FINDING OF NO SIGNIFICANT IMPACT
FOR SITE IMPROVEMENTS AT THE MARY E. SWITZER OFFICE BUILDING
WASHINGTON, DC

FINDING

In accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality Regulations for Implementing NEPA (40 CFR 1500-1508), U.S, General Services Administration (GSA) Order ADM 1095.1F: Environmental Considerations in Decision Making, and the Public Buildings Service NEPA Desk Guide, I find that the site improvements at the Mary E. Switzer Building, as described in the attached Environmental Assessment (EA), is not a major Federal action significantly affecting the quality of the human environment. Therefore, an Environmental Impact Statement will not be prepared.

APPROVED: Paula J. DeMuth Date: July 6, 2010

Paula J. DeMuth,
Acting Regional Administrator
U.S. General Services Administration
National Capital Region

This FONSI will become final 30 days after publication of its Notice of Availability in the Washington Post, provided that no information leading to a contrary finding is received or comes to light during the 30-day review period.

BASIS FOR FINDING

GSA prepared an environmental assessment (EA) analyzing the environmental impacts that could result from the site improvements at the Mary E. Switzer Building. The EA was prepared pursuant to the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality Regulations for Implementing NEPA (40 CFR 1500-1508), GSA Order ADM 1095.1F: Environmental Considerations in Decision Making, and the Public Buildings Service NEPA Desk Guide. The EA documents the direct, indirect, and cumulative impacts of three action alternatives and a No Action alternative.

The environmental issues addressed in the EA were identified through early public involvement (scoping), which included consultations with Federal and local agencies and other stakeholders. The Final EA responds to comments and concerns received during the 30-day scoping period. The Final EA is incorporated by reference into this Finding of No Significant Impact (FONSI).

I. PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed action is to create a welcoming outdoor plaza for employees, visitors, and the public; to enhance pedestrian safety and circulation through widening the sidewalks on C Street, SW between 3rd and 4th Streets; to improve vehicular circulation on 3rd and 4th Streets, SW through relocating entrances to the surface parking lot; and to provide Level IV protection for the facility. In addition, GSA would seek to incorporate sustainability measures into the design in compliance with Executive Order 13514, Federal Leadership in Environmental, Energy and Economic Performance.

The site improvements are necessary to meet the needs of area employees, improve the appearance and utility of the site, and provide the required level of security.

II. DESCRIPTION OF ALTERNATIVES

Four alternatives were considered in detail in this EA, three action alternatives and a No Action alternative. These alternatives are summarized below.

No Action Alternative

Under the No Action alternative, site improvements would not be undertaken at the Switzer Building. The surface parking lot on the north face of the building would remain and perimeter security elements would not be established. Further, C Street would not be narrowed and area sidewalks would not be widened. Finally, no Low Impact Development (LID) measures would be installed on the site of the Switzer Building.

Elements Common to All Action Alternatives

Under each of the action alternatives, C Street, SW, between 3rd and 4th Streets, would be narrowed to a single lane in each direction. This would allow for the sidewalks to be widened on the north and south sides of the street such that the existing vents would no longer serve as physical obstructions to pedestrians. Bulb-outs at the corners of 3rd and C Streets, and 4th and C Streets would frame a line of parallel parking spaces on both sides of the vehicular right-of-way. Curb cuts and entrance ramps would be installed to make the site accessible and compliant with the Americans With Disabilities Act (ADA).

Each action alternative would include a landscaped plaza on the north side of the building on the site of the existing surface parking lot. Each would also include LID measures in the design. Landscape planting within the plaza and around the building would utilize sustainable plant materials, and street trees would be installed to create a consistent green edge along the rights-of-way. The action alternatives would all include installation of a concession/coffee stand, public art element or elements, and permanent perimeter security measures. The public art elements would conceal vent shafts and would therefore be at least nine feet high to meet code requirements. Along C Street SW, the perimeter security measures would be incorporated into the landscaped plaza design and the existing ramp wall would be hardened. Perimeter security measures along 3rd and 4th Street SW would be located at the edge of the building yard and setback approximately 20 feet from the building face. Installation of perimeter security along D Street SW would be located two feet from the edge of curb and would follow the alignment planned at Federal Office Building 8, one block east of the site.

Each of the action alternatives would also involve the installation of a back-up generator in the below-grade service area shared by the Switzer and Cohen Buildings. The emergency generator would replace the temporary generator that is currently located above grade within the surface parking lot on the south side of the Cohen Building.

The action alternatives would also employ a ground source heat pump. The pump system would be installed below the surface of the landscaped plaza and would assist in heating and cooling the Switzer Building. The size of the system would be determined after energy efficiency tests are performed.

Alternative A

Under Alternative A, the entire existing surface parking lot on the north side of the building would be converted to landscaped plaza. The proposed design would combine both open lawn and fully planted landscaped panels. A coffee/concession stand accessible to the public would be installed at the east end of the plaza.

Alternative B

Alternative B proposes to convert the existing surface parking lot to a landscaped plaza. The landscaped plaza design would include open lawn panels opposite the two entrances with fully planted landscaped panels flanking the lawns on the east and west ends. Surface parking for approximately 11 vehicles would be located at the center of the plaza and would be bordered on 4 sides by planting beds. The lot would be designed such that it could serve as an additional outdoor venue when not used for parking. A coffee/concession stand and small seating area would be installed at the east end of the plaza adjacent to the 3rd Street sidewalk.

Alternative C

Alternative C proposes to convert the existing surface parking lot to a landscaped plaza. The landscaped plaza design would include open lawn panels opposite the two entrances with fully planted landscaped panels flanking the lawns on the east and west ends. Surface parking for approximately 28 vehicles would be located at the center of the plaza and would be bordered on the north, east, and west sides by planting beds. The lot would be designed such that it could serve as an additional outdoor venue when not used for parking. A coffee/concession stand and small seating area would be installed at the east end of the plaza adjacent to the 3rd Street sidewalk.

III. PREFFERED ALTERNATIVE

While all action alternatives would meet the overall purpose and need of the proposed action, GSA has selected Alternative B as the preferred alternative. Alternative B would best achieve a site that employs sustainable features in its design, and is inviting to both employees and visitors, while still incorporating physical security elements and parking into the landscape design. Alternative B would decrease the amount of hard surfaces and results in welcoming landscaped areas and the incorporation of sustainable measures into the site, while still providing visitor, handicapped and employee parking. Further, Alternative B would result in a pedestrian-friendly site that allows for safe circulation through the site to nearby existing or planned attractions. Incorporation of the coffee/concession stand into the site would further enhance the public's use of the site. Alternative B would be in compliance with a number of Federal and District of Columbia policies and guidelines including but not limited to: the *Public Buildings Cooperative Use Act of 1976*, *Comprehensive Plan for the National Capital: Federal Elements (2004)*, *Comprehensive Plan for the National Capital: District Elements (2006), Executive Order 13514: Federal Leadership in Environmental, Energy and Economic Performance, GSA's Site Security Design Guide*, and *GSA's Achieving Great Federal Spaces: A Property Manager's Guide.*

IV. ENVIRONMENTAL CONSEQUENCES

Several issues were initially considered for evaluation in this EA, but were eliminated from detailed study because short- and long-term impacts would be negligible in intensity. These issues are economic and fiscal resources, community facilities, hazardous materials, floodplains and wetlands, demographics and environmental justice, wildlife, and climate change.

The following is a summary of the impacts associated with implementing Alternative B, the preferred alternative. Where applicable, mitigation measures have been identified. A full description of the impacts from implementing any of the action alternatives can be found in the Final EA.

Land Use

Long-term beneficial impacts would result from the conversion of surface parking to landscaped plaza.

Planning Policies

Long term beneficial impacts due to compliance with policies that support sustainability; minor adverse impacts would result from the removal of some existing street trees and locating some security features within public space.

<u>Mitigation Measures</u>

- National Capital Planning Commission's (NCPC) *National Capital Urban Design and Security Plan* and *Security Plan Policies and Objectives* should be followed to ensure the form and materials of the proposed perimeter security elements respond to the Switzer Building and its surroundings.
- Coordination with District of Columbia Department of Transportation (DDOT) and their Urban Forestry Administration regarding guidelines in the *Public Realm Design Handbook* and the *Design and Engineering Manual* should occur to ensure standards are met.
- GSA should incorporate bike racks within the final design in compliance with the *District of Columbia Bicycle Master Plan*.

Public Space

Impacts to public space would be moderate with beneficial impacts resulting from the installation of the landscaped plaza on C Street.

Mitigation Measures

- As the design progresses coordination with DDOT regarding guidelines presented in their *Design and Engineering Manual* and *Public Realm Handbook* would be required.
- GSA will obtain a public space permit for any elements that would be located in land controlled by the District of Columbia. As part of that process, GSA has initiated preliminary discussions with DDOT and District of Columbia's Office of Planning. GSA will continue to coordinate with the District, including presenting the design at DDOT's Preliminary Design Review Meeting and to the District's Public Space Committee.
- As the design progresses, GSA will seek opportunities to include additional seating on the site.

Historic Resources

Long-term minor to moderate adverse impacts to the Switzer Building; long-term moderate adverse impact to the L'Enfant Plan; long-term minor adverse impacts to the Cohen Building; negligible to minor impacts to the Lyndon B. Johnson and Hubert Humphrey Buildings would result from implementing the proposed action.

Mitigation Measures

- Mitigation for impacts to historic resources will be determined during the Section 106 consultation process being conducted in compliance with the National Historic Preservation Act. The 106 consultation process is discussed in more detail in *Section V Section 106 of the National Historic Preservation Act.*

Archaeological Resources

During ground disturbing activities for the landscaped plaza and perimeter security archaeological resources may be encountered resulting in potential for adverse impact.

Mitigation Measures

- Mitigation for impacts to archaeological resources will be determined during the 106 consultation process. The 106 consultation process is discussed in more detail in *Section V Section 106 of the National Historic Preservation Act.*

Visual Resources

Long-term moderate adverse impacts may result from placement of perimeter security elements in the public realm on D Street SW, and minor adverse impacts may occur from their installation on 3rd and 4th Streets, SW. The visual impacts of the architectural or public art element that would mask the generator stacks were analyzed in the EA. It was determined that the adverse impact to visual quality increases as the height of the

element increases. Decreasing the height of the element would lessen the intensity of the visual impact. Adverse impacts may be minor to major.

Long-term beneficial impacts may result from the addition of new street trees around the site and from the replacement of the surface parking with a landscaped plaza on the north side of the site.

Mitigation Measures

- To the extent possible, the physical features providing perimeter security at the curbline on D Street, SW should consist of hardened streetscape elements, such as streetlights, trash receptacles, and bike racks, to minimize the visual impact of the improvements. In addition, as the design for D Street, SW progresses, GSA will explore options that may allow the security line to modulate to reduce its visual impact.
- The conceptual design for the site improvements will be refined through coordination with review agencies, including the Commission of Fine Arts (CFA), the DC State Historic Preservation Office (SHPO), and NCPC.
- The design for the public art element that will mask the emergency generator will be coordinated with the SHPO, NCPC, and CFA. GSA will limit the height and massing of the element in order to mitigate potential major adverse impacts to visual resources.

Vegetation

Minor to moderate adverse impacts would result from the removal of existing street trees and other on-site vegetation; these impacts would persist until the replacement trees are established and reach maturity. Long-term beneficial impacts would result from the conversion of the surface parking to a landscaped plaza and the installation of new street trees that would form a consistent green edge along each of the streets.

Mitigation Measures

- Coordinate with DDOT's Urban Forestry Administration regarding tree plantings in public space and comply with the Urban Forestry Administration's Special Tree Removal Permit as necessary.
- Where feasible, preserve additional mature trees as the detailed design progresses.
- Where feasible, GSA will salvage and re-use mature landscaping either at Switzer Building or at other GSA-controlled Federal buildings in the National Capital Region.
- Where feasible, GSA will employ native plant species in the site design.

Stormwater Management

Minor short-term adverse impacts may result to stormwater due to increased sediment flows during construction. Long-term beneficial impacts would result from the reduction of impervious surfaces at the site and employing LID measures for managing stormwater on-site.

Mitigation Measures

- Employ best management practices during construction to minimize sediment loads in stormwater runoff.
- Consult with District of Columbia Water and Sewer Authority (DC WASA) and DDOT regarding any relocation or reconstruction of existing storm drains due to new construction at the site.

Geophysical Resources

Moderate short-term construction-related impacts to soils and groundwater may result due to site construction activities, excavation, and drilling during the installation of the ground source heat pump. Long-term beneficial impacts to groundwater would result from implementing stormwater management practices.

Mitigation Measures

- Employ best management practices during construction to minimize sediment loads in stormwater runoff.
- Installation of the ground source heat pump would follow International Ground Source Heat Pump Association (IGSHPA) guidelines as well as local, state, and Federal guidelines and regulations.
- Collect and test soil samples during drilling for ground source heat pumps for potential contamination; if contamination is found follow local, state, and Federal guidelines and regulations for disposal.
- Test water collected during drilling for ground source heat wells for potential contaminants.
- In the event that dewatering is necessary, it would be undertaken in compliance with all local and federal permits, and DC WASA permitting processes.

Vehicular Circulation

Short-term moderate adverse impacts would result from construction activities that would likely constrict rights-of-way in the immediate area. The narrowing of C Street SW in each direction is anticipated to have negligible impacts to the levels of service at the affected intersections because of the low traffic volumes on C Street, SW. Long-term beneficial impacts would result to traffic circulation on 3rd and 4th Streets , SW due to the elimination of the surface parking lot ingress and egress points on these streets.

In addition, the narrowing of C Street, SW is expected to have a traffic calming effect resulting in beneficial impacts to area traffic.

Mitigation Measures

- Coordination with District of Columbia Fire and Emergency Services should occur throughout the design process to ensure that emergency vehicle access is maintained to the site.
- To minimize impacts on area vehicular rights-of-way, construction traffic and equipment should be minimized during AM and PM peak hours, and construction schedules should be coordinated with nearby projects, including the American Veterans Disabled for Life Memorial, the proposed Eisenhower Memorial, and FOB 8 exterior improvements.
- DDOT has reviewed GSA's traffic study and proposed cross sections for C Street, SW. GSA is coordinating with and will continue to coordinate with DDOT regarding the final design of C Street SW to ensure that a mutually acceptable design is completed.

Parking

Short-term minor to moderate adverse impacts to metered parking would occur during construction. Long-term impacts to parking would be minor due to the small number of spaces being lost at the Switzer Building and the presence of nearby commercial parking lots. There would not be a long-term impact to public parking (metered) from the project, as the project would not result in a decrease in the number of metered parking spaces.

Public Transportation

Short-term moderate impacts would result from construction related temporary disruptions to Metrobuses serving stops on the corner of C and 4th Streets. Long-term impacts would be negligible.

Mitigation Measures

- Minimize disruptions to public transportation by timing construction so that Metrobus service would only need to be re-routed for a minimal amount of time and so that nearby stops served by Metrobus lines would not be impacted.

Pedestrian/Bicycle Circulation

Short-term minor adverse impacts to pedestrians would result during construction and minor to moderate adverse impacts to pedestrian circulation resulting from the perimeter security. Long-term beneficial impacts to pedestrian circulation and

experience would result from the installation of a public plaza area, wider sidewalks on C Street SW, ADA compliant curb cuts, and additional street trees surrounding the site. No adverse impacts are anticipated to bicycle circulation. There would be long-term beneficial impacts to bicycle circulation due to the elimination of ingress and egress points on 3rd and 4th Streets SW, and traffic calming related to the narrowing of C Street.

Mitigation Measures

- The final design should comply with ADA accessibility requirements and facilitate circulation to and from the nearby Metrorail Station, the future American Veterans Disabled for Life Memorial east of the site and the future Eisenhower Memorial west of the site.
- During construction of the site improvements, the appropriate signage and flagging should be utilized to ensure pedestrian and bicyclist safety.
- To enhance the pedestrian experience, GSA would explore additional options for seating on the site.

Energy Use and Sustainability

Long-term beneficial impacts would result from the installation of LID measures, installation of ground source heat pump that would serve the building, and reduction of paved surfaces.

Utilities

Construction of security features, conversion of surface parking to landscaped plaza, narrowing of C Street SW, and the addition of more street trees could potentially disturb several utility lines and street lighting; resulting adverse impacts would be short-term and minor. In conjunction with the narrowing of C Street SW, storm sewer curb inlets on C Street SW would need to be relocated. Long-term beneficial impacts to storm sewer system may occur with the increased capture of stormwater on-site.

Mitigation Measures

- Coordinate with DC WASA to determine if a preconstruction survey is necessary and for the potential relocation of storm sewer inlets.
- Coordinate with PEPCO to ensure all electrical lines remain intact and are safe to work around.
- Any new or replacement street lighting would be provided in accordance with District standards.

Air Quality

Short-term minor adverse impacts to air quality may occur from fugitive dust during construction. Long-term impacts from emergency generator usage would be negligible

because of its limited use and because it will be designed to meet applicable air quality standards.

Mitigation Measure

- Best management practices would be employed during construction to control fugitive dust.

Noise Levels

Short-term moderate adverse impacts may result during construction activities. Long-term impacts to noise would be negligible with potential beneficial impacts resulting from the relocation of the emergency generator to below-grade.

Mitigation Measures

- Appropriate best management practices would be employed to control noise at its source during construction.

V. SECTION 106 of the NATIONAL HISTORIC PRESERVATION ACT

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), federal agencies are required to consider the effects of any undertakings on districts, sites, buildings, structures, or objects included, or eligible for inclusion, in the National Register of Historic Places. Federal agencies are also required to afford the Advisory Council on Historic Preservation (ACHP) a "reasonable opportunity to comment with regard to such undertaking."

Through the coordinated NEPA and Section 106 processes, GSA has determined that the implementation of site improvements at the Mary E. Switzer Building has the potential to have an adverse effect, as defined by *36 CFR Part 800: Protection of Historic Properties*, on the historic resources within the Area of Potential Effect, including contributing features of the L'Enfant Plan, the Switzer Building and the Cohen Building. GSA has consulted with the SHPO and the ACHP pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. Section 470(f)) regarding the effects of the Undertaking to develop a Memorandum of Agreement (MOA) to document the agreed upon design program and mitigation measures. The MOA will be executed and signed by GSA and appropriate parties. GSA shall ensure that the measures outlined in the MOA are carried out to minimize, mitigate, and avoid adverse effects.

MARY E. SWITZER BUILDING
SITE IMPROVEMENTS

ENVIRONMENTAL ASSESSMENT

WASHINGTON, DC

U.S. GENERAL SERVICES ADMINISTRATION

IN COOPERATION WITH THE NATIONAL CAPITAL PLANNING COMMISSION

July 2010

This page intentionally left blank

MARY E. SWITZER BUILDING
SITE IMPROVEMENTS

ENVIRONMENTAL ASSESSMENT

Responsible Agency:
U.S. General Services Administration

Cooperating Agency:
National Capital Planning Commission

Abstract:
The U.S. General Services Administration (GSA), in cooperation with National Capital Planning Commission (NCPC), has prepared this Environmental Assessment (EA) for site improvements to the Mary E. Switzer Building (Switzer Building) in Washington, DC. The project includes the renovation of the building grounds, the installation of permanent perimeter security, the reconfiguration of C Street, SW including narrowing the roadway and widening the sidewalks, mechanical improvements, and the construction of a coffee/concession stand. This EA considers the environmental effects of implementing the No Action (no build) alternative and three action alternatives. The action alternatives differ in the number of surface parking spaces provided and the design of a landscaped plaza on the north side of the building.

For information concerning this document contact:

Suzanne Hill, NEPA Program Specialist
Portfolio Management Division
Public Buildings Service
National Capital Region
U.S. General Services Administration
301 7th Street, SW, Room 7600
Washington, DC 20407
Phone: (202)205-5821
suzanne.hill@gsa.gov

This page intentionally left blank

TABLE OF CONTENTS

1.0 Purpose and Need
1.1 What Is GSA Proposing and How Is This Environmental Assessment Being Prepared? 1-1
1.2 Where Is the Switzer Building Located and Who Occupies It? 1-4
1.3 What Is the History of the Project? 1-4
1.4 What Is the Purpose of the Switzer Building Site Improvements? 1-6
1.5 Why Do the Site Improvements Need to be Undertaken? 1-6
1.6 How Were Agencies and the Public Involved in the Development of This EA? 1-8
1.7 What Resource Issues Are Considered in This Document? 1-9
1.8 What Resource Issues Have Been Eliminated From Detailed Analysis? 1-10

2.0 Alternatives
2.1 What Alternatives Are Being Considered In this Environmental Assessment? 2-1
2.2 What Elements Are Common To All the Action Alternatives? 2-1
2.3 What Elements Are Specific to Alternative A? 2-6
2.4 What Elements Are Specific to Alternative B? 2-8
2.5 What Elements Are Specific to Alternative C? 2-10
2.6 What Is the No Action Alternative? 2-12
2.7 How Do the Alternatives Compare With Each Other? 2-14
2.8 What Is GSA's Preferred Alternative and Why Was It Selected? 2-20
2.9 What Alternatives Did GSA Consider But Not Analyze in Detail? 2-20

3.0 Affected Environment and Environmental Impacts
3.1 What Is the Affected Environment And How Are Impacts Evaluated? 3-1
3.2 Land Use 3-2
3.2.1 What Land Uses are Present on the Site and Within the Surrounding Area? 3-2
3.2.2 How Would Land Uses be Affected by the Site Improvements? 3-3
3.3 Planning Policies 3-5
3.3.1 What are the Federal and Local Plans and Policies that are Relevant to the Site Improvements? 3-5
3.3.2 Would the Site Improvements Comply with Federal and Local Plans and Policies? 3-16
3.3.3 What Measures Should be Taken to Improve Compliance with Applicable Plans and Policies? 3-23
3.4 Public Space 3-23
3.4.1 What is Public Space and What Plans and Policies Guide its Use and Design? 3-23

3.4.2 How Would Public Space be Affected by the Site Improvements? 3-25
3.4.3 What Measures Should be Undertaken to Reduce Impacts to Public Space? 3-27
3.5 Cultural Resources 3-27
3.5.1 How are Impacts to Cultural Resources Evaluated? 3-27
3.5.2 What is the Area of Potential Effects? 3-28
3.5.3 What Historic Properties Lie within the APE? 3-30
3.5.4 How Would These Resources be Affected by the Site Improvements? 3-36
3.5.5 What is the History of the Site? 3-36
3.5.6 What is the Potential for Archaeological Resources at the Site? 3-37
3.5.7 How Could Archaeological Resources be Affected by the Site Improvements? 3-37
3.5.8 What Measures Should be Undertaken to Reduce Impacts to Cultural Resources? 3-38
3.6 Visual Resources 3-39
3.6.1 What is the Visual Character of the Site and the Surrounding Area? 3-39
3.6.2 How are Impacts to Visual Resources Assessed? 3-55
3.6.3 How Would Key Viewsheds be Affected by the Project? 3-55
3.6.4 What Measures Should be Undertaken to Reduce Visual Impacts? 3-57
3.7 Vegetation 3-58
3.7.1 What Type of Vegetation is Located at the Switzer Building? 3-58
3.7.2 How Would Vegetation be Affected by the Project? 3-59
3.7.3 What Measures Should be Undertaken to Reduce Impacts to Vegetation? 3-60
3.8 Stormwater Management 3-61
3.8.1 How is Stormwater Managed in the Vicinity of the Site? 3-61
3.8.2 How Would Stormwater Management be Affected by the Proposed Project? 3-61
3.8.3 What Measures Should be Undertaken to Reduce Impacts to Stormwater? 3-64
3.9 Geophysical Resources 3-64
3.9.1 What are the Soil, Geologic and Groundwater Conditions on the Site? 3-64
3.9.2 How Would Geophysical Resources be Affected by the Proposed Project? 3-65
3.9.3 What Measures Should be Undertaken to Reduce Impacts to Geophysical Resources? 3-66
3.10 Vehicular and Non-Vehicular Transportation 3-66
3.10.1 What are the Current Vehicular Traffic Conditions at the Switzer Building? 3-66
3.10.2 How Would Vehicular Traffic be Affected by the Site Improvements? 3-72
3.10.3 How Do Pedestrians and Bicyclists Access the Site? 3-75
3.10.4 How Would Pedestrian and Bicycle Circulation be Impacted by the Site Improvements? 3-77

3.10.5 What Public Transit Systems Currently Service the Switzer Building? 3-80
3.10.6 How Would Public Transportation Systems be Affected by the Site Improvements? 3-82
3.10.7 What Measures Should be Undertaken to Reduce Impacts to Traffic and Transportation? 3-82
3.11 Parking 3-83
3.11.1 What are the Current Parking Conditions at the Switzer Building? 3-83
3.11.2 How Would Parking be Affected by the Site Improvements? 3-86
3.12 Energy Use and Sustainability 3-88
3.12.1 What Energy Use and Sustainability Measures are Utilized on the Site? 3-88
3.12.2 How Would Energy Use and Sustainability be Affected by the Site Improvements? 3-88
3.13 Utilities 3-90
3.13.1 Who Provides Utility Service to the Switzer Building? 3-90
3.13.2 How Would the Site Improvements Affect Local Utilities? 3-92
3.13.3 What Measures Should be Undertaken to Reduce Impacts to Utilities? 3-94
3.14 Air Quality 3-94
3.14.1 Are There Any Air Quality Issues in the Washington Metropolitan Region? 3-94
3.14.2 Would the Proposed Site Improvements Impact Air Quality in the Area? 3-95
3.14.3 What Measures Should be Undertaken to Reduce Impacts to Air Quality? 3-97
3.15 Noise 3-97
3.15.1 How is Noise Measured and What Are the Major Sources of Noise Surrounding the Switzer Building? 3-97
3.15.2 Would the Project Increase Noise Levels? 3-98
3.15.3 What Mitigation Measures Should be Undertaken to Reduce Noise Impacts? 3-99
3.16 Cumulative Impacts 3-99
3.16.1 What are Cumulative Impacts and Why are They Considered? 3-99
3.16.2 What Past, Present or Future Projects Could Contribute to Cumulative Impacts? 3-99
3.16.3 What Cumulative Impacts Would Occur from the Proposed Action? 3-101

4.0 Appendix
4.1 Sources 4-1
4.2 Preparers 4-5
4.3 Distribution List 4-6
4.4 Draft Memorandum of Agreement (July 6, 2010) 4-13
4.5 Traffic Study Appendix 4-25

FIGURES

Figure 1-1 North elevation of the Switzer Building 1-1
Figure 1-2 Project site and the surrounding area 1-3
Figure 1-3 Surface parking lots at the Switzer and Cohen Buildings 1-5
Figure 1-4 Vent obstructing the sidewalk on C Street, SW 1-7
Figure 2-1 Air vent in pedestrian right-of-way on C Street, SW 2-2
Figure 2-2 Section of C Street, SW 2-2
Figure 2-3 Section of D Street, SW 2-3
Figure 2-4 Section of 3rd Street, SW 2-3
Figure 2-5 Alternative A 2-7
Figure 2-6 Alternative B 2-9
Figure 2-7 Alternative C 2-11
Figure 2-8 Existing Site Plan 2-13
Figure 3-1 Area of Potential Effects for Historic Resources 3-29
Figure 3-2 North elevation of the Switzer Building 3-30
Figure 3-3 West elevation of the Switzer Building, c.1940 3-31
Figure 3-4 South elevation of the Switzer Building 3-31
Figure 3-5 South elevation of the Cohen Building 3-32
Figure 3-6 South elevation of the LBJ Building 3-33
Figure 3-7 Hubert Humphrey Building as viewed from C Street, SW 3-34

Figure 3-8 L'Enfant Plan for the City of Washington, 1791 3-35

Figure 3-9 View west on C Street, SW 3-40

Figure 3-10 View east on C Street, SW from 4th Street, SW 3-41

Figure 3-11 View west along the outer sidewalk adjacent to the Cohen Building 3-42

Figure 3-12 View south on 3rd Street, SW 3-44

Figure 3-13 View north along the 3rd Street, SW sidewalk from D Street, SW 3-45

Figure 3-14 View south along the 3rd Street, SW sidewalk adjacent to the Switzer Building 3-46

Figure 3-15 View looking east along the D Street, SW sidewalk 3-48

Figure 3-16 View east on D Street, SW from 4th Street, SW 3-49

Figure 3-17 View west on D Street, SW at mid-block 3-50

Figure 3-18 View south on the sidewalk on 4th Street, SW 3-52

Figure 3-19 View north on 4th Street, SW from D Street, SW 3-53

Figure 3-20 View south on 4th Street, SW from C Street, SW 3-54

Figure 3-21 Site landscaping on the north face of the Switzer Building 3-59

Figure 3-22 Existing Vehicular Traffic Conditions 3-69

Figure 3-23 Section of C Street, SW 3-72

Figure 3-24 Air vent in pedestrian right-of-way on C Street, SW 3-77

Figure 3-25 C Street, SW right-of-way 3-77

Figure 3-26 District-wide Perimeter Security Projects 3-104

TABLES

Table 2-1 Spatial Conditions Under Each of the Alternatives 2-17

Table 2-2 Comparison of Impacts 2-19

Table 3-1 C Street, SW Volumes in 2008 3-70

Table 3-2 Existing Levels of Service 3-71

Table 3-3 Existing Queuing 3-71

Table 3-4 Future Levels of Service 3-74

Table 3-5 Future Queuing Situation 3-75

Table 3-6 Surface Parking Traffic Volumes 3-85

Table 3-7 Below-Grade Parking Traffic Volumes 3-85

Table 3-8 2009 Switzer Utilities Usage 3-88

Table 3-8 Estimated Generator Emissions (51 operating hours) 3-96

1.0 PURPOSE AND NEED

This page intentionally left blank.

1.1 WHAT IS GSA PROPOSING AND HOW IS THIS ENVIRONMENTAL ASSESSMENT BEING PREPARED?

In conjunction with the modernization of the Mary E. Switzer Building (Switzer Building) in Southwest Washington, DC, the U.S. General Services Administration (GSA) proposes to undertake site improvements at the facility (Figure 1-1). These improvements include the conversion of a surface parking lot into a combination of landscaped plazas, gardens, and parking; the construction of a coffee/concession stand; the narrowing of C Street, SW; changes to driveway locations; the improvement of the sidewalks bordering the Switzer Building, as well as the sidewalk on the north side of C Street, SW; the enhancement of landscaping around the building; the construction of an architectural or public art element to conceal an existing and a proposed vent stack; and the installation of permanent perimeter security elements. The scope of the proposed action extends beyond the Switzer Building site to encompass C Street, SW between 3rd and 4th Streets, SW and the sidewalk on the north side of the street (Figure 1-2).

Figure 1-1 North elevation of the Switzer Building
Source: AECOM 2010

GSA is preparing this Environmental Assessment (EA) to determine what potential impacts the site improvements may have on the natural and man-made environment. This EA is being prepared in compliance with the National Environmental Policy Act (NEPA) of 1969, as amended, the Council on Environmental Quality (CEQ) regulations implementing NEPA [40 Code of Federal Regulations (CFR) 1500-1508 (1986)], the National Historic Preservation Act (NHPA) of 1966, as amended, and GSA's PBS *NEPA Desk Guide*. The National Capital Planning Commission (NCPC) is a cooperating agency in this effort.

This EA identifies three action alternatives and a No Action alternative. Potential environmental impacts are described for each of the alternatives, including short-term construction-related impacts, long-term operational impacts, and cumulative impacts resulting from the implementation of the proposed action together with other current or planned projects. In addition, mitigation measures are suggested to address identified impacts. The study area for the assessment of impacts is generally within a one-block radius of the site; however, this area may expand or contract based on the resource discipline.

Cooperating Agency: As defined by CEQ, a cooperating agency is an agency that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) (CEQ 2007).

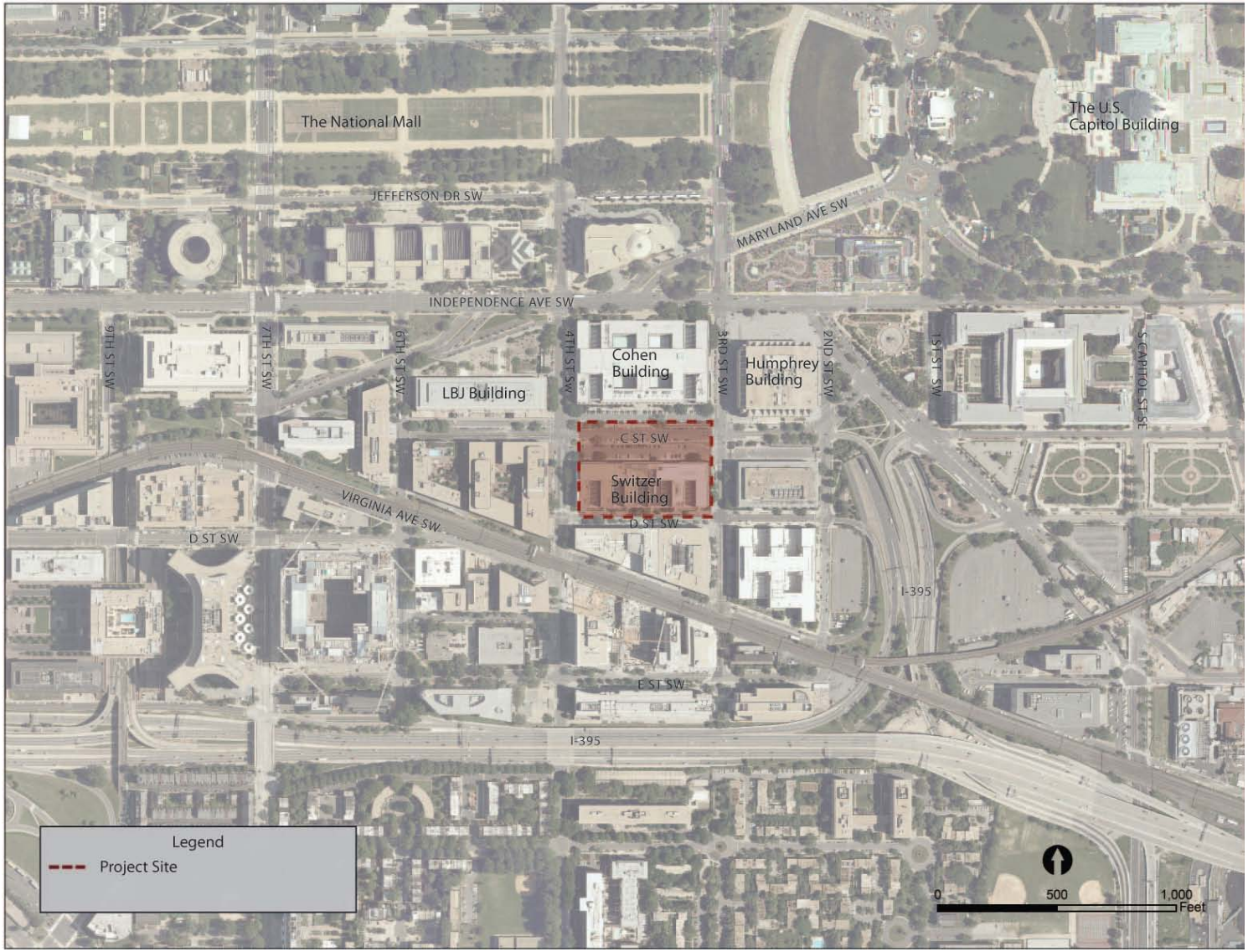


Figure 1-2 Project site and the surrounding area
Source: AECOM 2010

1.2 WHERE IS THE SWITZER BUILDING LOCATED AND WHO OCCUPIES IT?

The Switzer Building is located approximately three blocks southwest of the U.S. Capitol Building, filling an entire city block in Southwest Washington, DC. The block is bounded by C Street, SW to the north, 3rd Street, SW to the east, D Street, SW to the south, and 4th Street, SW to the west (Figure 1-2). The building comprises 590,000 gross square feet (gsf) in five stories, with a two-story penthouse, and is fronted on the north side by a 114-space surface parking lot. A loading dock, 14 parking spaces, and building infrastructure, including a fuel tank and generator, are located below grade, under a portion of the surface parking lot on the north face of the building. This area is accessed by a ramp off of 3rd Street, SW adjacent to the Wilbur J. Cohen Building (Cohen Building). The Switzer Building is currently occupied by the U.S. Department of Education, the U.S. Department of Health and Human Services, and the U.S. International Broadcasting Bureau.

1.3 WHAT IS THE HISTORY OF THE PROJECT?

The Switzer Building was constructed in 1939-1940 as part of a major building campaign to accommodate a rising number of federal employees in Washington, DC. The building was planned to house the Railroad Retirement Board, an early pension plan that provided retirement benefits to workers; however, it was taken over by the U.S. War Department at the outset of World War II. After the war, the building was turned over to the Department of Health, Education and Welfare. The building was renamed for Mary Elizabeth Switzer in 1970.

Designed in the Stripped Classical Style, the Switzer Building is rectangular in plan on the first story. Above the first floor, there are four lightcourts that front on D Street, SW, forming a half fishbone on the upper stories. A surface parking lot is located on the north side of the building on C Street, SW (Figure 1-3). Due to the building's design and its association with the Railroad Retirement Board, it was listed in the National Register of Historic Places in 2007. The Cohen Building, located directly north of the Switzer Building, was constructed at the same time and is also listed in the National Register.

Figure 1-3 Surface parking lots at the Switzer and Cohen Buildings
Source: HNTB 2010

The proposed site improvements are being undertaken as part of the modernization of the Switzer Building. The project, begun in 2005, includes the complete renovation and selected restoration of the historic structure. Key features of the modernization include: upgrading office spaces; restoring historic lobbies and corridors; converting a mechanical penthouse to offices; and replacing mechanical, electrical and plumbing systems throughout the building. The existing tenants, including the U.S. Department of Education, the U.S. Department of Health and Human Services, and the International Broadcasting Bureau, will be occupants for the space within the Switzer Building once the renovation is complete.

Prior to beginning the renovation of the building, compliance with NEPA was achieved through a Categorical Exclusion (CATEX). At the time the CATEX was undertaken in 2003, the scope of the project did not include the construction of landscaped plazas and gardens, the installation of a coffee/concession stand, the narrowing of C Street, SW, improvements to sidewalks, changes to driveway locations, or permanent perimeter security. Due to the changes in the scope of the project, and the inclusion of perimeter security elements that may be located within public space, an EA was deemed necessary in order to understand the impacts that the proposed site improvements would have on the human environment.

1.4 WHAT IS THE PURPOSE OF THE SWITZER BUILDING SITE IMPROVEMENTS?

The purpose of the proposed action is to create a welcoming outdoor plaza for employees, visitors, and the public; to enhance pedestrian safety and circulation through widening the sidewalks on C Street, SW between 3rd and 4th Streets, SW; to improve vehicular circulation on 3rd and 4th Streets, SW through relocating entrances to the surface parking lot; and to provide Level IV protection for the facility. In addition, GSA would seek to incorporate sustainability measures into the design in compliance with Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*.

1.5 WHY DO THE SITE IMPROVEMENTS NEED TO BE UNDERTAKEN?

The site improvements are necessary to meet the needs of area employees, improve the appearance and utility of the site, and provide the required level of security. The improvements to the site, including the installation of an outdoor plaza and a coffee/concession stand, would provide valuable amenities for area employees. Further, the construction of a plaza and gardens would create continuity with the plaza planned for the north side of Federal Office Building 8 (FOB 8), just east of the Switzer Building.

The Switzer Building is located along the travel path from the Southwest Federal Center Metrorail stop (at 3rd and D Streets, SW) to area attractions, including the museums on the National Mall, and the proposed Eisenhower and American Veterans Disabled for Life Memorials. Current configurations of the crosswalks and sidewalks create confusing street crossings and force pedestrians into the vehicular right-of-way (Figure 1-4). Further, the current walkways do not meet requirements established by the Americans with Disabilities Act (ADA). The proposed narrowing of C Street, SW and site work at the Switzer Building is necessary in order to create safer, pedestrian-friendly sidewalks. Further, the relocation of the entrances to the parking lots from 3rd and 4th Streets, SW to C Street, SW is necessary to improve vehicular circulation on these north-south rights-of-way.

Figure 1-4 Vent obstructing the sidewalk on C Street, SW
Source: AECOM 2010

The permanent perimeter security measures are needed in order to provide the required level of security for the building. The measures were developed in accordance with the Interagency Security Committee (ISC) Security Design Criteria for New Federal Office Buildings and Major Modernization Projects approved by concurrence of the ISC membership on September 29, 2004. The ISC Security Design Criteria require that security measures be based on a building-specific risk assessment resulting in a recommended level of protection. The level of protection is determined by tenant function missions, adjacent facilities and targets, significance of the facility, and building size and location. A risk assessment for the building determined that a Level IV standard of protection is necessary. The proposed permanent perimeter security measures were developed to provide the level of protection that is required by the risk assessment.

Level IV facility: Designation as a Level IV facility indicates that the building will house at least 450 federal employees and is likely to: be over 150,000 sf; have a high volume of public contact; and house tenant agencies that could include high-risk law enforcement and intelligence agencies, courts, judicial offices, and highly sensitive government records (ISC 2003).

1.6 HOW WERE AGENCIES AND THE PUBLIC INVOLVED IN THE DEVELOPMENT OF THIS EA?

Public agencies and individuals were involved in the development of this EA through the public scoping process. GSA initiated the scoping process on March 17, 2010 through the distribution of letters to regulatory and review agencies requesting comment on the site improvements to the Switzer Building. In addition, a notice was posted on the GSA website announcing the agency's intention to prepare an EA and to solicit public comment during the scoping period. The public comment period was open through April 16, 2010. Comments received during this period were taken into consideration in the development of this EA.

In addition, meetings took place with stakeholders through the coordinated Section 106 and NEPA processes. The first coordination meeting occurred on March 8, 2010 and included representatives from the District of Columbia Department of Transportation (DDOT), NCPC, the District of Columbia Office of Planning (DC OP), and GSA. The focus of the meeting was the proposed transportation improvements at the Switzer site, including the narrowing of C Street, SW. A second meeting was held on March 31, 2010 to review preliminary alternatives and included representatives from GSA, NCPC, the U.S. Commission of Fine Arts (CFA), DC OP, and the Eisenhower Memorial Commission. A third consultation meeting took place on April 23, 2010 and included representatives from DC OP, CFA, NCPC, and the DC State Historic Preservation Office (SHPO), as well as tenant agencies. A Section 106 consulting parties meeting took place on May 27, 2010; representatives from GSA, NCPC, the Washington Design Center, and the Architect of the Capitol were in attendance. Consultation will continue through the detailed design of the site improvements.

