

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.”⁴²

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*.

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

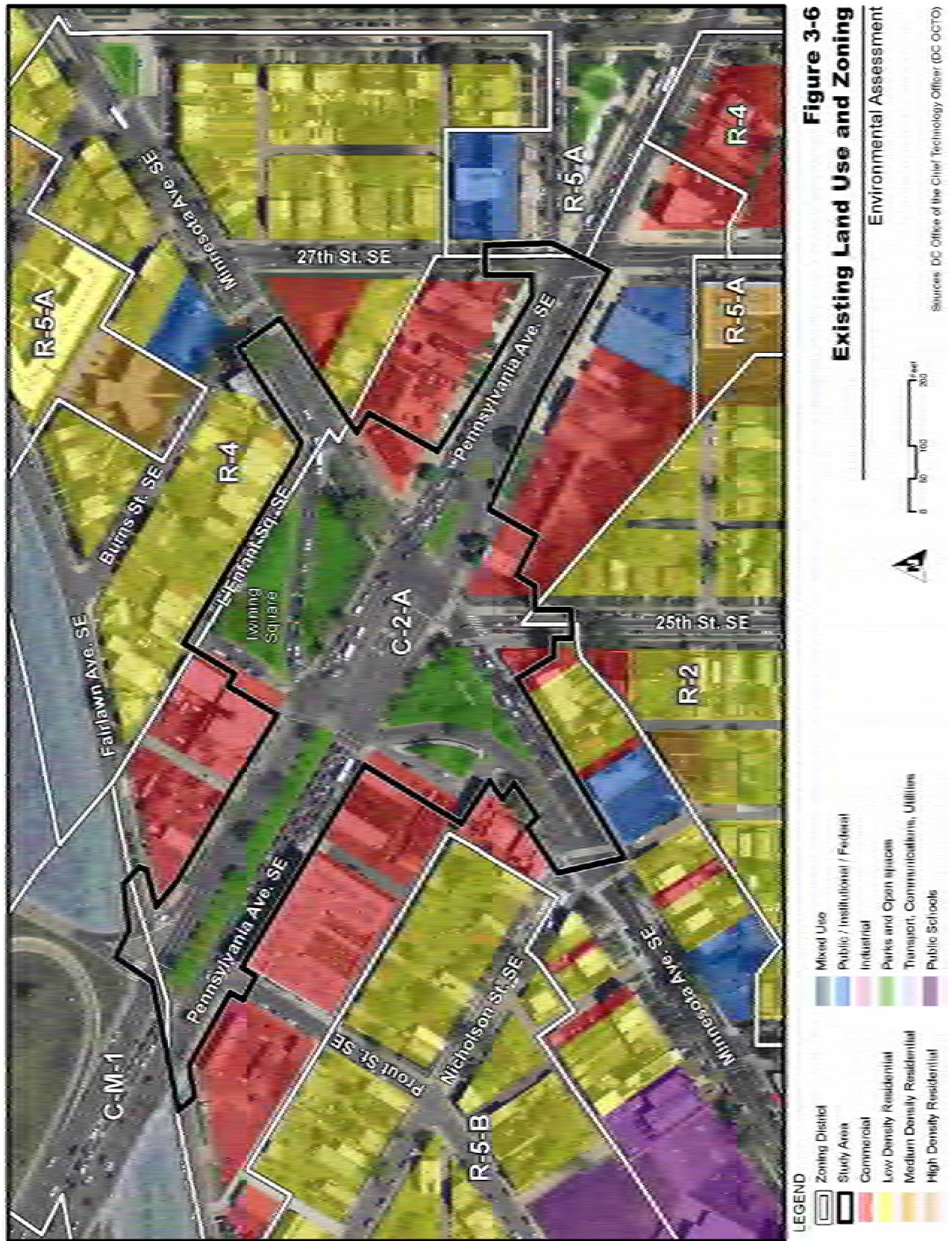
3.3.1 Land Use

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*⁴³ 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.⁴⁴ 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

LEGEND
Study Area
Census Tract
Census Block Group

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 \$61,835.⁴⁵ 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.⁴⁶

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 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.⁴⁷ 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.⁴⁸

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.⁴⁹ 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.⁵⁰

