67.5	68.6	68.8	69.6
N18	Residential	B	67	3	67.5	68.6	68.6	69.6
FS-2	Park	C	67	0	71.1	73.2	72.8	73.7

- Indicates impacted receptor. A receptor is impacted if the predicted noise level approaches or exceeds DDOT NAC, as shown on Table 1.

* - N7 Building Type was classified as – Masonry and Window Condition – Single Glazed. Therefore the ‘Noise Reduction Due to Exterior of the Structure’ is 25 dB as defined on Table 6: *Building Noise Reduction Factors* (page 30) in the “Highway Traffic Noise: Analysis and Abatement Guidance”, FHWA, January 2011.

5.0 IMPACT ASSESSMENT

Existing (2012) peak hour levels at the 16 residential locations, which represents 35 dwelling units, would range from 63.7 to 69.0 dBA $L_{eq}(h)$. The noise levels at the category C locations would range from 67.4 to 71.1 dBA $L_{eq}(h)$. The interior noise level at the category D location, N7, would be 41.1 dBA. As shown in Table 4, the noise levels at 25 of the 35 dwelling units are presently approaching or exceeding 67 dBA, as are the noise levels in the park and at the daycare.

No build (2040) peak hour noise are predicted to exceed the NAC at 16 residential locations and four activity category C locations. The noise levels at the 16 residential locations would range from 65.6 to 70.3 dBA $L_{eq}(h)$ and represents 35 dwelling units. The noise levels at the category C locations would range from 69.4 to 73.2 dBA $L_{eq}(h)$. The interior analysis at the category D location, N7, did not approach or exceed the 52 dBA $L_{eq}(h)$ criteria.

Predicted future (2040) noise levels for the Revised Square Alternative would approach or exceed the NAC at 16 residential receivers and the same four activity category C locations identified under the No Build noise levels. The noise levels at the 16 residential locations would range from 69.3 to 73.1 dBA $L_{eq}(h)$, representing 35 dwelling units. The noise levels at the category C locations would range from 66.6 to 73.1 dBA $L_{eq}(h)$. None of the predicted future noise levels would substantially exceed existing noise levels (DDOT has defined an increase over existing noise levels of 10 decibels or more as being substantial). The interior analysis at the category D location, N7, did not approach or exceed the 52 dBA $L_{eq}(h)$ criteria.

Predicted future (2040) noise levels for the Conventional Intersection Alternative would approach or exceed the NAC at 16 residential receivers and the same four activity category C locations identified under the No Build and Revised Square Alternative noise levels. The noise levels at the 16 residential locations would range from 66.0 to 71.0 dBA $L_{eq}(h)$, representing 35 dwelling units. The noise levels at the category C locations would range from 69.7 to 73.7 dBA $L_{eq}(h)$. None of the predicted future noise levels would substantially exceed existing noise levels (DDOT has defined an increase over existing noise levels of 10 decibels or more as being substantial). The interior analysis at the category D location, N7, did not approach or exceed the 52 dBA $L_{eq}(h)$ criteria.

6.0 NOISE ABATEMENT MEASURES

Within the framework of DDOT's criteria, various methods were reviewed to mitigate the noise impact of the proposed improvements. Among those considered were traffic management measures (reduction of speed limits, restriction of truck traffic to specific times of the day, a total prohibition of trucks), alteration of horizontal and vertical alignments, acquisition of real property or interests therein to serve as a buffer zone to preempt development which would be adversely impacted by traffic noise, and noise insulation of Activity Category D land use facilities listed in Table 1, the construction of berms, and the construction of noise barriers.

Reductions of speed limits, although acoustically beneficial, are seldom practical unless the design speed of the proposed roadway is also reduced. Restriction or prohibition of trucks is counter to the project purpose and need. Design criteria, recommended termini

and the preliminary design process leading to the preferred alternative preclude substantial horizontal and vertical alignment shifts that would produce noticeable changes in the projected acoustical environment. Acquisition of undeveloped property for buffer zones is typically neither feasible nor reasonable due to the amount of land needed to create an acoustically effective buffer zone and the desire to keep as much land as possible in the local community's tax base. There are no Activity Category D land use facilities that approach or exceed the NAC, so noise insulation was not considered.