The Draft EA was provided to key stakeholders for review, including NCPC, CFA, DC OP, the SHPO, and DDOT, as well as tenant agencies. The organizations, agencies, and individuals listed in the notification list in the Appendix have been notified by mail or email of the availability of the Final EA and provided with a digital copy. Further, copies of the EA are available for review at: the offices of the National Capital Planning Commission at 401 Ninth Street, NW, North Tower, Suite 500, Washington, DC; the Martin Luther King, Jr. Memorial Library, 901 G Street, NW, Washington, DC; the Southwest Neighborhood Library, 900 Wesley Place, SW, Washington, DC; and the Southeast Neighborhood Library, 403 7th Street, SE, Washington, DC.

Comments on the FONSI and Final EA must be submitted during the 30-day public comment period. The review period for the FONSI and Final EA concludes on August 9th, 2010 and written comments must be postmarked by this date. Comments should be mailed, emailed, or faxed to:

Ms. Suzanne Hill, NEPA Program Specialist
Portfolio Management Division
Public Buildings Service
National Capital Region
U.S. General Services Administration
301 7th Street, SW
Room 7600
Washington, DC 20407
Phone: (202)205-5821
Email: suzanne.hill@gsa.gov
Fax: (202) 708-7671

Provided that no information leading to a contrary finding is received or comes to light during the 30-day comment period, the FONSI will become final on August 9, 2010.

1.7 WHAT RESOURCE ISSUES ARE CONSIDERED IN THIS DOCUMENT?

This EA has been prepared to evaluate the potential impacts that the site improvements would have on a range of natural and man-made resources. These include:

- land use
- planning policies
- public space
- cultural resources
- visual resources
- vegetation
- geophysical resources
- stormwater management
- vehicular circulation
- parking
- public transportation
- pedestrian circulation
- energy use and sustainability
- utilities
- air quality
- noise

1.8 WHAT RESOURCE ISSUES HAVE BEEN ELIMINATED FROM DETAILED ANALYSIS?

Several issues were initially considered for evaluation in this EA, but were eliminated from detailed study because short and long-term impacts would be negligible. These issues, and the rationale for their elimination, are as follows:

Economic and Fiscal Resources: Although a small coffee/concession stand would be included in the design of plaza, economic and fiscal impacts would be minimal. Thus, this resource area was dismissed from detailed study.

Community Facilities: The proposed action would not increase or decrease the population of the area, or change the current residents' access to community facilities. Thus, there would be no impacts to this resource area.

Demographics and Environmental Justice: Due to the project's location, the proposed action would not directly affect the resident populations. Thus, there would be no impacts to demographics or environmental justice.

Wildlife: Wildlife on the Switzer Building site is limited to urban species, including grey squirrels, house sparrows, and pigeons. These species could be temporarily dispersed during construction. However, urban wildlife would be expected to return to the site once construction is complete.

Climate Change: Due to the limited scope and nature of the site improvements at the Switzer Building, the site improvements are not anticipated to substantively impact climate change or greenhouse gas emissions. Thus, this resource area was dismissed from detailed analysis.

Hazardous Materials: Hazardous substances are being removed from the building as part of the modernization, and there is no evidence of hazardous materials on the site. GSA would ensure that all soils displaced through the drilling for the ground source heat pump are collected and tested, and that disposal would be undertaken in accordance with applicable Federal and state guidelines.

Floodplains and Wetlands: Historically, Washington, DC has been protected from flooding by a levee system. The levee system will be updated with construction planned to begin in July 2010. Without the levee, the eastern edge of the Switzer site would be located within the 100-year floodplain. However, once the restoration of the levee is complete, the site will be located outside of the floodplain (DDOE 2010). In addition, there are no wetlands on the Switzer site. Thus, these resource areas have been dismissed from detailed analysis.

2.0 ALTERNATIVES

This page intentionally left blank

2.1 WHAT ALTERNATIVES ARE BEING CONSIDERED IN THIS ENVIRONMENTAL ASSESSMENT?

This EA evaluates a range of alternative actions related to the proposed site improvements at the Switzer Building. Four alternatives are considered within this EA, three action alternatives and a No Action alternative. The three action alternatives present similar approaches to perimeter security, but provide differing approaches to the design of the plaza on the north side of the building. The alternatives considered within this EA were refined during the public scoping process and represent a range of potential design options.

2.2 WHAT ELEMENTS ARE COMMON TO ALL THE ACTION ALTERNATIVES?

Under each of the action alternatives, C Street, SW, between 3rd and 4th Streets, SW, would be narrowed to a single lane in each direction. This would allow for the sidewalks to be widened on the north and south sides of the street such that the existing vents would no longer serve as physical obstructions (Figure 2-1). The proposed sidewalks would be eight to ten feet wide, narrowing to six feet in the vicinity of the parking ramp walls and at the existing exhaust vents (Figure 2-2). A four-foot street tree zone would run between the sidewalk and the curb line on both sides of the street. Bulb-outs at the corners of 3rd and C Streets, SW, and 4th and C Streets, SW, would frame a line of parallel parking spaces on both sides of the vehicular right-of-way. New curb cuts would be installed at each of the four corners of the site and new entrance ramps would be provided at the two entrances on C Street, SW in order to make the site accessible and compliant with ADA requirements. On 3rd and 4th Streets, SW the sidewalk widths would be approximately nine feet (Figure 2-3), and on D Street, SW the width would be approximately seven feet (Figure 2-4). The street tree zone would be consistent at four feet.

Bulb-Out: a curb extension that expands the line of the curb into the traveled way, thereby reducing the width of the street. Bulb-outs significantly improve pedestrian crossings by reducing the pedestrian crossing distance, visually and physically narrowing the roadway, improving the ability of pedestrians and motorists to see each other, and reducing the time that pedestrians are in the street (walkinginfo.org 2010).

Figure 2-1 Air vent in pedestrian right-of-way on C Street, SW
Source: AECOM 2010

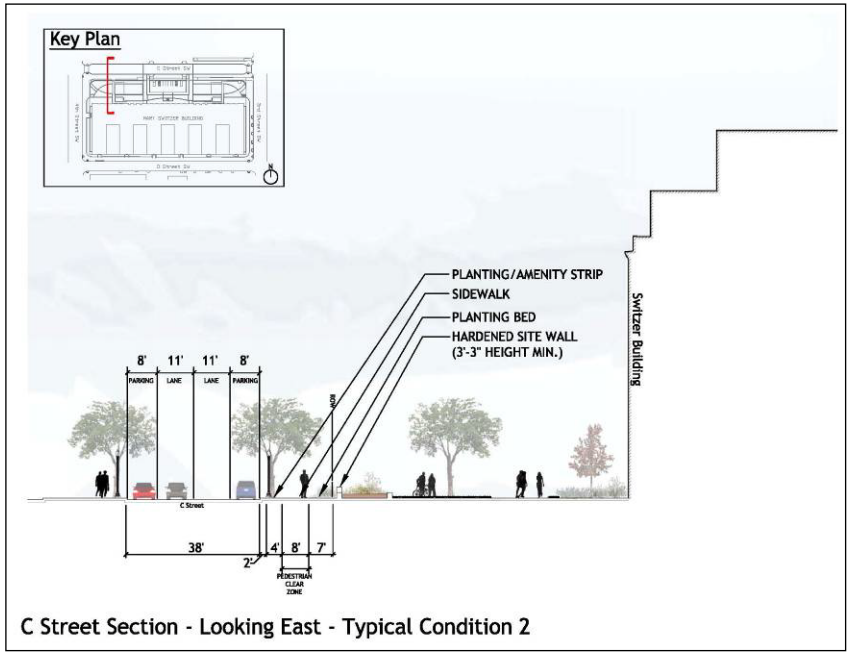


Figure 2-2 Section of C Street, SW
Source: HNTB 2010

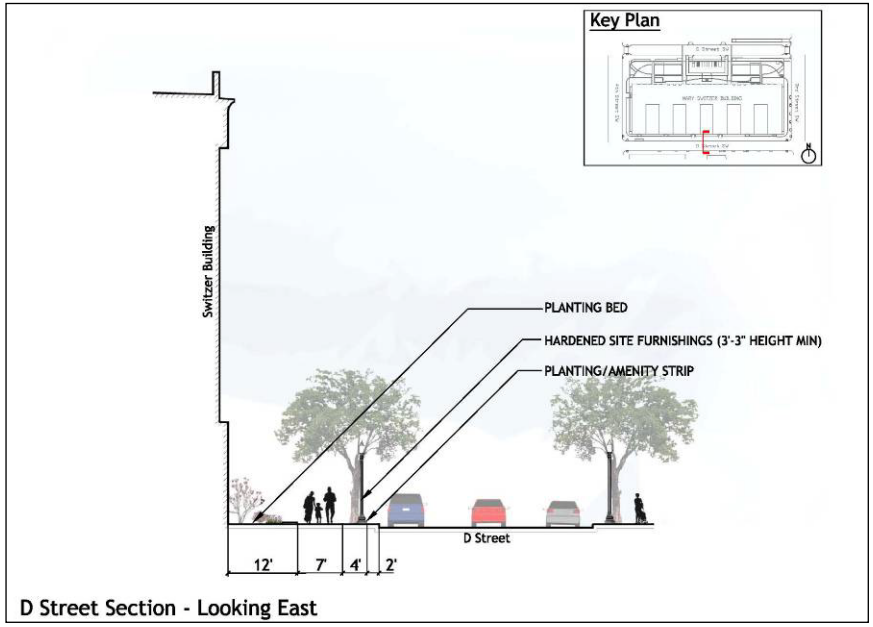


Figure 2-3 Section of D Street, SW
Source: HNTB 2010

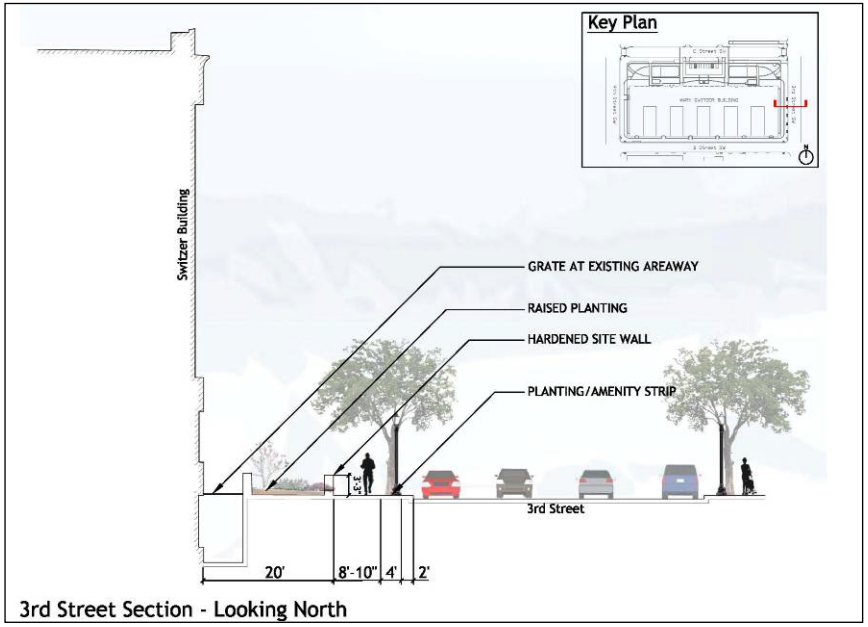


Figure 2-4 Section of 3rd Street, SW
Source: HNTB 2010

Although the design approach and amount of parking provided would differ under each of the action alternatives, each alternative would include a landscaped plaza on the north side of the building on the site of the existing surface parking lot. The action alternative would also incorporate low-impact development (LID) measures in the design. These could include the use of permeable surfaces, amended soil to increase infiltration capacity, inlet controls to capture pollutants and sediment, infiltration trenches, vegetative filter strips, bio-retention cells to remove pollutants and promote infiltration, and bio-swales. Stormwater would be collected and reused as gray water on the site or within the building. Opportunities would be sought to highlight the LID measures in the design, thereby allowing them to serve an educational function. Landscape planting within the plaza and around the building would utilize sustainable plant materials, and street trees would be installed to create a consistent green edge along the rights-of-way. In addition, through its Art in Architecture Program, GSA would seek to incorporate a public art element into the landscaped plaza.

Low Impact Development: LID uses various land planning and design practices and technologies to simultaneously conserve and protect natural resource systems and reduce infrastructure costs (Green DC 2010).

Each of the action alternatives would also involve the installation of a back-up generator in the below-grade service area shared by the Switzer and Cohen Buildings. The two megawatt (2,680 horsepower) emergency generator would replace the temporary generator that is currently located above grade within the surface parking lot on the south face of the Cohen Building. The system would be vented through an exhaust pipe that would terminate adjacent to the existing exhaust pipe located on the south side of C Street, SW at the end of the parking ramp. A vent shaft would be constructed for both the new and existing exhaust pipes.

The action alternatives would each employ a ground source heat pump. The pump system would be installed below the surface of the landscaped plaza and would assist in heating and cooling the Switzer Building. The system would be a closed loop vertical system and the connector loop between

the wells would begin at least three feet below the surface. The ground source heat wells would be approximately 300 feet deep, would be spaced approximately 20 feet apart, and would be approximately 6 to 8 inches in diameter. The size of the system would be determined after energy efficiency tests are performed and could range from between 10 to 100 wells in order to generate between 15 and 200 tons of cooling.

Under each action alternative, permanent perimeter security elements would be installed around the building. Bollards would be employed at each of the pathway entrances. Turning south on 4th Street, SW, a 3-foot 3-inch high garden wall would be located inside of the sidewalk and would serve a security function. On D Street, where the building yard is only 14 feet, hardened street furnishings would be installed along the curb line (Figure 2-3). This would follow the same alignment as the planned security at FOB 8, which is located one block to the east. At the corners of 3rd and D Streets, SW and 4th and D Streets, SW bollards would cross the sidewalk. The bollards would be 39 inches high, 11 inches in diameter, and spaced 4 feet 11 inches apart on center, allowing for a four foot clearance between the elements. Turning north on 3rd Street, SW, a 3-foot 3-inch high garden wall would be installed at the edge of the current building yard, inside the sidewalk (Figure 2-4). At the north end of the block, retractable bollards would be installed across the exit ramp from the below-grade parking/service area.

A public art or architectural element would be utilized to conceal the existing and proposed vent stacks at the east end of the block on C Street, SW. The element would be at least nine feet high and would be sited on top of the existing exhaust vent at the west end of the exit ramp. Another possible public art element may be included on the west side at the existing steam vent. These public art elements may be in addition to a plaza feature contracted through GSA's Art in Architecture program. The artist contracted through GSA's Art in Architecture program may, at their discretion, create a public art feature for either or both of these locations.

2.3 WHAT ELEMENTS ARE SPECIFIC TO ALTERNATIVE A?

Alternative A proposes to convert the entire existing surface parking lot to a landscaped plaza (Figure 2-5). The proposed design would combine both open lawn and fully planted landscaped panels. LID measures would be employed in landscaped areas at the east and west ends of the plaza. Rectilinear paths would bisect the plaza, connecting the main building entrances to the sidewalks on 3rd, C, and 4th Streets, SW. The south sidewalk on C Street, SW would be approximately eight feet wide, narrowing to six feet at the existing vent structures and exit ramp.

A coffee/concession stand and small seating area would be installed at the east end of the plaza where it would be accessible to pedestrians traveling on 3rd Street, SW. LID measures would be incorporated to the greatest extent possible including the use of permeable pavement.

Under Alternative A, permanent perimeter security elements would be installed along 3rd, D, and 4th Streets, SW, as described in Section 2.2. On the north face of the building, along C Street, SW, the existing wall along the outer edge of the parking ramp would be hardened to serve a security function. Along C Street, SW, west of the ramp walls, a 39-inch high perforated garden wall would be located within the planting beds at the edge of the property line.

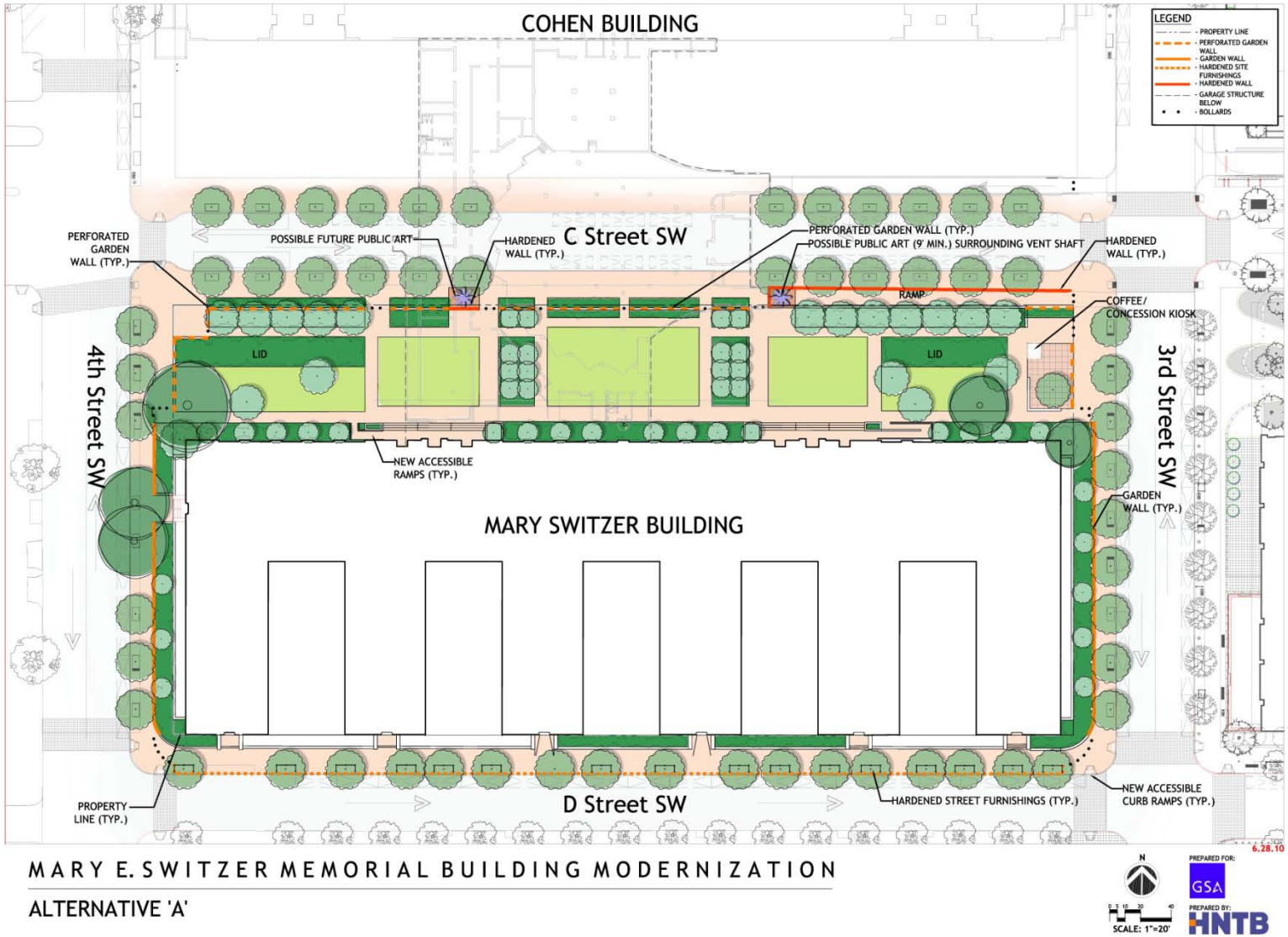


Figure 2-5 Alternative A
Source: HNTB 2010

2.4 WHAT ELEMENTS ARE SPECIFIC TO ALTERNATIVE B?

Alternative B proposes to convert the existing surface parking lot to a landscaped plaza (Figure 2-6). The design would include open lawn panels opposite the two entrances with fully planted landscaped panels flanking the lawns on the east and west ends. LID measures would be employed in landscaped areas between the main entrances. Rectilinear paths would provide direct connections between the entrances and the sidewalk on C Street, SW, while curving paths at the east and west ends of the plaza would facilitate pedestrian flow to the Metrorail station, the proposed Eisenhower Memorial, and the American Veterans Disabled for Life Memorial. The south sidewalk on C Street, SW would be approximately eight feet wide, narrowing to six feet at the existing vent structures and exit ramp.

Surface parking for approximately 11 vehicles would be located at the center of the plaza and would be bordered on four sides by planting beds. The lot would be designed such that it could serve as an additional outdoor venue when not used for parking. Vehicular access to and from the lot would be provided off of C Street, SW.

A coffee/concession stand and small seating area would be located at the east end of the plaza adjacent to the 3rd Street, SW sidewalk. Permeable pavers would be employed to the greatest extent possible.

Under Alternative B, permanent perimeter security elements would be installed along 3rd, D, and 4th Streets, SW, as described in Section 2.2. On the north face of the building, along C Street, SW, the existing wall along the outer edge of the parking ramp would be hardened to serve a security function. At the center of the block on C Street, SW, a 39-inch high hardened garden wall would be installed between the parking lot and the sidewalk, while at the west end of the block a 39-inch high perforated garden wall would divide landscaped beds from the sidewalk. A small guard booth would be installed at the western entrance to the parking lot to allow for vehicle screening. The booth would be set back from the perimeter security wall, and a hardened gate barrier would be employed adjacent to the guard booth.

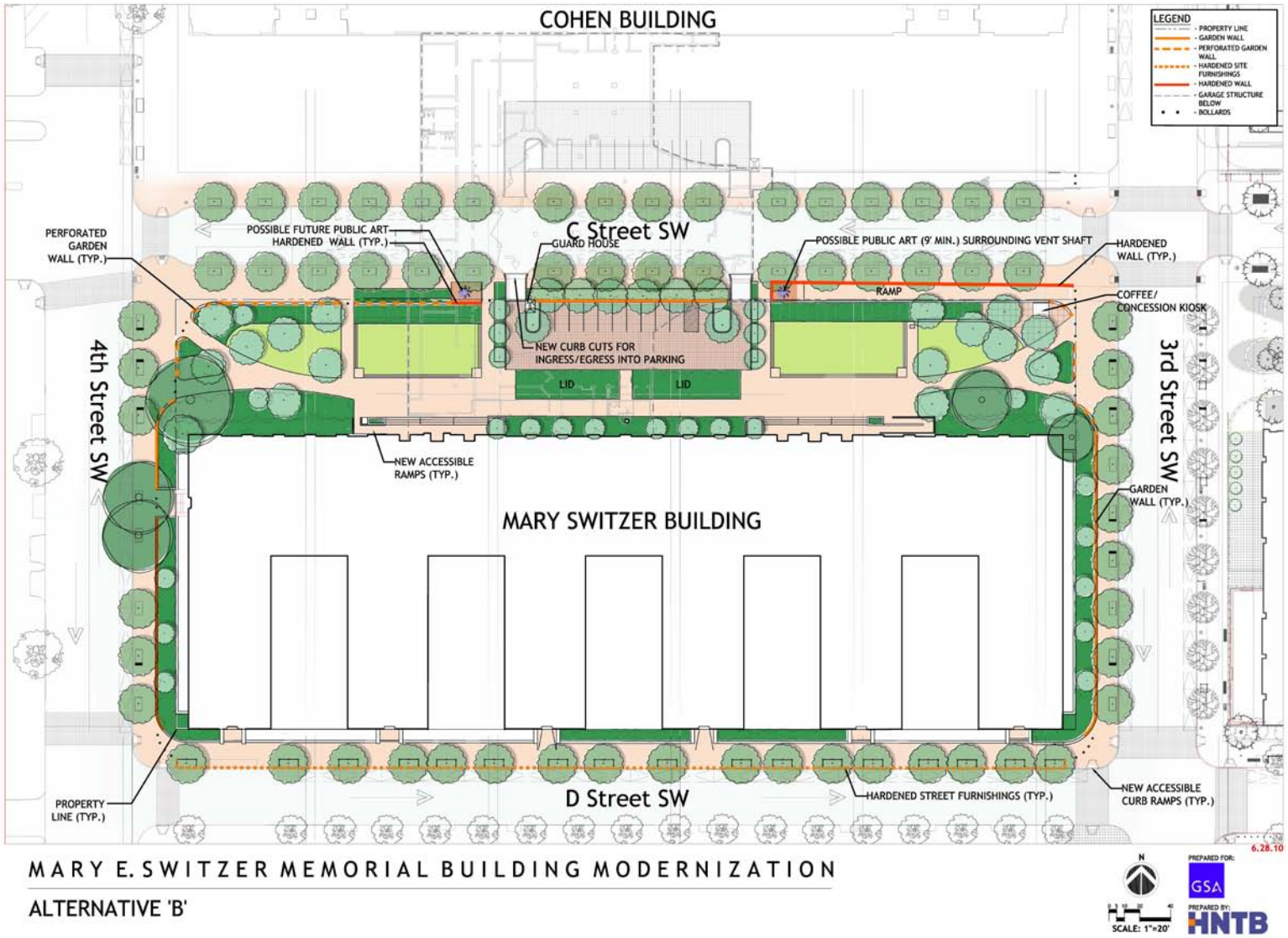


Figure 2-6 Alternative B
Source: HNTB 2010

2.5 WHAT ELEMENTS ARE SPECIFIC TO ALTERNATIVE C?

Alternative C proposes to convert the existing surface parking lot to a landscaped plaza (Figure 2-7). The design would include open lawn panels opposite the two entrances with fully planted landscaped panels flanking the lawns on the east and west ends. Rectilinear paths would provide direct connections between the building entrances and the sidewalk on C Street, SW, while curving paths at the east and west ends of the plaza would facilitate pedestrian flow to the Metrorail station, the proposed Eisenhower Memorial, and the American Veterans Disabled for Life Memorial. The south sidewalk on C Street, SW would be approximately ten feet wide at the west end of the block, narrowing to six feet at the existing vent structures and exit ramp.

Surface parking that would accommodate approximately 28 vehicles would be located at the center of the plaza and would be bordered on the north, east, and west sides by planting beds. Vehicular access to and from the lot would be provided off of C Street, SW. The lot would be designed such that it could serve as an additional outdoor venue when not used for parking. Along the C Street, SW sidewalk, east and west of the parking lot, LID measures would be incorporated within the landscaped areas.

A coffee/concession stand and small seating area would be sited at the east end of the plaza adjacent to the 3rd Street, SW sidewalk. Permeable paving would be employed to the greatest extent possible.

Under Alternative C, permanent perimeter security elements would be installed along 3rd, D, and 4th Streets, SW, as described in Section 2.2. On the north face of the building, along C Street, SW, the existing wall along the outer edge of the parking ramp would be hardened to serve a security function. At the center of the block on C Street, SW, a 39-inch high hardened garden wall would be installed between the parking lot and the sidewalk, while at the west end of the block a 39-inch high perforated garden wall would divide landscaped beds from the sidewalk. A small guard booth would be located at the western entrance to the parking lot to allow for vehicle screening. The booth would be set back from the perimeter security wall, and a hardened gate barrier would be employed adjacent to the guard booth.

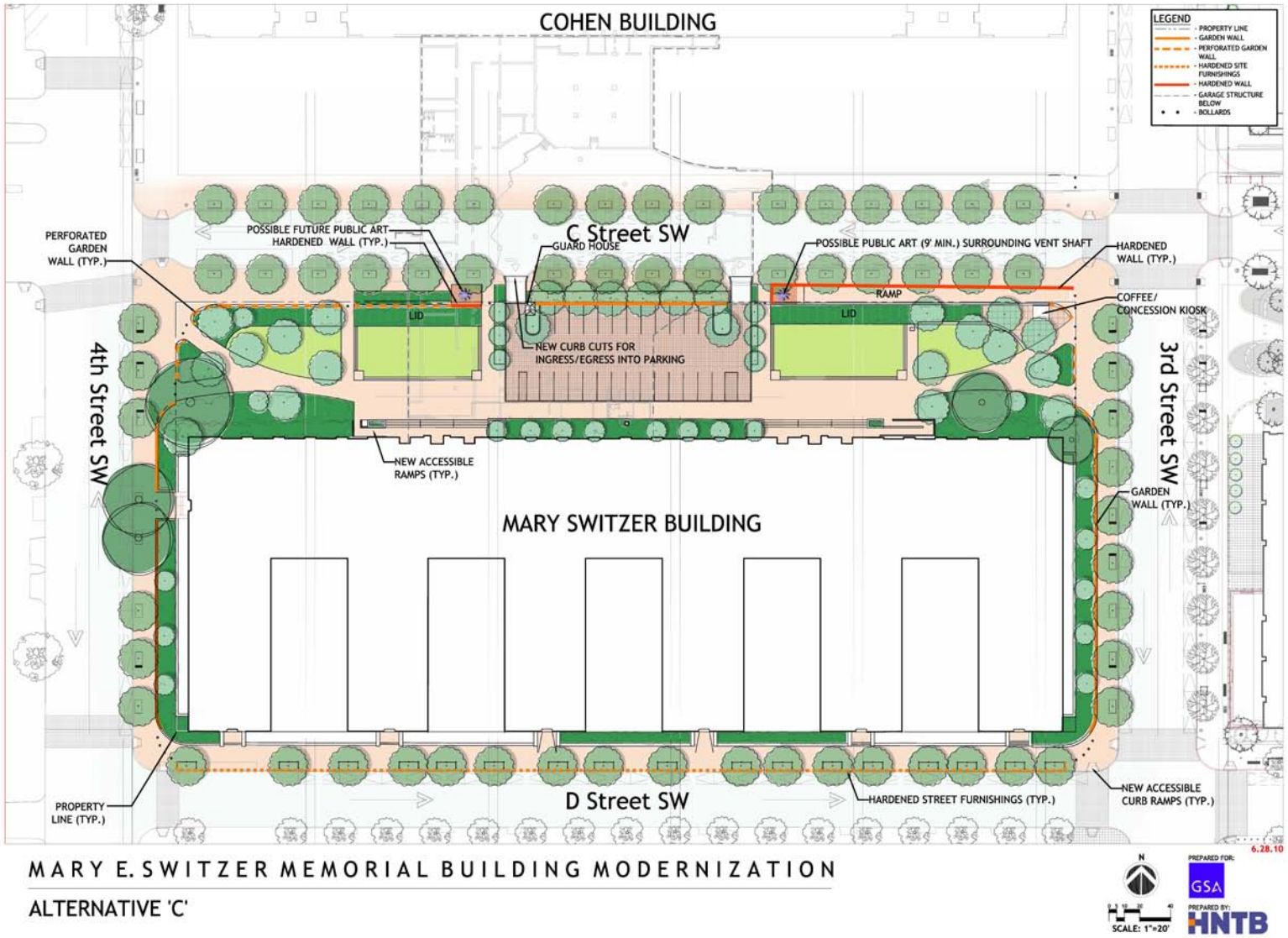


Figure 2-7 Alternative C
Source: HNTB 2010

2.6 WHAT IS THE NO ACTION ALTERNATIVE?

Under the No Action alternative, site improvements would not be undertaken at the Switzer Building (Figure 2-8). The surface parking lot on the north face of the building would remain, and a coffee/concession stand would not be located on the site. Further, C Street, SW would not be narrowed, area sidewalks would not be widened, and perimeter security elements would not be constructed. Finally, no LID measures would be installed on the site.

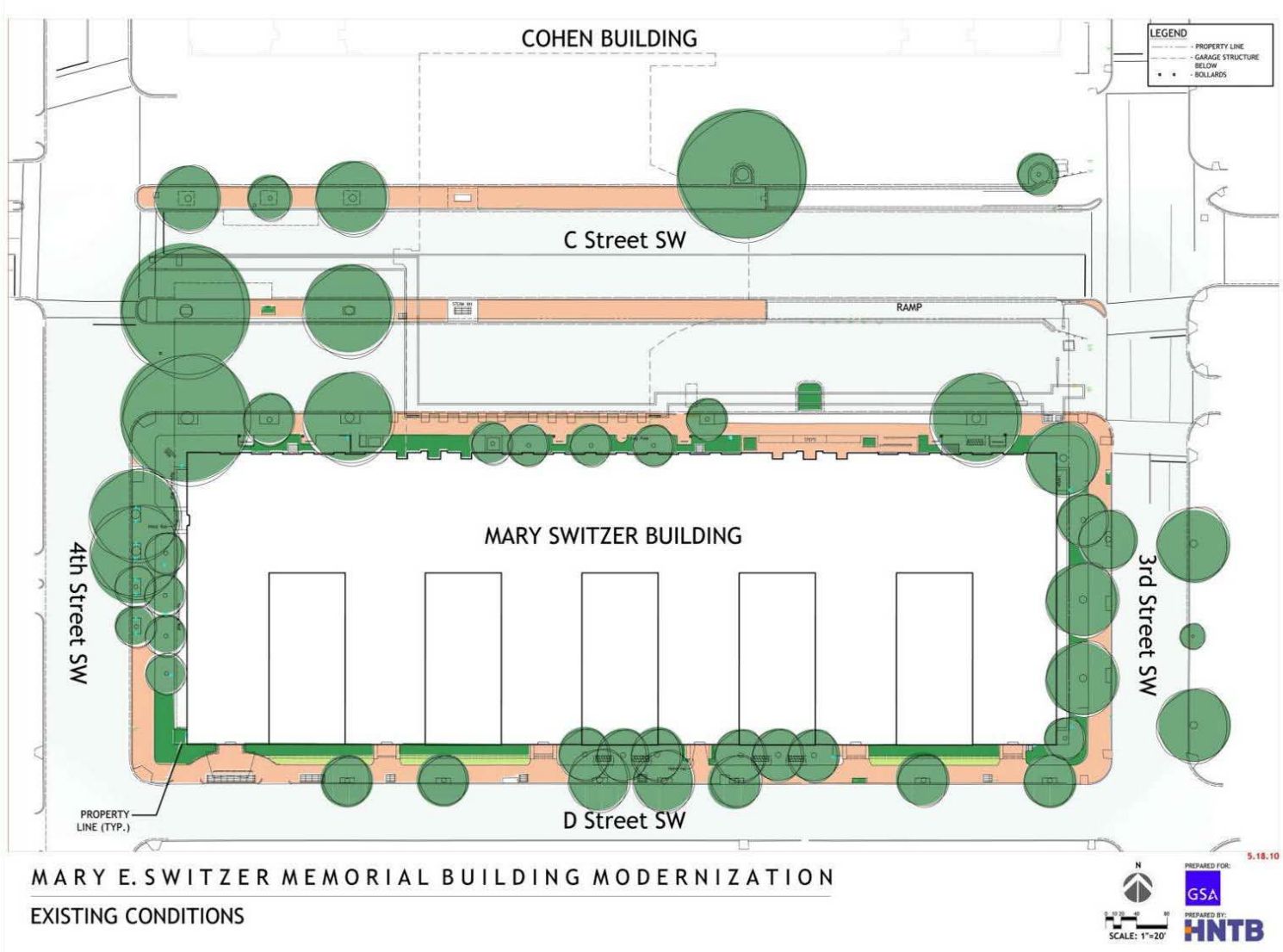


Figure 2-8 Existing Site Plan
Source: HNTB 2010

2.7 HOW DO THE ALTERNATIVES COMPARE WITH EACH OTHER?

The narrowing of C Street, SW, the widening of area sidewalks, the installation of additional street trees around the site, the construction of a coffee/concession stand, and the ADA improvements are consistent across the three action alternatives. In addition, each alternative would include the emergency generator and the ground source heat pump. Finally, the three alternatives would employ similar approaches to perimeter security around the building, and would each include an architectural or public element along the C Street, SW sidewalk.

The three action alternatives differ in the amount of parking provided, the design of plaza, and the amount of green space.

Alternative A would represent the most substantial change from current conditions, as surface parking would not be provided. This would reduce impervious surfaces on the site and would allow for the greatest amount of greenspace, and thereby the least amount of stormwater runoff, of the three action alternatives. Simple geometric forms would be employed in the design of the landscaped beds and pathways on the plaza.

Impervious Surface: a surface that cannot be penetrated by precipitation, which can lead to excessive stormwater runoff and limit the amount of stormwater that remains on site or recharges local aquifers. Common impervious surfaces include roadways, rooftops, and parking lots (Green DC 2010).

Pervious Surface: a soil or other material that allows the infiltration or passage of water or other liquids (Low Impact Development Center 2003).

Alternative B would represent a substantial change from current conditions but would maintain approximately 11 surface parking spaces on the north side of the building. This would reduce impervious surfaces on the site and would allow for an increase in greenspace. Although permeable pavers would be employed to the greatest extent possible, Alternative B would require the collection of more stormwater than under Alternative A. This is due to location of the below grade parking/service area under a portion of the plaza. Although permeable pavers would decrease surface runoff, the water would nevertheless need to be collected below the surface. In the planted areas, a portion of the water would be dispersed through evapotranspiration. Further, Alternative B would do less to mitigate the urban heat island effect than Alternative A, as there would be less landscaped area on the site. In addition while Alternative A would employ more formal rectilinear elements across the plaza, Alternative B would utilize more informal curving paths and planting beds at the east and west ends of the plaza. Due to the reduced amount of greenspace, there would be fewer opportunities for seating than under Alternative A.

Evapotranspiration: the transport of water into the atmosphere from surfaces, including soil (soil evaporation), and from vegetation (transpiration) (Burba, et al. 2006).

The Urban Heat Island Effect: a measurable increase in ambient urban air temperatures resulting primarily from the replacement of vegetation with buildings, roads, and other heat absorbing infrastructure. The heat island effect can result in significant temperature differences between rural and urban areas (EPA 2009).

Under Alternative C, approximately 28 parking spaces would be included. This would reduce impervious surfaces on the site and would allow for an increase in greenspace. However, this would not represent as substantial a reduction in paved areas as that proposed under Alternatives A or B. As a result, more aggressive LID measures, including greater treatment and storage of stormwater runoff, would be necessary. Further, Alternative C would do less to mitigate the urban heat island effect than Alternatives A or B. Like Alternative B, Alternative C would employ more formal lawns and planting beds at the center of the plaza and more informal elements at the east and west ends. Due to the reduced

amount of greenspace, there would be fewer opportunities for seating than under Alternatives A and B.

Under the No Action alternative, improvements would not occur at the site. This would not meet GSA's purpose and need.

Table 2-1 summarizes the proposed spatial conditions associated with each action alternative and the No Action alternative. Table 2-2 summarizes the impacts of each alternative.

Spatial Conditions Under Each of the Alternatives

Building Side	Existing Building Face to Building Yard	Approximate Distance from Building Face to Perimeter Security	Existing Building Face to Curb line	Approximate Distance from Proposed or Existing Curb line to Perimeter Security
C Street, SW	82'	82'/94'*	96' (+/- 105' Proposed)	23'/11'*
D Street, SW	12'	23'	25'	2'
3rd Street, SW	20'	20'	35'	15'
4th Street, SW	20'	20	35'	15'

* differences in measurements due to variations in location of perimeter security elements.

Table 2-1 Spatial Conditions Under Each of the Alternatives
Source: HNTB 2010

Comparison of Impacts

Resource	Alternative A	Alternative B	Alternative C	No Action Alternative
Land Use	Beneficial	Beneficial	Beneficial	Negligible
Planning Policies	Beneficial; minor adverse	Beneficial; minor adverse	Beneficial; minor adverse	Negligible
Public Space	Moderate adverse; beneficial	Moderate adverse; beneficial	Moderate adverse; beneficial	Negligible
Historic Resources	Moderate adverse to Switzer Building and L'Enfant Plan; minor to moderate adverse to Cohen Building; negligible to minor adverse impacts to LBJ and Humphrey Buildings	Moderate adverse to Switzer Building and L'Enfant Plan; minor to moderate adverse to Cohen Building; negligible to minor adverse impacts to LBJ and Humphrey Buildings	Moderate adverse to Switzer Building and L'Enfant Plan; minor to moderate adverse to Cohen Building; negligible to minor adverse impacts to LBJ and Humphrey Buildings	Negligible
Archaeological Resources	There is the potential for minor adverse impacts to archaeological resources	There is the potential for minor adverse impacts to archaeological resources	There is the potential for minor adverse impacts to archaeological resources	Negligible
Visual Resources	Minor to major adverse and beneficial to C Street, SW; minor adverse and beneficial to 3rd Street, SW; moderate adverse and beneficial to D Street, SW; minor adverse and beneficial to 4th Street, SW	Minor to major adverse and beneficial to C Street, SW; minor adverse and beneficial to 3rd Street, SW; moderate adverse and beneficial to D Street, SW; minor adverse and beneficial to 4th Street, SW	Minor to major adverse and beneficial to C Street, SW; minor adverse and beneficial to 3rd Street, SW; moderate adverse and beneficial to D Street, SW; minor adverse and beneficial to 4th Street, SW	Negligible
Vegetation	Minor to moderate adverse; beneficial	Minor to moderate adverse; beneficial	Minor to moderate adverse; beneficial	Negligible
Stormwater Management	Minor short-term adverse; long-term beneficial	Minor short-term adverse; long-term beneficial	Minor short-term adverse; long-term beneficial	Negligible
Geophysical Resources	Moderate short-term adverse	Moderate short-term adverse	Moderate short-term adverse	Negligible
Vehicular Circulation	Short-term moderate adverse; negligible long-term	Short-term moderate adverse; long-term beneficial	Short-term moderate adverse; long-term beneficial	Negligible
Pedestrian/Bicycle Circulation	Minor to moderate adverse and beneficial	Minor to moderate adverse and beneficial	Minor to moderate adverse and beneficial	Negligible
Public Transportation	Moderate short-term adverse impacts; long-term negligible	Moderate short-term adverse impacts; long-term negligible	Moderate short-term adverse impacts; long-term negligible	Negligible

Resource	Alternative A	Alternative B	Alternative C	No Action Alternative
Parking	Short-term minor to moderate adverse; long-term minor to moderate adverse	Short-term minor to moderate adverse; long-term minor adverse	Short-term minor to moderate adverse; long-term minor adverse	Negligible
Energy Use and Sustainability	Beneficial	Beneficial	Beneficial	Negligible
Utilities	Short-term minor adverse; long-term beneficial	Short-term minor adverse; long-term beneficial	Short-term minor adverse; long-term beneficial	Negligible
Air Quality	Minor short-term adverse	Minor short-term adverse	Minor short-term adverse	Negligible
Noise Levels	Short-term moderate adverse	Short-term moderate adverse	Short-term moderate adverse	Negligible

Table 2-2 Comparison of Impacts
Source: AECOM 2010

2.8 WHAT IS GSA'S PREFERRED ALTERNATIVE AND WHY WAS IT SELECTED?

While the action alternatives would meet the overall purpose and need of the proposed action, GSA has selected Alternative B as the preferred alternative. Alternative B would best achieve a site that employs sustainable features in its design, and is inviting to both employees and visitors, while still incorporating physical security elements and parking into the landscape design. Alternative B would decrease the amount of hard surfaces by more than 35% over existing conditions and result in welcoming landscaped areas, while still providing visitor, handicapped, and employee parking. It would allow for the incorporation of sustainable measures into the site, reduce the urban heat island effect, and require less treatment and storage of stormwater than Alternative C. Further, Alternative B would result in a pedestrian-friendly site that would allow for safe circulation through the site to nearby existing or planned attractions. Incorporation of the coffee/concession stand into the site would further enhance the public's use of the site. Finally, Alternative B would be in compliance with a number of Federal and District policies and guidelines including but not limited to, the *Public Buildings Cooperative Use Act of 1976, Comprehensive Plan for the National Capital: Federal Elements* (2004), *Comprehensive Plan for the National Capital: District Elements* (2006), Executive Order 13514: *Federal Leadership in Environmental, Energy and Economic Performance,* GSA's *Site Security Design Guide*, and GSA's *Achieving Great Federal Spaces: A Property Manager's Guide.*

2.9 WHAT ALTERNATIVES DID GSA CONSIDER BUT NOT ANALYZE IN DETAIL?

GSA considered different amounts of parking at the north face of the building. One option included providing 104 parking spaces. This would have resulted in a landscaped parking lot without the much needed public space amenities, including greenspace and seating. Further, the expansive parking lot would have made it more difficult for GSA to include sustainable building practices and educational elements in the design, and also may have precluded GSA from meeting the requirements necessary to obtain a LEED Platinum rating for the overall building renovation. As a result, this alternative was dismissed from detailed analysis.

