

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 NRHP and located within the 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.⁸⁹

Through research and coordination with the DC SHPO, it was determined that three buildings in the APE-Indirect are considered 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.

The DC SHPO reviewed the Proposed Action in accordance with Section 106 of the NHPA and issued a finding of *Conditional* No Adverse Effect for this undertaking with the following condition to be fulfilled regarding the historic built environment:

- The alternative selected is the Revised Square Alternative [referred to by its former name, the Modified Square Alternative], which most closely reestablishes the original configuration of the streets and reservations.

According to the DC SHPO, "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." Additionally, continued consultation with the SHPO on the project is requested if there are any changes to the project footprint as the designs are finalized. Refer to *Appendix E* for the *DC SHPO Section 106 Review Form*, dated April 17, 2013.

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, 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, totaling approximately 1.4 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 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 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 land use and community needs.

5.4 Proposed Action

Section 2, 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 archeological 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.⁹⁰

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 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 Reservation 487; the medians to the west and east of the intersection in the Study Area are identified as Reservation 487C (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 1.4 acres of NPS property (Section 4(f) property) in the Study Area that would be impacted by the Proposed Action. Note that acreages for Reservations 487D and 487E are not included, as they would not 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
Total NPS Acres (Approx.)		1.4

Note: Acreage calculations are preliminary and based on aerial photo and MicroStation estimating tools unless marked by an asterisk (*).

*Based on DDOT GIS data.

Source: HNTB Analysis, 2013.

5.7 Alternatives Considered

The project alternatives, including the No Build Alternative and two Build Alternatives, are described in detail in *Section 2, 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 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 1.4 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 0.2 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.



Figure 5-3
Build Alternative 1 - Revised Square (Consolidated Park Area)

Net Benefits Section 4(f) Programmatic Evaluation

Source: HNTB Corporation, 2013

5.7.3 Build Alternative 2 – Conventional Intersection Alternative

Detailed discussion of Build Alternative 2 is contained in Section 2.2.2 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.

As with Build Alternative 1, Build Alternative 2 is expected to require a jurisdictional land transfer from NPS to DDOT of approximately 1.4 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 maintains a priority for motorists through the intersection; however, it 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 0.2 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.

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.

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, Environmental Consequences*. A complete summary of impacts is provided in the *Executive Summary*, Table ES.1.



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, 2013

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
Total Acres (approx.)*	1.2 acres	1.5 acres	1.4 acres

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.

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.⁹¹ 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

The DC SHPO reviewed the Proposed Action in accordance with Section 106 of the NHPA and issued a finding of *Conditional* No Adverse Effect for this undertaking with associated conditions to be fulfilled regarding the historic built environment:

- The alternative selected is the Revised Square Alternative, which most closely reestablishes the original configuration of the streets and reservations.

According to the DC SHPO, “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.” Additionally, continued consultation with the SHPO on the project is requested if there are any changes to the project footprint as the designs are finalized. Refer to *Appendix E* for the *DC SHPO Section 106 Review Form*, dated April 17, 2013.

Given the conditions in the *Section 106 Review Form* for the historic built environment are followed, 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 DC SHPO has issued a finding of *Conditional No Adverse Effect* for this undertaking with the following conditions related to archaeological resources:

- 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 Figure 3-5);
- 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
- Completion of archaeological reporting requirements for the project following District and federal guidelines, curation of resulting collections, records, images, and geospatial data.

Given the conditions in the *Section 106 Review Form* for archaeology (also outlined above) are followed, the effects on archaeological resources would not rise to a level of “significance” as defined by CEQ. Refer to *Appendix E* for the *DC SHPO Section 106 Review Form*, dated April 17, 2013.

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) 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.

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).⁹² 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

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.

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.

As discussed under Build Alternative 1, the DC SHPO issued a *Conditional No Adverse Effect* for this undertaking if Build Alternative 1 is selected as the Preferred Alternative. If Build Alternative 2 is selected as the Preferred Alternative, additional consultation with the DC SHPO would likely be necessary. Given the conditions in the *Section 106 Review Form* for the historic built environment are followed, 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. Refer to Build Alternative 1 for a description of stipulations associated with the DC SHPO’s finding of *Conditional No Adverse Effect*. Given the conditions in the *Section 106 Review Form* for archaeology (also outlined above) are followed, the effects on archaeological resources 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) would transfer to DDOT. This land transfer would facilitate the reconfiguration of the intersection. The land use and zoning in the 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. Indirect impacts to land use and zoning would be negligible given the fact that the design of Build Alternative 2 maintains the current priority of moving vehicles through the intersection. Land use impacts under Build Alternative 2 would be negligible and temporary 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 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 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. Vehicle speeds would remain the same through the intersection, however, and it may be difficult for visitors to the intersection to use the park area for recreational purposes. 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.

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. However, the crossing distances between medians, vehicle turning movements, and the number of lanes at this intersection would not advance the pedestrian and bicycle network. In addition, the crosswalk across Pennsylvania Avenue, SE connecting Minnesota Avenue, SE to the north and south of the eastside intersection is a long crossing distance for pedestrians. Due to the design of Build Alternative 2 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, 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, 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. Negligible long-term impacts to land use and zoning.
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, 2013.

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.⁹³ 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 total 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 a publicly-owned park. 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 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 land use and community needs.

Build Alternative 2 would improve vehicle operations and reduce confusion at the complex intersection compared to the No Build Alternative. 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. Because this alternative maintains the intersection as a typical intersection, the focus remains on moving vehicles through the intersection to their destinations.

- (vi) As discussed in *Section 4, 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 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. Build Alternative 1 better meets the project purpose and need in terms of improving pedestrian safety and supporting land use and community needs since the Revised Square design is intended to function as a traffic-calming mechanism to reduce vehicle speeds. However 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.”⁹⁴

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 to 10 feet 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.

The intersection improvements should result in a more efficient, faster flow of traffic through the intersection. 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. More details of public involvement are included in the EA and a summary of comments from the public is presented in *Appendix C, Agency Coordination and Public Involvement* of the EA.

5.13.2 Agency Coordination

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. Coordination between DDOT, FHWA and NPS has been consistent throughout the EA process and will continue through any 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.

Because of the size, condition, and location of the affected Section 4(f) properties, DDOT proposes the use of the Net Benefits 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.

5.13.3 Coordination with NPS

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 had 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.

5.14 Conclusion

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, Purpose and Need*, of the EA.

The avoidance alternatives discussed in Section 5.9 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.⁹⁵

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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