A noise berm or barrier must be long enough and tall enough to minimize the noise coming over the top or around the ends of the barrier, such that the noise barrier, according to DDOT's Noise Policy, dated April 5, 2011, provides at least a 5 dB(A) reduction at impacted receptors to be considered feasible. In addition, the noise barrier or berm cannot restrict pedestrian or vehicular access for the mitigation to be considered feasible. The berm or barrier cannot have any holes in the barrier which would seriously degrade the noise reduction capability of the berm or barrier. The construction of noise berms along this project would not be feasible due to the limited space between the traffic and the receptors.

There is limited space to construct noise barriers between the traffic and receptors. However, all the receptors have access to a parking lane in front of the residences; see Figures 3-15 and 3-16. The length of the barriers would be limited by line of sight requirements at intersections. Providing pedestrian access from the residences to the parked cars would create a number of holes in each noise barrier. Therefore, it is not feasible to construct a noise barrier that would provide a 5 dB(A) reduction for the residences abutting the local streets throughout the project area.

7.0 UNDEVELOPED LANDS

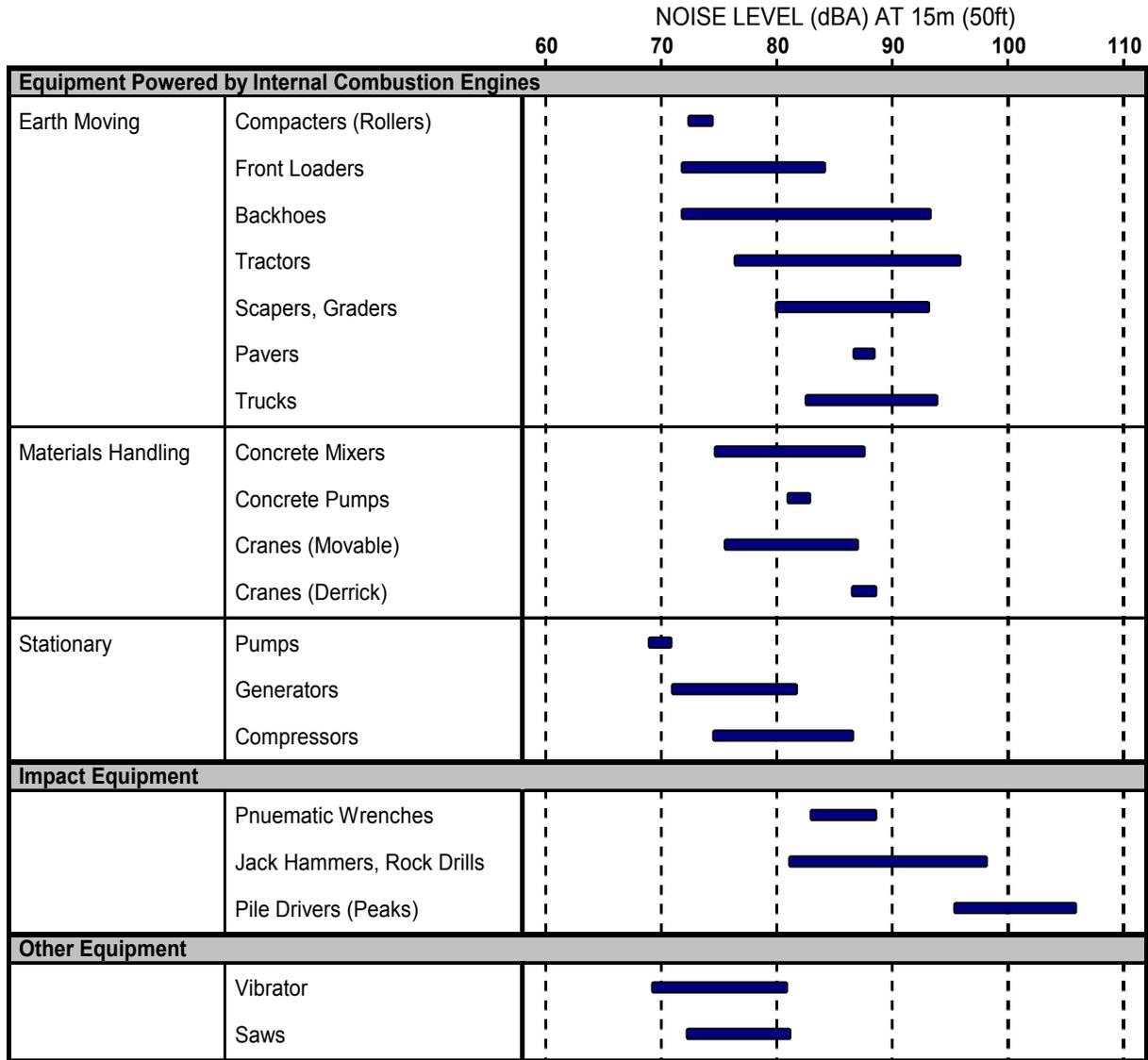
Traditionally, setback distances to 66 and 71 dB(A) $L_{eq}(h)$ are developed to assist local planning authorities in developing land use control over the remaining undeveloped lands along the project in order to prevent further development of incompatible land use based on predicted noise levels. However, the project area surrounding the Pennsylvania Avenue and Minnesota Avenue intersection is completely built out and therefore setback distances would not assist for this project.