GSA also considered an alternative that would have included 45 parking spaces in the design. While this concept would have allowed for public greenspace, the landscaped areas would have been very limited in size and confined to the east and west corners of the site. In order to accommodate this level of parking, the lot would also have had to span the area in front of the main entrances to the building. This would not have allowed GSA to celebrate the

entrances, key design features of the historic property. Thus, GSA dismissed this alternative from detailed analysis.

GSA considered several alternatives for the location of the emergency generator. One option was to locate the generator within an interior building courtyard of the Cohen Building. This alternative was dismissed from detailed analysis because there is currently no access to the area, a platform would need to be constructed to hold the equipment, substantial sound attenuation would be required to prevent noise and vibration from impacting adjacent functions, and the area would no longer be usable as swing space.

A second option was to place the generator on the roof of the Cohen Building within an enclosure. The structure would need to be 27 feet tall and could have had structural and visual impacts on the historic Cohen Building. Further, wiring and fuel oil piping would have been required between the roof and basement, where the fuel tank would have been located, and sound attenuation measures would need to be implemented. As a result, GSA did not carry this alternative further.

Finally, GSA considered placing the backup generator on the roof of the Cohen Building, but without an enclosure. Although this alternative would have had negligible visual impacts, it would still have required that wiring and fuel oil piping be run from the basement to the roof, approximately 1,000 feet away. In addition, it would have required substantial sound attenuation. Thus, GSA dismissed this alternative from detailed analysis within the EA.

This page intentionally left blank

3.0 AFFECTED ENVIRONMENT

AND ENVIRONMENTAL IMPACTS

This page intentionally left blank

3.1 WHAT IS THE AFFECTED ENVIRONMENT AND HOW ARE IMPACTS EVALUATED?

The affected environment describes the existing social and environmental resources that may be impacted by the proposed alternatives. The descriptions focus on those resources that are most likely to be impacted by the alternatives, either adversely or beneficially. As documented in Chapter 1, resources that are not likely to be impacted by the alternatives have been dismissed from detailed analysis.

In the following analysis, impacts are characterized by several factors including intensity, type, and duration. Definitions of these terms and related assumptions are provided below:

Intensity – The intensity of an impact describes the magnitude of change that the impact generates. For the majority of the resource areas, the intensity thresholds are as follows:

- **Negligible**: There would be no impact, or the impact would not result in a noticeable change in the resource;
- **Minor:** The impact would be slight, but detectable, resulting in a small but measurable change in the resource;
- **Moderate**: The impact would be readily apparent and/or easily detectable;
- **Major**: The impact would be widespread and would substantially alter the resource. A major adverse impact would be considered significant under NEPA.

For specific resource areas, such as visual resources, more specific thresholds are necessary. When this is the case, these thresholds are provided prior to the impacts analysis.

Type – The impact type refers to whether it is adverse (negative) or beneficial (positive). Adverse impacts would potentially harm resources, while beneficial impacts would improve resource conditions. Within the analysis, impacts are assumed to be adverse unless identified as beneficial.

Duration – The duration of an impact identifies whether it occurs over a restricted period of time (short-term), or persists over a longer period (long-term). For the purposes of this analysis, it is assumed that short-term impacts would occur during the construction of the improvements, while long-term impacts would persist once the construction is complete. For the purposes of this analysis, impacts are assumed to be long-term unless identified otherwise.

In addition to the factors detailed above, impacts may be characterized as direct, indirect, or cumulative. A direct impact is caused by the action and occurs at the same time

and place. An indirect impact is caused by the action, but occurs later in time, or farther removed in distance. A cumulative impact occurs when the proposed action is considered together with other past, ongoing, or planned actions.

3.2 LAND USE

3.2.1 What Land Uses are Present on the Site and Within the Surrounding Area?

The Switzer Building is owned by GSA and is located within the Southwest Rectangle, three blocks from the U.S. Capitol Building and grounds. Bounded by 3rd Street, SW to the east, 4th Street, SW to the west, C Street, SW to the north, and D Street, SW to the south, the 3.5-acre site occupies a full city block. The structure is five-stories high, with a two-story penthouse. The two main pedestrian entrances are on C Street, SW, where an approximately 100-foot setback allows for a surface parking lot for the building. There is an additional entrance on the south side of the building that is used for the building's child care center. Below-grade parking and a loading dock area are accessed via a ramp off of 3rd Street, SW, which connects the Switzer Building to the Cohen Building. This below-grade space also contains a generator and fuel tank. The Switzer Building is currently occupied by the U.S. Department of Education, the U.S. Department of Health and Human Services, and the U.S. International Broadcasting Bureau. The surrounding sidewalks and portions of the building yard are under the administrative jurisdiction of the District of Columbia.

The area immediately surrounding the Switzer Building includes numerous mid-rise Federal office buildings. Many of these structures fill a full city block. The Cohen Building is sited directly north of the Switzer Building, across C Street, SW. This structure houses the U.S. Department of Health and Human Services, Voice of America, and the Broadcasting Board of Governors. Northeast of the Switzer Building, across the intersection of C and 3rd Streets, SW, the Hubert Humphrey Building houses the U.S. Department of Health and Human Services headquarters. The Lyndon Baines Johnson Department of Education Building (LBJ Building) lies northwest of the Switzer Building. Federal Office Building 8 (FOB 8) is located to the east of the Switzer Building and will house the Architect of the Capitol and the U.S. Department of Health and Human Services after renovations are completed. The Ford House Office Building is located to the southeast of the Switzer Building across the intersection of 3rd and D Streets, SW. The U.S. Small Business Administration and the Washington Design Center are located south of the Switzer Building across D Street, SW. The Federal Center Plaza is located to the west of the Switzer Building across 4th Street, SW. It houses the U.S. State Department, some street-level commercial and retail businesses, and an underground parking garage.

There are several small parks and larger areas of open space in the vicinity of the Switzer Building. To the east of the site, a plaza is planned for the north side of FOB 8. To the east and northeast of the site, across 2nd Street, SW, are several small, irregularly shaped parcels, each landscaped and bisected by sidewalks. This is the future location of the American Veterans Disabled for Life Memorial. The site of the future Eisenhower Memorial is located to the northwest of the Switzer Building, on the north side of the LBJ Building; a portion of the parcel currently contains community gardens and an exercise course. Further north and east of the site, the National Garden, Bartholdi Park, and the U.S. Capitol Grounds offer additional public open space. The largest area of greenspace in the downtown, the Mall, lies two blocks north of the Switzer Building and stretches from the U.S. Capitol grounds in the east to the Washington Monument grounds in the west. The current open space in the vicinity of the Switzer Building offers only limited seating opportunities.

Other land uses in the area include cultural attractions, retail establishments, and transportation infrastructure. The National Air and Space Museum and the National Museum of the American Indian are located to the north of the Switzer Building along the edge of the Mall. The U.S. Capitol Building, located three blocks northeast of the Switzer Building, also functions as a civic and cultural institution and is open daily for public tours. Ground floor retail is included in buildings immediately south and west of the project site.

Interstate 395 (I-395) runs below grade two blocks east of the site; access to this highway is provided via an onramp at 2nd and D Streets, SW. The Federal Center-SW Metrorail Station is located south of the site, near the intersection of 3rd and D Streets, SW. A rail line also runs along Virginia Ave, SW and crosses over I-395 one block to the south. Finally, several surface lots and parking structures are located in the area immediately surrounding the Switzer Building.

3.2.2 How Would Land Uses be Affected by the Site Improvements?

Alternative A

Under Alternative A, the existing surface parking lot would be replaced with a landscaped plaza. The plaza would offer a place for employees and other pedestrians to sit and relax in an area where there is currently limited seating. In addition, it would serve as an extension of the green space located to the north and east of site and the north and west of the site, including the future location of the American Veterans Disabled for Life Memorial and the future location of the Eisenhower Memorial. The construction of a plaza and gardens would further create continuity with the plaza planned for the north side of FOB 8, just east of the Switzer

Building. The new plaza would include a coffee/concession stand to serve the building employees and adjacent pedestrian traffic, and would serve to activate the public space. Overall, impacts would be beneficial.

Alternative B

Under Alternative B, the existing surface parking lot on the north face of the building would be replaced with a landscaped plaza. In this alternative, approximately eleven parking spaces would be maintained at the center of the plaza. The plaza would offer a place for employees and other pedestrians to sit and relax in an area where there is currently limited seating. In addition, it would serve as an extension of the existing and proposed green space located to the north and east of site and the north and west of the site, including the future locations of the American Veterans Disabled for Life Memorial and the Eisenhower Memorial. The construction of a plaza and gardens would further create continuity with the plaza planned for the north side of FOB 8, just east of the Switzer Building. The new plaza would include a coffee/concession stand to serve the building employees and adjacent pedestrian traffic, and would serve to activate the public space. Overall, impacts to land use are anticipated to be beneficial.

Alternative C

Under Alternative C, the existing surface parking lot would be replaced with a landscaped plaza. In this alternative, approximately twenty-eight spaces providing handicap, visitor, and limited employee parking would be maintained at the center of the plaza. The landscaped plaza would offer a place for employees and other pedestrians to sit and relax in an area where there is currently limited seating. In addition, it would serve as a connection to the existing and proposed green space located to the north and east of site and the north and west of the site, including the future locations of the American Veterans Disabled for Life Memorial and the Eisenhower Memorial. The construction of a plaza and gardens would further create continuity with the plaza planned for the north side of FOB 8, just east of the Switzer Building. The new plaza would include a coffee/concession stand to serve the building employees and adjacent pedestrian traffic, and would serve to activate the public space. Overall, impacts to land use would be beneficial.

No Action Alternative

Under the No Action alternative, perimeter security and exterior site improvements would not be completed at the Switzer Building. The surface parking on the north face of the building would remain and no public space would be added to the area. Thus, impacts to land use would be negligible.

3.3 PLANNING POLICIES

3.3.1 What are the Federal and Local Plans and Policies that are Relevant to the Site Improvements?

Zoning

The Switzer Building is not subject to DC zoning regulations, as it is a federally owned property. New design and renovation projects on federal property are regulated by NCPC, pursuant to the District of Columbia Zoning Enabling Act of 1938 (ch. 534, 52 Stat. 802 and DC ST § 6-641.15). In accordance with the Act, NCPC has approval authority for use, open space, height, and bulk.

Comprehensive Plan for the National Capital: Federal Elements (2004)

The *Comprehensive Plan for the National Capital: Federal Elements* is the principal tool used by NCPC to guide the planning of federal facilities in Washington, DC. The Plan is comprised of goals, objectives, and policies intended to guide growth and development in the Nation's Capital. There are three elements that are of particular relevance to the proposed site improvements at the Switzer Building: the Federal Workplace Element, the Federal Environment Element, and the Preservation and Historic Features Element.

The Federal Workplace Element states that it is the goal of the federal government in the National Capital Region to: "Locate the federal workforce to enhance the efficiency, productivity, and public image of the federal government; to strengthen the economic well-being and expand employment opportunities of the region and the localities therein; and to give emphasis to the District of Columbia as the seat of the national government." Policies that are relevant to the proposed Switzer Building site improvements include the following:

- Consider the modernization, repair, and rehabilitation of existing federally owned facilities for federal workplaces before developing new facilities.
- Associate federal workplaces in urban areas to their urban context and appropriately scale them to promote pedestrian activity.
- Incorporate civic art, including memorials, plazas, public gardens, fountains, sculpture, and murals, into federal workplaces. Proposals for civic art should be coordinated with local agencies.
- Encourage the use of federal workplaces for occasional cultural, educational, and/or recreational activities, providing suitable space and equipment for such activities.
- Implement methods to reduce consumption of nonrenewable energy resources and to reduce the consumption of energy through energy efficient

techniques as soon as practicable at all federal workplaces or when planning these facilities.

- Consult with local agencies to ensure that federal workplaces enhance the design qualities and vitality of their communities.
- Agencies requiring physical perimeter security improvements should design such improvements in accordance with guidance included in The National Capital Urban Design and Security Plan (and related policies).
- Incorporate security needs into the design of buildings, streetscapes, and landscapes using urban design principals in a manner that: enhances and beautifies the public realm, resulting in coherent and welcoming streetscapes; does not excessively restrict or impede operational use of sidewalks or pedestrian, handicap, or vehicular mobility; and does not impact the health of existing mature trees.
- Design projects in a manner that does not impede commerce and economic vitality, but balances the need for perimeter security with the need to enhance and maintain the vitality of urban areas.
- Design security barrier lines and elements that complement and enhance the character of the area in which they will be located and that respect the historic context of the area when applicable.
- Design security elements to respond to site-specific conditions, such as vehicle approach speed and angles, in order to minimize the size of security elements when possible.
- Place security elements in the building yard, rather than in public space where possible.

The Federal Environment Element states that it is the goal of the federal government to: "Conduct its activities and manage its property in a manner that promotes the National Capital Region as a leader in environmental stewardship and preserves, protects, and enhances the quality of the region's natural resources, providing a setting that benefits the local community, provides a model for the country, and is worthy of the nation's capital." Policies in support of this goal that are directly applicable to the Switzer Building site improvements include the following:

- Minimizing power generation requirements, such as by utilizing best available "green" building systems and technologies.
- Utilizing non-polluting sources of energy (e.g., solar energy).
- Use pervious surfaces and retention ponds to reduce stormwater runoff and impacts on off-site water quality.
- Encourage the use of innovative and environmentally friendly "Best Management Practices" in site and building design and construction practice, such as green roofs, rain gardens, and permeable surface walkways, to

reduce erosion and avoid pollution of surface waters.

- Require wastewater reduction through conservation and reuse in all new federal buildings and major federal renovation projects.
- Encourage the natural recharge of groundwater and aquifers by limiting the creation of impervious surfaces, avoiding disturbance to wetlands and floodplains, and designing stormwater swales and collection basins on federal installations.
- Encourage the implementation of water reclamation programs at federal facilities for landscape irrigation purposes and other appropriate uses.
- Incorporate new trees and vegetation to moderate temperatures, minimize energy consumption, and mitigate stormwater runoff.
- Enhance the environmental quality of the national capital by replacing street trees where they have died or where they have been removed due to development.
- Encourage the use of native plant species, where appropriate.

The Preservation and Historic Features Element states that it is the goal of the federal government to: "Preserve and enhance the image and identity of the nation's capital and region through design and development that is respectful of the guiding principles of the L'Enfant and McMillan Plans, the enduring value of historic buildings and places, and the symbolic character of the capital's setting." Policies in support of this goal that are applicable to the Switzer Building site improvements include the following:

- Protect and enhance the vistas and views, both natural and designed, that are an integral part of the national capital's image.
- Promote continuity in the historic design framework of the nation's capital by protecting and enhancing the elements, views, and principles of the L'Enfant Plan.
- Protect the settings of historic properties, including views to and from the sites where significant, as integral parts of the historic character of the property.

Comprehensive Plan for the National Capital: District Elements (2006)

The *Comprehensive Plan for the National Capital: District Elements* contains thirteen citywide elements that provide goals, objectives, and policies for development within the city. There are also ten area elements that provide guidance specific to geographic areas of the city. Policies that are applicable to the site improvements at the Switzer Building come from the Environmental Protection, Parks, Recreation and Open Space, Historic Preservation, Urban Design, Transportation, and Central Washington Elements. These policies include the following:

- Policy E-3.1.2: Using Landscaping and Green Roofs to Reduce Runoff - Promote an increase in tree planting and landscaping to reduce stormwater runoff, including the expanded use of green roofs in new construction and adaptive reuse, and the application of tree and landscaping standards for parking lots and other large paved surfaces.
- Policy E-3.2.1: Support for Green Building – Encourage the use of green building methods in new construction and rehabilitation projects, and develop green building methods for operation and maintenance activities.
- Policy E-3.3.1: Maximizing Permeable Surfaces – Encourage the use of permeable materials for parking lots, driveways, walkways, and other paved surfaces as a way to absorb stormwater and reduce urban runoff.
- Policy E-4.2.3: Control of Urban Runoff – Continue to implement water pollution control and "best management practice" measures aimed at slowing urban runoff and reducing pollution, including the flow of sediment and nutrients into streams, rivers, and wetlands.
- Policy PROS-4.3.2: Plazas in Commercial Districts – Encourage the development of outdoor plazas around Metro station entrances, in neighborhood business districts, around civic buildings, and in other areas with high volumes of pedestrian activity. Use the planned unit development process to promote such spaces for public benefit and to encourage tree planting, public art, sculpture, seating areas, and other amenities within such spaces.
- Policy HP-2.3.5: Enhancing Washington's Urban Design Legacy - Adhere to the design principles of the L'Enfant and McMillan Plans in any improvements or alterations to the city street plan. Where the character of the historic plan has been damaged by intrusions and disruptions, promote restoration of the plan through coordinated redevelopment and improvement of the transportation network and public space.
- Policy UD-3.1.2: Management of Sidewalk Space - Preserve the characteristically wide sidewalks of Washington's commercial districts. Sidewalk space should be managed in a way that promotes pedestrian safety, efficiency, comfort, and provides adequate space for tree boxes. Sidewalks should enhance the visual character of streets, with landscaping and buffer planting used to reduce the impacts of vehicle traffic.
- Policy UD-3.1.8: Neighborhood Public Space - Provide urban squares, public plazas, and similar areas that stimulate vibrant pedestrian street life and provide a focus for community activities. Encourage the "activation" of such spaces through

the design of adjacent structures, for example, through the location of shop entrances, window displays, awnings, and outdoor dining areas.

- Policy UD-3.1.12: Programming of Outdoor Space – Encourage the programming of outdoor space with events and activities (such as performances, arts, and farmers markets) that stimulate streetlife and active use.
- Policy UD-3.2.3: Site Planning and Design Measures to Increase Security - Encourage architectural design and site planning methods that minimize perimeter security requirements and have a reduced impact on the public realm. Such measures include separating entryways, controlling access, "hardening" of shared walls, and the selection of more resilient building materials.
- Policy UD-3.2.4: Security Through Streetscape Design - Develop and apply attractive, context-sensitive security measures in the design of streets, plazas, and public spaces. These measures should use an appropriate mix of bollards, planters, landscaped walls, vegetation, and street furniture rather than barriers and other approaches that detract from aesthetic quality.
- Policy T-2.4.3: Traffic Calming – Continue to address traffic-related safety issues through carefully considered traffic calming measures.
- Policy CW-2.7.1: Enhancing the Near Southwest - Work collaboratively with the National Capital Planning Commission to improve the aesthetic quality, identity, and pedestrian character of the Near Southwest. Plans for the area should identify streetscape and signage improvements, pedestrian circulation changes, measures to mitigate the scale of the area's monolithic buildings, and guidelines for new (or replacement) buildings within the area.

National Capital Urban Design and Security Plan (2002) and Urban Design and Security Plan Policies and Objectives (2005)

NCPC's *National Capital Urban Design and Security Plan* seeks to balance the security needs and requirements of federal agencies with the need to protect the historic urban fabric of Washington, DC. The Plan holds that security elements for federal buildings should be enhanced in a manner that does not compromise the vitality and function of the public realm, be it pedestrian circulation, vehicular mobility, commerce, or the aesthetic experience of visitors. To this end, the Plan establishes a series of goals. These goals are as follows:

- Provide appropriate levels of perimeter security for sensitive buildings and their occupants against threats generated by unauthorized vehicles approaching or entering them.

- Provide security in the context of a city-wide program of streetscape enhancement and public realm beautification, rather than as a separate or redundant system of components whose only purpose is security.
- Expand the palette of elements that can gracefully provide perimeter standoff security, avoiding the monotony of endless lines of jersey barriers or bollards, which only invoke defensiveness.
- Produce a coherent strategy for deploying specific families of streetscape and security elements in which priority is given to achieving aesthetic continuity along streets, and within areas, rather than solutions selected solely by the needs of a particular building under the jurisdiction of one public agency.
- Provide perimeter security in a manner that does not impede the City's commerce and vitality, pedestrian or vehicular mobility, or operational use of sidewalks within the Monumental Core or downtown.

In order to achieve these goals, the Plan offers a variety of design elements that can be used in perimeter security projects. These solutions include such physical elements as "hardened" or fortified street furniture, planters, and fences, low stone plinth walls, bollards, large round linear planters with seating, bicycle racks, and curbside hedges with embedded security measures. Potential security measures should be designed to be applied in a variety of different contexts and ways to meet the specific security and design needs of each particular downtown area.

The *Urban Design and Security Plan Policies and Objectives* was adopted in 2005 to clarify issues related to contextual design, vehicular and pedestrian controls, and the placement and design of physical security elements. The objectives and policies are intended to be used to guide federal agencies when evaluating, planning, and designing proposed perimeter security projects.

The policies and objectives include the following:

- Strike a balance between physical perimeter security for federal buildings and the vitality of the public realm.
- Encourage a multi-faceted approach to selection of appropriate security measures that considers intelligence information, operational and procedural measures (such as surveillance and screening), and design strategies (such as structural engineering, window glazing, emergency egress, and physical perimeter barriers).
- Intelligence information, operational controls, and physical design measures should be used to protect against vehicle-borne explosives.
- The placement of physical security barriers in public space is discouraged and should be minimized.

- For existing buildings in urban areas, perimeter security barriers should be located within the building yard when the face of the sensitive building to the outside edge of the building yard is a minimum of 20 feet. If the distance from the face of the building to the outside edge of the building yard is less than 20 feet, then perimeter security barriers may be permitted in public space adjacent to the building.
- Perimeter security barriers at intersections, corners and near crosswalks or other highly used pedestrian areas should be minimized; barriers that are needed should be located to allow safe pedestrian waiting areas and pedestrian movement.
- The design of security barriers, including their mass, form and materials should respond to the architectural and landscape context in which they are located and complement and aesthetically enhance the special character of the associated building and precinct.
- Perimeter security barriers in public space should incorporate decorative tree wells, planters, light poles, signage, benches, parking meters, trash receptacles and other elements and public amenities typically found in a streetscape.

National Capital Framework Plan (2008)

The *National Capital Framework Plan*, released in the summer of 2008, is the result of a joint planning effort between NCPC and CFA. The Plan serves as a tool to guide strategic decisions to coordinate federal and local interests, identifying opportunities to coordinate land use, urban design, and transportation improvements. The principal goals of the Plan are to: Plan for the future needs of the federal government, including space for new memorials, museums, public gathering spaces, and federal offices in a way that contributes to sustainable city life; preserve the historic open space of the National Mall and protect it from overbuilding; and extend the special civic qualities of the National Mall and the vitality and vibrancy of the city into the adjacent federal precincts.

In order to accomplish these goals, the Plan identifies four precincts adjacent to the National Mall which should be the focus for future cultural attractions and government offices. The four precincts are: the Northwest Rectangle, Federal Triangle, the Southwest Rectangle, and East Potomac Park. The Framework Plan examines opportunities to enhance these precincts in order to meet the future needs of the federal government, while also protecting the city's open space and public realm.

As identified within the Plan, the Southwest Rectangle precinct generally stretches from Jefferson Drive, SW on the north to the Southeast Freeway and the 10th Street, SW

Overlook on the south, and from 15th Street, SW on the west to the Center Leg Freeway on the east. The Switzer Building is located at the east end of this area. The Plan states that the primary objective for the Southwest Rectangle is to transform it from a sterile office precinct to a desirable workplace, cultural venue, and visitor destination through improved connections between the Smithsonian Castle and the Southwest waterfront, and between the U.S. Capitol and the Jefferson Memorial. Specific strategies to achieve this objective include the following:

- Establish 10th Street, SW and the Overlook as a lively mixed-use corridor and premier cultural destination to connect the National Mall and the Southwest waterfront.
- Establish Maryland Avenue, SW as a grand urban boulevard to link the U.S. Capitol to the Jefferson Memorial.
- Create new places for museums, offices, shops, and residences to increase the mix of uses within the precinct.
- Bridge the Potomac River and restore the street grid to improve mobility.

CapitalSpace Plan

The *CapitalSpace Plan* was approved in April 2010 and is a result of a joint planning effort between the District of Columbia Department of Parks and Recreation (DPR), DC OP, the National Park Service (NPS), and NCPC. Other collaborators include the District of Columbia Public Schools, the District Department of Transportation, the District Department of the Environment, GSA, and CFA. The Plan focuses on parks and open spaces in the District and provides a vision for a beautiful, high-quality, and unified park system. The Plan articulates six action-oriented ideas and supporting planning concepts that work toward implementation of the vision. The actions are intended to maximize existing assets, address current and future needs, and capitalize on existing opportunities. Specific strategies that are applicable to the Switzer Building site improvements stem from the Plan's goal to "Enhance Center City parks and open space to support a vibrant downtown" and include the following:

- Meet park and open space demands by exploring opportunities to improve connections to parks through enhancement of surrounding streets and sidewalks and ensuring connectivity and accessibility to outdoor public spaces with federal security requirements.

- Build stronger partnerships between District and federal agencies to coordinate and support park management and stewardship.
- Utilize placemaking and programming to: expand recreational opportunities by tailoring design and programming efforts to encourage public use; incorporate sustainable design features; promote visual openness and continuity in the corridors between park spaces; incorporate historical design elements; and incorporate design features that encourage connections to adjacent neighborhood spaces such as public art, landscaping, sidewalk concessionaires and outdoor seating.

1870 Parking Act

The 1791 Plan of the City of Washington, designed by Pierre Charles L'Enfant, defined the physical and symbolic character of the capital city, and envisioned a coordinated system of radiating avenues, vistas, and parks. In support of the Plan, Congress passed the Parking Act in 1870. The legislative intent of the Parking Act was to allow private use of the land between buildings and sidewalks, as long as the area was maintained as greenspace for the enjoyment of the community. According to DDOT records, in the right-of-ways adjacent to the Switzer Building 12' was designated as sidewalk and 15' as parking, or green space, on the west side of 3rd Street, SW; 7' was designated as sidewalk and 18' as parking on the north side of D Street, SW; and 27-1/2' was designated as sidewalk, without any parking area, on the east side of 4th Street, SW.

District of Columbia Bicycle Master Plan

The District of Columbia's Bicycle Master Plan establishes recommendations for bicycle facilities within DC. The following recommendations address the area surrounding the Switzer Building and thus are relevant to the Switzer Building site improvements:

- Recommendation 1.2: Provide bike facilities on roadways.
    - A bicycle lane is proposed for 4th Street, SW.
- Recommendation 1.5: Provide bicycle parking in public space.
- Recommendation 1.6: Encourage bicycle parking in private space.
- Recommendation 1.8: Upgrade and extend key existing trails.
    - Establish and upgrade two shared use path routes traversing the National Mall from the Theodore Roosevelt and Memorial Bridges to the Capitol Grounds, one serving north side Mall destinations and one serving south side destinations.

- Recommendation 1.10: Facilitate and support the development of regional and national trail routes through the District of Columbia.
    - East Coast Greenway route through the National Mall.
- Recommendation 1.11: Establish bicycling as a preferred mode of transportation in the National Mall area.
- Recommendation 1.18: Improve bicycle access to public transportation.

DDOT *Design and Engineering Manual*

The DDOT *Design and Engineering Manual* describes DDOT's procedures and standards for preparing project construction documents. The primary purpose of the manual is to enable the District's engineers, consultants, and private developers to efficiently and effectively develop projects that meet the District's policies and standards. The manual establishes standards for roadways, intersections, sidewalks and tree boxes that are relevant to the detailed design of the proposed project. In particular, the manual provides guidance on roadway and lane widths, roadway narrowing and curb extensions, intersection angles and alignments, sidewalk widths under differing conditions, and guidance on the size and spacing of street trees.

Tree Removal Permit

The Urban Forestry Administration, under the District Department of Transportation (DDOT), requires permits for the removal of street trees. Specifically, the Urban Forest Preservation Act of 2002, effective June 12, 2003 (D.C. Law 14-309; D.C. Official Code 8-6501.01 *et seq.*), established an urban forest preservation program requiring a Special Tree Removal Permit prior to the removal of a tree with a circumference equal to or greater than 55 inches. If a tree removal permit is approved, the Urban Forestry Administration will require the replacement of lost trees based on caliper, either on the site or in a comparable area and/or the payment of a fee to the Urban Forestry Administration's Tree Fund.

Executive Order 13514

In October 2009, Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, was issued, directing all federal agencies to strengthen their sustainable practices. The order expands upon the Energy Independence and Security Act, the Energy Policy Act of 2005, and Executive Order 13423 by requiring federal agencies to implement strategies that measure, manage, and reduce greenhouse gas emissions, water consumption, and diversion of materials. The order mandates federal agencies to meet various energy and environmental targets and defines requirements for sustainability in buildings and leases, sustainable

acquisition, and electronic stewardship. Goals that are particularly relevant to the site improvements at the Switzer Building include:

- Increase agency use of renewable energy and implementing renewable energy generation projects on agency property.
- Reduce the use of fossil fuels.
- Improve water use efficiency and management by:
    - Reducing potable water consumption intensity by 2% annually through fiscal year 2020;
    - Reducing agency industrial, landscaping and agricultural water consumption by 2% annually;
    - Identifying, promoting, and implementing water reuse strategies that reduce potable water consumption;
- Minimize the generation of waste and pollutants through source reduction.
- Ensure 95% of all new contracts, including non-exempt contract modifications, require products and services that are energy-efficient, water-efficient, biobased, environmentally preferable, non-ozone depleting, contain recycled-content, non-toxic or less-toxic alternatives.
- Beginning in 2020, ensure that all new Federal buildings are designed to achieve zero-net-energy by 2030.
- Ensure at least 15% of existing buildings and leases (>5,000 gross sq ft) meet the Guiding Principles by FY2015, with continued progress towards 100%.
- Pursue cost-effective, innovative strategies, such as highly reflective and vegetated roofs, to minimize consumption of energy, water, and materials.
- Managing existing building systems to reduce the consumption of energy, water, and materials, and identify alternatives to renovation that reduce existing assets' deferred maintenance costs; ensure that rehabilitation of federally-owned historic buildings utilize best practices and technologies in retrofitting to promote long-term viability of the buildings.
- Advance regional planning and local integrated planning by:
    - Participating in regional transportation planning and recognizing existing community transportation infrastructure;
- Recommendations regarding sustainable location strategies shall be consistent with principles of sustainable development including: prioritizing central business district locations, prioritizing sites well served by transit, including site design elements that ensure safe and convenient pedestrian access, consideration of transit access and proximity to housing affordable to a wide range of Federal employees, adaptive reuse or renovation of buildings,

avoidance of development of sensitive land resources, and evaluation of parking management strategies.

3.3.2 Would the Site Improvements Comply with Federal and Local Plans and Policies?

Alternative A

Alternative A would comply with portions of the *Federal Elements* of the *Comprehensive Plan*. It would potentially enhance the public image of the federal government through improving an existing facility in the vicinity of the U.S. Capitol Building. It would incorporate security needs into the design of landscapes while enhancing the public realm. In Alternative A, the surface parking lot would be replaced by a landscaped plaza. The landscaped plaza would be designed to invite the public into the space, including for occasional community events, and would incorporate civic art into the plaza design. It would also incorporate energy efficient technologies such as a ground source heat pump in order to reduce the consumption of non-renewable energy resources. Alternative A would add additional street trees around the site and would increase the trees and other vegetation on the site by creating a landscaped plaza on the entire area on the north face of the Switzer Building. This increase in vegetation in Alternative A would help to moderate temperatures around the building, minimize energy use, and increase the environmental quality of the area. Alternative A would reduce stormwater runoff and impacts to off-site water quality through the use of site design elements such as pervious surfaces, rain gardens, increased vegetation, and other LID measures. However, contrary to the Plan, Alternative A would result in the removal of some existing street trees and would locate some security features within public space. Finally, Alternative A would detract from the L'Enfant Plan by creating physical and visual barriers between the sidewalk and the vehicular right-of-way on D Street, SW.

Alternative A would comply with portions of the *Comprehensive Plan for the National Capital: District Elements*. The proposed design would reduce stormwater runoff by replacing the impervious pavement of the surface parking lot with a landscaped plaza, and through the planting of additional street trees around the site. Alternative A would also reduce and control stormwater runoff and improve off-site water quality through the use of site design elements such as pervious surfaces, rain gardens, increased vegetation, and other LID measures. Green building methods would be used in site operations such as a ground source heat pump and gray water reuse for irrigation purposes. The new plaza on C Street, SW would incorporate public art, would provide a valuable public space for the neighborhood, and perimeter security elements would be context-sensitive, employing an appropriate mix of bollards, perforated garden walls, and hardened street furnishings. Alternative A would also

narrow C Street, SW as a traffic calming measure and establish wider sidewalks on C Street, SW to improve pedestrian circulation. However, contrary to the plan, Alternative A would not enhance the L'Enfant and McMillan Plans and would impact the public realm through the placement of perimeter security elements at the curbline along D Street, SW.

Alternative A would comply with portions of the *NCPC Security Plan* and the subsequent *Policies and Objectives*. The design would employ a range of streetscape elements including perforated garden walls, bollards, perimeter security walls and street furniture, hardened for security purposes. The *Policies and Objectives* allow for barriers in public space if the distance from the face of the building to the outer edge of the building yard is less than 20 feet, but also states that the placement of barriers in public space is discouraged and should be avoided. On D Street, SW, the building yard is less than 20 feet and thus the placement of security features along the curbline, while discouraged, may still be allowed. The alternative would adversely impact pedestrian circulation for the area's employees and tourists on D Street, SW. Finally, the *Policies and Objectives* discourage the placement of security elements at corners, as they inhibit pedestrian flow.

Alternative A would result in a beneficial impact and comply with the *National Capital Framework Plan*'s vision for the Southwest Rectangle as it would make the site a more desirable workplace through the removal of the surface parking lot and its replacement with a landscaped plaza.

Alternative A would result in a beneficial impact and comply with the *CapitalSpace Plan*'s vision to create and improve city center parks through the removal of the surface parking lot and its replacement with a landscaped plaza. The landscaped plaza would provide accessible public space in an area with federal security concerns and would include amenities such as pedestrian paths, seating, a coffee/concession stand, and sustainable design features.

Under Alternative A, some of the street trees on the site would be replaced with new trees. The removal of existing trees would require compliance with the Urban Forest Preservation Act of 2002. Site vegetation and tree replacement is discussed in detail in Section 3.7.

Alternative A would comply with Executive Order 13514. The proposed design would incorporate renewable energy and water and energy efficiency techniques. Furthermore, Alternative A would reduce stormwater runoff through the removal of the surface parking lot and the installation of a pervious landscaped plaza, through increased vegetation, through the planting of additional street trees around the site, and other LID measures. The proposed design would also seek to incorporate sustainability measures and improve pedestrian access and safety. These measures include energy conservation techniques such as additional

vegetation to help moderate temperatures around the building, a ground source heat pump, and gray water irrigation systems.

Overall, impacts to planning policies would be minor, with beneficial impacts resulting from compliance with Executive Order 13514, policies contained in the *Federal* and *District Elements* that promote sustainability, and portions of the *Framework* and *CapitalSpace Plans*.

Alternative B

Alternative B would comply with portions of the *Federal Elements* of the *Comprehensive Plan,* as it would potentially enhance the public image of the federal government through improving an existing facility in the vicinity of the U.S. Capitol Building. It would incorporate security needs into the design of landscapes while enhancing the public realm. In Alternative B, the majority of the surface parking would be replaced by a landscaped plaza. The landscaped plaza in Alternative B would be designed to invite the public into the space and would incorporate civic art into the plaza design. The small surface parking area in the center of the site would be partially shaded by trees and would be surrounded by the vegetation incorporated into the landscaped plaza. It could be used for occasional community events. It would also incorporate energy efficient technologies, such as a ground source heat pump, in order to reduce the consumption of non-renewable energy resources. Alternative B would add additional street trees around the site and would increase the trees and other vegetation on the site by creating a landscaped plaza on the north face of the Switzer Building. This increase in vegetation would help to moderate temperatures around the building and the surface parking lot, reduce energy use, and increase the environmental quality of the area. Alternative B would reduce stormwater runoff and impacts to off-site water quality through the use of site design elements such as pervious surfaces, rain gardens, increased vegetation, underground cisterns, and other LID measures. However, contrary to the Plan, Alternative B would result in the removal of some existing street trees and would locate some security features within public space. Finally, Alternative B would detract from the L'Enfant Plan by creating physical and visual barriers between the sidewalk and the vehicular right-of-way on D Street, SW.

Alternative B would comply with portions of the *Comprehensive Plan for the National Capital: District Elements*. The proposed design would reduce stormwater runoff by replacing the majority of the surface parking lot with a landscaped plaza, and through the planting of additional street trees around the site. Alternative B would also reduce and control stormwater runoff and impacts to off-site water quality through the use of site design elements such as pervious surfaces, underground cisterns, and other LID measures. Green building methods would be used in site operations such as a ground source heat pump and gray water reuse for irrigation purposes. The new

plaza on C Street, SW would provide a valuable public space for the neighborhood, and perimeter security elements would be context-sensitive, employing an appropriate mix of bollards, perforated garden walls, and hardened street furnishings. Alternative B would also narrow C Street, SW as a traffic calming measure and establish wider sidewalks on C Street, SW to improve pedestrian circulation. However, contrary to the plan, Alternative B would not enhance the L'Enfant and McMillan Plans and would impact the public realm through the placement of perimeter security elements outside of the building yard along D Street, SW.

Alternative B would comply with portions of the *NCPC Security Plan* and the subsequent *Policies and Objectives*. The design would employ a range of streetscape elements including perforated garden walls, bollards, perimeter security walls and street furniture, hardened for security purposes. The *Policies and Objectives* allow for barriers in public space if the distance from the face of the building to the outer edge of the building yard is less than 20 feet, but also state that the placement of barriers in public space is discouraged and should be avoided. On D Street, SW, the building yard is less than 20 feet; thus the placement of security features along the curbline, while discouraged, may still be allowed. The alternative would negatively impact pedestrian circulation for the area's employees and tourists on D Street, SW. Finally, the *Policies and Objectives* discourage the placement of security elements at corners, as they inhibit pedestrian flow.

Alternative B would result in a beneficial impact and comply with the *National Capital Framework Plan*'s vision for the Southwest Rectangle as it would make the site a more desirable workplace by removing the majority of the surface parking lot and replacing it with a landscaped plaza.

Alternative B would result in a beneficial impact and comply with the *CapitalSpace Plan*'s vision to create and improve city center parks by replacing the surface parking lot with a landscaped plaza with an area designed to accommodate a small amount of parking. The landscaped plaza would provide accessible public space in an area with federal security concerns and would include amenities such as pedestrian paths, seating, a coffee/concession stand, and sustainable design features.

Under Alternative B, some of the street trees on the site would be replaced with new trees. The removal of existing trees would require compliance with the Urban Forest Preservation Act of 2002. Site vegetation and tree replacement is discussed in detail in Section 3.7.

Alternative B would comply with Executive Order 13514. The proposed design would incorporate renewable energy and water and energy efficiency techniques. The proposed design would reduce stormwater runoff by replacing the surface parking lot with a landscaped plaza. The plaza

would include a small parking lot at its center. The planting of additional street trees, an increase in site vegetation and low impact development techniques such as underground collection cisterns would also reduce stormwater runoff. The proposed design would also seek to incorporate sustainability measures and improve pedestrian access and safety in compliance with Executive Order 13514. These measures include energy conservation measures such as additional vegetation to help moderate temperatures around the building and the small surface parking lot, a ground source heat pump, and gray water irrigation systems.

Overall, impacts to planning policies would be minor, with beneficial impacts resulting from compliance with Executive Order 13514, policies contained in the *Federal* and *District Elements of the Comprehensive Plan* that promote sustainability, and portions of the *Framework* and *CapitalSpace Plans*.