Pedestrian Safety

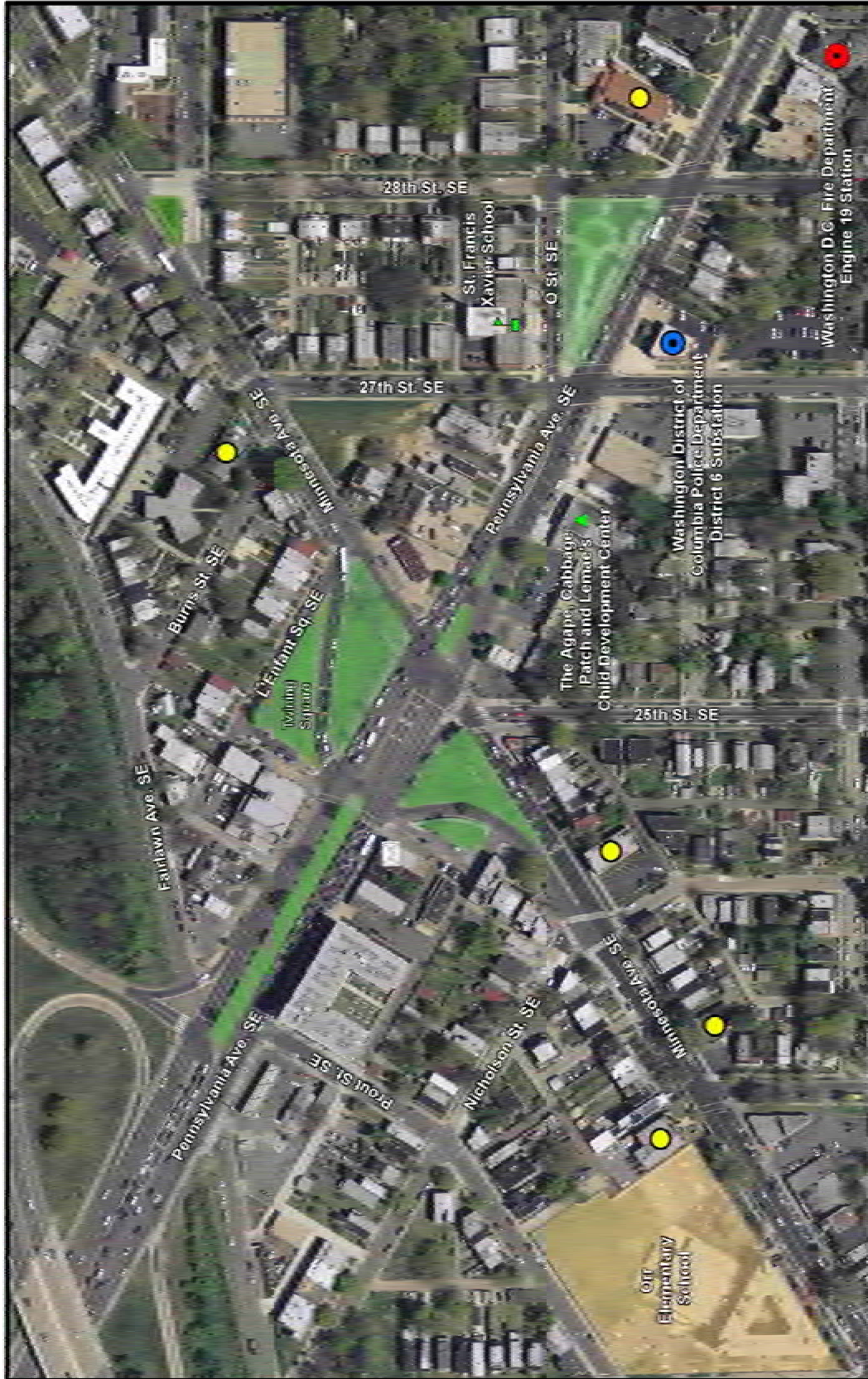
The intersection is heavily used by pedestrians commuting to and from work or using the bus stops at the intersection. Many of the existing crosswalks at the intersection are inconvenient to use due to placement and long crossing length. This discourages pedestrian use, and instead of using the signalized 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