8.0 CONSTRUCTION NOISE

The major construction elements of this project are expected to be demolition, hauling, grading, and paving. Construction of the proposed improvements and local rerouting of traffic for either alternative will result in a temporary increase in the ambient noise levels for properties in the project area, especially along Pennsylvania Avenue and Minnesota Avenue. General construction noise impacts for passerby and those individuals living or working near the project can be expected particularly from demolition, earth moving, and paving operations. Equipment associated with construction generally includes backhoes, graders, pavers, concrete trucks, compressors, and other miscellaneous heavy equipment. Table 5 lists some typical peak operating noise levels at a distance of 15 m (50 feet), grouping construction equipment according to mobility and operating characteristics. Considering the relatively short-term nature of construction noise, impacts are not expected to be substantial. The transmission loss characteristics of

nearby structures are believed to be sufficient to moderate the effects of intrusive construction noise.

Table 5: Construction Equipment Sound Levels



SOURCE: U.S. Report to the President and Congress on Noise, February, 1972.

9.0 CONCLUSION

Based on the study completed, mitigation of noise impacts for the Pennsylvania Avenue/Minnesota Avenue improvements is not feasible for either of the proposed alternatives. Due to the built out nature of the project area and local access requirements, noise mitigation in this urban environment is not possible. If it subsequently develops during final design that these conditions have substantially changed, noise abatement measures will be reviewed.

10.0 REFERENCES

Anderson, G. S., C.S.Y. Lee, G.G. Fleming and C. Menge, "FHWA Traffic Noise Model[®], Version 1.0 User's Guide", Federal Highway Administration, January 1998, p. 60.

Lau, Michael C., Cynthia S. Y. Lee, Gregg G. Judith L. Rochat, Eric R. Boeker, and Gregg C. Fleming. FHWA Traffic Noise Model[®] Users Guide (Version 2.5 Addendum). Federal Highway Administration, April 2004.

"Highway Traffic Noise: Analysis and Abatement Guidance", FHWA, January 2011.

"Noise Policy", District of Columbia Department of Transportation's, July 11, 2011.

ATTACHMENT 1
Field Data Measurement Sheets

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HNTB

NOISE MEASUREMENT DATA SHEET

PROJECT: Pennsylvania Ave JOB #: 48934 BY: R. Bassarab + A. McDonald
 SITE: 1 DATE: 3/21/2013 TIME: 8:00 AM
 CALIBRATION: 113.8 at 1K Hz dB.
 RESPONSE: FAST / SLOW WEIGHTING: A / C / LIN.