Alternative C

Alternative C would comply with portions of the *Federal Elements* of the *Comprehensive Plan,* as it would potentially enhance the public image of the federal government through improving an existing facility in the vicinity of the U.S. Capitol Building. It would also incorporate security needs into the design of landscapes while enhancing the public realm. In Alternative C, a large portion of the surface parking lot would be removed and landscaped plaza areas would be added on either side of the remaining surface parking. The landscaped plaza areas in Alternative C would be designed to invite the public into the space and would incorporate public art into the design. These two plaza areas on the east and west sides of the surface parking would be connected by a pedestrian path between the face of the building and the lot. The parking area would be partially shaded by trees and other plantings at three of its edges and could be used for occasional community events. Alternative C would also incorporate energy efficient technologies, such as a ground source heat pump, in order to reduce the consumption of non-renewable energy resources, would add street trees around the site, and would increase the trees and other vegetation on the site by creating landscaped plaza areas on a large portion of the area on the north face of the Switzer Building. This increase in vegetation would help to moderate temperatures around the building and the surface parking lot, reduce energy use, and increase the environmental quality of the area.

Alternative C would reduce stormwater runoff and impacts to off-site water quality through the use of site design elements such as pervious surfaces, rain gardens, increased vegetation, underground cisterns and other LID measures. However, contrary to the Plan, Alternative C would result in the removal of some existing street trees and would locate some security features within public space. Finally, Alternative C would detract from the L'Enfant Plan by creating physical and visual barriers between the sidewalk and the vehicular right-of-way on D Street, SW.

Alternative C would comply with portions of the *Comprehensive Plan for the National Capital: District Elements*. The proposed design would reduce stormwater runoff by replacing the surface parking lot with landscaped plaza areas and through the planting of additional street trees around the site. Alternative C would also reduce and control stormwater runoff and impacts to off-site water quality through the use of site design elements such as pervious surfaces, underground cisterns, and other LID measures. Green building methods would be used in site operations such as a ground source heat pump and gray water reuse for irrigation purposes. The new landscaped areas on C Street, SW would provide valuable public space for the neighborhood, and perimeter security elements would be context-sensitive, employing an appropriate mix of bollards, perforated garden walls, and hardened street furnishings. Alternative C would also narrow C Street, SW as a traffic calming measure and establish wider sidewalks on C Street, SW to improve pedestrian circulation. However, contrary to the plan, Alternative C would not enhance the L'Enfant and McMillan Plans and would impact the public realm through the placement of perimeter security elements at the curbline along D Street, SW.

Alternative C would comply with portions of the *NCPC Security Plan* and the subsequent *Policies and Objectives*. The design would employ a range of streetscape elements including perforated garden walls, bollards, perimeter security walls and street furniture, hardened for security purposes. The *Policies and Objectives* allow for barriers in public space if the distance from the face of the building to the outer edge of the building yard is less than 20 feet, but also state that the placement of barriers in public space is discouraged and should be avoided. On D Street, SW, the building yard is less than 20 feet and the placement of security features at the curbline, while discouraged, may still be allowed. The alternative would adversely impact pedestrian circulation for the area's employees and tourists on D Street, SW. Finally, the *Policies and Objectives* discourage the placement of security elements at corners, as they inhibit pedestrian flow.

Alternative C would result in a beneficial impact and comply with the *National Capital Framework Plan*'s vision for the Southwest Rectangle as it would make the site a more desirable workplace through the removal of the

existing surface parking lot and its replacement with landscaped plaza areas.

Alternative C would result in a beneficial impact and comply with the *CapitalSpace Plan*'s vision to create and improve city center parks by replacing the existing surface parking lot with a landscaped plaza. The new plaza would include a small surface lot at its center. The landscaped plaza would include amenities such as pedestrian paths, seating, a coffee/concession stand, and sustainable design features.

Under Alternative C, some of the street trees on the site would be replaced with new trees. The removal of existing trees would require compliance with the Urban Forest Preservation Act of 2002. Site vegetation and tree replacement is discussed in detail in Section 3.7.

Alternative C would comply with Executive Order 13514. The proposed design would incorporate renewable energy and water and energy efficiency techniques. The proposed design would reduce stormwater runoff by removing the existing surface parking lot and replacing it with a landscaped plaza with a small surface parking lot at its center. The planting of additional street trees, an increase in site vegetation and low impact development techniques such as underground collection cisterns would also reduce stormwater runoff. The proposed design would also seek to incorporate sustainability measures and improve pedestrian access and safety in compliance with Executive Order 13514. These include energy conservation measures such as additional vegetation to help moderate temperatures around the building and the surface parking lot, a ground source heat pumps, and gray water irrigation systems.

Overall, impacts to planning policies would be minor, with beneficial impacts resulting from compliance with Executive Order 13514, policies contained in the *Federal* and *District Elements* that promote sustainability, and portions of the *Framework* and *CapitalSpace Plans*.

No Action Alternative

Under the No Action alternative, perimeter security and exterior site improvements would not be completed at the Switzer Building. As a result, the surface parking lot would not be improved and thus the site would not become a more desirable workplace, as recommended by the *Framework Plan*. Further, the sidewalks on C Street, SW would not be widened to create safer, pedestrian friendly walkways, as recommended by the *Comprehensive Plan for the National Capital: District Elements,* and energy conservation and sustainability measures would not be implemented in accordance with Executive Order 13514, and the *Federal* and *District Elements*. Impacts would be negligible.

3.3.3 What Measures Should be Taken to Improve Compliance with Applicable Plans and Policies?

The NCPC *Security Plan* and *Policies and Objectives* should be followed to ensure the form and materials of the proposed perimeter security elements respond to the Switzer Building and its surroundings. In addition, coordination with the Urban Forestry Administration should occur regarding the removal of trees on the site, and consultation should be undertaken with DDOT to ensure consistency of the roadway and sidewalk design with the principles put forth in the DDOT *Design and Engineering Manual* and *Public Realm Design Handbook*. Finally, GSA should incorporate bike racks within the final design in compliance with the *District of Columbia Bicycle Master Plan*.

3.4 PUBLIC SPACE

3.4.1 What is Public Space and What Plans and Policies Guide its Use and Design?

The District Department of Transportation (DDOT) has management and oversight responsibility for the use and occupancy of public space. According to DDOT, public space is defined as all the publicly owned property between the property lines on a street and includes, but is not limited to, the vehicular right-of-way, tree spaces, sidewalks, and alleys.

Public Right-of-Way: The surface, the air space above the surface (including air space immediately adjacent to a private structure located on Public Space or in a Public Right-of-Way), and the area below the surface of any public street, bridge, tunnel, highway, lane, path, alley, sidewalk, or boulevard (DC OP, 2010),

Property Line: The line delineating the boundaries of public space and private property (DC OP, 2010).

Tree Box/Furnishing Area: The area of the roadside that provides a buffer between the pedestrians and vehicles, which contains primarily landscaping such as a continuous planting strip in residential areas (DC OP, 2010).

Sidewalk Area: Sometimes known as the "pedestrian clear zone" – this is the walking zone on the sidewalk that must remain clear, both horizontally and vertically (DC OP, 2010).

At the Switzer Building, the property line is located at the face of the building on 3rd, D, and 4th Streets, SW. On C Street, SW, the property line roughly follows the alignment of the inside wall of the ramp. The area outside of the property line, including the sidewalks on all sides of the building, is considered to be public space under the jurisdiction of DDOT.

DCMR Title 24: Public Space and Safety sets forth the regulations on public space, including provisions to maintain open space, greenery and parks in public space. *DCMR Title 24: Public Space and Safety* broadly defines the authority of the Public Space Committee to review and recommend to DDOT approval or denial of a public space application for a use that goes beyond what is allowed by existing regulations and identifies specific public space applications that must go before the Committee. The Committee is responsible for considering and making final determinations on applications for various temporary and permanent uses of public space and areas within building restriction lines.

In December 2003, DDOT issued Departmental Order 301.03 as a guiding policy for evaluating security requests in public space. The policy states the following:

- Requests to install perimeter barriers shall be consistent with the policies established in the *National Capital Urban Design and Security Plan*, issued by the National Capital Planning Commission in October 2002.
- Where the applicant seeks to place building perimeter security measures in District of Columbia public space adjacent to their buildings, the applicant shall complete required forms and follow procedures to obtain a Public Space Permit from DDOT, Public Space Management Administration.
- DDOT encourages security perimeters to be established within privately owned space or federal public space adjacent to buildings (i.e. not on sidewalks, curbs, gutters, streets, or public alleys).
- Perimeter barriers shall be no closer than two (2) feet from the curb line and shall not impede

pedestrian traffic flow from the curb line to the sidewalk, and shall not present unreasonable barriers to pedestrians traveling within the sidewalk.

The *District of Columbia Public Realm Design Handbook* was created to document policies, procedures, and guidelines on how to properly approach public space. In the handbook, the public realm refers to key elements in the city's public right-of-way, including roadways, sidewalks, planting areas, intersections, alleys, plazas, and other open spaces that comprise the arteries and focal points of the urban framework. The document seeks to illustrate how the public realm should look in terms of materials, visual quality, and landscaping, and to establish guidance for enhancing the public realm within the city. Specific topics addressed within the handbook include pavement options, landscaping and street trees, site amenities, lighting, low impact development, features in the roadway, plazas and open space, public art, and coordination.

Although not directly related to DDOT's public space policy and review, GSA has published guidelines titled *Achieving Great Federal Public Spaces: A Property Manager's Guide*. This publication was released in 2007 as part of GSA's efforts to evaluate and improve public spaces and transform federal spaces into civic places. According to this guide, GSA buildings and public spaces should:

- Reflect the dignity and accessibility of government;
- Be secure and welcoming;
- Improve tenant satisfaction and building revenue;
- Provide a forum for tenant activity and public use; and
- Act as a catalyst for downtown revitalization.

The guide presents an overall strategy for improvement of a facility's public spaces, from physical enhancements to partnerships with communities, to better management practices. It recognizes the need to increase security at federal facilities while providing welcoming public spaces as a key challenge.

3.4.2 How Would Public Space be Affected by the Site Improvements?

<u>Alternatives A, B and C</u>

Perimeter security elements would be located inside of the building yard on 3rd and 4th Streets, SW. However, since the property line is at the face of the building on these two sides, the elements would still be located within public space. On D Street, SW, the elements would also be located within public space, but outside of the existing building yard, as placement within the building yard would not allow for sufficient setback. Contrary to DDOT policy, bollards would cross the sidewalk on D Street, SW at the corners of 3rd and 4th Streets, SW, potentially hindering pedestrian flow. On C Street, SW, an existing exit ramp

extends outside of the property line. The hardened wall would be constructed within the footprint of the existing wall. This is the only location on C Street, SW where perimeter security elements would be placed in public space. The location of the security elements within public space on each of the sides of the building would require review by the District's Public Space Committee and the issuance of a public space permit.

While the location of perimeter security within public space is discouraged by Departmental Order 301.03, the order also indicates that requests to install perimeter security should be consistent with NCPC's policies established in the *National Capital Urban Design and Security Plan*. This plan allows for barriers in public space if the distance from the face of the building to the outer edge of the building yard is less than 20 feet, as it is on D Street, SW. In addition, as stated in DDOT's policies, the majority of the perimeter security is not placed in sidewalks, curbs, alleys, other than those exceptions noted above.

Changes to the curb cuts would occur along 3rd and 4th Streets, SW in each action alternative. In Alternative A, the curb cuts would change as the surface parking lot and its access points would be removed. In Alternatives B and C, changes to the curb cuts would occur as the surface parking lot access points would be moved to C Street, SW from 3rd and 4th Streets, SW. In all of the action alternatives, the curb cuts would meet ADA accessibility requirements. Changes in curb cuts require a public space permit.

All of the action alternatives implement several suggestions included in the GSA publication *Achieving Great Federal Public Spaces: A Property Manager's Guide*. The public plaza proposed along C Street, SW would provide a forum for tenant activity and public use through the inclusion of street furniture and green space and could potentially be used for outdoor functions. The plaza would also activate the streetscape along C Street, SW, provide access to a coffee/concession stand and improve conditions for pedestrians passing by.

Overall, impacts to public space would be moderate with beneficial impacts resulting from the installation of the landscaped plaza on C Street, SW. While each action alternative provides some level of landscaped public space, the greater the amount provided and the lower the amount of space dedicated to parking, the greater the beneficial impact would be to public space.

No Action Alternative

Under the No Action alternative, site improvements would not be undertaken at the Switzer Building. Thus, impacts to public space would be negligible.

3.4.3 What Measures Should be Undertaken to Reduce Impacts to Public Space?

Coordination should occur with DDOT throughout the design process to ensure compliance with their *Design and Engineering Manual* and *Public Realm Design Handbook*. GSA would also be required to have the project reviewed by the District's Public Space Committee in order to obtain a public space permit for perimeter security elements along each of the four sides of the building. As the design progresses, GSA should seek opportunities to include additional seating on site.

3.5 CULTURAL RESOURCES

3.5.1 How are Impacts to Cultural Resources Evaluated?

The White House Council on Environmental Quality (CEQ) regulations for implementing NEPA require an evaluation of impacts on historic resources as part of an EA or Environmental Impact Statement (EIS). Potential impacts to historic resources include direct and indirect impacts. The alteration, physical displacement, or demolition of a resource is a direct impact; changes in the use, operation or character of a resource can be either a direct or indirect impact; and changes to the visual context are considered indirect impacts.

In addition to CEQ regulations implementing NEPA, the National Historic Preservation Act of 1966 (NHPA), as amended, establishes standards for evaluating potential effects to historic resources. The NHPA defines "effect" as an "alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register" (36 CFR 800.16) and requires that the lead agency, in consultation with the SHPO, determine whether the effect is adverse. According to the NHPA, an "adverse effect" occurs "when an undertaking may alter, directly or indirectly, any of the characteristics of the historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association" (36 CFR 800.5).

In accordance with the Advisory Council on Historic Preservation (ACHP) regulations implementing Section 106 of the NHPA, effects on cultural resources are identified and evaluated by (1) determining the area of potential effects, (2) identifying cultural resources present in the area of potential effects that are either listed in, or eligible to be listed in, the National Register of Historic Places, (3)

applying the criteria of adverse effect to affected resources, and (4) considering ways to avoid, minimize, or mitigate adverse effects. As recommended by CEQ, the Section 106 process is being undertaken concurrent with the environmental review process mandated by NEPA. GSA is the lead agency in the Section 106 process.

3.5.2 What is the Area of Potential Effects?

The Area of Potential Effects, or APE, is the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. It was determined that the only impacts to archaeological resources would occur as a result of ground disturbing activities. Thus, the APE for archeological resources includes the area between the face of the building and the curbline on the east, south, and west sides of the building. On the north side of the building, the area includes the space between the Switzer Building face and the southern edge of the surface parking lot at the Cohen Building. Through the Section 106 process, the APE for historic resources was defined based on the potential for the proposed site improvements to be visible from historic properties surrounding the site. The area is generally bounded by: 6th Street, SW in the west, north to Independence Avenue; east on Independence Avenue to 2nd Street, SW; south on 2nd Street, SW to Virginia Avenue, SW; and northwest on Virginia Avenue, SW to 6th Street, SW (Figure 3-1).

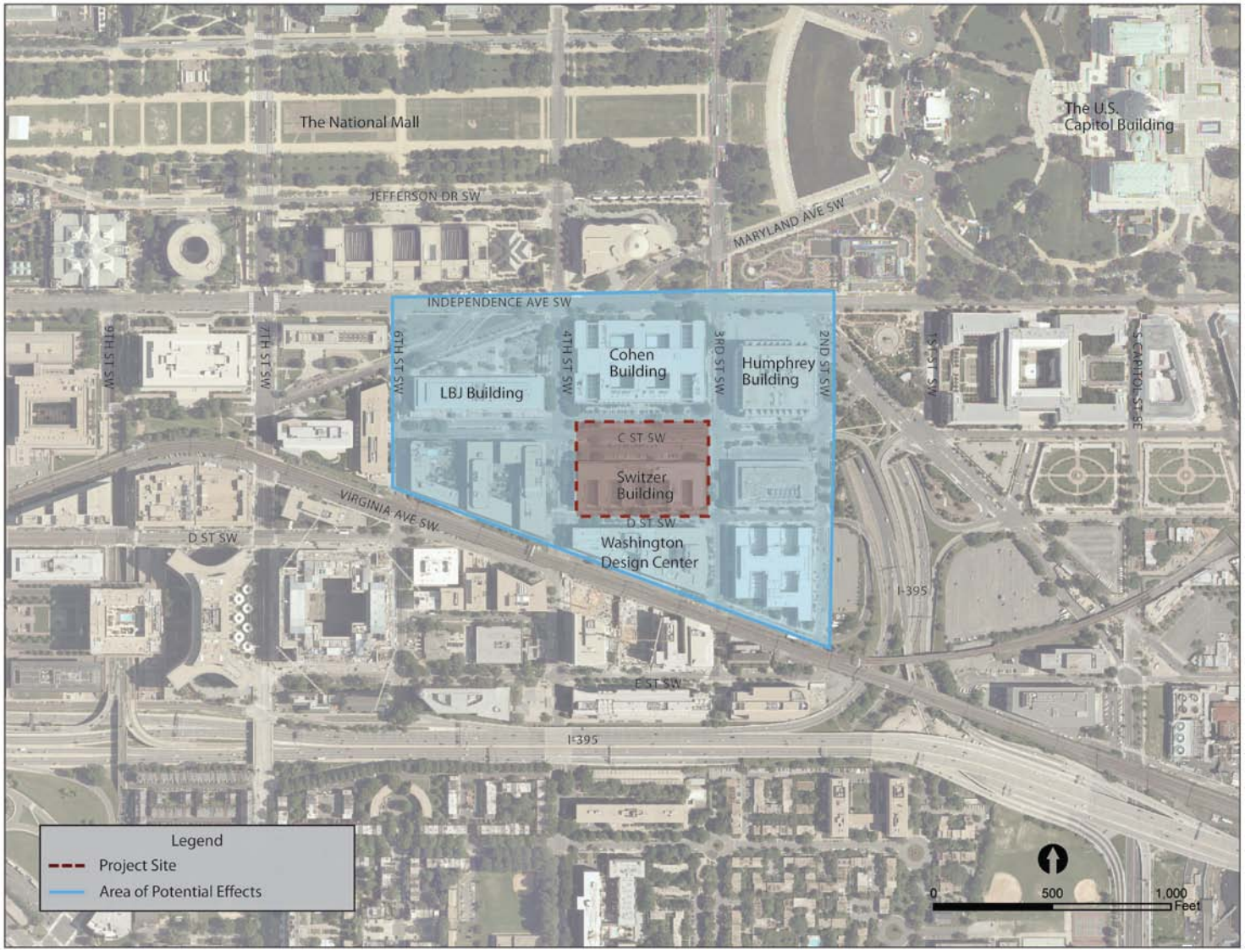


Figure 3-1 Area of Potential Effects for Historic Resources
Source: AECOM 2010

3.5.3 What Historic Properties Lie within the APE?

Several historic properties lie within the APE, including the Mary Switzer Building itself. These properties are identified in Figure 3-1 and discussed below.

Mary E. Switzer Building

One of the last buildings erected under the massive federal office construction program of the 1920s and 1930s, the Switzer Building is one piece of a jointly planned complex that includes the Wilbur J. Cohen Building to the north (Figure 3-2). The Switzer Building was designed in the Stripped Classical style by Charles Klauder and constructed between 1939 and 1940 (Figure 3-3). The facades are a combination of Indiana Limestone and buff-colored brick, with distinctive design features including monumental windows and pylons, and Egyptian motifs. The building has five lightcourts fronting on D Street, SW, creating a half-fishbone plan above the first story. These lightcourts are visible on the south elevation of the building (Figure 3-4). The Switzer Building was listed in the National Register of Historic Places and the DC Inventory of Historic Sites in 2007. It is considered significant for its association with the Railroad Retirement Board, as the last work of prominent Philadelphia architect Charles Klauder, as an example of Stripped Classical Style architecture, and for its association with the planning and construction of federal buildings in Washington, DC in the 1930s.

Figure 3-2 North elevation of the Switzer Building
Source: AECOM 2010

Figure 3-3 West elevation of the Switzer Building, c.1940
Source: GSA

Figure 3-4 South elevation of the Switzer Building
Source: AECOM 2010

Wilbur J. Cohen Building

The Wilbur J. Cohen Building was designed by Charles Klauder and constructed in 1939 to house the Social Security Administration (Figure 3-5). Klauder designed the Switzer and Cohen Buildings simultaneously, both in the Stripped Classical Style. Like the Switzer Building, the Cohen Building's design is characterized by symmetry, monumental windows, and stylized Egyptian motifs. The building is significant for its role in city planning, as the last work of a prominent architect, and for its association with the Social Security Administration and the New Deal. The Cohen Building was listed in the DC Inventory of Historic Sites and the National Register of Historic Places in 2007.

Figure 3-5 South elevation of the Cohen Building
Source: AECOM 2010

Lyndon B. Johnson Building

The Lyndon Baines Johnson Building is located northwest of the project site, between 4th and 6th Streets, SW (Figure 3-6). The Modern style building was built in 1959 for the U.S. Department of Education. Constructed of precast concrete with a limestone veneer, it is six stories high with a penthouse. The design is characterized by narrowly spaced bands of windows above a recessed first story. The LBJ Building is more than 50 years old and may be eligible for listing in the National Register of Historic Places.

Figure 3-6 South elevation of the LBJ Building
Source: AECOM 2010

Hubert Humphrey Building

The Hubert H. Humphrey Building is located northeast of the Switzer Building across C Street, SW (Figure 3-7). Constructed in 1976, the building is one of two Modernist style structures in Southwest DC designed by renowned architect Marcel Breuer; the other structure is the Department of Housing and Urban Development Building on 9th Street, SW. The Humphrey Building is a six-story concrete structure with a brise-soleil, a penthouse, and a recessed ground floor. Although not yet 50 years old, the Humphrey Building could potentially be eligible for the National Register both as the work of a master architect and for its design.

Figure 3-7 Hubert Humphrey Building as viewed from C Street, SW
Source: AECOM 2009

Terminal Refrigeration and Warehouse Building (Washington Design Center)

Located directly south of the Switzer Building, the Terminal Refrigeration and Warehouse Building was constructed between 1919 and 1924. Adjacent to the railroad lines, the brick warehouse building was designed to allow railroad cars entry for off-loading. The first story has been altered substantially and today the building houses the Washington Design Center. The structure could potentially be eligible for listing in the National Register of Historic Places.

L'Enfant and McMillan Plans

The project site is bordered by rights-of-way originally planned by Pierre Charles L'Enfant in his 1791 plan for the city (Figure 3-8). L'Enfant's Plan is characterized by a coordinated system of radiating avenues, vistas, and parks overlaid upon an orthogonal grid of streets. The future sites of the White House and US Capitol Building are focal points within the plan, while the Mall is envisioned as a greensward running through the center of the city. At the turn of the 20th century, the McMillan Commission expanded on L'Enfant's Plan, extending the Mall to the west and terminating several important visual axes with monuments. The principles articulated in these plans still guide development within the city. The L'Enfant Plan is listed in the National Register of Historic Places and a Draft National Historic Landmark nomination has been prepared. The four rights-of-way that border the site, C, 3rd, D, and 4th Streets, SW are all identified as contributing elements within the nomination. The plan is also listed in the DC Inventory of Historic Sites.

Figure 3-8 L'Enfant Plan for the City of Washington, 1791
Source: NCPC

3.5.4 How Would These Resources be Affected by the Site Improvements?

Alternatives A, B and C

Under the action alternatives, the installation of perimeter security elements at the edge of the building yard on 3rd and 4th Streets, SW would alter the setting of the historic Switzer Building. In addition, depending on its height and mass, the proposed art or architectural element or elements could introduce a dominant feature not originally planned for the Switzer site. These changes would result in a moderate adverse impact and an adverse effect under Section 106.

The installation of perimeter security elements between the sidewalk and the curbline on D Street, SW would form both a physical and a visual barrier between the building facade and this L'Enfant right-of-way, altering the continuity of the right-of-way and the historic spatial relationships that are important features of the L'Enfant Plan. Impacts on the L'Enfant Plan from the security elements would be moderate and would result in an adverse effect under Section 106.

The conversion of the existing surface parking lot to a landscaped plaza would also alter the historic relationship between the Switzer and Cohen Buildings, as the two were designed simultaneously. In addition, depending on the height and mass of the architectural or art element or elements, they could substantially alter reciprocal views between the Switzer and Cohen Buildings. Long-term adverse impacts are anticipated to be minor to moderate and could result in an adverse effect under Section 106. The proposed art or architectural element or elements could further have negligible to minor adverse impacts on the Lyndon B. Johnson and Hubert Humphrey Buildings.

No Action Alternative

Under the No Action alternative, site improvements would not be undertaken at the Switzer Building. Thus, impacts to historic resources would be negligible.

3.5.5 What is the History of the Site?

As part of the larger Potomac River watershed, the land surrounding the Mall was historically marshland. Between 1810 and 1815, the Washington Canal was constructed north and east of the site, resulting in the filling of these marshes. The area's soils reflect this history: according to the U.S. Department of Agriculture's soil surveys, the area around the Switzer Building is composed of Urban soils. Urban soils have a man-made surface layer that has been produced by mixing, filling, or by the contamination of land surface in urban and suburban areas.

During the 19th century, the project site was part of a residential community known as Southwest. Attractive to

government workers due to the proximity to the Capitol, the area became a vibrant residential neighborhood. As residential development spread within Southwest, commercial establishments benefited. This portion of Southwest DC remained a combination of low-scale residential and commercial uses until the mid-20th century when urban renewal resulted in the demolition of more than half of the area's buildings.

According to historic Sanborn and Baist maps, the block now occupied by the Switzer Building was fairly densely developed from the end of the 19th century through the middle of the 20th century. Brick and frame structures lined the four rights-of-way and a number of stables were sited at the inside of the block. St. John's Lutheran Church, a modest sized brick structure, was located on 4-1/2 Street, SW (now 4th Street, SW) near its intersection with D Street, SW.

Approved by the National Capital Park and Planning Commission and the Fine Arts Commission in 1938, the Switzer and Cohen Buildings were constructed simultaneously the following year. The two buildings were intended to help restore the prestige of Southwest and its residential housing stock (Washington Post, 1938).

3.5.6 What is the Potential for Archaeological Resources at the Site?

No archaeological surveys have been completed on the Switzer Building site. Northeast of the Switzer Building, historic archaeological remains dating from the 18th century were documented in a survey completed prior to the construction of the NMAI building (John Milner and Associates 1993). Based on historic photos, the center portion of this block of C Street, SW was heavily disturbed during the construction of the Switzer and Cohen Buildings. It is unclear, however, whether the east and west ends of the block were disturbed as well. Thus, it is possible that archaeological resources are present on the Switzer Building site in two locations near the intersections of 3rd and C Streets, SW and 4th and C Streets, SW.

3.5.7 How Could Archaeological Resources be Affected by the Site Improvements?

<u>Alternatives A, B and C</u>

Construction of the perimeter security elements would require limited excavation between the sidewalk and the curbline on D Street, SW, and within the building yard on 3rd and 4th Streets, SW. Due to the fact that the area was previously disturbed during the construction of the building and the installation of site utilities, it is unlikely that intact archaeological resources would be disturbed in

these locations. However, it is possible that drilling required for the wells of the ground source heat pump, and excavation required for drainage systems within the landscaped plaza, could disturb potential archaeological resources near the corners of 3rd and C Streets, SW and 4th and C Streets, SW, where construction activities may not have involved substantial excavation. Thus, there is the potential for minor adverse impacts to archaeological resources as a result of the action alternatives.

3.5.8 What Measures Should be Undertaken to Reduce Impacts to Cultural Resources?

Archaeological Resources

GSA should pursue a flexible, phased approach to the identification and evaluation of archaeological resources starting with geoarchaeological consultation to determine the resources potential in the two locations. All such work should follow the "Guidelines for Archaeological Investigations in the District of Columbia" (1998, as amended). In the event of an unanticipated archaeological discovery, GSA should notify the DC State Archaeologist to determine the level and type of recording or recovery if warranted. GSA shall ensure that the measures outlined in the Memorandum of Agreement for the Switzer Building Site Improvements are carried out to avoid, minimize, and mitigate adverse effects.

Historic Resources

To the extent possible, the physical features that would provide perimeter security on D Street, SW should consist of hardened streetscape elements, such as streetlights, trash receptacles, and bike racks, to minimize the number of bollards required. Due to the expansive length of the block, opportunities should be sought to modulate and thereby soften the security line on D Street, SW. The design of the elements on D Street, SW should relate to the streetscape and material composition of typical street furnishings, while the elements on 3rd and 4th Streets, SW should relate to the architecture of the Switzer Building. In addition, GSA shall ensure that the measures outlined in the Memorandum of Agreement for the Switzer Building Site Improvements are carried out to avoid, minimize, and mitigate adverse effects.

3.6 VISUAL RESOURCES

3.6.1 What is the Visual Character of the Site and the Surrounding Area?

Due to the urban density of the Southwest Federal Center neighborhood, views are generally afforded along the streets that border the site, including C, 3rd, D, and 4th Streets, SW. The following discussion characterizes the four sides of the site and the associated view corridors.

C Street, SW/North of the Site

C Street, SW borders the Switzer Building to the north. The two-lane right-of-way is defined on both sides by mid-rise federal office buildings. Both the Switzer and Cohen Buildings are setback substantially from C Street, SW, allowing for surface parking between the building entrances and the street. A sidewalk and narrow landscaped yard run along the face of the Switzer Building adjacent to the parking lot, and an additional sidewalk is located between the parking lot and the curbline on both the north and south sides of the street. The Switzer and Cohen Buildings have access/egress ramps at the east end of the block to a below-grade parking garage; each of these ramps is bordered by a low wall. Both the ramps at the east end of the block and large vents at the west end are physical and visual obstructions in the outer sidewalks on the north and south sides of the street (Figure 3-11). The vent located at the east end of the block, at the end of the Switzer exit ramp, has a nine-foot high metal pipe that extends above the base, marring views along the corridor. East and west of the site, the vehicular right-of-way and associated view corridors are interrupted. The view west from the site terminates at a large building at 5th Street, SW (Figure 3-9). The view east from the site terminates at 2nd Street, SW one block east at a small green parcel (Figure 3-10).

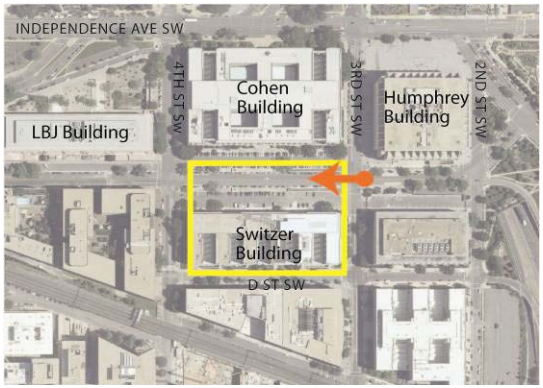


Figure 3-9 View west on C Street, SW
Source: AECOM 2010

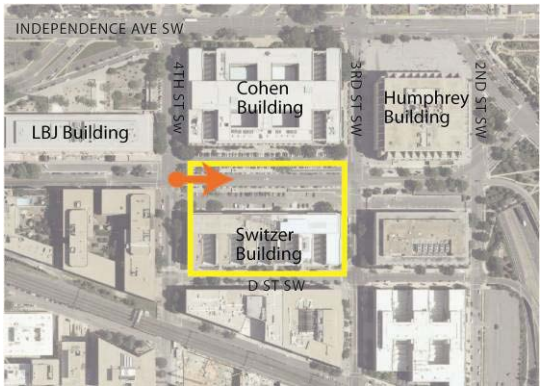


Figure 3-10 View east on C Street, SW from 4th Street, SW
Source: AECOM 2010

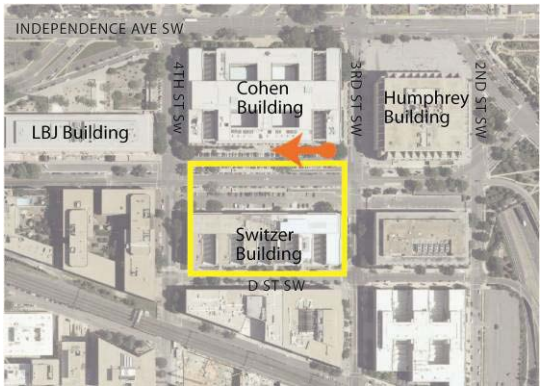


Figure 3-11 View west along the outer sidewalk adjacent to the Cohen Building
Source: AECOM 2010

3rd Street, SW/East of the Site

Bordering the Switzer Building to the east, 3rd Street, SW is a four-lane right-of-way that runs north-south, following L'Enfant's city grid. Views along 3rd Street, SW are framed by mid-rise buildings and a variety of street trees. The sidewalk adjacent to the Switzer Building is of moderate width, mirroring the walk on the east side of the street adjacent to FOB 8 (Figure 3-14). There is a small planting bed located between the sidewalk and the building. Views to the south along 3rd Street, SW are obstructed by the elevated railroad lines one block south of the Switzer Building (Figure 3-12). Views are afforded to the north along 3rd Street, SW to the Mall (Figure 3-13).

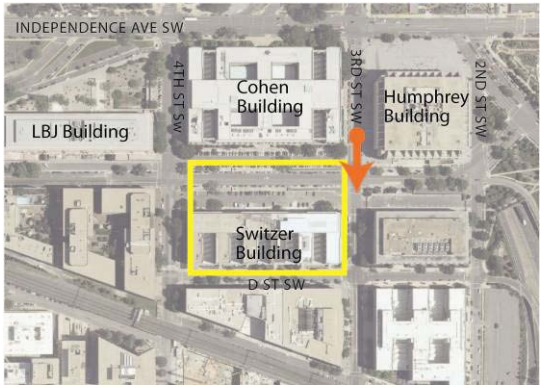


Figure 3-12 View south on 3rd Street, SW
Source: AECOM 2010

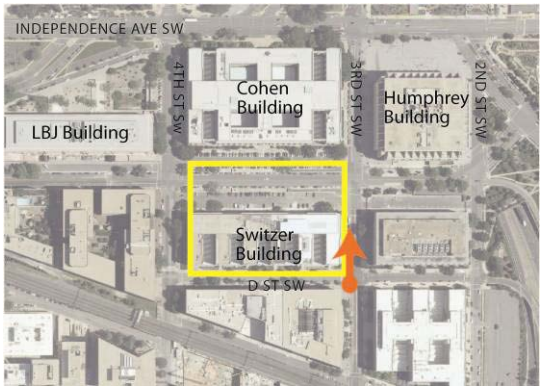


Figure 3-13 View north along the 3rd Street, SW sidewalk from D Street, SW
Source: AECOM 2010

Figure 3-14 View south along the 3rd Street, SW sidewalk adjacent to the Switzer Building
Source: AECOM 2010

D Street, SW/South of the Site

D Street, SW is a narrow one-way street that borders the Switzer Building to the south. On the north side of D Street, SW, adjacent to the Switzer Building, the sidewalk is narrow. A line of street trees run between the curb and the sidewalk. Inside of the walk, a series of lightwells bordered by low walls create an irregular built line (Figure 3-15). A narrow planting bed runs between and outside the lightwells. Views along D Street, SW are framed by street trees of varying sizes and mid-rise buildings. Views to the east are framed on the south side of the right-of-way by mature street trees, terminating at the greenspace across 2nd Street, SW (Figure 3-16). Views to the west terminate at 4th Street, SW where a building interrupts L'Enfant's historic street alignment (Figure 3-17).

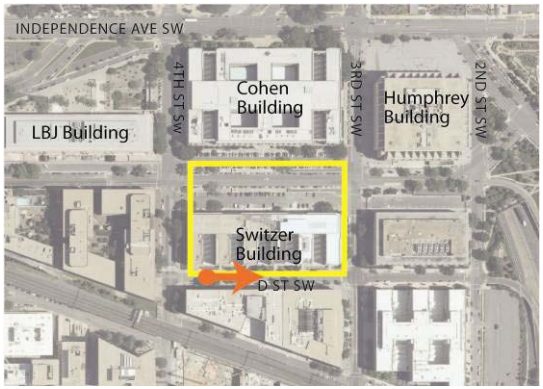


Figure 3-15 View looking east along the D Street, SW sidewalk
Source: AECOM 2010

Figure 3-16 View east on D Street, SW from 4th Street, SW
Source: AECOM 2010

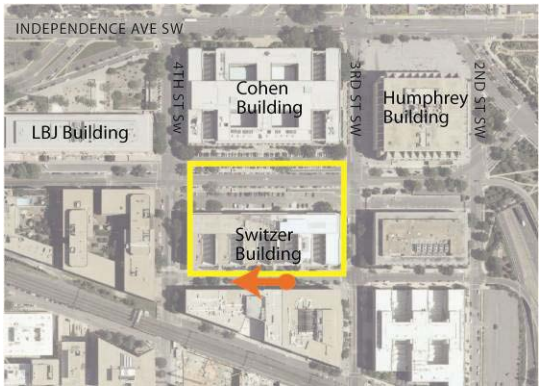


Figure 3-17 View west on D Street, SW at mid-block
Source: AECOM 2010

4th Street, SW/West of the Site

Fourth Street, SW is a wide four-lane right-of-way that borders the Switzer Building to the west. The sidewalk adjacent to the Switzer Building is of moderate width, and there is a thin planting bed located between the walk and the face of the building. Pedestrians cannot currently access the sidewalk due to a high construction fence (Figure 3-18). Views north and south on 4th Street, SW are framed by street trees of varying sizes and mid-rise office buildings, including the Cohen Building to the north. Distant views north on 4th Street, SW terminate at the National Building Museum (Figure 3-19). Views south along 4th Street, SW are partially obstructed by the railway infrastructure at Virginia Avenue, SW (Figure 3-20).

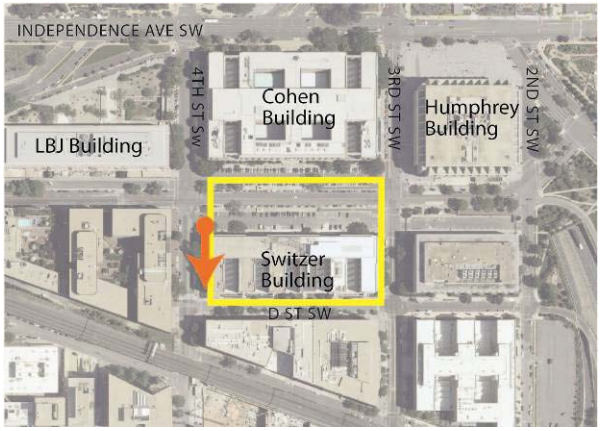


Figure 3-18 View south on the sidewalk on 4th Street, SW
Source: AECOM 2010

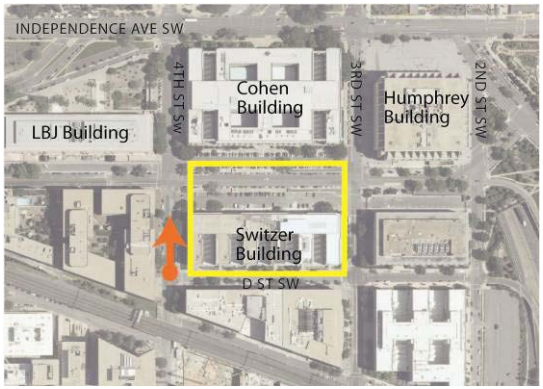


Figure 3-19 View north on 4th Street, SW from D Street, SW
Source: AECOM 2010

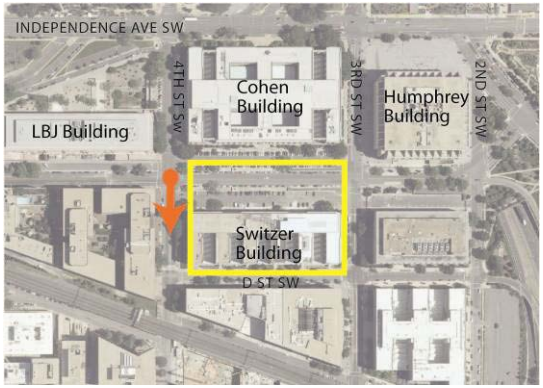


Figure 3-20 View south on 4th Street, SW from C Street, SW
Source: AECOM 2010

3.6.2 How are Impacts to Visual Resources Assessed?

The visual impact assessment for the proposed Switzer Building site improvements addresses potential changes to views and vistas that can be attributed to the proposed action. Impacts to views and vistas are determined based on an analysis of the existing quality of the view, the sensitivity of the view (such as important views from historic and cultural sites), and the anticipated relationship of the proposed design elements to the existing visual environment.

Visual impacts in the analysis presented below are described using the following thresholds:

- **Negligible impact** – The proposed alterations would not result in any visual changes, or the changes would not be noticeable.
- **Minor impact** – The proposed alterations would be visible, but would not interfere with views and would not change the character of the existing views.
- **Moderate impact** – The proposed alterations would be visible and would interfere with existing views, but would not change the character of the existing views.
- **Major impact** – The proposed alterations would be visible as a contrasting or dominant element that interferes with views and substantially changes the character of the existing views.
- **Beneficial impact** – The proposed alterations would improve a view or the visual appearance of an area.

3.6.3 How Would Key Viewsheds be Affected by the Project?

<u>Alternatives A, B and C</u>

Views Along C Street, SW

Under the action alternatives, the existing surface parking lot on the north face of the building would be replaced with a landscaped plaza. The plaza would combine open lawn panels, perforated garden walls, tree-lined paths, and hardscaped areas. Bollards would be located across the entry points to the plaza from the C Street, SW sidewalk. The sidewalk would be widened and existing street trees would be replaced with a new line of trees between the sidewalk and the curbline. A public art or other architectural element would be sited on the east end of the block adjacent to the exit ramp. The element would be at least nine feet high. A corresponding element could also be included at the west end of the block.

Looking east along the right-of-way, the expanse of the landscaped plaza would appear in the foreground of the Switzer Building. The widening of the sidewalks and addition of new street trees on both the north and south sides of the street would narrow views along the corridor and frame them with a green edge. Under Alternative A, the tree line would break at mid-block, emphasizing the central entrance at the Cohen Building on the north side of the street. Under Alternatives B and C, a line of trees would divide the parking lot from the sidewalk at the center of the block. Under each of the action alternatives, the widening of the sidewalks would allow for unobstructed views along these walkways. Depending on the height and mass of the proposed art or architectural element or elements, they could appear as dominant elements within the view.

Looking west along C Street, SW, the view would be framed by the new line of trees between the sidewalk and the curbline on both the north and south sides of the right-of-way. The tree line would break at mid-block, emphasizing the central entrance at the Cohen Building on the north side of the street. The existing exit ramp, new coffee/concession stand, and landscaped plaza would appear in the foreground of the view. The widening of the sidewalks would allow for unobstructed views along these walkways, but would also result in the narrowing of views along the vehicular right-of-way. Depending on the height and mass of the proposed art or architectural element or elements, they could dominate views along the corridor, introducing new contrasting features.

There could be minor to major adverse impacts to views along C Street, SW as a result of the proposed public art or architectural element or elements. As the height and mass of the elements increase, the potential visual impacts would increase. In addition, there would be beneficial impacts resulting from the addition of new street trees, the masking of the existing vent shaft, and the conversion of the surface parking lot to a landscaped plaza. The beneficial impacts would increase as parking is reduced on the site.

Views Along 3rd Street, SW

Under the action alternatives, a 39” high garden wall would be constructed along the inside edge of the sidewalk. At the north end of the block, the landscaped plaza and new coffee/concession stand would be evident at the edge of the view north or south along the sidewalk. A new line of street trees would be planted along the right-of-way, framing views along the corridor. Overall, impacts to views along 3rd Street, SW would be minor with beneficial impacts resulting from the addition of new street trees and the removal of the surface parking at the north end of the block.

Views Along D Street, SW

Under the action alternatives, the perimeter security line would be placed between the sidewalk and the curbline. Potential security elements could include hardened streetscape features, tree boxes, fence panels, and bollards. These features would be evident in views east and west along D Street, SW, visually dividing the pedestrian space from the vehicular right-of-way. A new line of trees would run consistently between the corners, framing views along the corridor. Overall, the impacts to views on D Street, SW would be moderate with beneficial impacts resulting from the addition of new street trees.

Views along 4th Street, SW

Under the action alternatives, a 39" high garden wall would be constructed along the inside edge of the sidewalk. At the north end of the block, the landscaped plaza and perforated garden wall would be evident at the edge of the view north or south along the sidewalk. Two mature street trees would be preserved, while new trees would be planted to the north and south. The line of trees would run consistently between the corners, framing views along the corridor. Overall, impacts to views along 4th Street, SW would be minor with beneficial impacts resulting from the addition of new street trees and the removal of the surface parking at the north end of the block.

No Action Alternative

Under the No Action alternative, site improvements would not be undertaken at the Switzer Building. Thus, impacts to visual resources would be negligible.

3.6.4 What Measures Should be Undertaken to Reduce Visual Impacts?

To the extent possible, the physical features providing perimeter security at the curbline on D Street, SW should consist of hardened streetscape elements, such as streetlights, trash receptacles, and bike racks, to minimize the visual impact of the improvements. As the design for D Street, SW progresses, GSA should explore options that would allow the security line to modulate to reduce its visual impact. In order to minimize the impacts to views on C Street, SW, GSA should also limit the height and mass of the proposed public art or architectural element or elements. The conceptual design for the site improvements should be refined through coordination with review agencies, including CFA, the DC SHPO, and NCPC.

3.7 VEGETATION

3.7.1 What Type of Vegetation is Located at the Switzer Building?

Vegetation around the Switzer Building was inventoried through site reconnaissance. The vegetation consists entirely of streetscape plantings and modest landscaping adjacent to the building (Figure 3-21). Along C Street, SW, these plantings consist of abelia (*Abelia grandiflora*), burning bush (*Euonymus alatus*), cherry laurel (*Prunus laurocerasus* 'Otto Luken'), ink berry (*Ilex glabra*), yew (*taxus bacatta* 'Repandens'), ivy, vinca (*Vinca minor*), and saucer magnolias (*Magnolia x soulangiana*). There are two zelkova (Zelkova *serrata)* and one large American elm (*Ulmus Americana*) along the sidewalk adjacent to the Switzer Building on C Street, SW. There is one street tree along the southern sidewalk next to the vehicular right-of-way on C Street, SW and there are three street trees along the northern sidewalk next to the right-of-way on C Street, SW. A large southern magnolia (*Magnolia grandiflora*) is planted on the northeastern corner of the site at 3rd and C Streets, SW inside the building yard. Along 3rd Street, SW, abelia grows along the terrace wall with clumps of variegated liriope (*liriope muscari*) growing around three northern red oak trees (*Quercus rubra*) located inside the building yard. The northern red oak located in the middle of the line of three oaks is leaning towards the street at a fairly pronounced angle. There are no street trees growing on this section of 3rd Street, SW. A southern magnolia that is in poor condition is planted inside the building yard at the southeastern corner of the site on D Street, SW with variegated liriope, abelia and burning bush around it. The five street trees on D Street, SW are scarlet oaks (*Quercus coccinea*). The scarlet oak closest to the southeastern corner of 3rd and D Streets, SW appears to have yellowing foliage that may be due to chlorosis (reduced chlorophyll content). A row of purple leaf plum trees (*prunus cerasifera*) runs along the building inside the building yard. Additional plantings along D Street, SW include yew that run along the terrace walls, euonymus, abelia, ivy and vinca. Along 4th Street, SW, plantings include abelia, yew, and purple leaf plum trees. There are four street trees along 4th Street, SW, two American elm trees and two willow oaks (*Quercus phellos*).

Figure 3-21 Site landscaping on the north face of the Switzer Building
Source: AECOM 2010

3.7.2 How Would Vegetation be Affected by the Project?

Alternatives A, B and C

Under each of the action alternatives, most of the existing street trees and other on-site vegetation would be removed. Five trees would be retained including two American elm street trees on 4th Street, SW and one on the corner of 4th and C Streets, SW, one zelkova at the northeast corner of the building, and one southern magnolia inside the building yard on the corner of 3rd and C. These trees have all been determined to be structurally stable and the magnolia tree and the two elm trees on 4th Street, SW have been determined to be in excellent condition. The balance of the trees and other landscape materials would be removed and new street trees would be installed, forming consistent green edges along each of the streets. Five of the trees that would be removed have circumferences greater than 55 inches: one zelkova on the northeast side of the building, two northern red oaks on the east side of the building, and two elms on the north side of C Street. The latter two trees appear to be in poor health with significant die-back. The removal of these five trees would require a Special Tree Removal Permit through the Urban Forestry Administration.

Trees, plantings, and open lawn panels would be added to the new plaza area in all three action alternatives. Under

Alternative A the entire surface parking lot would be replaced and the fully landscaped plaza would include formal rectangular public lawn areas centered on the site with small trees planted in a linear manner along the face of the building and in the center of the plaza framing the central rectangular lawn at the interior corner of each entrance. The groupings of shade trees at the east and west ends of the plaza would be planted within rectangular lawn areas adjacent to rectangular areas of low impact development plantings, but would be grouped in a more informal pattern. These areas and the lines of tree plantings along the eastern and western portions of C Street, SW would provide a higher concentration of vegetation at the corners of the plaza, frame the central park space of the site, and invite the public into the space.

In Alternatives B and C, trees, plantings, and open lawn panels would be added to the new plaza area, replacing a large portion the surface parking lot. The landscaped plaza areas that would surround the small surface parking area would include formal public lawn areas at the two main entrances to the building and less formal plantings at the site corners. In Alternative B the parking area would be screened by plantings or trees on all sides and in Alternative C it would be screened on three sides.

Under Alternatives B and C, the groupings of shade trees at the site corners and low impact development planting areas between the parking lot and the building would be designed with a focus on native plant materials. Although these plantings would be less formal in composition, they would be contained by clean edges of low retaining walls and perforated garden walls.

In each of the action alternatives, a ground source heat pump system would be installed on the site. The construction would occur before the landscaped plaza installation and the location of the wells would be coordinated with the landscaping plan to avoid interference with rootballs. Overall, impacts to existing vegetation would be minor to moderate, with beneficial impacts resulting from the increased number of street trees and the new landscaping on the plaza.

No Action Alternative

Under the No Action alternative, site improvements would not be installed at the Switzer Building. The existing parking would remain on the north face of the building, and no new street trees would be added on the streets bordering the site. Impacts would thus be negligible.

3.7.3 What Measures Should be Undertaken to Reduce Impacts to Vegetation?

GSA should coordinate with the Urban Forestry Administration and comply with the Urban Forestry Administration's Special Tree Removal Permit as necessary. They should also coordinate with DDOT regarding the

placement of new trees in public space. Where feasible, GSA should seek to preserve additional mature trees as the detailed design progresses. In addition, where feasible, GSA should salvage and re-use mature landscaping either at the Switzer Building or at other GSA controlled buildings in the National Capital Region. To the extent possible, GSA should employ native plant species in the design.

3.8 STORMWATER MANAGEMENT

3.8.1 How is Stormwater Managed in the Vicinity of the Site?

The natural drainage patterns of the site and the surrounding area have been altered as a result of urbanization. At the Switzer Building, a stormwater collection system has recently been completed to collect stormwater generated from the building's roof (while it is installed, it is not yet operational). Once operational, stormwater will be stored in a tank in the basement and re-used as gray water for flushing toilet fixtures and for site irrigation. Currently, stormwater within the area that is not captured by the on-site collection system (including the surface parking lot) drains away from the building and is collected in storm drains and combined sewer lines located along the periphery of the site, as noted in the Utilities section (Section 3.13). The combined sewer lines convey both stormwater and sanitary sewage and discharge to the DC Water and Sewer Authority (DC WASA) storm sewer system.

Stormwater is treated by DC WASA at the Blue Plains Wastewater Treatment Plant. However, under extreme stormwater events, combined sewer overflows (CSOs) may be released directly into the Potomac River, impacting water quality. The governing body for stormwater management in DC is the Stormwater Management Section of the District of Columbia Department of the Environment (DDOE).

3.8.2 How Would Stormwater Management be Affected by the Proposed Project?

<u>Alternative A</u>

The proposed design in Alternative A would manage as much stormwater runoff on-site as possible. Surface runoff would be reduced through the installation of the landscaped plaza and the various LID measures. By replacing the surface parking lot with a landscaped plaza, the amount of impervious area on the site would be reduced by approximately 35%. LID measures that might be implemented under Alternative A include: the planting of additional trees along the street and within the site; increasing the vegetative cover on the site; utilizing permeable paved surfaces whenever possible; collecting, storing and reusing stormwater as gray water at the site;

amending the soil to increase infiltration capacity and vegetation growth; adding controls at drain system inlets to help capture pollution and sediment; adding systems such as gutter filters and vegetated filter strips that provide filtration to improve water quality and help to reduce the velocity of runoff; adding systems that help to promote infiltration and improve water quality such as infiltration trenches or other depressed flat areas to collect stormwater; and potentially adding bioswales and bioretention cells.

In addition to the current stormwater collection system installed at the Switzer Building, which once operational will capture water from the roof, new cisterns would be added to capture stormwater runoff from the site for reuse as gray water. This would result in a beneficial impact to stormwater management because the increased green space and LID measures would help to promote infiltration to improve groundwater recharge, increase the amount of stormwater utilized by vegetation, capture stormwater runoff before it leaves the site, reduce the velocity of stormwater during intense storm events, and treat the stormwater runoff thereby improving water quality. Although permeable pavers would be used to the greatest extent possible, stormwater would need to be collected in the paved areas above the below-grade parking/service area, as infiltration would not be possible. Maximizing greenspace above the service area/garage would serve to reduce the amount of below-grade storage required at the site.

Overall, short-term construction-related impacts would be minor, while long-term impacts to stormwater management would be beneficial.

Alternative B

The proposed design in Alternative B would manage as much stormwater runoff on-site as possible. Surface runoff would be reduced through the installation of a landscaped plaza and the various LID measures. By replacing the surface parking with a landscaped plaza, the amount of impervious area on the site would be reduced by approximately 33%. LID measures that might be implemented under Alternative B include: the planting of additional trees along the street and within the site; increasing the vegetative cover on the site; amending the soil to increase infiltration capacity and vegetation growth; adding controls at drain system inlets to help capture pollution and sediment; adding systems such as gutter filters and vegetated filter strips that provide filtration to improve water quality and help to reduce the velocity of runoff; adding systems that help to promote infiltration and improve water quality such as infiltration trenches or other depressed flat areas to collect stormwater; and adding bioswales and bioretention cells.

In addition to the current stormwater collection system installed at the Switzer Building to collect water from the roof, new cisterns would be added to capture stormwater runoff from the site for reuse as gray water. This would result in a beneficial impact to stormwater management because the increased green space, LID measures, and cisterns would help to promote infiltration to improve groundwater recharge, increase the amount of stormwater utilized by vegetation, capture stormwater runoff before it leaves the site, reduce the velocity of stormwater during intense storm events, and treat the stormwater runoff, thereby improving water quality. Although permeable pavers would be used to the greatest extent possible, stormwater would need to be collected in the paved areas above the below-grade parking/service area, as infiltration would not be possible. Maximizing greenspace above the service area/garage would serve to reduce the amount of below-grade storage required at the site.

Overall, short-term construction-related impacts would be minor, while long-term impacts to stormwater management would be beneficial.

Alternative C

The proposed design in Alternative C would manage as much stormwater runoff on-site as possible. Surface runoff would be reduced through the installation of the landscaped plaza and the various LID measures. By replacing the surface parking lot with a landscaped plaza, the amount of paved area on the site would be reduced by approximately 30%. LID measures that may be implemented under Alternative C include: the planting of additional trees along the street and within the site; increasing the vegetative cover on the site, amending the soil to increase infiltration capacity and vegetation growth, adding controls at drain system inlets to help capture pollution and sediment, adding systems such as gutter filters and vegetated filter strips that provide filtration to improve water quality and help to reduce the velocity of runoff, adding systems that help to promote infiltration and improve water quality such as infiltration trenches or other depressed flat areas to collect stormwater, bioswales, and bioretention cells.

In addition to the current stormwater collection system installed at the Switzer Building to collect water from the roof, cisterns would be added to capture stormwater runoff from the site for re-use as gray water. This would result in a beneficial impact to stormwater management because the increased green space, LID measures, and cisterns would help to promote infiltration to improve groundwater recharge, increase the amount of stormwater utilized by vegetation, capture stormwater runoff before it leaves the site, reduce the velocity of stormwater during intense storm events, and treat the stormwater runoff thereby improving water quality. Although permeable pavers would be used to the greatest extent possible, stormwater would need to be collected in the paved areas above the

below-grade parking/service area, as infiltration would not be possible. Maximizing greenspace above the service area/garage would serve to reduce stormwater flow at the site.

Overall, short-term construction-related impacts would be minor, while long-term impacts to stormwater management would be beneficial.

No Action Alternative

Under the No Action alternative, site improvements would not be undertaken at the Switzer Building. Thus, impacts to water resources would be negligible and impacts from existing stormwater runoff would continue.

3.8.3 What Measures Should be Undertaken to Reduce Impacts to Stormwater?

To mitigate stormwater impacts, best management practices should be implemented during construction in order to minimize sediment loads in stormwater runoff. Consultation should also occur with DC WASA and DDOT regarding any relocation or reconstruction of existing storm drains due to new construction at the site.

3.9 GEOPHYSICAL RESOURCES

3.9.1 What are the Soil, Geologic and Groundwater Conditions on the Site?

The Switzer Building lies within the Atlantic Coastal Plain Physiographic Province where natural sedimentary materials, including sand, clay, and silt, overlay crystalline bedrock. The area surrounding the site has been historically developed by the placement of fill materials upon a geologic terrace above the Potomac River floodplain. In the vicinity of the site, terrace deposits have been encountered at depths of 32 to 44 feet below the ground surface.

Surface soils in the area are classified as Urban Land Association. These are soils that have been previously disturbed, cut or filled. Fill materials may be present on the Switzer Building site.

Regionally, the groundwater aquifer system is composed of unconsolidated Coastal Plain sediments through which groundwater flows to the southwest. Groundwater levels vary seasonally and locally, due to precipitation, surface absorption and groundwater recharge, dewatering during construction or operation of buildings, and underground obstructions, including pipelines and Metrorail tunnels. Groundwater levels on the Switzer Building site are not known.

3.9.2 How Would Geophysical Resources be Affected by the Proposed Project?

Alternatives A, B and C

All three of the action alternatives would include the installation of a ground source heat pump below the surface of the landscaped plaza area bordering C Street, SW. Ground source (or geothermal) heat pumps provide heating and cooling to buildings by transferring heat between the constant temperature of the earth and the building. The system uses the constant temperature of the earth as the exchange medium instead of the outside air temperature. Ground source heat pumps are highly efficient and use less energy than conventional heating and cooling systems.

The ground source heat wells would be approximately 300 feet deep, would be spaced approximately 20 feet apart, and would be approximately 6”-8” in diameter. The system would be a closed loop vertical system that would not withdraw or use groundwater at the site. The connector loop between the wells would begin at least 3 feet below the surface. Two 1-1/4” diameter pipes would be placed within each well. These pipes would be used to circulate fluid through the system to achieve the heat transfer. An antifreeze solution would be mixed with the fluid in order to prevent freezing. The system size could range from between 10 to 100 wells in order to generate between 15 and 200 tons of cooling.

During drilling for the ground source heat wells, there is the potential to encounter groundwater and thus dewatering could be required. In addition, the release of antifreeze solution into the environment during operation could occur. However, the heat wells would be pumped full of grout to avoid any contact with the fluid in the pipes and the surrounding soil or groundwater. The grout that would be used to seal the well bores is considered impermeable based on its hydraulic conductivity values. Although there is no evidence of existing contamination, there is the possibility that subsurface soils or groundwater removed during drilling could contain hazardous substances.

The stormwater management practices that would be implemented in all three of the action alternatives would have a long-term beneficial impact on groundwater by promoting groundwater recharge and improving water quality.

Under each of the action alternatives, there would be moderate short-term construction-related impacts to soils and groundwater due to site construction activities, excavation, and drilling during the heat well installation. However, the site consists of previously disturbed soils in an urban area and these impacts would be minimized by implementing best management practices. In addition,

there would be long-term beneficial impacts to groundwater due to the stormwater management practices.

3.9.3 What Measures Should be Undertaken to Reduce Impacts to Geophysical Resources?

The size and feasibility of the system, as well as the installation techniques and materials would be determined after further study and the installation of a geothermal conductivity test well. The installation would follow International Ground Source Heat Pump Association (IGSHPA) guidelines as well as local, state, and federal guidelines and regulations.

Soils removed through drilling should be collected and tested for potential contamination. If contamination is found, GSA would follow all local, state, and federal guidelines for their disposal.

In the event that dewatering is necessary during construction of the ground source heat pump system, it would be undertaken in compliance with all local and federal permits, and DC WASA permitting processes, thereby minimizing any impacts to groundwater. Any water collected during drilling for the ground source heat wells would be tested for potential contaminants.

3.10 VEHICULAR AND NON-VEHICULAR TRANSPORTATION

3.10.1 What are the Current Vehicular Traffic Conditions at the Switzer Building?

The transportation network in the vicinity of the Switzer Building includes both local vehicular right-of-ways and a federal highway. The Switzer Building site is bordered by four local vehicular right-of-ways: C Street, SW in the north, 3rd Street, SW in the east, D Street, SW in the south, and 4th Street, SW in the west. Interstate 395 (I-395) is located one block from the site, immediately east of 2nd Street, SW (Figure 3-22).

<u>C Street, SW</u>

C Street, SW is classified as a collector roadway according to DDOT's *Roadway Functional Classification System*. C Street, SW runs east-west on the north side of the site, with two undivided lanes in each direction. East of the site, C Street, SW narrows to one travel lane in each direction and is interrupted at 2nd Street, SW, by a small park. The street picks up again east of Washington Avenue, SW. Adjacent to the Switzer Building, metered parking is provided on both sides of the street most times of the day. C Street, SW also serves Metrobus routes. According to DDOT, the average weekday

volume on the portion of the street adjacent to the Switzer Building was 5,100 vehicles in 2008. The posted speed limit is 25 mph.

Interstates: Thoroughfares designed to support traffic movements over long distances and provide extremely limited direct access to adjacent land uses (DDOT, 2005).

Minor Arterial Roadways: Interconnect with and augment the principal arterials and channel vehicles to the principal arterial system (DDOT, 2005).

Collector Roadways: Intermediary streets that funnel vehicular traffic from local streets to arterial streets and back (DDOT, 2005).

Local Roadway: Urban local roads that are generally characterized by low traffic volumes and speeds and primarily provide direct access to adjacent uses (DDOT, 2005).

3rd Street, SW

The District classifies 3rd Street, SW as a collector roadway. As it passes the eastern side of the Switzer Building, 3rd Street, SW provides two travel lanes in the north-south direction during off-peak times, and four travel lanes during peak hours (7:00 – 9:30 a.m. and 4:00 – 6:30 p.m.). Two lanes of metered parking are provided during off-peak hours when not in use for travel purposes. According to DDOT, the average weekday volume in 2008 on 3rd Street, SW adjacent to the Switzer Building was 6,600 vehicles. The posted speed limit is 25 mph.

D Street, SW

D Street, SW borders the Switzer Building site to the south. This local roadway is one directional, providing one eastbound travel lane. The majority of its users are federal workers accessing the buildings in the immediate area. Information regarding the average weekday volume for D Street, SW was not available from DDOT. Parking is provided on both sides of the street. The posted speed limit is 25 mph.

4th Street, SW

The District classifies 4th Street, SW as a minor arterial roadway. As it passes the western side of the

Switzer Building, 4th Street, SW provides two travel lanes in the north-south direction during off-peak times, and four travel lanes during peak hours (7:00 – 9:30 a.m. and 4:00 – 6:30 p.m.). Two lanes of metered parking are provided during off-peak hours when not in use for travel purposes. According to DDOT, the average weekday volume in 2008 on 4th Street, SW adjacent to the Switzer Building was 6,100 vehicles. The posted speed limit is 25 mph.

Interstate 395

Located directly east of 2nd Street, SW, I-395 carries a large proportion of the daily traffic into and out of the District. A southbound on-ramp located at 2nd and D Streets, SW and an off-ramp located to the northeast on Washington Avenue accommodate travel to and from the Switzer Building site. According to DDOT, the average weekday volume on I-395 was 108,500 in 2008. The posted speed limit is 55 mph.

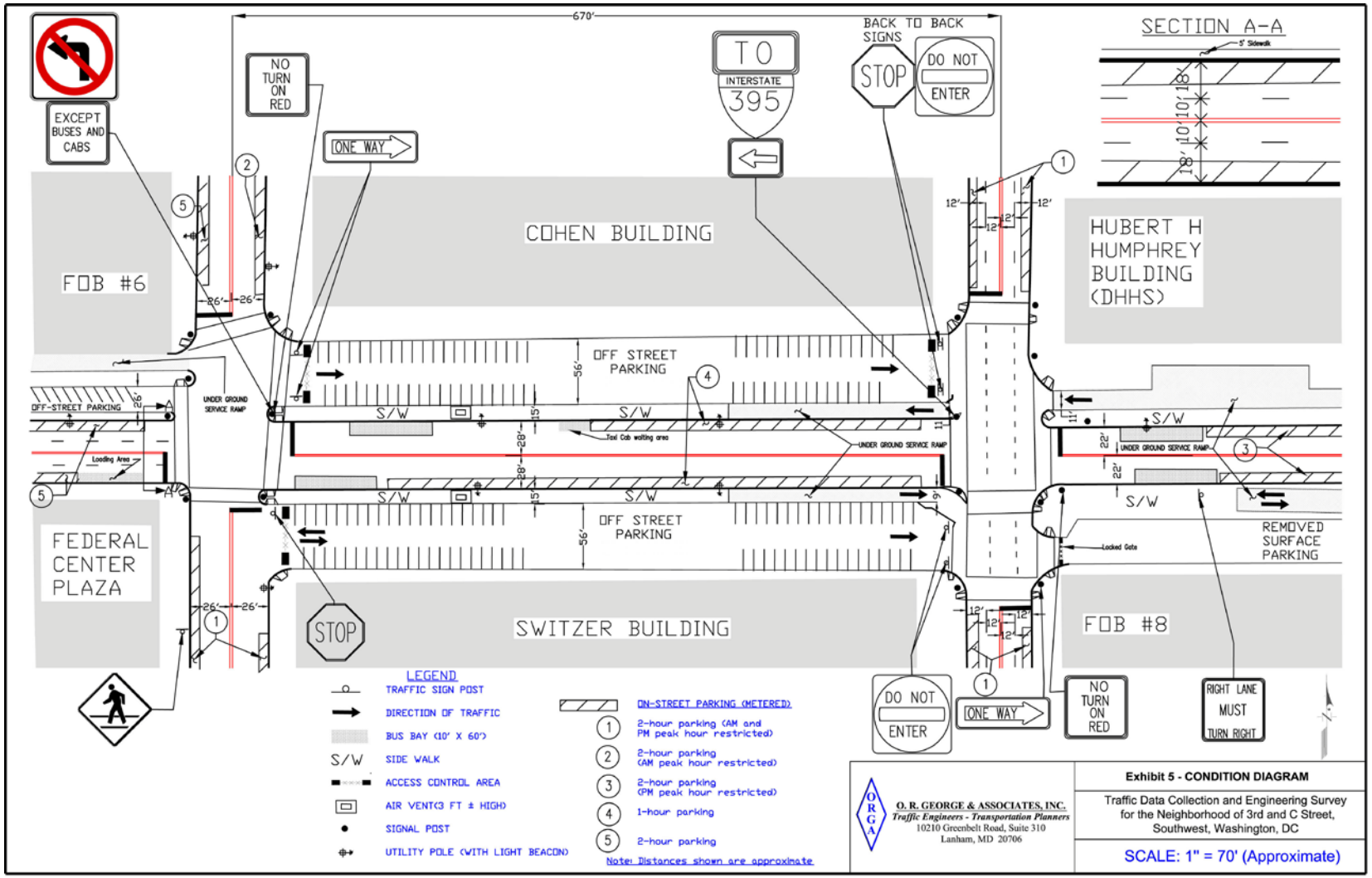


Figure 3-22 Existing Vehicular Traffic Conditions
Source: O. R. George & Associates, Inc. 2008

Traffic Study

In 2008 O. R. George & Associates, Inc. conducted a traffic study along C Street, SW, including its intersection with 3rd and 4th Streets, SW. This study was updated in the spring of 2010. It provides the basis for the analysis that follows, and is thus included in Chapter 4 as an appendix.

This section of C Street, SW and the abutting sections of 3rd and 4th Streets, SW serve local traffic and some through traffic. The morning peak hour for the two intersections studied occurs between 8:00 and 9:30 a.m. and the afternoon peak hour occurs between 4:30 and 6:00 p.m. The section of C Street, SW between 3rd and 4th Streets, SW has the lowest traffic volume of the three roadways studied. Two-way traffic volumes on C Street, SW average 200 vehicles during the morning peak and 280 during the afternoon peak. The average hourly volumes at all other times are generally well below 200 vehicles (Table 3-1).

The traffic volumes on 3rd Street, SW are higher than C Street, SW volumes but lower than those along 4th St, SW. Traffic volumes during both the morning and afternoon peak hours are in the range of 450-500 vehicles.

Fourth Street, SW has a higher volume of traffic during peak hours and throughout the day than C Street and 3rd Street, which is consistent with its designation as a minor arterial roadway. Traffic volumes during both the morning and afternoon peak hours average 600 vehicles. During the traffic study, heavy vehicle traffic within the study area was observed during off-peak hours. This off-peak vehicle traffic consisted mainly of delivery vehicles, some of which were serving the on-going construction in the area.

Typical Weekday Vehicle Volumes Along C Street, SW (Third Street, SW to Fourth Street, SW)

Time Period	C Street, SW Traffic(by Direction)		Totals
	Eastbound	Westbound	
7:00 - 8:00 AM	77	47	124
8:00 - 9:00 AM	93	111	204
9:00 - 10:00 AM	89	86	175
10:00 - 11:00 AM	81	45	126
11:00 - 12:00 NOON	77	60	137
12:00 - 1:00 PM	108	68	176
1:00 - 2:00 PM	97	69	166
2:00 - 3:00 PM	108	94	202
3:00 - 4:00 PM	171	40	211
4:00 - 5:00 PM	177	98	275
5:00 - 6:00 PM	211	77	288
6:00 - 7:00 PM	102	28	130

Table 3-1 C Street, SW Volumes in 2008
Source: O. R. George & Associates, Inc. 2008

The traffic study analyzed the traffic volumes using the Highway Capacity Manual capacity analysis procedures and determined that the area roadways within the study area function at a Level of Service (LOS) C, or better, for all affected intersections during peak hours (Table 3-2). The District of Columbia generally considers LOS D to be the minimum acceptable condition for planning and design purposes.

Summary of Capacity Analysis Results – Existing Traffic Conditions

Intersection	AM Peak Hour		PM Peak Hour	
	Level of Service	Avg. Delay (Sec/Veh)*	Level of Service	Avg. Delay (Sec/Veh)*
1) Third Street, SW at C Street, SW	B	19.9	C	22.7
2) Fourth Street, SW at C Street, SW	A	7.0	A	6.7
3) Second Street, SW at C Street, SW	B	14.8	C	22.2

* Sec/Veh = Seconds per Vehicle

Table 3-2 Existing Levels of Service
Source: O. R. George & Associates, Inc. 2008

The traffic study analyzed the current level of queuing on C Street, SW between 3rd and 4th Streets, SW for both the eastbound and westbound traffic flows. Based on queuing values that would only be exceeded five percent of the time, the queues on C Street, SW do not exceed the available storage length of 584 feet (Table 3-3).

The traffic study also considered traffic safety in the study area by analyzing crash records from DDOT for the years 2006 – 2008 for the intersections of 3rd and C Streets, SW and 4th and C Streets, SW. Based on the data, there are currently no significant safety deficiencies at the two intersections studied.

Existing Queuing Situation for C Street, SW (Between 3rd and 4th Streets, SW)

Direction of Flow	Assessed 95th %-ile Queuing Lengths		Available Storage Length
	AM Peak Hour	PM Peak Hour	
1) C Street, SW Eastbound Flow *(i.e., approaching 3rd Street, SW)*	63 Ft.	85 Ft.	584 Ft.
2) C Street, SW Westbound Flow *(i.e., approaching 4th Street, SW)*	84 Ft.	76 Ft.	584 Ft.

Table 3-3 Existing Queuing
Source: O. R. George & Associates, Inc. 2008

3.10.2 How Would Vehicular Traffic be Affected by the Site Improvements?

Alternative A

The movement of construction materials, equipment, and workers to the Switzer Building would likely constrict rights-of-way in the immediate area, predominately on C Street, SW, with more minor landscaping and perimeter security construction on D Street, SW, 3rd Street, SW, and 4th Street, SW. Specific travel lanes that would be impacted are northbound traffic on 3rd Street, SW, southbound traffic on 4th Street, SW, eastbound and westbound traffic on C Street, SW and eastbound traffic on D Street, SW. Overall, construction-related impacts would be short-term and moderate.

Once completed, impacts to the area's traffic flow would result from the narrowing of C Street, SW and from bulb-outs that would be added on C Street, SW at the 3rd and 4th Street, SW intersections as a traffic calming measure (Figure 3-23). As surface parking would be eliminated in this alternative, vehicular access points would be eliminated and queuing due to vehicles entering the site would not occur, potentially improving vehicular flow. In addition, the narrowing of C Street, SW could have a traffic calming effect resulting in beneficial impacts to area traffic. There are no proposed changes to the D Street, SW roadway.

Overall, long-term impacts to vehicular circulation are anticipated to be negligible, with beneficial impacts resulting from the elimination of the entrance and egress to the surface parking lot located on 4th Street, SW and the egress located on 3rd Street, SW, as well as traffic calming on C Street, SW.

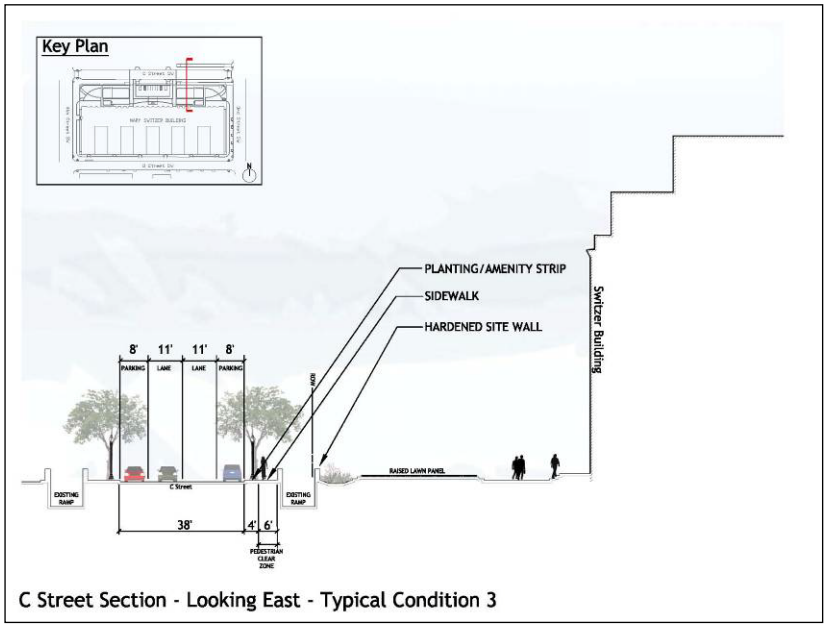


Figure 3-23 Section of C Street, SW
Source: HNTB 2020

Alternatives B and C

The movement of construction materials, equipment, and workers to the Switzer Building would likely constrict rights-of-way in the immediate area, predominately on C Street, SW, with more minor landscaping and perimeter security construction on D Street, SW, 3rd Street, SW, and 4th Street, SW. Specific travel lanes that would be impacted are northbound traffic on 3rd Street, SW, southbound traffic on 4th Street, SW, eastbound and westbound traffic on C Street, SW and eastbound traffic on D Street, SW. Overall, construction-related impacts would be short-term and moderate.

The surface parking lot configurations were analyzed by O. R. George & Associates, Inc. in a 2008 traffic study and in a subsequent technical memorandum update in 2010. The analysis was based on a surface parking lot configuration that included 122 parking spaces for the Switzer Building lot and 123 spaces for the Cohen Building lot. The proposed designs in Alternatives B and C would accommodate substantially fewer parking spaces in the Switzer Building surface parking lot than the number analyzed in the traffic study. Alternative B would contain approximately 11 spaces or approximately 103 (90%) fewer parking spaces and Alternative C would contain approximately 28 spaces or approximately 86 (77%) fewer parking spaces. The volume of vehicles accessing the parking lot developed by the traffic study, discussed below, was used to evaluate a potential worst case scenario. According to the study, a reduction in parking spaces should lead to a commensurate reduction in traffic volumes accessing the parking and thus a likely reduction in queuing. Potential queuing would be further minimized by the designation of the spaces for permit parking only.

Under both Alternatives B and C, the surface parking lot access points and the security screening would be moved to C Street, SW in the middle of the block. The entrance to the lot would be located closer to 4th Street, SW and the exit closer to 3rd Street, SW. This move would comply with the DDOT requirement that access points be located at least 60 feet from an intersection.

The access points on C Street, SW would impact traffic volumes along C Street, SW between 3rd and 4th Streets, SW. However, traffic volumes using the section of C Street, SW between 3rd and 4th Streets, SW are low throughout the day and it is anticipated that the intersections would operate at a LOS C or better (Table 3-4).

Summary of Capacity Analysis Results - Future Situation [1]

Intersection	AM Peak Hour		PM Peak Hour	
	Level of Service	Avg. Delay (Sec/Veh)*	Level of Service	Avg. Delay (Sec/Veh)*
1) Third Street, SW at C Street, SW	B	18.6	C	24.2
2) Fourth Street, SW at C Street, SW	A	7.8	A	7.5

Table 3-4 Future Levels of Service
Source: O. R. George & Associates, Inc. 2008

These access points would also impact the level of queuing along C Street, SW between 3rd and 4th Streets, SW for both the eastbound flow approaching 3rd Street, SW and the westbound flow approaching 4th Street, SW. This includes cars entering the parking lot via a right-hand turn heading eastbound and via a left-hand turn heading westbound. Two software tools were used to assess the level of queuing, the Highway Capacity Software (HCS) methodology and the Synchro software methodology. The results from both of these methodologies indicated average queue lengths with a potential for minor queuing encroachment along the eastbound direction during the afternoon peak period only (Table 3-5). Traffic volumes on this portion of C Street, SW are low throughout the day and the anticipated traffic volume using the proposed parking lot would be relatively low. As such, the levels of queuing are not anticipated to be high, and minor queuing encroachment is anticipated to be rare. Queuing encroachment would be further minimized by the substantially lower number of parking spaces proposed in Alternatives B and C than the number that was analyzed by the HCS and Synchro software shown in Table 3-5.

[1] This analysis uses vehicle volumes accessing the surface parking lots based on a proposed configuration with 122 parking spaces at the Switzer Building and 123 spaces at the Cohen Building. The higher volume of vehicles accessing the parking lots in this analysis than in the alternatives was intended to evaluate a potential worst case scenario.

Future Queuing Situation for C Street, SW [2]
(Between 3rd and 4th Streets, SW)

Direction of Flow	Assessed 95th %-ile Queuing Lengths		Available Storage Length
	AM Peak Hour	PM Peak Hour	
1) C Street, SW Eastbound Flow *(i.e., approaching 3rd Street, SW)* - Per HCS - Per Synchro	128 Ft. 149 Ft.	258 Ft. 111 Ft.	210 Ft.
2) C Street, SW Westbound Flow *(i.e., approaching 4th Street, SW)* - Per HCS - Per Synchro	200 Ft. 146 Ft.	113 Ft. 130 Ft.	210 Ft.

Table 3-5 Future Queuing Situation
Source: O. R. George & Associates, Inc. 2008

[2] This analysis uses vehicle volumes accessing the surface parking lots based on a proposed configuration with 122 parking spaces at the Switzer Building and 123 spaces at the Cohen Building. The higher volume of vehicles accessing the parking lots in this analysis than in the alternatives was intended to evaluate a potential worst case scenario.

Overall, long-term impacts to vehicular circulation are anticipated to be negligible with beneficial impacts to traffic circulation on 3rd and 4th Streets, SW due to the elimination of the surface parking lot access points on these streets. In addition, the narrowing of C Street, SW may have a traffic calming effect resulting in beneficial impacts to area traffic.

No Action Alternative

Under the No Action alternative, site improvements would not be undertaken at the Switzer Building. Thus, impacts to vehicular circulation would be negligible.

3.10.3 How Do Pedestrians and Bicyclists Access the Site?

The traffic study conducted by O. R. George & Associates, Inc. analyzed pedestrian volumes in the study area. There is considerable pedestrian activity in the vicinity of the Switzer Building, particularly for north-south movements along 3rd and 4th Streets, SW during the peak morning, mid-day, and afternoon times. The signalized intersections are equipped with countdown pedestrian signals and provide a LOS of C or better. The pedestrian traffic is due to the large number of adjacent federal office buildings, the proximity to the Mall to the north, and the location of the Federal Center SW Metrorail station to the south. Pedestrian access to the Switzer Building is through two main entrances on C

Street, SW and via a secondary entrance on D Street, SW. The entrance on D Street, SW is primarily used for access to the childcare center on site.

There are two sidewalks along the C Street, SW side of the Switzer Building, one that accesses the main building entrances and one that borders the street. These sidewalks and crosswalks have a number of street trees, planters, and signposts in the pedestrian right of way and some crosswalks terminate at the curb without ADA ramps. The two surface parking lots abutting C Street, SW between 3rd and 4th Streets, SW have access points in close proximity to the adjacent intersections and pedestrian crosswalks, creating some level of pedestrian conflicts. The sidewalk closest to the building varies in width due to street tree wells. The sidewalks closest to the street, both on the north and south sides of C Street, SW are difficult to navigate because they vary in width due to street tree wells (Figure 3-25). They terminate before the end of the block at the east end of C Street, SW due to the ramps to the below-grade parking area. To the west of the middle of the block on each side of the street an air vent structure that is approximately three feet high spans the width of the sidewalk adjacent to C Street, SW and obstructs the pedestrian right-of-way (Figure 3-24). The sidewalks on 3rd, D, and 4th Streets, SW are between approximately eight and ten feet wide.

According to DDOT's Bicycle Map, the only designated bicycle route adjacent to the Switzer building site is along 4th Street, SW. This signed bike route connects to an east-west path along I Street, SW in the south and up north to the National Mall. There are no other signed bicycle paths or bike lanes along the roadways immediately surrounding the site. There are bike racks located at the north and south faces of the Switzer Building within the building yard. According to observations conducted during the traffic study, there are low bicycle traffic volumes during peak hours.

Figure 3-24 Air vent in pedestrian right-of-way on C Street, SW
Source: AECOM 2010

Figure 3-25 C Street, SW right-of-way
Source: AECOM 2010

3.10.4 How Would Pedestrian and Bicycle Circulation be Impacted by the Site Improvements?

<u>Alternative A</u>

Construction related to the proposed site improvements would cause temporary sidewalk closures and thus disruptions to pedestrian circulation on the sidewalks that border the site, as well as the sidewalk on the north side of C Street, SW. These disruptions could be minimized by

appropriate signage and thus the short-term impacts to pedestrian circulation would be minor.