TRAFFIC DATA	
ROAD (Name/Dir)	<u>L'Enfant Sq WB</u>
AUTOS	<u>84</u>
MED TRKS	<u>0</u>
HVY TRKS	<u>0</u>
BUS	<u>0</u>
MOTORCYCLE	<u>0</u>
SPEED	<u>< 5 to 15mph</u>

EQUIPMENT	
INSTRUMENT	
SLM MANUFACTURER	Norsonic
SLM MODEL	Type 118
SLM	S / N 31483
PREAMPLIFIER - Type 1206	S / N 30522
MICROPHONE - Type 1225	S / N 52318
CALIBRATOR - Type 1251	S / N 30825

SITE SKETCH



MEASUREMENT DATA	Duration <u>20 min</u>	Leq <u>63.3</u>	
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WEATHER DATA WIND SPEED (MPH) 5-10 DIR. ~~NNW~~ TEMP. 35 HUMIDITY 40% CLOUD COVER overcast
 BACKGROUND NOISE chirping birds 10-20ft, Penn/Minn ambient 60-62
 MAJOR SOURCES CARS ON L'ENFANT
 UNUSUAL EVENTS horns honking, 04:50-05:30 police siren
 OTHER NOTES

HNTB

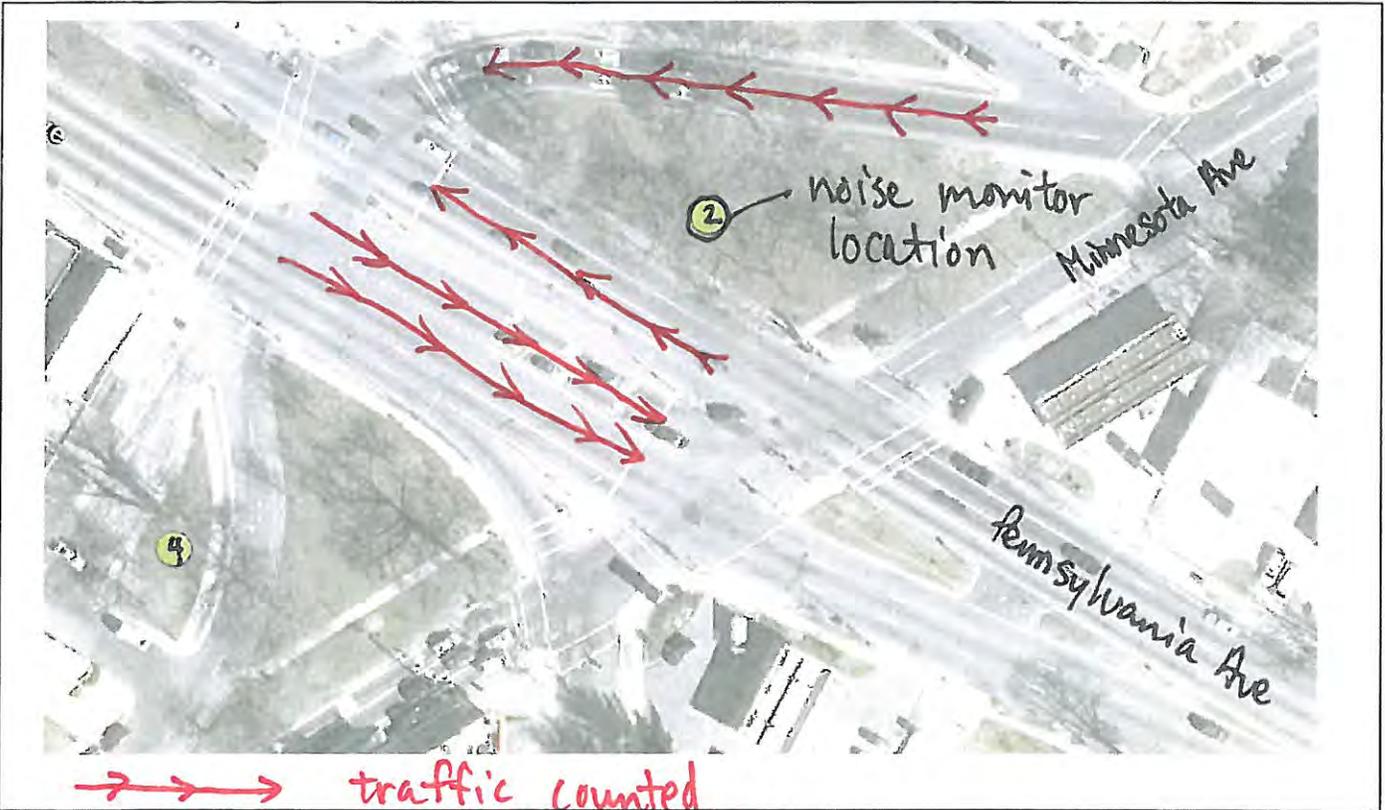