Under Alternative A, a garden wall would be installed between the sidewalks and the building on 3rd and 4th Streets, SW and bollards would be placed at the northern ends of the garden walls at the pedestrian plaza entrances; due to their locations, these features would have a minimal impact on circulation on area sidewalks. A coffee/concession stand and small seating area fronted by a perforated garden wall would be installed at the east end of the plaza, where it would be accessible to pedestrians traveling on 3rd Street, SW. As surface parking would be eliminated in this alternative, there would be a beneficial impact to pedestrians and bicyclists from the removal of the ingress and egress points to the surface parking lot on 3rd and 4th Streets, SW. On D Street, SW, the hardened streetscape features located between the curbline and the street would change the open relationships between the vehicular rights-of-way and the sidewalks, altering the pedestrian experience and restricting pedestrian flow at the corners of 3rd and 4th Streets, SW. Bollards would also cross the sidewalk on D Street, SW at the corners of 3rd and 4th Streets, SW potentially hindering pedestrian flow. Along C Street, SW, perimeter security elements would be located between the southern sidewalk adjacent to the vehicle right-of-way and the new plaza. These elements would consist of perforated garden walls, bollards at the pedestrian path entrances to the plaza, and a hardened wall between the parking ramp and the C Street, SW sidewalk. Although these elements could visually and physically divide the sidewalk from the plaza and green space, the perforated garden perimeter walls would be designed to open visual connections to the plaza and only those pedestrians entering the building or crossing the plaza would be impacted by the physical barriers. Beneficial impacts to the pedestrian experience would result from the inclusion of a public plaza, the increased green space proposed along C Street, SW, and the installation of additional street trees on all sides of the site.

By narrowing the right-of-way on C Street, SW, the sidewalk along both the north and south sides of C Street, SW would be widened in this alternative and would run the full length of the block without obstruction. The sidewalk would be widened to eight feet on both sides of the street, except for the portions of the sidewalk adjacent to the parking ramp and steam vent, which would be six feet wide. Existing crosswalks would be updated with ADA compliant curb cuts. The narrowing of C Street, SW and updated crosswalks would improve pedestrian circulation and result in beneficial impacts.

On D, 3rd and 4th Streets, SW, the pedestrian clear zone would be narrowed slightly from existing conditions. As proposed, the sidewalk would be approximately nine feet wide on 3rd and 4th Streets, SW and seven feet wide on D Street, SW. This reduction in width would be necessary to

accommodate new street trees on each of these rights-of-way. These trees would be an important pedestrian amenity, providing shade and a buffer from the vehicular rights-of way.

Overall, impacts to pedestrian circulation would be minor to moderate due to the installation of perimeter security elements, with beneficial impacts to pedestrian circulation and experience resulting from the installation of a public plaza, wider sidewalks on C Street, SW, ADA compliant curbcuts, and additional street trees on the streets surrounding the site. No adverse impacts are anticipated to bicycle circulation as there are no dedicated bike lanes directly adjacent to the site and the signed bike route along 4th Street, SW would remain. There would be a beneficial impact to bicycle circulation from the elimination of the ingress and egress locations to the surface parking lot on 3rd and 4th Streets, SW and the traffic calming related to the narrowing of C Street, SW.

Alternatives B and C

Construction related to the site improvements at the Switzer Building would cause temporary sidewalk closures and thus disruptions to pedestrian circulation on the sidewalks that border the site, as well as the sidewalk on the north side of C Street, SW. These disruptions could be minimized by appropriate signage and thus the short-term impacts to pedestrian circulation would be minor.

Under Alternatives B and C, a garden wall would be installed between the sidewalks and the building on 3rd and 4th Streets, SW; due to their locations, these features would not impact pedestrian circulation. A coffee/concession stand and small seating area fronted by a garden wall would be installed at the east end of the plaza adjacent to the 3rd Street, SW sidewalk and accessible to pedestrians entering the plaza. There would be a beneficial impact to pedestrians and bicyclists from the removal of the ingress and egress points to the surface parking lot on 3rd and 4th Streets, SW, and their relocation to C Street, SW. On D Street, SW, the hardened streetscape features located between the curbline and the street would change the open relationships between the vehicular rights-of-way and the sidewalks, altering the pedestrian experience and restricting pedestrian circulation at the corners of 3rd and 4th Streets, SW. Bollards would also cross the sidewalk on D Street, SW at the corners of 3rd and 4th Streets, SW potentially hindering pedestrian flow. Along C Street, SW, perimeter security elements would be located between the southern sidewalk adjacent to the vehicle right-of-way and the new plaza. These elements would consist of perforated garden walls along the western landscaped portion of the plaza, bollards at the pedestrian path entrances to the plaza, a garden wall along the parking lot, and a hardened wall between the parking ramp and the C Street, SW sidewalk. Only those pedestrians entering the building or crossing the plaza would be impacted by the placement of the security elements. Access to the building from within

the plaza would be facilitated by open areas in front of both building entrances. There would be minor disruptions to pedestrian flow due to the new vehicle access locations to the surface parking lot. Beneficial impacts to the pedestrian experience would result from the inclusion of a public plaza area, the increased green space proposed along C Street, SW, and the installation of additional street trees on all sides of the site.

By narrowing the right-of-way on C Street, SW, the sidewalk along both the north and south sides of C Street, SW would be widened in these alternatives and would run the full length of the block without obstruction. The sidewalk would be widened to ten feet at the west end of the block, eight feet at the center of the block, and six feet adjacent to the vents and ramps. Existing crosswalks would be updated with ADA compliant curb cuts. The narrowing of C Street, SW and updated crosswalks would improve pedestrian circulation and result in beneficial impacts.

On D, 3rd and 4th Streets, SW the pedestrian clear zone would be narrowed slightly from existing conditions. As proposed, the sidewalk would be approximately nine feet wide on 3rd and 4th Streets, SW and seven feet wide on D Street, SW. This reduction in width is necessary to accommodate new street trees on each of these rights-of-way. These trees will be an important pedestrian amenity, providing shade and a buffer from the vehicular rights-of way.

Overall, adverse impacts to pedestrian circulation would be minor to moderate as a result of the perimeter security improvements, with beneficial impacts to pedestrian circulation and experience resulting from the installation of a public plaza area, wider sidewalks on C Street, SW, ADA compliant curb cuts, and additional street trees surrounding the site. No adverse impacts are anticipated to bicycle circulation as there are no dedicated bike lanes directly adjacent to the site and the signed bike route along 4th Street, SW would remain. There would be a beneficial impact to bicycle circulation from the elimination of the ingress and egress locations to the surface parking lot on 3rd and 4th Streets, SW and the traffic calming related to narrowing of C Street, SW.

No Action Alternative

Under the No Action alternative, site improvements would not be undertaken at the Switzer Building. Thus, impacts to pedestrian or bicycle circulation would be negligible.

3.10.5 What Public Transit Systems Currently Service the Switzer Building?

The Switzer Building is served by a number of public transit services, including Metrorail, Metrobus, Commuter Busses, and the Virginia Railway Express. Each of these services is discussed below.

Metrorail

The Switzer Building site is accessed by the Federal Center SW Metrorail station, which is served by the Blue and Orange lines. The Federal Center SW station is located across the street from the site, near the intersection of 3rd and D Streets, SW. The L'Enfant Plaza Metrorail station is located three blocks to the east of the Switzer Building and is served by the Blue, Orange, Yellow, and Green lines. Although not accessible by any of these lines, Union Station, one of the region's most important intermodal transportation terminals, is easily accessible via Metrorail (Red line) and Metrobus.

Metrobus

The second major component of the public transit system serving the study area is WMATA's Metrobus. The P1, P2 and P6 lines all serve the area and stop adjacent to the site. The P1 and P2 stop on the south side of D Street, SW at 3rd Street, SW and on the north side of C Street, SW at the corner of C and 4th Streets, SW. The P6 stops on the north and south sides of C Street, SW at the corner of C and 4th Streets, SW. The P17 also serves the area and stops one block north of the site. Numerous lines run along Independence Avenue, one block north of the site, connecting this portion of Southwest with Capitol Hill to the east and the Mall and Pennsylvania Avenue to the west and north.

Commuter Buses

Another component of the public transit system serving the study area is the Commuter Bus system run by the Maryland Transit Administration. These buses operate primarily during peak travel times and on weekdays only. The 903 line stops adjacent to the site at 4th and C Streets, SW and runs between Washington, DC and St. Mary's County, MD. Numerous lines run along Independence Avenue, SW, one block north of the site, and stop at 4th Street, SW and Independence Avenue, SW. These lines run between Washington, DC and various outlying counties in Maryland.

Virginia Railway Express

The Virginia Railway Express (VRE) is a commuter rail service that operates between the Northern Virginia suburbs and Washington, DC Monday through Friday. The L'Enfant VRE Station is located approximately two blocks from the site on 6th Street, SW between C Street, SW and Virginia Avenue, SW and offers access to both the Fredericksburg and Manassas lines.

3.10.6 How Would Public Transportation Systems be Affected by the Site Improvements?

Alternatives A, B and C

Construction activities related to narrowing C Street, SW could cause temporary disruptions to Metrobuses serving the P1, P2 and P6 stops on the corner of C and 4th Streets, SW. These disruptions could be minimized by timing construction so that Metrobus service would only need to be re-routed for a minimal amount of time and so that nearby stops served by these lines would not be impacted. Short-term impacts to public transportation would be moderate.

Although the C Street, SW right-of-way would be narrowed in all three action alternatives, after construction is complete the exterior site improvements to the Switzer Building would not result in changes to the public transportation routes or services in the area as the Metrobus stops would remain in their existing locations. Overall, long-term impacts would be negligible.

No Action Alternative

Under the No Action alternative, site improvements would not be undertaken at the Switzer Building. Thus, impacts to public transportation would be negligible.

3.10.7 What Measures Should be Undertaken to Reduce Impacts to Traffic and Transportation?

Vehicular Traffic

Coordination with District of Columbia Fire and Emergency Services should occur throughout the design process to ensure that emergency vehicle access is maintained to the site.

To minimize impacts on area vehicular rights-of-way, construction traffic and equipment should be minimized during AM and PM peak hours, and construction schedules should be coordinated with nearby projects, including the American Veterans Disabled for Life Memorial, the proposed Eisenhower Memorial, and FOB 8 exterior improvements. During day-to-day site operations, deliveries should be scheduled during off-peak travel periods to reduce the potential for vehicle queuing at the entrance to the parking garage adjacent to the Cohen Building.

Coordination with DDOT should continue regarding the final design of C Street SW to ensure that a mutually acceptable design is completed.

Pedestrian and Bicycle Circulation

The final design should comply with ADA accessibility requirements and should facilitate circulation to and from

the future American Veterans Disabled for Life Memorial east of the site and the future Eisenhower Memorial west of the site. During construction of the site improvements, the appropriate signage and flagging should be utilized to ensure pedestrian and bicyclist safety. To enhance the pedestrian experience, GSA should explore additional options for seating on the site.

Public Transportation

To minimize disruptions to public transportation, construction should be timed so that Metrobus service would only need to be re-routed for a minimal amount of time and so that the nearby stops served by these lines would not be impacted.

3.11 PARKING

3.11.1 What are the Current Parking Conditions at the Switzer Building?

Parking is provided within and around the Switzer Building site in the form of metered parking spaces, surface parking, and garage parking. A total of 68 metered parking spaces are provided along the streets that border the Switzer Building. On C Street, SW there are twenty-two metered one-hour spaces on the south side of the street and sixteen one-hour metered spaces on the north side. On 3rd Street, SW there are seven metered two-hour spaces on the west side of the street, except between 7:00 and 9:30 a.m. and between 4:00 and 6:30 p.m., when vehicles are prohibited from parking or standing. On D Street, SW there are eighteen metered two-hour spaces on the north side of the street. There are also three spaces mid-block where 15-minute parking is permitted between 7:00 and 9:30 a.m. and between 4:00 and 6:30 p.m. No parking is permitted in these spaces between 9:30 a.m. and 4:00 p.m. On the east side of 4th Street, SW there are five two-hour metered spaces. Parking along the portion of 4th Street, SW between the northern corner and the fire hydrant is prohibited between 7:00 a.m. and 6:30 p.m. but unregulated at other times. The metered spaces directly adjacent to the site require or will require payment between 7:00 a.m. and 10:00 p.m. Monday through Saturday and follow the DC

guidelines for accessible parking spaces. Beginning in January 2010, all meters in the District of Columbia will be enforced Monday through Saturday and in the Downtown Central Business District the metered spaces will require payment between 7:00 a.m. and 10:00 p.m. This is a change from previous enforcement times which ended at 6:30 p.m.; the new enforcement policies will take effect as the parking signage is changed.

A surface parking lot located on the C Street, SW side of the building provides one hundred fourteen automobile parking spaces. The at-grade lot is accessible via an entrance and egress on 4th Street, SW and an egress on 3rd Street, SW. Approximately fourteen additional spaces are located in a below-grade garage within the building. The garage is accessible via an entrance on the northern corner of 3rd and C Streets, SW and an egress on the southern corner of 3rd and C Streets, SW. The locations of the access points to the surface parking lot and the underground parking do not meet the DDOT requirement that they be located at least 60 feet from an intersection. While the spaces within the surface lot serve employees at the Switzer Building, the majority of the spaces in the below-grade lot are utilized for loading, unloading, and maintenance vehicles. A guard station monitors vehicles entering and exiting both lots. According to an inventory of the surface lots and counts of vehicles entering and exiting the lots by O.R. George & Associates, Inc. during the 2008 traffic study, the vehicle volumes entering and exiting the surface parking lots and underground parking garage are low (Tables 3-6 and 3-7).

Additional parking throughout the study area is available in the form of metered spaces along local streets as well as several privately operated parking garages. The closest garages to the Switzer Building site are located on Virginia Avenue, SW and 4th Street, SW, both managed and operated by Colonial Parking.

12-Hour Vehicular Traffic Volumes (Accessing Adjacent Surface Parking)

Parking Access / Time Period	Cohen Building (Surface Parking)		Switzer Building (Surface Parking)		
	Entry (#1)	Exit (#2)	Entry (#3)	Exit (#3)	Exit (#5)
7:00 - 8:00 AM	16	35*	15	2	0
8:00 - 9:00 AM	13	43*	18	4	6
9:00 - 10:00 AM	16	8	6	2	1
10:00 - 11:00 AM	8	6	4	1	1
11:00 AM - 12:00 PM	5	4	3	4	3
12:00 - 1:00 PM	4	10	8	5	1
1:00 - 2:00 PM	3	5	18	13	2
2:00 - 3:00 PM	10	6	10	8	6
3:00 - 4:00 PM	33	18	9	6	6
4:00 - 5:00 PM	24	30	12	24	4
5:00 - 6:00 PM	15	41	9	10	8
6:00 - 7:00 PM	10	29	3	12	9

* The higher exiting vehicles are due to the night-shift employees leaving Voice of America.

Table 3-6 Surface Parking Traffic Volumes
Source: O. R. George & Associates, Inc. 2008

12-Hour Vehicular Traffic Volumes Accessing Service Ramps

Parking Access / Time Period	Cohen & Switzer Building		Hubert H. Humphrey (DHHS) Building		FOB # 8	
	Entry (#1)	Exit (#2)	Entry (#3)	Exit (#4)	Entry (#5)	Exit (#6)
7:00 - 8:00 AM	16	4	2	2	2	0
8:00 - 9:00 AM	8	2	3	3	0	1
9:00 - 10:00 AM	4	2	5	1	3	1
10:00 - 11:00 AM	9	6	3	5	0	0
11:00 AM - 12:00 PM	2	0	7	1	1	0
12:00 - 1:00 PM	5	3	1	4	1	1
1:00 - 2:00 PM	3	6	4	2	3	4
2:00 - 3:00 PM	1	2	3	0	4	1
3:00 - 4:00 PM	2	4	1	4	1	2
4:00 - 5:00 PM	0	2	0	1	13	0
5:00 - 6:00 PM	2	5	0	1	1	0
6:00 - 7:00 PM	0	0	0	0	0	0

Table 3-7 Below-Grade Parking Traffic Volumes
Source: O. R. George & Associates, Inc. 2008

3.11.2 How Would Parking be Affected by the Site Improvements?

Alternative A

The installation of the proposed security measures and site improvements would temporarily impact on-street parking availability. It is likely, however, that the only on-street parking spaces that would be impacted during the construction phase are spaces located directly adjacent to or just north of the Switzer Building. Specifically, the parking spaces that would be affected are located on the north and south side of C Street, SW, the west side of 3rd Street, SW, the north side of D Street, SW, and east side of 4th Street, SW. The surface parking lot, with space for 114 automobiles, would also be inaccessible during construction. Short-term impacts to parking would be minor to moderate.

After construction, the largest impact to parking facilities within the vicinity of the Switzer Building would be the conversion of the surface lot located on the north face of the building along C Street, SW to a landscaped plaza with no parking spaces. This lot currently offers parking spaces for employees at the Switzer Building and is not open for public use. The below-grade parking lot would continue to be utilized; however, it provides only 14 spaces and the majority of these spaces are unavailable for employee use as they are utilized for loading, unloading, and maintenance vehicles. Overall, long-term impacts to parking would be minor to moderate, due to the small number of spaces being lost at the Switzer Building, no loss of street parking, and the presence of nearby commercial parking lots.

Alternative B

The installation of the proposed security measures and site improvements would temporarily impact on-street parking availability. It is likely, however, that the only on-street parking spaces that would be impacted during the construction phase are spaces located directly adjacent to or just north of the Switzer Building. Specifically, the parking spaces that would be affected are located on the north and south side of C Street, SW, the west side of 3rd Street, SW, the north side of D Street, SW, and east side of 4th Street, SW. The surface parking lot, with space for 114 automobiles, would also be inaccessible during construction. Short-term impacts to parking would be minor to moderate.

After construction, the largest impact to parking facilities within the vicinity of the Switzer Building would be the conversion of the surface lot located on the north face of the building along C Street, SW to a landscaped plaza with approximately eleven parking spaces. This lot currently offers 114 parking spaces for employees at the Switzer Building and is not open for public use. The below-grade parking lot would continue to be utilized; however, it provides only 14 spaces and the majority of these spaces

are unavailable for employee use as they are utilized for loading, unloading, and maintenance vehicles. There would be a beneficial impact to the circulation of the parking on-site as the entrance and egress locations would be sited mid-block away from the adjacent intersections and in compliance with the DDOT requirement that they be located at least 60 feet from an intersection. Overall, long-term impacts to parking would be minor due to the small number of spaces being lost at the Switzer Building, no loss of street parking, and the presence of nearby commercial parking lots.

Alternative C

The installation of the proposed security measures and site improvements would temporarily impact on-street parking availability. It is likely, however, that the only on-street parking spaces that would be impacted during the construction phase are spaces located directly adjacent to or just north of the Switzer Building. Specifically, the parking spaces that would be affected are located on the north and south side of C Street, SW, the west side of 3rd Street, SW, the north side of D Street, SW, and east side of 4th Street, SW. The surface parking lot, with space for 114 automobiles, would also be inaccessible during construction. Short-term impacts to parking would be minor to moderate.

After the construction, the largest impact to parking facilities within the vicinity of the Switzer Building would be the conversion of the surface lot located on the north face of the building along C Street, SW to a landscaped plaza with approximately twenty-eight parking spaces. This lot currently offers 114 parking spaces for employees at the Switzer Building and is not open for public use. The below-grade parking lot would continue to be utilized; however, it provides only 14 spaces and the majority of these spaces are unavailable for employee use as they are utilized for loading, unloading, and maintenance vehicles. There would be a beneficial impact to the circulation of the parking on-site as the entrance and egress locations would be sited mid-block away from the adjacent intersections and in compliance with the DDOT requirement that they be located at least 60 feet from an intersection.

Overall, long-term impacts to parking would be minor due to the small number of spaces being lost at the Switzer Building, no loss of street parking, and the presence of nearby commercial parking lots.

No Action Alternative

Under the No Action alternative, site improvements would not be undertaken at the Switzer Building. Thus, impacts to parking would be negligible.

3.12 ENERGY USE AND SUSTAINABILITY

3.12.1 What Energy Use and Sustainability Measures are Utilized on the Site?

Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance* directs federal agencies to strengthen their sustainable practices and to reduce greenhouse gas emissions, water and energy consumption, and diversion of materials. Energy use at the Switzer Building was documented in 2003 before the building renovations began and water usage was documented in 2007. The ongoing building renovations are incorporating best practices in energy and water conservation features. Based on 2009 usage measurements, there was a 30% reduction in electrical usage, a 45% reduction in steam usage and a 5.5% reduction in water usage at the Switzer Building (Table 3-8).

2009 Utilities Usage	
Electric usage	7,500,000 kWh
Steam usage	12,279 kLb.
Water usage	3,066,052 gallons

Table 3-8 2009 Switzer Utilities Usage
Source: Jacobs Engineering 2010

These measures include the installation of low water use plumbing fixtures, heat recovery units, re-use of stormwater runoff from the roof, and the use of CFL and LED lighting fixtures.

3.12.2 How Would Energy Use and Sustainability be Affected by the Site Improvements?

Energy efficient technologies and sustainable measures that would be undertaken at the site under all three action alternatives include a ground source heat pump system, a gray water re-use system for irrigation, a reduction in impervious surfaces, an increase in trees and vegetation, and LID measures.

<u>Alternative A</u>

Under Alternative A, the conversion of the entire surface parking lot into a landscaped plaza would reduce paved areas on the site by approximately 35%. It would also increase the amount of vegetative cover, including trees, on the site. The increased vegetation, LID measures, gray water re-use system, and decreased impervious surfaces would decrease stormwater runoff and increase groundwater recharge and water quality. The increased vegetation could also contribute to the energy efficiency of the site by potentially moderating the temperature around the building (EPA 2009), and the reduction in parking could lead to a slight reduction in greenhouse gas emissions due to a decline in the number of vehicle trips to the site.

The energy efficiency of the building would be improved by installing a ground source heat pump on the site. These systems are highly energy efficient, use less energy than conventional heating and cooling systems, and reduce the consumption of non-renewable energy resources. The size of the ground source heat pump system that would be installed on site and the reduction in energy use it could provide would be determined after further study and the installation of a geothermal conductivity test well.

Overall, long-term impacts to energy use and sustainability are anticipated to be beneficial. In addition, there would be beneficial impacts from public educational opportunities regarding the LID measures and ground source heat pump installed at the site.

Alternative B

Under Alternative B, the conversion of the surface parking lot into a landscaped plaza would reduce paved areas on the site by approximately 33%. It would also increase the amount of vegetative cover, including trees, on the site. The increased vegetation, low impact development measures, gray water re-use system, and decreased impervious surfaces would decrease stormwater runoff and increase groundwater recharge and water quality. The increased vegetation could also contribute to the energy efficiency of the site by helping to moderate the temperature around the building (EPA 2009), and the reduction in parking could lead to a slight reduction in greenhouse gas emissions due to a decline in the number of vehicle trips to the site.

The energy efficiency of the building would be improved by installing a ground source heat pump on the site. These systems are highly energy efficient, use less energy than conventional heating and cooling systems, and reduce the consumption of non-renewable energy resources. The size of the ground source heat pump system that would be installed on site and the reduction in energy use it could allow would be determined after further study and the installation of a geothermal conductivity test well.

Overall, long-term impacts to energy use and sustainability are anticipated to be beneficial. In addition, there would be beneficial impacts from public educational opportunities regarding the LID measures and ground source heat pump installed at the site.

Alternative C

Under Alternative C, the conversion of the surface parking lot into a landscaped plaza would reduce paved areas on the site by approximately 30%. It would also increase the amount of vegetative cover, including trees, on the site. The increased vegetation, low impact development measures, gray water re-use system, and decreased impervious surfaces would decrease stormwater runoff and increase groundwater recharge and water quality. The increased vegetation could also contribute to the energy efficiency of

the site by helping to moderate the temperature around the building (EPA 2009), and the reduction in parking could lead to a slight reduction in greenhouse gas emissions due to a decline in the number of vehicle trips to the site.

The energy efficiency of the building would be improved by installing a ground source heat pump on the site. These systems are highly energy efficient, use less energy than conventional heating and cooling systems, and reduce the consumption of non-renewable energy resources. The size of the ground source heat pump system that would be installed on site and the reduction in energy use it could allow would be determined after further study and the installation of a geothermal conductivity test well.

Overall, long-term impacts to energy use and sustainability are anticipated to be beneficial. In addition, there would be beneficial impacts from public educational opportunities regarding the LID measures and ground source heat pump installed at the site.

No Action Alternative

Under the No Action alternative, site improvements would not be undertaken at the Switzer Building. Thus, energy efficiency would not be improved, vegetative cover would not be increased, and impervious surfaces would not be reduced.

3.13 UTILITIES

3.13.1 Who Provides Utility Service to the Switzer Building?

The utility information for the Switzer Building is based on a 2003 survey by William H. Gordon Associates, Inc. that was revised in 2010.

Water

Water service is supplied to the Switzer Building by the DC Water and Sewer Authority (WASA). Water lines are located below 4th Street, SW, D Street, SW, and 3rd Street, SW. The water line on 3rd Street, SW begins just south of C Street, SW and runs north. A water line extends to a fire hydrant at the curb mid-block on 4th Street, SW and mid-block on D Street, SW. A line crosses the sidewalk on D Street, SW near the southeastern corner of the block and connects to the building. A line also extends from 3rd Street, SW to the northeastern corner of the site and runs underneath the sidewalk to a fire hydrant.

Sanitary Sewer

WASA provides wastewater management for DC, including the collection, treatment, and discharge of effluent. Sewage is collected and transported for treatment at WASA's Blue Plains Wastewater Treatment Plant. Treated effluent is then discharged into the Potomac River.

A 6 -inch (152 mm) terra cotta pipe located between the northwestern corner of the Switzer Building and the entrance closest to 4th Street, SW connects the building to a 12-inch (305 mm) terra cotta sewer line that runs west underneath the sidewalk in front of the building. Along 4th Street, SW, there is one trench drain next to the building, one storm sewer grate, one curb inlet, and one sewer manhole. The surface parking lot on C Street, SW is served by a 15-inch (381 mm) reinforced concrete pipe that runs west from the surface parking lot to an 84-inch storm pipe that runs underneath 4th Street, SW. The curb inlet on 4th Street, SW is connected to the 15-inch (381 mm) reinforced concrete pipe underneath the parking lot by another 15-inch (381 mm) reinforced concrete pipe that runs underneath the sidewalk at the corner of 4th and C Streets, SWs. There is also an 18-21 inch (457-533 mm) terra cotta pipe that runs east towards 3rd Street, SW underneath the surface parking lot and is fed by piping from two storm sewer curb inlets, one storm grate, by two trench drains, and one pipe connected to the building near the corner. There are three sewer man holes on the surface parking lot. An 18-inch (457 mm) reinforced concrete pipe flows east underneath the sidewalk from the corner of the building to a curb inlet on 3rd Street, SW. A second curb inlet at the corner of 3rd and C Streets, SW drains to the 21 inch (533 mm) terra cotta pipe that runs underneath the surface parking lot and east across 3rd Street, SW. A storm pipe runs along D Street, SW and is fed by two storm sewer curb inlets. There are six storm sewer manholes along D Street, SW and one trench drain next to the building.

Electric

Electric service is provided to the building by PEPCO. The lines around the site are all located underground. Lines run along the 3rd and 4th Street, SW ROW, along the 3rd Street, SW curbline and underneath the 3rd and 4th Street, SW sidewalks. Lines also run underneath the sidewalk in front of the building on C Street, SW and underneath the surface parking lot. A line crosses C Street, SW and runs along the curbline on the north side of the street near the underground parking entrance. An underground electric line enters the Switzer Building on its C Street, SW face near the northwestern corner of the building. Feeder lines cross D Street, SW underground in five locations along the block to feed light poles.

Steam

The Switzer Building is heated by steam provided by the Heating Operation and Transmission District (Steam Distribution and Heating Plant), which is operated and owned by GSA. The main steam tunnel serving the site runs under C Street, SW on the west end of C Street, SW. From C Street, SW, it turns south towards the Switzer Building underneath the surface parking lot and then turns again to run along the curbline in front of the building.

Communications

Underground communication lines run under the vehicular rights-of-way around the site. There is a communication structure associated with the underground line on C Street, SW near the west end of the parking ramp. On 4th Street, SW, two additional communication lines run underneath the sidewalk next to the building. One of those two lines crosses C Street, SW and continues underneath 4th Street, SW.

Gas

Washington Gas provides natural gas service to the building. A gas line runs underneath 4th Street, SW, underneath D Street, SW and below the sidewalk on 3rd Street, SW.

Other

Street lampposts are located along the perimeter of the site on C and D Streets, SW. There are no lampposts at the perimeter of the site on 3rd and 4th Streets, SW as they are located on the side of the street opposite the building. On the south side of C Street, SW, there are seven lampposts along the sidewalk closest to the building and five along the sidewalk closest to the street. On the north side of C Street, SW, there are two lampposts along the sidewalk closest to the street. There are five lampposts located along D Street, SW. Due to the proximity of the metro tunnel, there is a metro vent located along D Street, SW.

3.13.2 How Would the Site Improvements Affect Local Utilities?

Under all of the action alternatives, the surface parking lot and surrounding sidewalks would be disturbed during construction and could impact utility lines that run underground. Lampposts and fire hydrants may also be disturbed. The lampposts would be replaced according to District standards.

Alternatives A, B and C

On 4th Street, SW, the construction of security features, the public plaza, and the addition of more street trees could potentially disturb a communications line and an electric line that run below the sidewalk and a 15-inch (381 mm) reinforced concrete pipe that connects to the storm sewer curb inlet on the corner of 4th Street, SW at C Street, SW.

On 3rd Street, SW, construction of security features, the public plaza, and the addition of more street trees could potentially disturb an electric line and a gas line that run below the sidewalk. One storm sewer curb inlet on the corner of 3rd Street, SW at C Street, SW that is connected to an 18-inch (457 mm) reinforced concrete pipe that flows east underneath the sidewalk from the corner of the building to a curb inlet could also be disturbed.

On C Street, SW, the construction of security features, the public plaza, and the addition of more street trees could potentially disturb several utility lines. The steam tunnel runs under the western portion of the surface parking lot and along the building. On the western end of the surface parking lot there are two communication lines and three electric lines that run north-south. There are also several sewer line pipes that run underneath the surface parking lot on its western edge: a 6-inch (152 mm) terra cotta pipe located between the northwestern corner of the Switzer Building and the entrance closest to 4th Street, SW; a 12-inch (305 mm) terra cotta pipe sewer line that runs west underneath the sidewalk in front of the building towards 4th Street, SW; and a 15-inch (381 mm) reinforced concrete pipe that runs west from the surface parking lot to connect with an 84-inch storm pipe that runs under the 4th Street, SW right-of-way.

There are two electric lines that run north-south near the center of the parking lot and connect to electric lines that run underneath the both the sidewalk adjacent to the building and the sidewalk adjacent to the street. Several electric lines also run under the north sidewalk on C Street, SW. On the eastern end of the surface parking lot there are two electric lines, one gas line, and one communications line that run north-south.

There are several sewer lines that run underneath the surface of the eastern section of the surface parking lot including an 18-21-inch (457-533 mm) terra cotta pipe that runs east towards 3rd Street, SW and is fed by piping from two storm sewer curb inlets. One storm grate, two trench drains, one pipe connected to the building near the corner, and three sewer man holes are also located on the eastern section of the surface parking lot. A curb inlet at the corner of 3rd and C Streets, SW drains through a 12-inch (305mm) terra cotta pipe to the 21-inch (533 mm) terra cotta pipe that runs underneath the surface parking lot and east along C Street, SW across 3rd Street, SW. Storm sewer inlets may need to be relocated due to construction of the landscaped plaza and the narrowing of C Street, SW.

On D Street, SW, construction of security features and the addition of more street trees could potentially disturb a water line that crosses the sidewalk underneath D Street, SW near the southeastern corner of the block and connects to the building. Two storm sewer curb inlets could be disturbed on the eastern side of D Street, SW and are connected to a storm pipe that runs under the D Street, SW right-of-way.

Existing fire hydrants along D, 3rd and 4th Streets, SW might need to be shifted within their general locations to accommodate the new streetscape and site security elements. These proposed new locations would be coordinated with the DC Fire Marshall. Standpipes around the building would continue to be accessible through the planting beds.

During the installation of the ground source heat pump, buried utilities would be identified and avoided. The metro vents on D Street, SW and the two large steam vents on either side of C Street, SW would not be impacted. Overall, impacts to utilities would be short-term and minor. Long-term beneficial impacts to the storm sewer system may occur with the increased capture and reuse of stormwater on-site.

3.13.3 What Measures Should be Undertaken to Reduce Impacts to Utilities?

GSA should coordinate with DC WASA to determine if a preconstruction survey is necessary and for potential relocation of storm sewer inlets. Coordination should also occur with PEPCO to ensure all electrical lines remain intact and are safe to work around. Any new or replacement street lighting should be provided in accordance with District standards. Coordination should occur with the DC Fire Marshall to ensure that access is maintained to the fire hydrants and the building.

3.14 AIR QUALITY

3.14.1 Are There Any Air Quality Issues in the Washington Metropolitan Region?

In response to the Clean Air Act (CAA) of 1970 and the CAA Amendments of 1977 and 1990, the U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for criteria air pollutants including carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), particulate matter equal to or less than 10 microns in size (PM_{10}), and fine particulate matter equal to or less than 2.5 microns in size ($PM_{2.5}$). The NAAQS include primary standards designed to protect human health and secondary standards to protect public welfare.

Regions of the country that are currently not meeting the NAAQS are identified as “nonattainment” areas. These non-attainment areas are classified as “marginal”, “moderate”, “serious”, “severe”, or “extreme.” The Metropolitan Washington air quality region, which includes Washington, DC and ten surrounding counties in Virginia and Maryland, is currently designated as moderate non-attainment for the federal eight-hour ozone standard and non-attainment for the fine particulate ($PM_{2.5}$) standard. The Washington DC metropolitan area is also located within an ozone transport region. The Metropolitan Washington Air Quality Committee (MWAQC), as the region’s lead air quality

planning agency, has undertaken planning efforts to bring the region into compliance with the NAAQS.

The EPA requires that non-attainment regions prepare attainment plans aimed at reducing ozone-causing emissions in order to reach compliance with the NAAQS. Federal agencies responsible for an action in a non-attainment area are required to determine if the action either conforms to the prepared regional attainment plan or is exempt from conformity. The EPA has determined that federal actions are exempt from conformity determinations where the total of all reasonably foreseeable direct and indirect emissions of non-attainment pollutants: (1) would be less than their specified emission rate thresholds, known as *de minimus* limits, and (2) would be less than 10 percent of the area's annual emission budget. The general conformity *de minimus* limits for ozone nonattainment areas inside an ozone transport region are 50 tons per year for volatile organic compounds (VOC) and 100 tons per year for nitrogen oxides (NOx). The *de minimus* limit for direct emissions of $PM_{2.5}$ is 100 tons per year.

3.14.2 Would the Proposed Site Improvements Impact Air Quality in the Area?

Alternatives A, B and C

One of the sources for potential air quality impacts would be construction activities. These emissions would come from three sources: (1) construction equipment emissions; (2) fugitive dust from soil excavation and site disturbance; and (3) emissions from construction worker vehicles commuting to the site. Emissions produced during construction would vary daily depending on the equipment and type of activity, however, due to the limited construction proposed, project-generated emissions would be expected to be below *de minimus* levels.

All three of the action alternatives would include the addition of an exhaust pipe for a new two megawatt (MW) (2,680 horsepower) emergency diesel generator to be installed in the below-grade basement garage area. This new generator would replace the existing two MW generator located in the Cohen Building parking lot. The exhaust pipe associated with this generator would terminate adjacent to an existing exhaust pipe located on the south side of C Street, SW at the end of the parking ramp. The new exhaust pipe and attendant insulation would be approximately 24" in diameter. The existing exhaust pipe on C Street, SW serves an existing 1.5 MW emergency generator. In all of the action alternatives, a

vent shaft would be constructed for both the new and existing exhaust pipes and would incorporate some form of public art or an architectural element. Due to code requirements, the vent shaft would be nine feet tall at a minimum.

Although a new emergency generator would be installed, air pollution emissions under the action alternatives would not cause a greater impact than the existing conditions because the new generator is replacing a two MW generator currently on-site. However, the location of the emissions source would change as the new vent would be located with the existing 1.5 MW generator vent on C Street, SW in front of the Switzer Building site.

Diesel engines produce Nitrogen Oxide (NO_x) and other emissions such as total organic compounds (TOC), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter (PM), and carbon dioxide (CO_2). These emissions are released at high temperatures that can reach 405 degrees Celsius (762 ° F). However, the generator would only operate during routine maintenance and testing and during emergencies. The routine maintenance would occur once every 30 days for fifteen minutes and could be scheduled during off hours when fewer people are in the area. The top of the vent shaft height would also be at least nine feet high, directing the exhaust away from the pedestrian level. Based on a total of 51 annual operating hours (one emergency use at 48 hours and testing at .25 hours once every 30 days), total NO_x emissions are under two tons per year and CO_2 (greenhouse gas) emissions are about 80 tons per year (Table 3-8).

Estimated Generator Emissions (tons/year)

TOC	CO	NOx	SO2	PM	CO2
0.05	0.38	1.64	0.03	0.05	79.34

Table 3-8 Estimated Generator Emissions (51 operating hours)
Source: AECOM 2010

Due to the limited use of the generator and because it would be designed to meet applicable air quality standards, emissions from the generator would be low and would not substantively impact air quality.

Overall, short-term impacts to air quality are anticipated to be minor and long-term impacts would be negligible. There could be beneficial impacts to air quality from the increased tree canopy and vegetation on the site. Further, the reduction in parking could encourage employees to utilize public transit and could thus result in beneficial long-term impacts due to the potential reduction in greenhouse gas emissions.

No Action Alternative

Under the No Action alternative, site improvements would not be completed at the Switzer Building. Thus, impacts to air quality on the site or within the surrounding area would be negligible.

3.14.3 What Measures Should be Undertaken to Reduce Impacts to Air Quality?

Best management practices would be employed during construction to control fugitive dust.

3.15 NOISE

3.15.1 How is Noise Measured and What Are the Major Sources of Noise Surrounding the Switzer Building?

Noise can be generally defined as unwanted or unwelcome sound. Noise levels are usually measured in decibels (dB), on a logarithmic scale, that are weighted to sounds perceivable by the human ear (A-weighted sound level (dBA)). A-weighted decibels account for the fact that the human ear is not equally sensitive to all frequencies. Noise levels are typically expressed as an average over a period of time (Leq) since noise sources may produce varying degrees of sound throughout the period of operation or occurrence.

Noise regulations in the District establish maximum permissible sound levels for an operation, activity, or noise source on a property, based on time of day and land use category (i.e., residential, commercial, and industrial). Areas that are zoned commercial, such as the project site, have a maximum allowable noise limit of 65 dBA (daytime) and 60 dBA (nighttime). There are exceptions to the maximum allowable noise levels in the DC noise regulations such as for construction activities and noise emitting from emergency vehicles. From 7:00 a.m. to 7:00 p.m. on any weekday, noise levels resulting from construction or demolition are limited to a maximum of 80 dBA.

The maximum allowable noise levels are designed to protect human activities or land uses that may be infringed upon by ambient noise. Certain land uses are considered to be noise-sensitive receptors, including residential dwellings, hotels, hospitals, nursing homes, educational facilities, and libraries. The National Museum of the American Indian (NMAI) and the National Air and Space Museum (NASM) could potentially be classified as noise-sensitive receptors because they serve an educational function, however, they are two blocks north of the site on the Mall. Commercial and industrial land uses are generally not considered to be noise sensitive receptors.

Ambient noise levels at the project site and surrounding areas are primarily generated by transportation activity. The most prominent source of noise is the vehicular traffic

on the rights-of-way adjacent to the site. Levels of traffic congestion and mix of vehicle types on those adjacent streets corresponds with the volume of noise generated. Idling vehicles, such as WMATA buses, further contribute to the volume of noise. Because traffic is the largest source of noise in the study area, the peak noise period of the day is anticipated to be the peak hour traffic period. Those primarily affected by this traffic noise would be pedestrians on the sidewalks surrounding the site and visitors to the museums and the Mall one block to the north.

3.15.2 Would the Project Increase Noise Levels?

Alternatives A, B and C

The District limits weekday construction and demolition noise to 80 dBA Leq from 7 a.m. to 7 p.m., unless a variance is granted. The movement of heavy trucks could also generate noise in the vicinity of the site. Short-term impacts to noise levels would be moderate.

All three of the action alternatives would include the addition of a two megawatt (MW) (2,680 horsepower) emergency diesel generator in the below-grade basement garage area that would replace the two MW generator in the Cohen Building parking lot. The exhaust pipe for the new generator would terminate adjacent to an existing exhaust pipe located on the south side of C Street, SW at the end of the parking ramp. A vent shaft would be constructed for both the new and existing exhaust pipes and would incorporate some form of public art or would be an architectural feature.

A critical grade silencer would be incorporated into the double wall insulated stainless steel housing for the exhaust pipe and filters. Typical sound attenuation of a critical grade silencer is 27-35 dBA. In addition, the generated would be located in a generator room with 8-inch think CMU walls that would be fully grouted in order to mitigate the spillover of the noise into the garage space. Pointing the exhaust up would also help with noise attenuation. Noise levels for the generator would meet the District's limitation of 60 db.

As the generator would be installed below-grade in an enclosed generator room to replace an existing above-grade generator and there are no sensitive noise receptors in the immediate area, long-term noise impacts are anticipated to be negligible.

The ground source heat pump system that would be installed on site would not need an external condenser or fan unit and would have negligible long-term impacts on noise levels.

Overall, short-term construction-related impacts would be moderate due to the drilling required for the ground source heat wells. Once completed, long-term impacts to noise levels would be negligible with potential beneficial impacts resulting from the relocation of the generator below-grade.

No Action Alternative

Under the No Action alternative, site improvements would not be completed at the Switzer Building. Thus, impacts to noise levels would be negligible.

3.15.3 What Mitigation Measures Should be Undertaken to Reduce Noise Impacts?

Appropriate best management practices should be employed to control noise during construction activities.

3.16 CUMULATIVE IMPACTS

3.16.1 What are Cumulative Impacts and Why are They Considered?

Cumulative impacts result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. They are considered within this analysis so that the environmental impacts of the proposed action are not viewed in isolation, but are understood within the context of other ongoing or planned changes.

3.16.2 What Past, Present or Future Projects Could Contribute to Cumulative Impacts?

FOB 8 Renovation and Site Improvements: FOB 8 is located one block east of the Switzer Building. A renovation of both the building and the site is planned to commence in 2012. As proposed for the Switzer Building, site improvements at FOB 8 will include perimeter security and the conversion of a surface parking lot to a landscaped plaza,

American Veterans Disabled for Life Memorial: The American Veterans Disabled for Life Memorial is planned for a two-acre landscaped parcel one block east and north of the Switzer Building. Bordered by 2nd Street, SW, Washington Avenue, and ramps to I-395, the memorial will include a reflecting pool, treed walkways, and a landscaped

area, all with commanding views of the U.S. Capitol Building.

Third and C Streets, SW Urban Design Guide: Prepared by GSA and available in draft form, the Urban Design Guide seeks to unify the streetscape within a four-block area that includes FOB 8, the Mary C. Switzer Building, Wilbur J. Cohen Building, and the Hubert H. Humphrey Building. The Guide addresses such issues as perimeter security, streetscape elements, and proposed landscape features.

Dwight D. Eisenhower Memorial: The Eisenhower Memorial is planned for a site northwest of the Switzer Building at the intersection of Maryland and Independence Avenues. The memorial, currently in the design phase, will celebrate Eisenhower's commitment to freedom, the Constitution, democracy, economic progress, and international peace.

Perimeter Security Projects within the Nation's Capital: Numerous perimeter security projects are planned, have been approved, or have been recently completed within Washington, DC. In addition, several vehicular rights-of-way have been closed for security purposes. These security improvements are widespread, including those immediately around the Switzer Building, on Capitol Hill northeast of the Switzer Building, on the Mall, and in the downtown. Immediately around the Switzer Building, permanent perimeter security measures have been proposed at FOB 8 and the Cohen Building, and permanent measures have been installed at the Humphrey Building and the Ford House Office Building. On Capitol Hill, permanent perimeter security is widespread including around the Capitol complex, the Library of Congress buildings, and the Rayburn House Office Building, among others. North of the Switzer Building, along the Mall, permanent perimeter security has been installed or approved for installation at the majority of the Smithsonian museums including NMAI, the National Air and Space Museum, the Hirshhorn Museum, the Smithsonian Castle, the National Museum of Natural History, and the National Museum of American History. Permanent perimeter security improvements have been proposed or temporary measures have been installed at a number of buildings between the 3rd and C Street, SW area, and the Tidal Basin further west. Across the Mall, temporary perimeter security measures have been installed around buildings within the Federal Triangle, and permanent security measures are being considered for several of these buildings, including the headquarters of the U.S. Department of Commerce and the National Archives. Perimeter security measures have also been proposed, approved, or constructed at a number of buildings east and west of Federal Triangle.

3.16.3 What Cumulative Impacts Would Occur from the Proposed Action?

Land Use

The proposed site improvements to the Switzer Building have the potential to create cumulative impacts to land use. Two memorials, the Eisenhower Memorial and the American Veterans Disabled for Life Memorial, are planned for sites in the immediate vicinity of the Switzer Building. The creation of the public plaza at the Switzer Building, when considered together with the memorials and the FOB 8 exterior improvements, would have a beneficial cumulative impact on land use in the Southwest portion of Washington, DC.

Public Space

The proposed site improvements to the Switzer Building have the potential to create cumulative impacts to public space. Two memorials, the Eisenhower Memorial and the American Veterans Disabled for Life Memorial, are planned for sites in the immediate vicinity of the Switzer Building. The creation of the public plaza at the Switzer Building, when considered together with the memorials, would have a beneficial cumulative impact on public space in the area (generally within two blocks of site). In addition, the coordination of the Switzer site improvements with those planned at FOB 8 and the Humphrey and Cohen Buildings would also have beneficial impacts to public space. However, the installation of perimeter security elements along the curbline on D Street, SW, when considered together with other perimeter security projects completed or planned within Washington, DC, could adversely impact public space. The potential widespread installation of security elements within DC, if located outside of building yards, would interrupt the continuity of the area sidewalks, creating a moderate adverse impact to public space.

Historic Resources

The installation of perimeter security elements, particularly along the curbline, has the potential to generate cumulative impacts to historic resources, when considered together with the other perimeter security projects that have been recently completed or are planned within D.C. Over time, the installation of perimeter security at the curbline at the Switzer Building could increase the likelihood that property owners install perimeter security, since its placement outside of the sidewalk on D Street, SW increases the potential threat to adjacent buildings. This could generate minor adverse cumulative impacts to adjacent historic structures located within the APE, including the Cohen, LBJ and Humphrey Buildings. In addition, there could be cumulative impacts to the L'Enfant Plan. The relationship between the vehicular rights-of-way and building yards are important features of the plan. Perimeter security placed between the sidewalk and the vehicular right-of-way

interrupt these relationships, potentially contributing to a moderate adverse impact on the L'Enfant Plan.

Visual Resources

Drafted by GSA, the *3rd and C Street Urban Design Guide* seeks to establish common approaches to streetscape alignment and treatment within a four block area that includes FOB 8, and the Switzer, Cohen, and Humphrey Buildings. The improvement of the Switzer Building, if undertaken in accordance with the principles established by the guide, could create beneficial cumulative impacts to visual resources within the four-block area through the installation of street trees and common streetscape elements.

The installation of perimeter security at the Switzer Building, when considered together with other constructed or planned perimeter security within the area of visual influence, has the potential to adversely impact visual resources. Impacts would be greater where security is placed along the curbline, as proposed on D Street, SW, as it would interrupt the open visual relationship between the sidewalks and the vehicular right-of-way. Further, security elements crossing the sidewalk would interrupt continuous views from the walkways. Overall, cumulative impacts to visual resources could be moderate adverse.

Vegetation

Each of the action alternatives would require the removal of trees on the Switzer site and on the north side of C Street, SW. When considered together with the removal of vegetation at FOB 8, the Switzer site improvements could contribute to a moderate adverse impact to vegetation. However, both projects would add street trees and convert an existing parking lot to a landscaped plaza, resulting in a beneficial cumulative impact to vegetation.

Stormwater Management

The conversion of the surface parking lot to a landscaped plaza and the incorporation of LID measures into the design, including the filtration and capture of stormwater, would have beneficial impacts on stormwater volume and quality on the site. These improvements, when considered together with the proposed stormwater improvements at FOB 8, would further contribute to a cumulative beneficial impact.

Energy Use and Sustainability

The Switzer Building site improvements would potentially reduce energy use and enhance sustainability on the site. These improvements, when considered together with the site improvements proposed at FOB 8, could contribute to a beneficial cumulative impact to energy use and sustainability, due to the potential reduction in the urban

heat island effect and the implementation of sustainable measures in the design.

Vehicular Circulation

If construction of the Switzer site improvements occurs simultaneously with other projects in the area, this could contribute to a minor short-term adverse cumulative impact to vehicular circulation on area rights-of-way. However, based on current schedules, FOB 8 and Switzer are not anticipated to be under construction at the same time. There could be a long-term beneficial cumulative impact to vehicular circulation due to the proposed reduction in parking, as it could reduce traffic on area roadways.

Pedestrian Circulation

Each of the action alternatives would impede pedestrian flow along D Street, SW. Visitors to the Eisenhower Memorial could potentially employ D Street, SW to access the metro. This, coupled with the potential increase in visitation to the area due to the memorials, would have a minor to moderate adverse cumulative impact on pedestrian circulation. Further, the placement of perimeter security elements within the sidewalk on D Street, SW could contribute to a moderate adverse cumulative impact to the pedestrian circulation network in the area (generally within two blocks of the site), if adjacent buildings also install perimeter security outside of the building yards. These elements would hinder pedestrian flow, particularly during peak periods.

Public Transportation

If construction of the Switzer site improvements occurs simultaneously with other projects in the area, this could contribute to a minor adverse cumulative impact to Metrobus routes, due to the need to temporarily relocate bus stops. However, based on current schedules, FOB 8 and Switzer are not anticipated to be under construction at the same time.

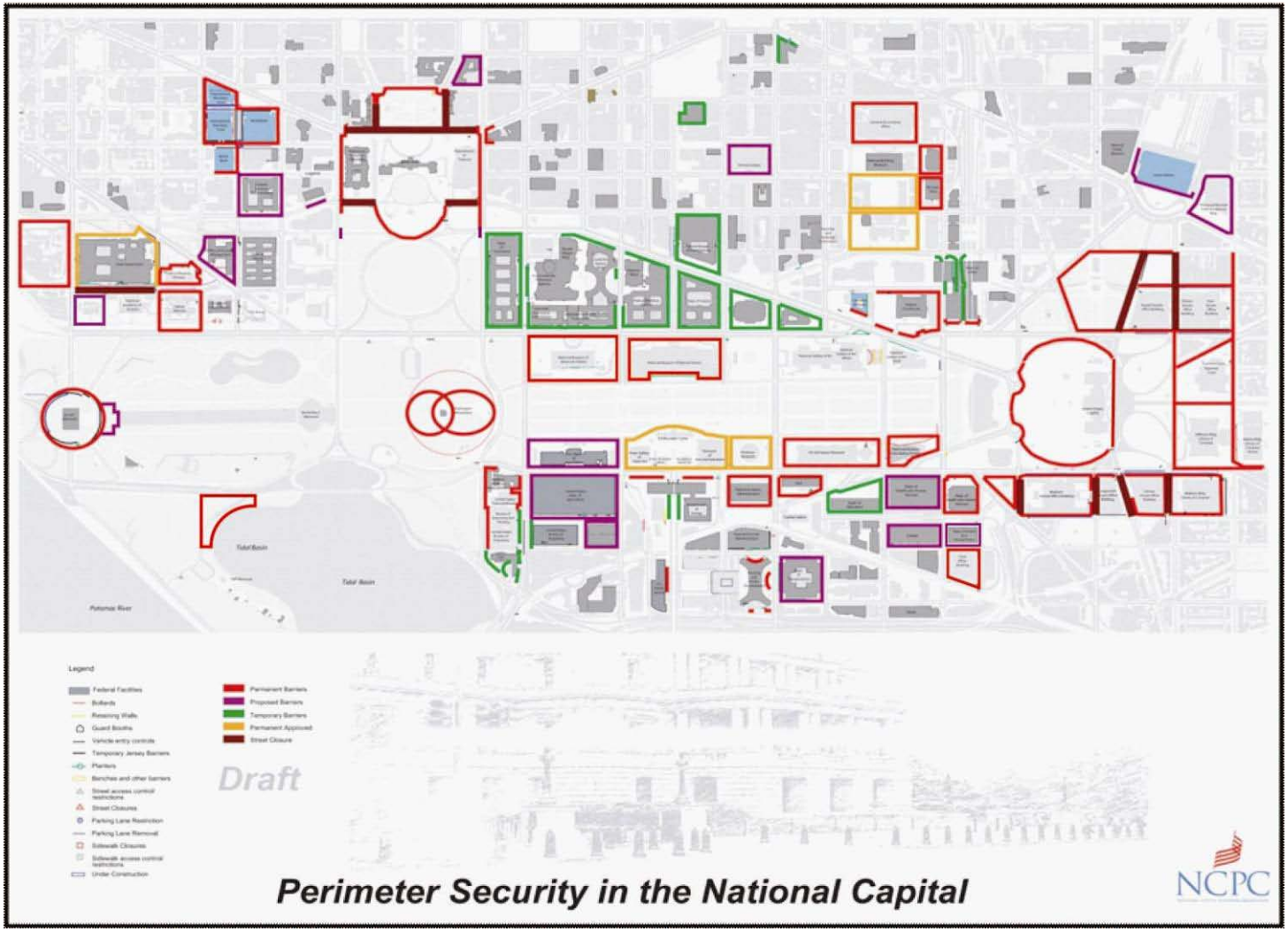


Figure 3-26 District-wide Perimeter Security Projects
Source: NCPC 2007; AECOM 2009 (revisions)

4.0 APPENDIX

This page intentionally left blank

4.1 SOURCES

Bockheim, J.G. 1974. *Nature and Properties of Highly Disturbed Urban Soils*. Philadelphia, Pennsylvania. Paper presented before Div. S-5, Soil Science Society of America, Chicago, Illinois.

Burba, George, Jason A. Hubbart, and Michael Pidwirny. 2006. "Evapotranspiration". *Encyclopedia of Earth*. Eds. Cutler J. Cleveland (Washington, D.C.: Environmental Information Coalition, National Council for Science and the Environment). Available online at http://www.eoearth.org/article/Evapotranspiration.

"Careful Planning." *Washington Post (1923-1954)*. 29 Jul. 1993. Retrieved from ProQuest Historical Newspapers The Washington Post (1877 – 1993). Pg. 6X.

Council on Environmental Quality. December 2007. A *Citizen's Guide to the NEPA: Having your Voice Heard*. Available online at: http://ceq.hss.doe.gov/nepa/Citizens_Guide_Dec07.pdf.

Davis, A.M., C.S. Southworth, J.S. Schindler, and J.E. Reddy. 2001. Geologic Map Database of the Washington DC Area Featuring Data from Three 30x60 Minute Quadrangles: Frederick, Washington West, and Frederickburg. U.S. Geologic Survey, Reston, Virginia. Available online at http://pubs.usgs.gov/openfile/of01-227/.

District of Columbia. Municipal Regulation, Title 21, Chapter 11. Water Quality Standards for Surface Water. Amended April 5 and May 24, 2002. Effective January 24, 2003.

District of Columbia. Municipal Regulation, Title 24, Chapter 1. Public Space and Safety. Amended May 3 and July 12, 2002. Effective December 1996.

District of Columbia Department of Transportation. December 2003. Departmental Order No 301.03.

District of Columbia Department of Transportation. *Design and Engineering Manual*. April 2009.

District of Columbia Department of Transportation. *District of Columbia Bicycle Master Plan*. April 2005. Available online at http://ddot.dc.gov/DC/DDOT/On+Your+Street/Bicycles+and+Pedestrians/Bicycles/Bicycle+Master+Plan.

District of Columbia Department of Transportation. August 22, 2006. Functional Classification Map.

District of Columbia Department of Transportation. 2007. *Public Realm Design Handbook*.

District of Columbia Department of Transportation. 2008. Traffic Volume Map. Available online at http://ddot.dc.gov/DC/DDOT/About+DDOT/Maps/ci.Traffic+Volume+Maps.print.

District of Columbia Department of Transportation. 2005. *Transportation Architecture Design Guideline, Chapter 3: Functional Classification*.

District of Columbia Department of Transportation. March 2009. Washington DC Bicycle Map. Available online at http://ddot.dc.gov/DC/DDOT/About+DDOT/Maps/Bike+Map+2010+-+Side+1+-+Entire+Downtown+Side+(31+inches+x+24+inches) .

District of Columbia Office of Planning. 2006. *Comprehensive Plan for the National Capital: District Elements.*

District of Columbia Office of Planning. DC Inventory of Historic Sites. Accessed online at http://planning.dc.gov/planning/frames.asp?doc=/planning/lib/planning/preservation/hp_inventory/inventory_narrative_sep_2004.pdf.

District of Columbia Office of Planning. 2010. Public Space: Important Definitions.

Environmental Protection Agency. 2009. *Heat Island Effect.* Available online at http://www.epa.gov/hiri/.

"Executive Order No. 13514: Federal Leadership in Environmental, Energy, and Economic Performance." Federal Register 74: 194 (Oct. 8, 2009) p. 52117-52127.

Federal Emergency Management Agency. 2010. Flood Insurance Rate Map, District of Columbia, Washington, D.C. Map number 1100010019C (Future map). Accessed online at http://www.fema.gov/.

General Services Administration. October 1999. *National Environmental Policy Act (NEPA) Desk Guide.*

General Services Administration. Historic Buildings Inventory. Last accessed April 21, 2010 at http://www.gsa.gov/Portal/gsa/ep/contentView.do?contentType=GSA_OVERVIEW&contentId=14925.

Geothermal Heat Pump Consortium. Rev. 2007. *Information for Evaluating Geoexchange Applications*. Prepared for the New York State Energy Research and Development Authority. Accessed online at http://www.nyserda.org/programs/geothermal/geothermal_manual.pdf.

Green DC. 2010. *The Green Guide.* Available online at http://rrc.dc.gov/green/lib/green/pdfs/Green_Glossary.pdf.

Jacobs Engineering. March 2010. Modernization for Mary E. Switzer Building High Performance Green Building Transformation: Energy and Water Conservation Workbook – Part 1.

Interagency Security Committee. 2003. *ISC Security Design Criteria for New Federal Office Buildings and Major Modernization Projects*. Washington, DC: General Services Administration.

Low Impact Development Center. 2003. *LID Sustainable School Projects Website Glossary*. Available online at http://www.lowimpactdevelopment.org/school/glossary.html#P.

Mehnert, Edward. Illinois State Geological Survey. 2004. *The Environmental Effects of Ground-Source Heat Pumps – A Preliminary Overview*. Last accessed May 20, 2010 at http://library.isgs.uiuc.edu/Pubs/pdfs/ofs/2004/ofs2004-02.pdf.

National Capital Planning Commission. 2004. *Comprehensive Plan for the National Capital: Federal Elements.*

National Capital Planning Commission. 2002. *The National Capital Urban Design and Security Plan.*

National Capital Planning Commission and U.S. Commission of Fine Arts. 2008. *National Capital Framework Plan.*

National Park Service. 2005. *American Veterans Disabled for Life Environmental Assessment*.

National Capital Planning Commission, National Park Service, and Government of the District of Columbia. March 2010. *Final Draft CapitalSpace Plan*.

National Park Service. National Register of Historic Places Database. Last accessed May 15, 2010 at http://nrhp.focus.nps.gov/natreghome.do?searchtype=natreghome.

National Park Service. 2006. *Proposed Dwight D. Eisenhower Memorial Site Selection Environmental Assessment*.

O.R. George & Associates, Inc. 2008. Revised April 2010. *Traffic Data and Engineering Survey for the Neighborhood of Third Street and C Street, Southwest, Washington, DC*.

Pedestrian and Bicycle Information Center. 2010. Crossing Enhancements. Last accessed June 21, 2010 at http://www.walkinginfo.org/engineering/crossings-enhancements.cfm#curb-extensions.

Scheyer, J.M., and K.W. Hipple. 2005. *Urban Soil Primer*. United States Department of Agriculture, Natural Resources Conservation Service, National Soil Survey Center, Lincoln, NE. Available online at http://soils.usda.gov/use/urban/primer.html.

URS. August 2009. *Emergency Generator Studies.*

United States Department of Agriculture (USDA), Soil Conservation Service (SCS). 1976. Soil Survey of District of Columbia. USDA, SCS in cooperation with U.S. Department of Interior, National Park Service, National Capital Parks. United States Geologic Survey (USGS). 1983. Washington West [DC,MD,VA] 7.5 Minute Quadrangle. Reston, Virginia.

William H. Gordon Associates, Inc. 2010. Topographic Survey of Mary E. Switzer Building Southwest Washington D.C.

4.2 PREPARERS

Alan Harwood, AICP, Principal in Charge
M.U.R.P., Urban Planning and Real Estate Development, 1991, George Washington University
B.S., Geography, 1983, University of South Carolina

Stephanie Dyer-Carroll, AICP, Project Manager/Historic Preservation Specialist
M.A., Architectural History, 1994, University of Virginia
B.A., Art History, 1989, Georgetown University

Susan Bemis, Planner
M.U.E.P., Urban and Environmental Planning, 2009, University of Virginia
B.A., Policy Studies, 2004, Dickinson College

Edward Switzer, LEED AP, Environmental Planner
B.S., Urban and Regional Studies, 2006, Cornell University

Jeanette Ankoma-Sey, ASLA, Associate
M.L.A. (Landscape Architecture), 2004, Cornell University
B.S., Horticulture, 2001, Virginia Polytechnic Institute and State University (Virginia Tech)
University of the Orange Free State, Republic of South Africa, Grassveld Sciences, 2000

John Van Kirk, Associate
M.A., Geography, 1994, University of California, Santa Barbara
B.A., Geography and Environmental Studies, 1986, University of California, Santa Barbara

Devin MacDonald, Graphic Designer
B.F.A., Graphic Design, 2009, University of Michigan

Julie Noble, Project Assistant
B.S., Biology, 2006, Virginia Polytechnic Institute and State University (Virginia Tech)

4.3 DISTRIBUTION LIST

Ms. Kirsten Brinker Kulis
GSA Liaison
Advisory Council on Historic Preservation
Old Post Office Building
1100 Pennsylvania Avenue, NW
Washington, DC 20004

Mr. David Sobelsohn
Commissioner ANC 6D02
Advisory Neighborhood Commission 6D
PO Box 71156
Washington, DC 20024

Mr. William B. Owenby
CPCM, Project Executive
American Veterans Disabled For Life Memorial
807 Maine Avenue, SW
Washington, DC 20024

Mr. Stephen T. Ayers
Architect of the Capitol
US Capitol Building, Room SB15
Washington, DC 20515

Mr. Piero Ciancio
Chief
Facilities Management Division
International Broadcasting Bureau
330 Independence Avenue, SW
Washington, DC 20237

Mr. Thomas Luebke
Secretary
Commission of Fine Arts
401 F Street, NW
Washington, DC 20001

Mr. Frederick Lindstrom
Assistant Secretary
Commission of Fine Arts
401 F Street, NW
Washington, DC 20001

Ms. Laura M. Richard, Esq.
Chair
Committee of 100 on the Federal City
1317 G Street, NW
Washington, DC 20005

Mr. Don Hawkins
Chair Emeritus
Committee of 100 on the Federal City
1317 G Street, NW
Washington, DC 20005

The Honorable Tommy Wells
Council of the District Columbia
1350 Pennsylvania Avenue, NW
Suite 408
Washington, DC 20004

Ms. Dinah Bear
General Counsel
Council on Environmental Quality
722 Jackson Place, NW
Washington, DC 20503

Mr. Horst Greczmiel
Associate Director for NEPA Oversight
Council on Environmental Quality
722 Jackson Place, NW
Washington, DC 20503

Mr. David Maloney
State Historic Preservation Officer
DC Historic Preservation Office
1100 4th Street, SW
Suite E650
Washington, DC 20024

Ms. Rebecca Miller
Executive Director
DC Preservation League
401 F Street, NW
Washington, DC 20001

Mr. Erik Hein
Program Coordinator
DC Preservation League
401 F Street, NW
Washington, DC 20001

Christophe A. G. Tolou
Director
District of Columbia Department of the Environment
1200 First Street, NE
5th Floor
Washington, DC 20002

Mr. William Howland
Director
District of Columbia Department of Public Works
2000 14th Street, NW
Washington, DC 20009

Mr. Gabe Klein
Director
District of Columbia Department of Transportation
2000 14th Street, NW
Washington, DC 20009

Mr. Chris Ziemann
Transportation Planner
District of Columbia Department of Transportation
2000 14th Street, NW
Washington, DC 20009

Ms. Rachel MacCleery
Ward 6 Transportation Planner
District of Columbia Department of Transportation
2000 14th Street, NW
Washington, DC 20009

Captain Chris Roggerson
DC Fire and Emergency Medical Services Department
Office of the Fire Marshall
1923 Vermont Avenue, NW
Washington, DC 20001

Ms. Harriet Tregoning
Director
District of Columbia Office of Planning
1100 4th Street, SW
Suite E650
Washington, DC 20024

Mr. Chris Shaheen
Revitalization Program Manager
District of Columbia Office of Planning
1100 4th Street, SW
Suite E650
Washington, DC 20024

Ms. Patsy Fletcher
Community Liaison
District of Columbia Office of Planning
1100 4th Street, SW
Suite E650
Washington, DC 20024

Ms. Robin-Eve Jasper
Director
District of Columbia Department of Real Estate Services
Frank D. Reeves Municipal Center
2000 14th Street, NW
Washington, DC 20009

Chief Cathy L. Lanier
District of Columbia Police Department
Government of the District of Columbia
300 Indiana Avenue, NW
Washington, DC 20001

Mr. George S. Hawkins
General Manager
District of Columbia Water and Sewer Authority
5000 Overlook Drive
Washington, DC 20032

Mr. Dan Feil
Executive Architect
Dwight D. Eisenhower Memorial Commission
1629 K Street, NW
Suite 801
Washington, DC 20006

The Honorable Adrian Fenty
Mayor of the District of Columbia
Executive Office of the Mayor
1350 Pennsylvania Avenue, NW
Suite 316
Washington, DC 20004

Mr. Jack VanDop
Senior Technical Specialist
Federal Highway Administration
21400 Ridgetop Circle
Sterling, VA 20166

Ms. Joy Ford Austin
Executive Director
The Humanities Council of Washington, DC
925 U Street, NW
Washington, DC 20001

Martin Luther King, Jr. Memorial Library
901 G Street, NW
Washington, DC 20001

Mr. Marcel C. Acosta, AICP
Executive Director
National Capital Planning Commission
401 9th Street, NW
Washington, DC 20004

Ms. Nancy Witherell
Historic Preservation Officer
National Capital Planning Commission
401 9th Street, NW
Washington, DC 20004

Mr. David Levy
Director
Urban Design and Plan Review Division
National Capital Planning Commission
401 9th Street, NW
Washington, DC 20004

National Capital Planning Commission, Library
National Capital Planning Commission
401 9th Street, NW
Washington, DC 20004

Dr. Judy Scott Feldman
Chair
National Coalition to Save Our Mall
P.O. Box 4709
Rockville, MD 20849

Mr. George Oberlander, AICP
National Coalition to Save Our Mall
P.O. Box 4709
Rockville, MD 20849

Mr. Peter May
Associate Regional Director
National Park Service
National Capital Region
1100 Ohio Drive, SW
Washington, DC 20242

Ms. Perry Wheelock
Chief of Cultural Resources
National Park Service
National Capital Region
1100 Ohio Drive, SW
Washington, DC 20242

Ms. Susan Spain
Project Executive
National Park Service
National Mall & Memorial Parks
900 Ohio Dr., SW
Washington, DC 20024

Ms. Elizabeth Merritt
Deputy General Counsel
National Trust for Historic Preservation
1785 Massachusetts Avenue, NW
Washington, DC 20036

Mr. Rob Nieweg
Director of the Southern Field Office
National Trust for Historic Preservation
1785 Massachusetts Avenue, NW
Washington, DC 20036

Mr. James Pringle
Senior Account Manager
Potomac Electric Power Company
3400 Benning Road, NE
Washington, DC 20019

Ms. Jane Passman
Senior Facilities Master Planner
Smithsonian Institution
Office of Facilities Planning & Resources
PO BOX 37012 MRC 511
Washington, DC 20560

Southwest Neighborhood Library
900 Wesley Place, SW
Washington, DC 20024

Southeast Neighborhood Library
403 7th Street, SE
Washington, DC 20003

Ronald A. Sarasin
President
U.S. Capitol Historical Society
200 Maryland Avenue, NE
Washington, DC 20002

Mr. Phillip D. Morse
Chief
U.S. Capitol Police
119 D Street, NE
Washington, DC 20510

The Honorable Arne Duncan
Secretary of Education
Washington, DC 20202

The Honorable Kathleen Sebelius
Secretary of Health and Human Services
Washington, DC 20201

Mr. James Windsor
Director
Division of Operations and Maintenance
U.S. Department of Health and Human Services
200 Independence Ave, SW
Room 320E
Washington, DC 20201

Mr. Willie R. Taylor
Director
U.S. Department of the Interior
Office of Environmental Policy and Compliance
1849 C Street, NW
Washington, DC 20240

Ms. Barbara J. Rudnick
NEPA Team Leader
U.S. Environmental Protection Agency
1650 Arch Street
Philadelphia, PA 19103

Ms. Karen DelGrosso
NEPA Specialist
U.S. Environmental Protection Agency
1650 Arch Street
Philadelphia, PA 19103

The Honorable Eleanor Holmes Norton
U.S. House of Representatives
Washington, DC 20515

Mr. Stephen S. Smith
Associate Director for Management
Voice of America
330 Independence Avenue, SW
Washington, DC 20237

Mr. Eric Gililland
Executive Director
Washington Area Bicyclists Association
2599 Ontario Road, NW
Washington, DC 20009

Mr. Terry McCallister
Chairman and Chief Executive Officer
Washington Gas
6801 Industrial Road
Springfield, VA 22151

Mr. Richard Sarles
Interim General Manager
Washington Metropolitan Area Transit Authority
600 Fifth Street, NW
Washington, DC 20001

Mr. Ed Riley
Office of Engineering and Architecture
Washington Metropolitan Area Transit Authority
600 Fifth Street, NW
Washington, DC 20001

Mr. John Magarelli
Office of Planning and Project Development
Washington Metropolitan Area Transit Authority
600 Fifth Street, NW
Washington, DC 20001

Mr. Edward Collins
Vice President
The Washington Design Center
300 D Street, SW
Washington, DC 20024

4.4 DRAFT MEMORANDUM OF AGREEMENT (JULY 6, 2010)

This page intentionally left blank

DRAFT MEMORANDUM OF AGREEMENT BETWEEN
THE U.S. GENERAL SERVICES ADMINISTRATION AND
THE DISTRICT OF COLUMBIA, STATE HISTORIC PRESERVATION OFFICER
REGARDING SITE IMPROVEMENTS AT THE MARY E. SWITZER BUILDING

This Memorandum of Agreement (MOA) is entered into as of this XX day of July, 2010, by the United States General Services Administration (GSA), and the District of Columbia State Historic Preservation Officer (SHPO), referred to collectively herein as the "Parties" or "Signatories" or individually as a "Party" or "Signatory" pursuant to Section 106 of the National Historic Preservation Act (NHPA). 16 U.S.C., and its implementing regulations 36 CFR Part 800.

WHEREAS, GSA will undertake site improvements at the Mary E. Switzer Building (Switzer Building).located at 330 C Street, SW, Washington, DC and has entered into consultation with the SHPO to address the adverse effects of the proposed site improvements on the Switzer Building, the Wilbur J. Cohen Building (Cohen Building), and the L'Enfant Plan, properties which are listed in the National Register of Historic Places; and

WHEREAS, the Undertaking is defined as the site improvements at the Switzer Building including the installation of a landscaped plaza and a small surface parking lot, the installation of permanent perimeter security, the erection of an architectural or public art element to mask an exhaust vent on C Street, SW at the end of the existing parking ramp, the potential construction of another public art element on C Street, SW near the west end of the block, and the installation of a ground source heat pump; and

WHEREAS, GSA has defined the Undertaking's Area of Potential Effects (APE)(Appendix A) as the area bounded by 6th Street, SW in the west, north to Independence Avenue; east on Independence Avenue to 2nd Street, SW; south on 2nd Street, SW to Virginia Avenue, SW; and northwest on Virginia Avenue, SW to 6th Street, SW; and

WHEREAS, GSA is conducting an Environmental Assessment (EA) for the Undertaking and has coordinated its Section 106 consultation with the National Environmental Policy Act (NEPA) in accordance with 36 CFR § 800.8(a); and

WHEREAS, in consultation with the SHPO, GSA has determined that the security design placed within the public realm along D Street, SW will have an adverse effect on the L'Enfant Plan; and that the garden wall located within the building yard on 3rd and 4th Streets, SW will have an adverse effect on the Switzer Building; and that the architectural or public art element or elements adjacent to C Street may have an adverse effect on the Switzer Building, the Cohen Building, and the L'Enfant Plan, depending on their its height and mass; and

WHEREAS, in consultation with the SHPO, GSA has determined that the installation of the ground source heat pump has the potential to disturb potential archaeological resources, in two locations that may be undisturbed; and

WHEREAS, GSA has identified in this consultation that there are no federally recognized Indian tribes in the District of Columbia and GSA, in consultation with the SHPO, will make a good faith effort to identify and contact other appropriate Indian tribes that may attach religious and cultural significance to any historic property that may be affected by the Undertaking; and

WHEREAS, GSA has notified the Advisory Council on Historic Preservation (ACHP) of the adverse effect determination and they have elected not to participate in the consultation; and

WHEREAS, GSA has consulted with the SHPO, the Commission of Fine Arts (CFA), the National Capital Planning Commission (NCPC), various departments of the District of Columbia, and other interested organizations to avoid, minimize, and mitigate the adverse effects and has coordinated public participation through the National Environmental Policy Act.

WHEREAS, GSA has identified the following as consulting parties: NCPC, the Washington Design Center, the Architect of the Capitol, the International Broadcasting Bureau, the District of Columbia Office of Planning, the Dwight D. Eisenhower Memorial Commission, and the Disable Veterans LIFE Memorial Foundation; and

WHEREAS, GSA has met with NCPC and CFA to review the Undertaking concept for the Switzer Building Site Improvements, and following the execution of this Memorandum of Agreement (MOA) and the issuance of a Finding of No Significant Impact (FONSI) in accordance with NEPA regulations, GSA will make appropriate submissions to NCPC and

CFA for their independent review and anticipated approval of the Undertaking. Procedures for review by the SHPO are identified in Stipulation I, Design Review and Consultation.

NOW THERFORE, in consideration of the terms, conditions and agreements hereinafter set forth, the Signatories hereby agree that effective upon the execution of this MOA, the Undertaking shall be implemented in accordance with the following Stipulations to take into account the effect of the Undertaking on Historic Resources.

Stipulations

GSA shall ensure that the following stipulations are implemented:

I. PLAZA AND SECURITY DESIGN

The Undertaking will be executed in accordance with the Plaza and Streetscape concept design attached as Appendix B (to be inserted). The concept is characterized by the following elements:

- A landscaped plaza will be installed on the north face of the building providing a combination of planted areas, hardscape features, a coffee/concession stand, and an 11 space surface parking lot. The lot may be designed such that it can be used as a public gathering space when not used for parking.

- Perimeter security elements will be installed on the site. All security elements on 3rd, 4th, and C Streets, SW will be kept back from the curb and placed in the building yard to minimize adverse effects on these three contributing L'Enfant rights-of-way.

- Security elements on D Street, SW will be placed between the sidewalk and the curb-line to maximize standoff due to the minimal depth of the building yard. A variety of hardened elements including benches, bollards, bike racks and lamp posts will be used to minimize the visual impact of the security features. These elements will be set at varying distances off the curb so that they can be integrated with the tree beds, minimizing the adverse effects to D

Street, SW and will be consistent with the similarly proposed security features for Federal Office Building 8, located along D Street, SW between 3rd and 2nd Streets, SW.

- An architectural or public art element or other mutually agreed upon design solution will be employed to conceal a vent shaft that will protrude from the exhaust vent on the southeast side of C Street, SW. At a minimum, it will be nine feet high. An additional public art element may be located on top of the vent on the southwest side of C Street, SW.

Mitigation Measures

- To mitigate the adverse effect of the D Street, SW security elements, GSA will undertake an extensive re-vegetation program for the building yard and the adjacent public spaces fronting the surrounding streets. The planting scheme will provide a much improved streetscape on the contributing L'Enfant Streets that border the site. In addition, sidewalks will be widened and pedestrian obstructions minimized.

- The plaza design calls for the removal of the existing C Street parking lot. This area will be restructured with a combination of planted areas, hardscape features, a coffee/concession kiosk, and an 11-space surface parking lot. Low Impact Development (LID) measures will be incorporated into the plaza design to enhance sustainability on the site, and opportunities will be sought to educate the public about green building and site design. The landscaped plaza will provide informal seating that is currently lacking in the area.

- The design of the architectural or public art element or elements, or other design solution, will be coordinated with NCPC, CFA and the SHPO.

- The drilling of the test well for the ground source heat pump will be subject to phased archaeological investigation and evaluation starting with geoarchaeological consultation to determine if intact soils/deposits are present. The investigations will be conducted by an archaeologist that meets or exceeds the pertinent qualifications in the Secretary's Professional Standards (36 CFR part 61 [1983]). All work will proceed in

accordance with the Guidelines for Archaeological Investigations in the District of Columbia (1998, as amended). Treatment of potentially eligible resources will be determined in consultation with the SHPO.

Treatment of unexpected archaeological discoveries

- GSA will ensure that the following measures for the treatment of unexpected archaeological discoveries, including human remains, will be inserted into all contracts for excavation, construction, or other ground-disturbing activity resulting from the site improvements and the ground source heat pump. The Project Area for the site improvements is identified as the "Project Site" in Appendix A.
    - In the event that a previously unidentified archaeological resource is discovered during activities in the Project Site, all ground-disturbing activities will be halted in the area of the resource and in the surrounding area where further subsurface remains can reasonably be expected to occur.
    - The DCSHPO will be notified via email and by telephone immediately upon discovery of potentially significant archaeological remains. The DCSHPO or a representative will visit the site within 48 hours of such notification, inspect the work site, and determine the nature and extent of the affected archaeological property. Construction may then continue in the project area outside the newly established boundaries of the resource area.
    - Within three (3) working days of the original notification of discovery GSA, in consultation with DCSHPO, will determine the National Register eligibility of the resource.
    - If the resource is determined to meet the National Register criteria (36 CFR 60.6), GSA will, in consultation with DCSHPO, ensure compliance with 36 CFR 800.13. Work in the resource area shall not proceed until either: (a) the development and implementation of an appropriate recovery or other recommended mitigation procedures; or (b) the determination is made that the located remains are not eligible for inclusion on the National Register.
    - GSA shall ensure that all materials and records resulting from data recovery are curated in accordance with 36 CFR Part 79 by an institution or organization selected by GSA in consultation with the DCSHPO, and that reports meet contemporary professional standards, according to the

Department of the Interior's Format Standards for Final Reports of Data Recovery Programs (42 FR 5377-79) and meet the standards as set out in Guidelines for Archaeological Investigations in the District of Columbia (1998, as amended).

- GSA shall ensure that the DCSHPO and the District of Columbia Office of the Chief Medical Examiner are immediately notified if human remains are discovered during construction. If the remains are assumed to be Native American, GSA shall ensure that all ground-disturbing activities in the immediate area of the discovery ceases immediately and stays halted until the protocols of the Native American Graves Protection and Repatriation Act of 1990 (implementing regulations (62), 43 CFR Part 10) have been carried out.

Design Review and Consultation

- *Project Document Submission*: For all outstanding design elements, GSA will prepare and submit project documents and drawings at the 35% and 65% design development stage to the SHPO for review and consultation.

- *Review and comment by the SHPO*: The SHPO will review the project documents and provide comments within 30 calendar days of receipt of each complete submittal.

- *Site Visits*: Within 10 calendar days of receipt of project documents by the SHPO, they may issue to GSA a written request for a site visit to the Property.

- *Consideration of Written Comments*: GSA will consider timely written comments to the fullest reasonable extent. Should GSA object to any comments, GSA will provide the SHPO with a written explanation of its objection and will initiate consultation with the same to resolve the objection. If no agreement is reached within 10 calendar days following GSA's receipt of SHPO's explanation, GSA will request that ACHP review the dispute pursuant to Stipulation III. GSA will proceed in accordance with the project documents as finalized if no comments are received, or after GSA has resolved the objections either informally or formally through the dispute resolution process in Stipulation III.

II. ADMINISTRATION

For purposes of this MOA, the term "parties to this MOA" means the Signatories, these being the U.S. General Services Administration and the DC State Historic Preservation Officer.

III. DISPUTE RESOLUTION

Should any party to this MOA object to any action carried out or proposed by GSA with respect to the implementation of this MOA, GSA shall consult with the objecting party to resolve the objection.

If, after initiating such consultation, GSA determines that the objection cannot be resolved through consultation, GSA shall forward all documentation including without limit, documentation of GSA's responses to the objections, as submitted by the Party or Parties relevant to the objection, to the ACHP, in accordance with 36 CFR § 800.2(b)(2). Within 30 days after receipt of all adequate documentation, the ACHP shall exercise one of the following options:

- Upon receipt of documentation from GSA, the ACHP shall review and advise GSA on the resolution of the objection. Any comment provided by the ACHP, and all comments from the parties to the MOA, will be taken into account by GSA in reaching a final decision regarding the dispute.

- If the ACHP does not provide written comments to GSA regarding the dispute within 30 days after receipt of adequate documentation, GSA may render a decision regarding the dispute. In reaching its decision, GSA will take into account all comments regarding the dispute from the parties to the MOA.

- GSA's responsibility to carry out all other actions subject to the terms of this MOA, not subject to the dispute, will remain unchanged. GSA will notify all Parties of its decision in writing before implementing an action subject to dispute under this stipulation. GSA's decision will be final.

IV. AMENDMENTS

If any Signatory to this MOA, determines that its terms will not or cannot be carried out or that an amendment to its terms must be made, that party shall immediately consult with the other parties to develop an amendment to the MOA pursuant to 36 CFR § 800.7. The amendment will be effective on the date a copy signed by all of the original Signatories is filed with the ACHP. If the Signatories cannot agree to appropriate terms to amend the MOA, any Signatory may terminate the agreement in accordance with Stipulation V.

V. TERMINATION

Any Signatory may terminate this MOA by providing 30 calendar days advance written notice to any other Signatories, provided that the Signatories consult during the 30 calendar day notice period to seek agreement on amendments or other actions that would avoid termination. In the event of termination, GSA will comply with 36 CFR § 800.3 through 800.7, with regard to individual actions covered by this MOA.

VI. EXECUTION

GSA will carry out its commitments as outlined in the MOA; however, this MOA is subject to applicable laws and regulations. As to the Signatories only, fulfillment of this MOA is subject to the Anti-Deficiency Act, 31 U.S.C. 1341 et seq., to the availability of funds. This MOA is not an obligation of funds in advance of an appropriation of such funds, and it does not constitute authority for the expenditure of funds. If a Signatory does not have sufficient funds available to fulfill the stipulations of this MOA, such Signatory shall so notify the other Signatories and shall take such actions as are necessary to comply with all requirements of 36 CFR Part 800. Nothing in this MOA shall be deemed to authorize an expenditure of funds in violation of the Anti-Deficiency Act US.C. 1341 et seq.

VII. DURATION

This MOA will be null and void if its terms are not carried out within 5 years from the date of its execution. Prior to such time, GSA may consult with the other Signatories to reconsider the terms of the MOA and amend it in accordance with Stipulation V.