NOISE MEASUREMENT DATA SHEET

PROJECT: Pennsylvania Ave JOB #: 48934 BY: R. Bassarab + A. McDonald
 SITE: 2 DATE: 3/21/2013 TIME: 8:30 AM
 CALIBRATION: 113.8 at 1K Hz dB.
 RESPONSE: FAST / SLOW WEIGHTING: A / C / LIN.

TRAFFIC DATA	
ROAD (Name/Dir)	<u>Various (See below)</u>
AUTOS	<u>1330</u>
MED TRKS	<u>17</u>
HVY TRKS	<u>25</u>
BUS	<u>23</u>
MOTORCYCLE	<u>0</u>
SPEED	<u>15 to 40mph</u>

EQUIPMENT	
INSTRUMENT	
SLM MANUFACTURER	Norsonic
SLM MODEL	Type 118
SLM	S / N 31483
PREAMPLIFIER - Type 1206	S / N 30522
MICROPHONE - Type 1225	S / N 52318
CALIBRATOR - Type 1251	S / N 30825

SITE SKETCH



MEASUREMENT DATA	Duration <u>20 min</u>	Leq <u>74.4</u>	
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WEATHER DATA WIND SPEED (MPH) 5-10 DIR. N TEMP. 35 HUMIDITY 40% CLOUD COVER overcast

BACKGROUND NOISE w/g

MAJOR SOURCES Penn traffic, tour buses, trucks

UNUSUAL EVENTS 15:50 - 16:42 ambulance

OTHER NOTES

HNTB

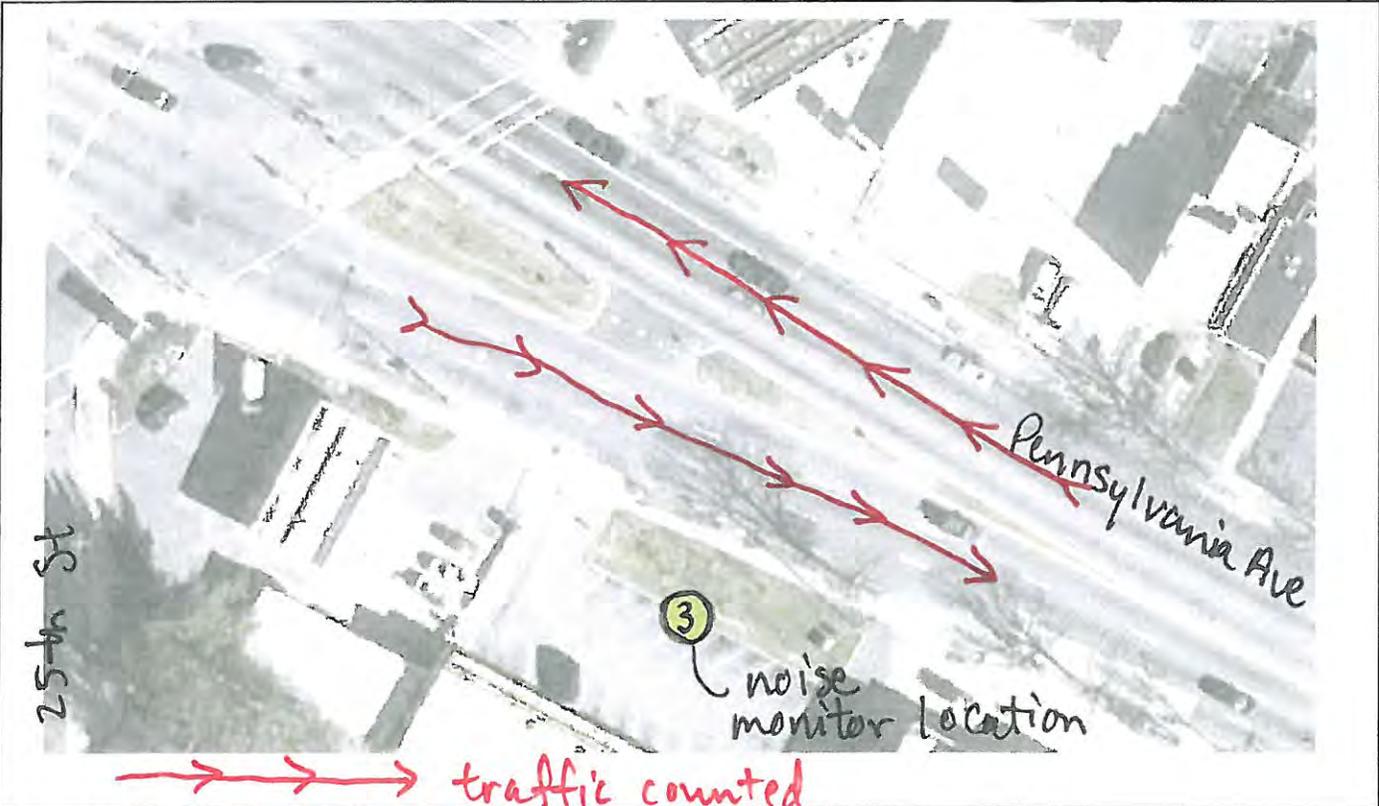
NOISE MEASUREMENT DATA SHEET

PROJECT: Pennsylvania Ave JOB #: 48934 BY: R. Bassarab + A. McDonald
 SITE: 3 DATE: 3/21/2013 TIME: 9:00 AM
 CALIBRATION: 113.8 at 1K Hz dB.
 RESPONSE: FAST / SLOW WEIGHTING: A / C / LIN.

TRAFFIC DATA	
ROAD (Name/Dir)	<u>Pennsylvania Ave (EB/WB)</u>
AUTOS	<u>931</u>
MED TRKS	<u>21</u>
HVY TRKS	<u>14</u>
BUS	<u>6</u>
MOTORCYCLE	<u>0</u>
SPEED	<u>25 to 35 mph</u>

EQUIPMENT	
INSTRUMENT	
SLM MANUFACTURER	Norsonic
SLM MODEL	Type 118
SLM	S / N 31483
PREAMPLIFIER - Type 1206	S / N 30522
MICROPHONE - Type 1225	S / N 52318
CALIBRATOR - Type 1251	S / N 30825

SITE SKETCH



MEASUREMENT DATA	Duration <u>20 min</u>	Leq <u>71.1</u>
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WEATHER DATA WIND SPEED (MPH) 5-10 DIR. N TEMP. 35 HUMIDITY 40% CLOUD COVER overcast
 BACKGROUND NOISE n/a
 MAJOR SOURCES _____
 UNUSUAL EVENTS n/a
 OTHER NOTES _____



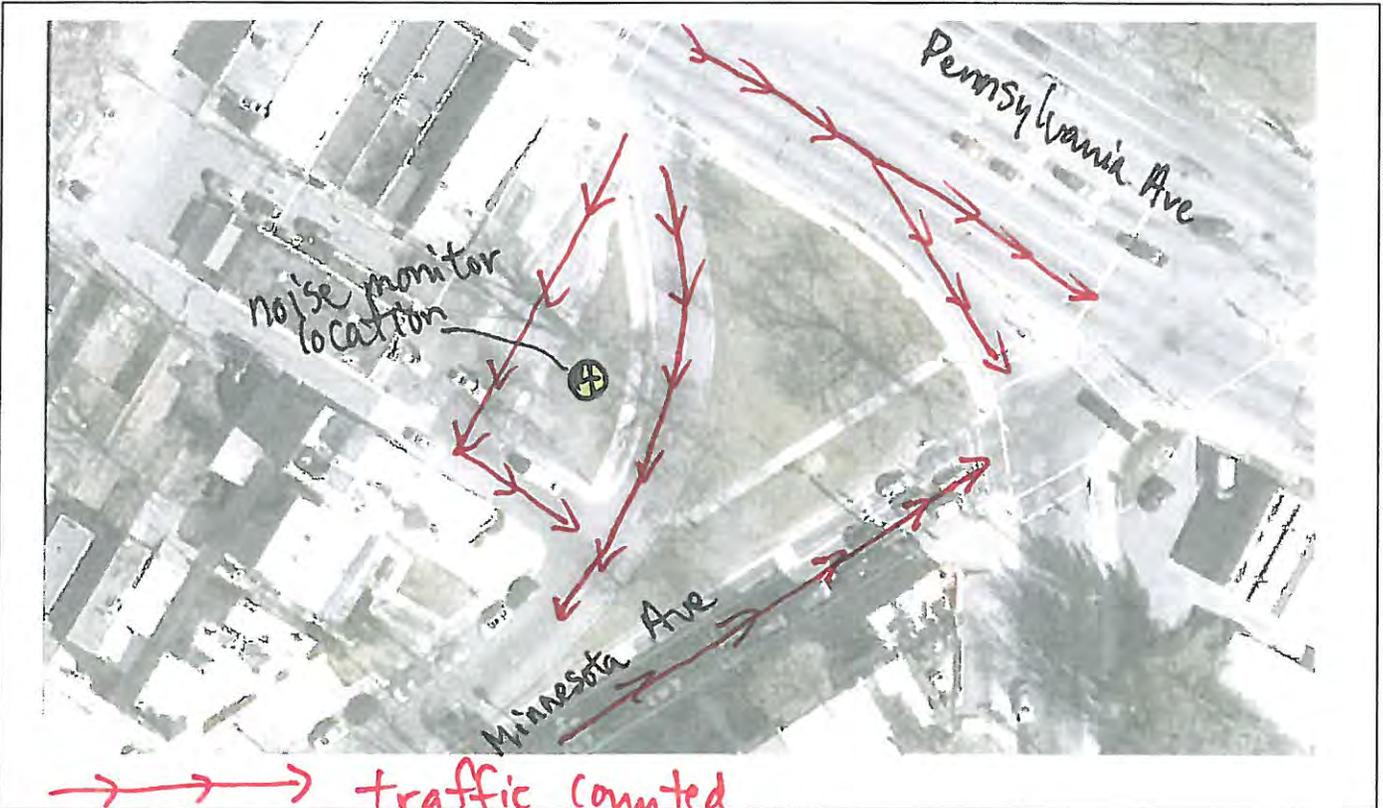
NOISE MEASUREMENT DATA SHEET

PROJECT: Pennsylvania Ave JOB #: 48934 BY: R. Bassarab + A. McDonald
 SITE: 4 DATE: 3/21/2013 TIME: 9:30 AM
 CALIBRATION: 113.8 at 1K Hz dB.
 RESPONSE: FAST / SLOW WEIGHTING: A / C / LIN.

TRAFFIC DATA	
ROAD (Name/Dir)	<u>Various</u>
AUTOS	<u>629</u>
MED TRKS	<u>18</u>
HVY TRKS	<u>22</u>
BUS	<u>17</u>
MOTORCYCLE	<u>0</u>
SPEED	<u>20 to 35 mph</u>

EQUIPMENT	
INSTRUMENT	
SLM MANUFACTURER	Norsonic
SLM MODEL	Type 118
SLM	S / N 31483
PREAMPLIFIER - Type 1206	S / N 30522
MICROPHONE - Type 1225	S / N 52318
CALIBRATOR - Type 1251	S / N 30825

SITE SKETCH



MEASUREMENT DATA	Duration <u>20 min</u>	Leq <u>69.7</u>
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WEATHER DATA WIND SPEED (MPH) 5-10 DIR. N TEMP. 35 HUMIDITY 39% CLOUD COVER overcast
 BACKGROUND NOISE n/a
 MAJOR SOURCES _____
 UNUSUAL EVENTS n/a
 OTHER NOTES _____