Signatures

U.S. GENERAL SERVICES ADMINISTRATION

By: _____ Date: _____

Bart Bush
Regional Commissioner
Public Buildings Service
National Capital Region

By: _____ Date: _____

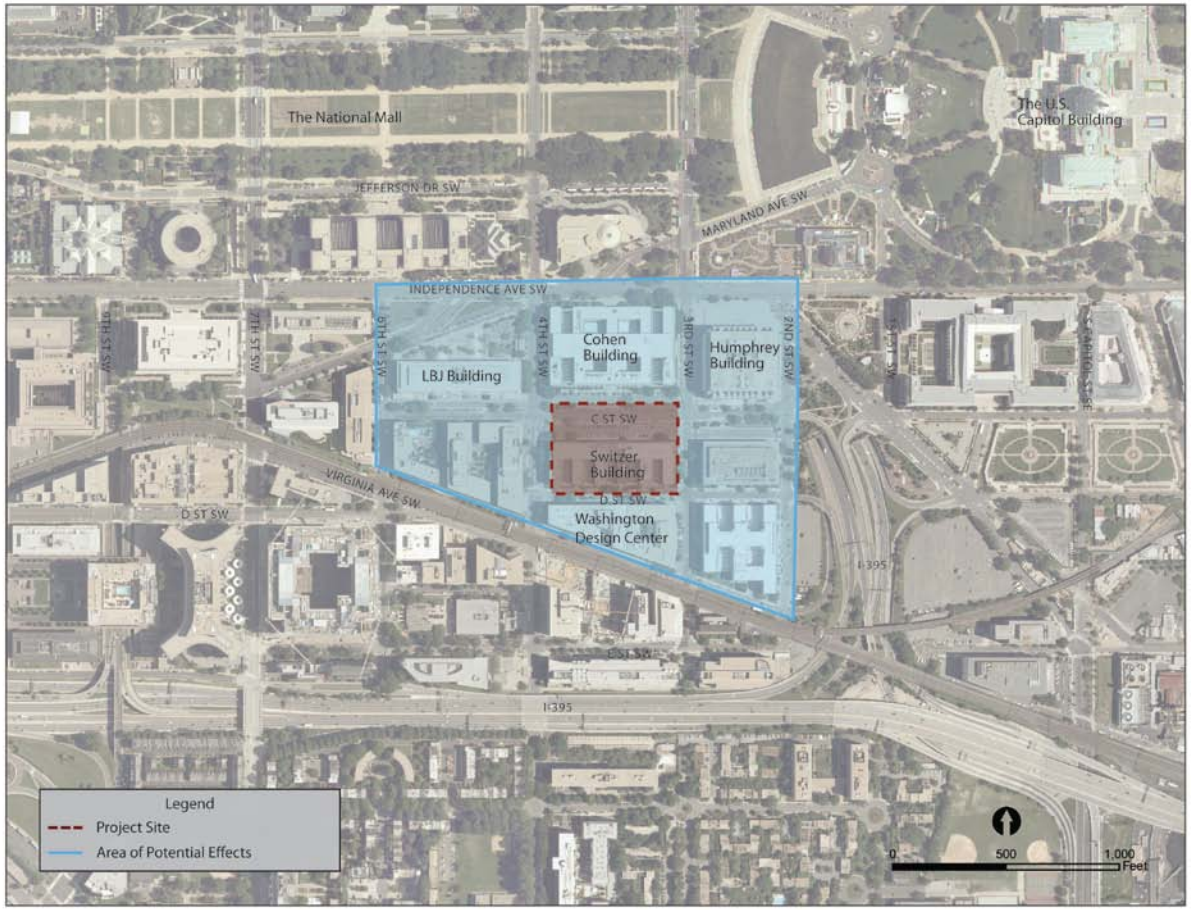
Beth L. Savage
Director, Center for Historic Buildings
Federal Preservation Officer

DISTRICT OF COUMBIA STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: _____

David Maloney
DC State Historic Preservation Officer

Appendix A: Area of Potential Effects



4.5 TRAFFIC STUDY APPENDIX

The *Traffic Data and Engineering Survey for the Neighborhood of Third Street and C Street Southwest, Washington DC Technical Memorandum – Update June 15, 2010*, prepared by O.R. George & Associates in support of the Mary E. Switzer Building Site Improvements EA is included as a separate document.

TRAFFIC STUDY APPENDIX

MARY E. SWITZER BUILDING SITE IMPROVEMENTS ENVIRONMENTAL ASSESSMENT (JULY 2010)

Traffic Data and Engineering Survey for the Neighborhood of Third Street and C Street Southwest, Washington, DC Technical Memorandum – Update June 15, 2010

This page intentionally left blank

Technical Memorandum (Update):

SUPPLEMENTAL DATA COLLECTION AND OPERATIONAL ASSESSMENT FOR THE NEIGHBORHOOD OF THIRD STREET @ C STREET, SOUTHWEST, WASHINGTON, D.C.

Prepared for:
GENERAL SERVICES ADMINISTRATION
National Capitol Region Property Development Division
301 7th Street SW, Room 2021
Washington, D.C. 20407-0001

- Marlin H. Potter, AIA, Project Manager

Prepared by:
O. R. GEORGE & ASSOCIATES, INC.
Transportation Planning & Engineering Consultants
10210 Greenbelt Road, Suite 310
Lanham, Maryland 20706
Tel: (301) 794-7700

June 15, 2010

O. R. GEORGE & ASSOCIATES, INC.

Traffic Engineers – Transportation Planners

10210 Greenbelt Road, Suite 310 • Lanham, MD 20706-2218
Tel: (301) 794-7700 • Fax: (301) 794-4400
E-mail: ogeorge@orgengineering.com

TECHNICAL MEMORANDUM

DATE: June 15, 2010

TO: Marlin H. Potter, AIA, Project Manager
Property Development Division, General Services Administration

FROM: Osborne R. George, PE, PTOE
Lili Liang, EIT, Project Engineer

RE: Traffic Data and Engineering Survey for the Neighborhood of
Third Street and C Street, Southwest, Washington, DC

INTRODUCTION AND BACKGROUND

The District of Columbia Comprehensive Plan calls for upgrading the section of C Street between Third and Fourth Streets in the L'Enfant Plaza area of Southwest. This section of C Street, and the abutting sections of Third and Fourth Streets, serve local as well as some level of through traffic, with significant pedestrian movements at the intersections within the local area. This pedestrian activity is due largely to the number of adjacent Federal Government Buildings, the proximity to the core Monument Visitor Area to the north, and the Southwest Federal Center Metrorail Station to the south. In addition, there are currently two surface parking lots abutting the section of C Street between Third Street and Fourth Street, with access points quite close to adjacent intersections. This results in relatively complex vehicle maneuvers, which create some level of undesirable vehicle-pedestrian conflicts.

Based on earlier discussions with the City's Office of Planning (OP), and with the Department of Transportation (DDOT), the General Services Administration (GSA) has developed concepts for upgrading the subject roadway section. Furthermore, GSA has determined that traffic volume data and background analysis are required to advance the planning and design process. This work is being undertaken by the GSA Property Development Division, with coordination and reviews by the responsible DDOT Administrations.

A traffic data collection and operational assessment dated December 10, 2008 was prepared to address a roadway modification and parking access scheme. That scheme called for a common mid-block access point serving all movements into and out of the two (2) adjacent parking lots. GSA has modified the 2008 access concepts based on the items presented on the following page:

a) Reduction of the adjacent off-street parking as follows:

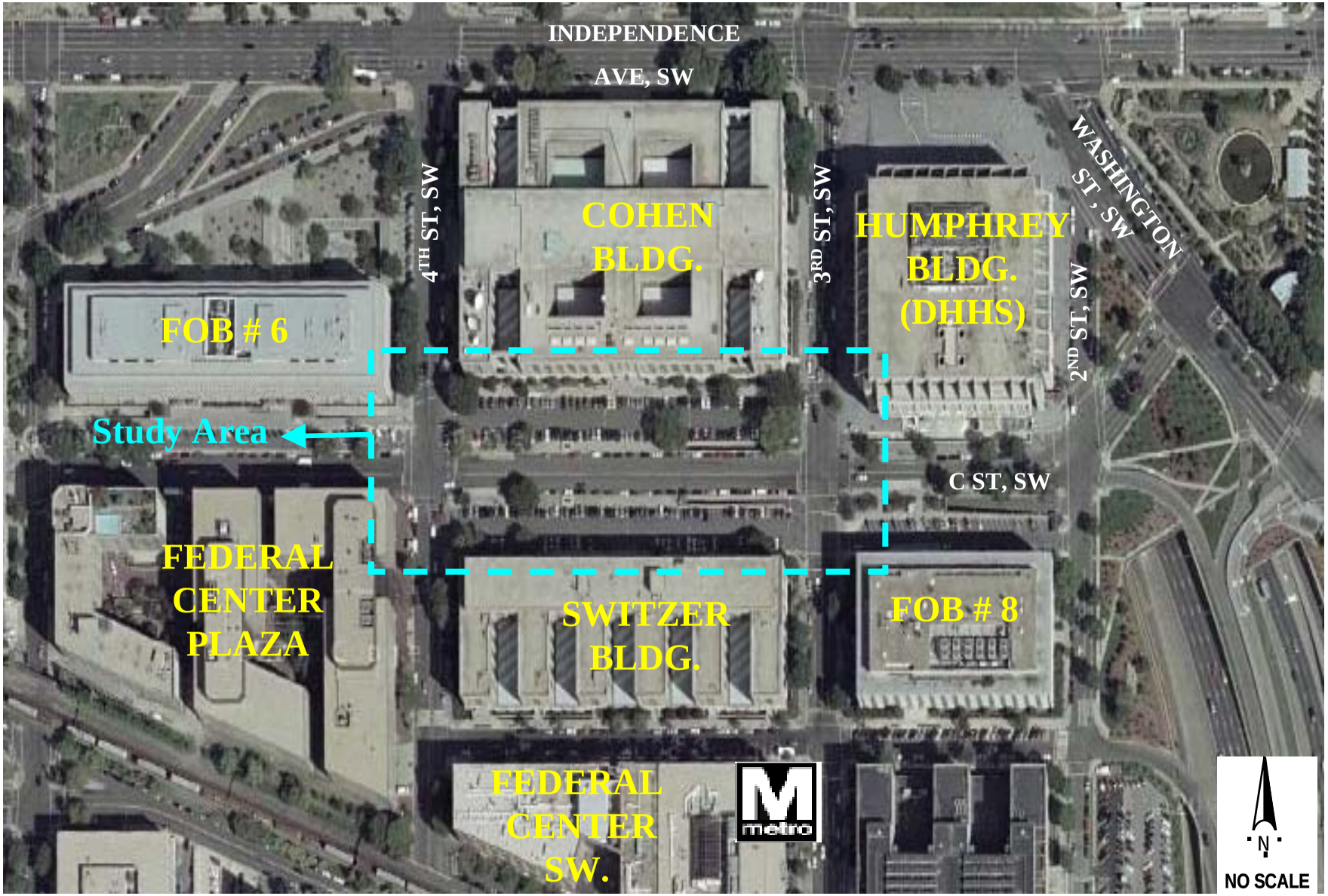
Location	2008 Concepts*	2010 Concept
• Parking Lot, North of C Street	123 Spaces	49 Spaces
• Parking Lot, South of C Street	122 Spaces	45 Spaces

* Note: The greater number of the two concepts was used.

b) Modification of the parking access from a common mid-block location to gated directional entry/exit driveways serving each lot.

This memorandum updates the December 2008 assessment. The primary objective is to determine whether the current concept for the in-bound/out-bound parking access is feasible, in terms of its impact on traffic operations within the immediate area. The assessment utilizes the 2008 traffic data as being sufficiently current and representative of typical traffic flow conditions within the area.

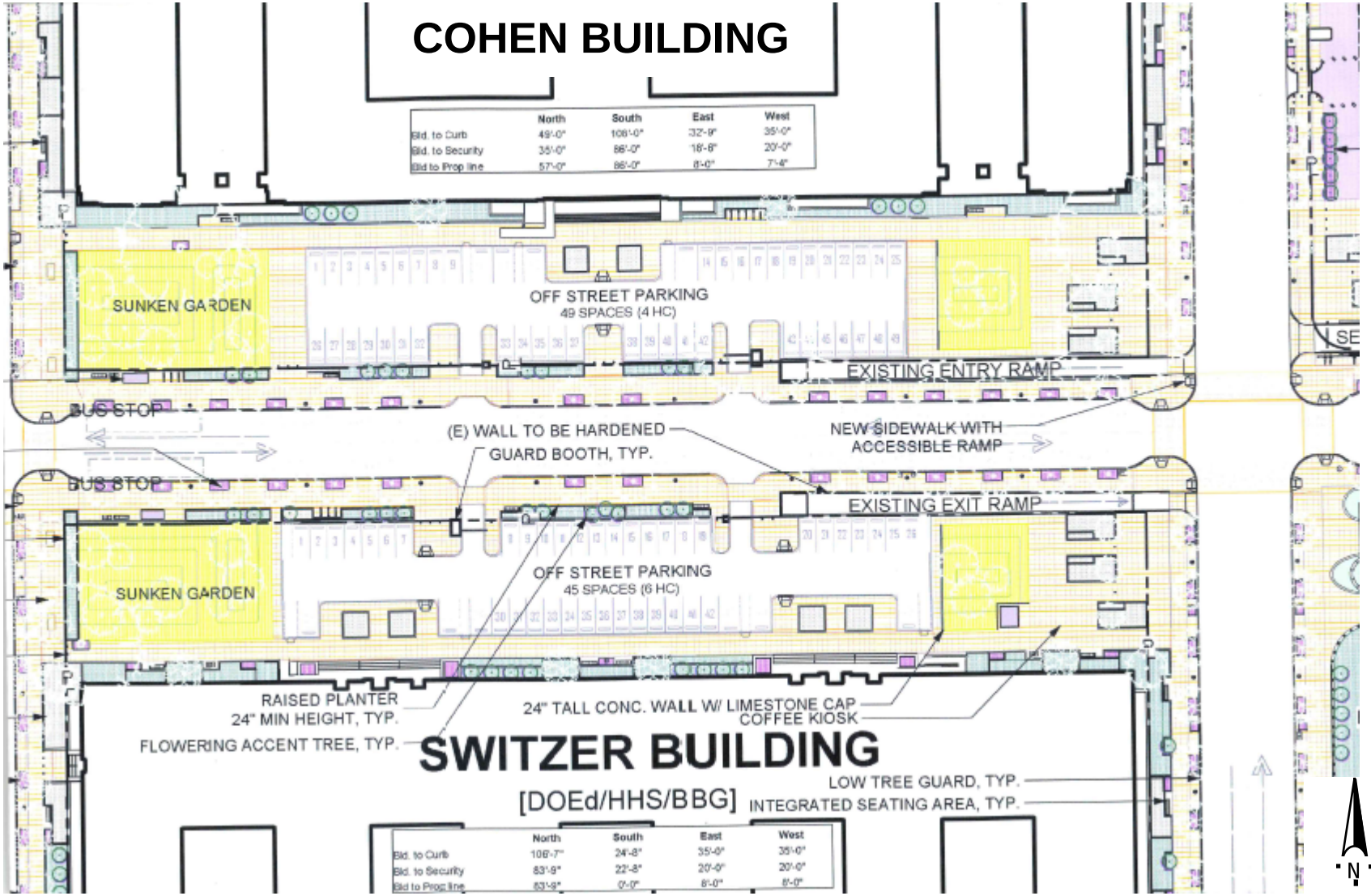
For context, Exhibit 1 (on page 3) shows the site location; and Exhibit 2 (on page 4) shows the current parking access concept. For ease of reference, the 2008 concept is included as Attachment A.



O. R. GEORGE & ASSOCIATES, INC.
Traffic Engineers - Transportation Planners

Exhibit 1: Site Location / Context Map

Traffic Data and Engineering Survey for the Neighborhood of 3rd and C Street, Southwest, Washington, DC



O. R. GEORGE & ASSOCIATES, INC.

Traffic Engineers - Transportation Planners

Exhibit 2: Current Parking and Access Concept

Traffic Data and Engineering Survey for the Neighborhood of 3rd and C Street, Southwest, Washington, DC

STUDY AREA LOCATION AND SETTING

Details of the study area setting were presented in the 2008 report. For context, the key functional and operational elements of the roadway network are summarized below:

- **C Street, SW** is designated a Collector roadway and provides a varied cross section with four (4) travel lanes west of Third Street, and two (2) lanes east of Third Street. Metered parking is provided along this roadway section, which also serves Metrobus routes, with stops within the immediate study area. The subject roadway section carries approximately 5,100 vehicles daily.

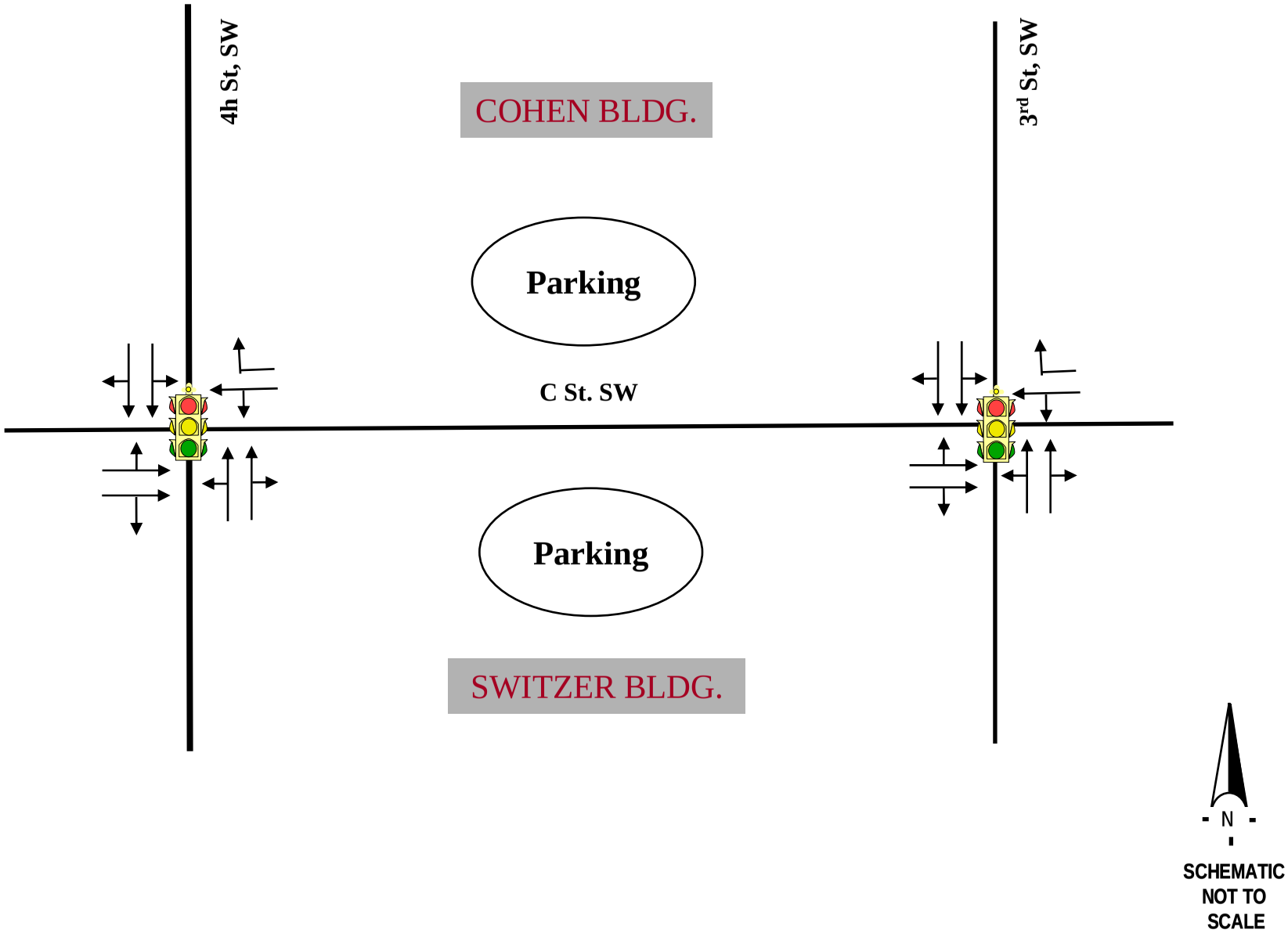
- **Third Street, SW** is designated a Collector street, and provides four (4) travel lanes through the study area. Metered parking is provided along this roadway. The adjacent section of C Street serves ADT volumes of approximately 6,600 vehicles.

- **Fourth Street, SW** is a minor arterial on the City's roadway system and provides four (4) travel lanes through the study area. Metered parking is provided along the roadway, which serves ADT volumes of 6,100 vehicles.

With respect to the data presented above for Fourth Street, SW, it is noted that the 2008 report on the subject matter utilized the Average Daily Traffic volumes for Fourth Street, at a point south of the I-395 Expressway. The volumes were as presented in the DDOT 2006 Traffic Volume Map. The current report utilizes ADT Volumes from the DDOT 2008 Traffic Volume Map; and the volumes quoted for Fourth Street above are for a point between C Street and Independence Avenue.

There are no posted speed limit signs within the immediate study area. The roadways defined above are all governed by the City's 25 MPH speed limit. The ADT data cited are based on the City's (DDOT's) 2008 Traffic Volumes Map.

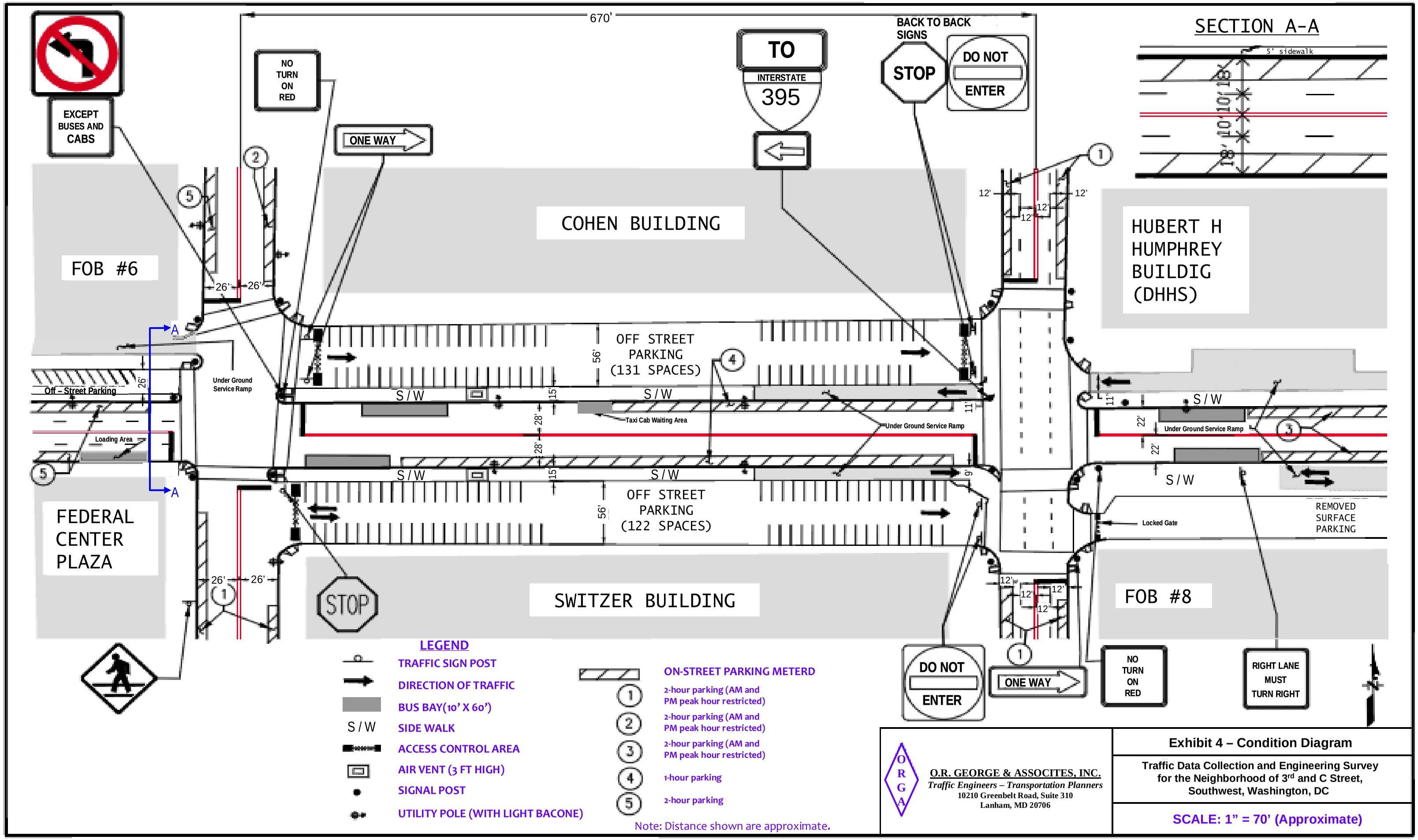
Exhibit 3 shows the existing roadway lane configuration and traffic control devices within the immediate study area. Exhibit 4 provides the "Condition Diagram," which is a representative scaled illustration of the existing physical elements of the roadways that have a bearing on traffic operations within the area.



O. R. GEORGE &ASSOCIATES, INC.
Traffic Engineers - Transportation Planners

Exhibit 3: Existing Lane Configuration

Traffic Data and Engineering Survey for the Neighborhood of 3rd and C Street, Southwest, Washington, DC



Source: Data Collection and Operational Study, December 2008, ORGA

TRAFFIC DATA AND ANALYSIS – EXISTING CONDITIONS

The 2008 data collection covered the following principal elements:

1) Twelve-hour (7:00 AM – 7:00 PM) turning movement counts for the intersections of C Street at Third Street, and C Street at Fourth Street, SW. [This count classified vehicles by major types, and included pedestrian and bicycle movements.]
2) Counts of vehicles entering and exiting the adjacent parking lots and the service ramps accessing the underground service area over the same period as in Item (1) above.
3) Inventory of the adjacent surface parking lots abutting C Street, and counts of vehicles entering and exiting the lots during the peak demand hours of the survey period.

The counts were performed during August, 2008. However, in order to validate the August 2008 data, further observations and sampling were performed in September, 2008 to confirm that the data was representative.

The functional classification and traffic data cited on page 5 of this report indicates that the volumes are well within the typical planning ranges for these roadways. However, the relatively complex geometrics of the project area (due to the adjacent parking and loading areas) were noted and considered in the analysis. (See the Exhibit 4 - Condition Diagram on page 7.)

The morning peak hour for the two (2) intersections occurred between 8:00 - 9:30 AM, and the afternoon peak hour occurred between 4:30 - 6:00 PM. Exhibit 5 shows the morning and afternoon peak hour volumes. The data also shows the following principal characteristics.

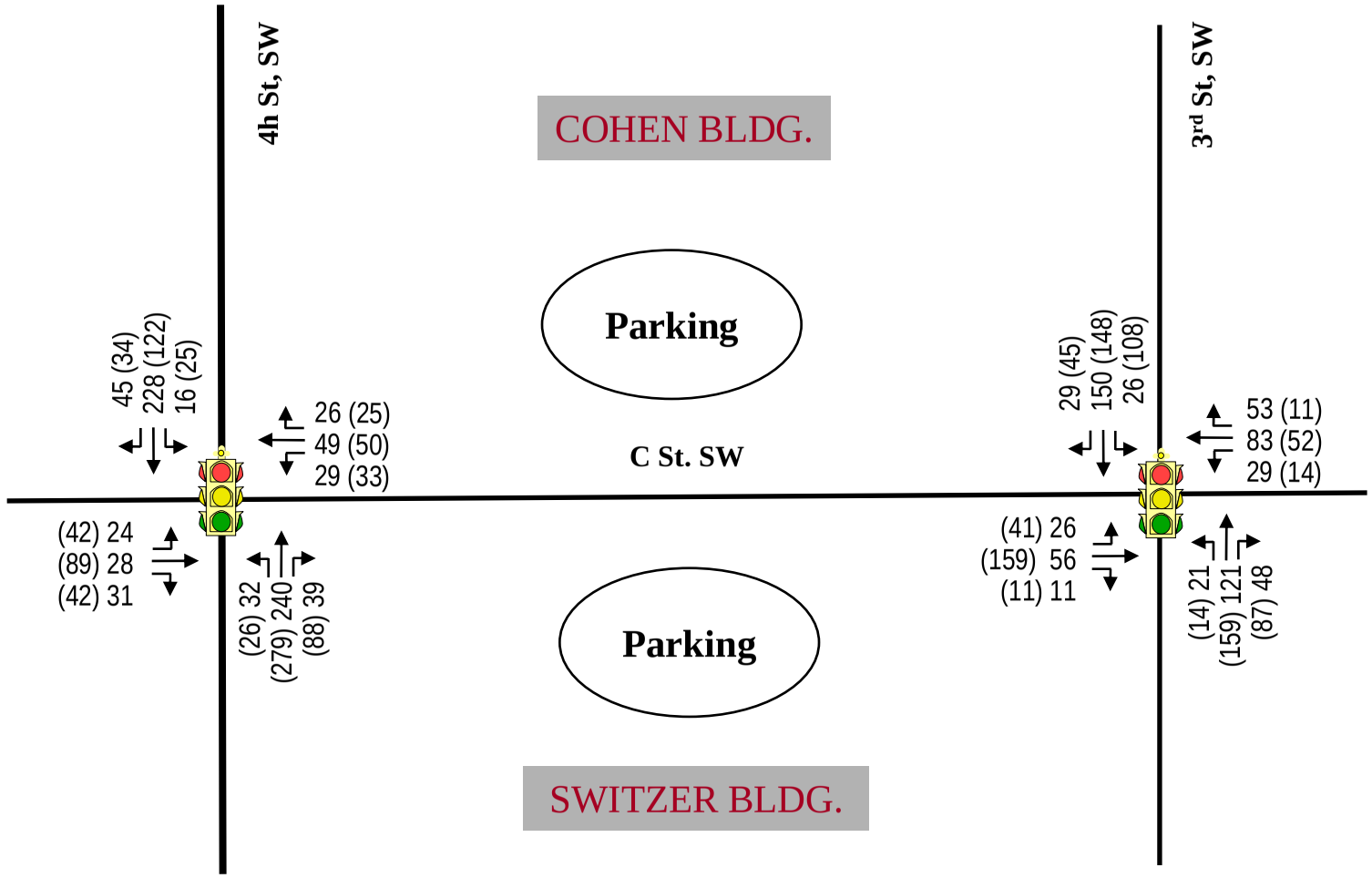
a) Fourth Street carries the heavier traffic volumes during the peak hours, and throughout the day. This is consistent with its designation as a Minor Arterial. The volumes along the roadway average 600 – 700 vehicles during the morning and afternoon peak hours.

b) Traffic volumes along Third Street are consistently lower than along Fourth Street during the peak hours, and throughout the day. This is also consistent with its "lesser" designation as a Collector roadway. Traffic volumes along this roadway are in the range of 500 – 600 vehicles during the morning and afternoon peak hours.

c) The section of C Street between Third Street and Fourth Streets carries the least traffic of the three (3) roadways. Total (two-way) traffic volumes along this roadway link average 200 vehicles per hour during the morning peak hours, and 250 – 300vehicles during the afternoon peak hours. During the off-peak periods, hourly volumes are generally well below 200 vehicles.

d) Heavy vehicles/truck traffic within the study area was noted to occur mainly during the off-peak hours (10:00 AM - 4:00 PM). These vehicles consisted mainly of delivery vehicles ranging from panel vans to single-unit trucks, some of which were serving on-going construction within the area.

In view of the objectives of the study, the traffic and pedestrian volume data were summarized in Table 1 (on page 10). In addition to the base data, Table 1 also shows the morning, mid-day and afternoon peak hour activity for the two (2) study area intersections.



Legend

00 - AM Peak Hour

(00) - PM Peak Hour

N

SCHEMATIC NOT TO SCALE

O. R. GEORGE &ASSOCIATES, INC.

Traffic Engineers - Transportation Planners

Exhibit 5: Existing Peak Hour Traffic Volumes

Traffic Data and Engineering Survey for the Neighborhood of 3rd and C Street, Southwest, Washington, DC

TABLE 1-A

12-Hour Vehicular and Pedestrian Volumes (3rd Street and C Street, SW)

Street Name / Hour Ending	3rd Street, SW				3rd Street, SW				C Street, SW				C Street, SW				Pedestrian Volumes			
	From North				From South				From East				From West				C Street, SW		3rd Street, SW	
	Left	Thru	Right	TOTAL	Left	Thru	Right	TOTAL	Left	Thru	Right	TOTAL	Left	Thru	Right	TOTAL	East Leg	West Leg	North Leg	South Leg
7:00 - 8:00 AM	15	118	30	163	18	82	35	135	21	70	39	130	20	44	13	77	176	252	84	58
8:00 - 9:00 AM	26	150	29	205	21	121	48	190	29	83	53	165	26	56	11	93	308	328	100	87
9:00 - 10:00 AM	14	127	36	177	20	133	62	215	22	47	41	110	38	33	18	89	306	269	117	75
10:00 - 11:00 AM	26	100	34	160	31	89	30	150	9	22	33	64	18	42	21	81	135	199	54	33
11:00 AM - 12:00 PM	21	117	42	180	30	97	35	162	10	30	27	67	29	31	17	77	132	219	18	42
12:00 - 1:00 PM	26	96	43	165	29	100	39	168	7	26	24	57	20	67	21	108	294	270	37	80
1:00 - 2:00 PM	46	112	50	208	20	83	48	151	10	29	26	65	28	63	6	97	315	282	110	91
2:00 - 3:00 PM	54	93	45	192	23	100	49	172	13	31	23	67	22	68	18	108	203	238	79	56
3:00 - 4:00 PM	55	97	35	187	13	89	63	165	5	42	15	62	32	132	7	171	168	294	42	52
4:00 - 5:00 PM	54	118	49	221	18	95	54	167	7	47	22	76	31	136	10	177	258	335	46	78
5:00 - 6:00 PM	108	148	45	301	14	159	87	260	14	52	11	77	41	159	11	211	294	353	30	67
6:00 - 7:00 PM	79	108	39	226	7	78	37	122	8	31	8	47	18	73	11	102	208	204	16	47
AM PEAK (8:00-9:00)	**26**	**150**	**29**	**205**	**21**	**121**	**48**	**190**	**29**	**83**	**53**	**165**	**26**	**56**	**11**	**93**	**308**	**328**	**90**	**87**
MID-DAY PEAK (12:45-1:45)	**41**	**109**	**44**	**194**	**25**	**101**	**45**	**171**	**11**	**26**	**31**	**68**	**25**	**73**	**13**	**111**	**332**	**295**	**116**	**87**
PM PEAK (5:00-6:00)	**108**	**148**	**45**	**301**	**14**	**159**	**87**	**260**	**14**	**52**	**11**	**77**	**41**	**159**	**11**	**211**	**294**	**353**	**30**	**67**

TABLE 1-B

12-Hour Vehicular and Pedestrian Volumes (4th Street and C Street, SW)

Street Name / Hour Ending	4th Street, SW				4th Street, SW				C Street, SW				C Street, SW				Pedestrian Volumes			
	From North				From South				From East				From West				C Street, SW		4th Street, SW	
	Left	Thru	Right	TOTAL	Left	Thru	Right	TOTAL	Left	Thru	Right	TOTAL	Left	Thru	Right	TOTAL	East Leg	West Leg	North Leg	South Leg
7:00 - 8:00 AM	17	156	27	200	25	136	29	190	10	28	9	47	21	27	26	74	40	113	87	74
8:00 - 9:00 AM	19	217	33	269	34	214	30	278	26	56	29	111	23	29	33	85	42	116	177	93
9:00 - 10:00 AM	20	176	46	242	30	227	40	297	22	31	33	86	28	27	43	98	29	112	157	127
10:00 - 11:00 AM	12	116	42	170	33	140	42	215	13	18	14	45	22	34	34	90	20	103	69	67
11:00 AM - 12:00 PM	18	132	46	196	20	110	29	159	24	16	20	60	16	41	42	99	20	110	78	79
12:00 - 1:00 PM	21	115	36	172	26	168	30	224	20	25	23	68	29	25	25	79	75	218	158	165
1:00 - 2:00 PM	17	134	54	205	27	131	28	186	18	22	29	69	32	42	36	110	70	281	139	175
2:00 - 3:00 PM	26	97	33	156	30	153	41	224	19	28	47	94	26	44	37	107	52	156	132	109
3:00 - 4:00 PM	33	141	32	206	17	134	59	210	13	13	14	40	26	48	30	104	68	80	106	82
4:00 - 5:00 PM	22	113	26	161	33	247	85	365	23	40	35	98	38	69	33	140	55	135	161	84
5:00 - 6:00 PM	25	147	33	205	22	298	79	399	25	38	14	77	34	88	29	151	72	108	151	79
6:00 - 7:00 PM	21	96	26	143	29	199	52	280	7	15	6	28	18	52	26	96	53	94	99	67
AM PEAK (8:30-9:30)	**16**	**228**	**45**	**289**	**32**	**240**	**39**	**311**	**29**	**49**	**26**	**104**	**24**	**28**	**31**	**83**	**49**	**108**	**198**	**116**
MID-DAY PEAK (1:00-2:00)	**17**	**134**	**54**	**205**	**27**	**131**	**28**	**186**	**18**	**22**	**29**	**69**	**32**	**42**	**36**	**110**	**70**	**281**	**139**	**175**
PM PEAK (4:30-5:30)	**25**	**122**	**34**	**181**	**26**	**279**	**88**	**393**	**33**	**50**	**25**	**108**	**42**	**89**	**42**	**173**	**53**	**119**	**141**	**75**

Traffic counts at the parking and service ramps are summarized in Table 2. The raw data for the intersections, as well as for the parking and service areas, are presented in Attachment B. This data included computations of peak hour factors for the various intersection approaches, which are relevant to the capacity and operational analysis and are discussed in the section following.

TABLE 2-A

12-HOUR VEHICULAR VOLUMES ACCESSING SURFACE PARKING

Parking Access / Time Period	Cohen Building (Surface Parking)		Switzer Building (Surface Parking)		
	Entry (#1)	Exit (#2)	Entry (#3)	Exit (#3)	Exit (#5)
7:00 - 8:00 AM	16	35*	15	2	0
8:00 - 9:00 AM	13	43*	18	4	6
9:00 - 10:00 AM	16	8	6	2	1
10:00 - 11:00 AM	8	6	4	1	1
11:00 AM - 12:00 PM	5	4	3	4	3
12:00 - 1:00 PM	4	10	8	5	1
1:00 - 2:00 PM	3	5	18	13	2
2:00 - 3:00 PM	10	6	10	8	6
3:00 - 4:00 PM	33	18	9	6	6
4:00 - 5:00 PM	24	30	12	24	4
5:00 - 6:00 PM	15	41	9	10	8
6:00 - 7:00 PM	10	29	3	12	9

* The higher exiting vehicles are due to the night-shift employees leaving Voice of America.

TABLE 2-B

12-HOUR VEHICULAR TRAFFIC ACCESSING SERVICE RAMPS

Parking Access / Time Period	Cohen & Switzer Building		Hubert H. Humphrey (DHHS) Building		FOB # 8	
	Entry (#1)	Exit (#2)	Entry (#3)	Exit (#4)	Entry (#5)	Exit (#6)
7:00 - 8:00 AM	16	4	2	2	2	0
8:00 - 9:00 AM	8	2	3	3	0	1
9:00 - 10:00 AM	4	2	5	1	3	1
10:00 - 11:00 AM	9	6	3	5	0	0
11:00 - 12:00 NOON	2	0	7	1	1	0
12:00 - 1:00 PM	5	3	1	4	1	1
1:00 - 2:00 PM	3	6	4	2	3	4
2:00 - 3:00 PM	1	2	3	0	4	1
3:00 - 4:00 PM	2	4	1	4	1	2
4:00 - 5:00 PM	0	2	0	1	13	0
5:00 - 6:00 PM	2	5	0	1	1	0
6:00 - 7:00 PM	0	0	0	0	0	0

Note: The existing parking access and service ramp numbering scheme is included in Attachment C.

Source: O. R. George & Associates.

In view of the specific purposes of the study, the hourly vehicle volumes using the subject section of C Street are summarized in Table 3 following.

TABLE 3

TYPICAL WEEKDAY VEHICLE VOLUMES
ALONG C STREET (THIRD STREET TO FOURTH STREET)

Time Period	C Street Traffic (by Direction)		Totals
	Eastbound	Westbound	
7:00 - 8:00 AM	77	47	124
8:00 - 9:00 AM	93	111	204
9:00 - 10:00 AM	89	86	175
10:00 - 11:00 AM	81	45	126
11:00 - 12:00 NOON	77	60	137
12:00 - 1:00 PM	108	68	176
1:00 - 2:00 PM	97	69	166
2:00 - 3:00 PM	108	94	202
3:00 - 4:00 PM	171	40	211
4:00 - 5:00 PM	177	98	275
5:00 - 6:00 PM	211	77	288
6:00 - 7:00 PM	102	28	130

Source: 2008 Traffic Assessment by O. R. George & Associates.

It should be noted that the above volumes includes Metro buses utilizing the stops located east of Fourth Street. These stops serve bus route P6, with an average of six (6) "runs" per hour during the peak periods, and four (4) "runs" per hour during the off-peak periods.

Consideration of the traffic operations at the two (2) adjacent intersections is relevant to the subject section of C Street, particularly with respect to queuing of vehicles within the 300 Block of C Street. The peak hour traffic volumes are shown on Exhibit 5 (on page 9). These traffic volumes were analyzed using the Highway Capacity Manual (HCM) capacity analysis procedures, in accordance with DDOT requirements. The results show that the study area intersections currently operate at quite acceptable Levels of Service (LOS), during the morning and afternoon peak hours.

The Level of Service[1] results are based on the average control delay computing all vehicles utilizing the particular intersection during the peak hours. Table 4 summarizes the capacity analysis results for the existing traffic situation, and shows LOS C (and better) for all locations. Detailed capacity analysis worksheets are presented in Attachment D.

TABLE 4

SUMMARY OF CAPACITY ANALYSIS RESULTS - EXISTING TRAFFIC CONDITIONS (PER HIGHWAY CAPACITY SOFTWARE)

Intersection	AM Peak Hour		PM Peak Hour	
	Level of Service	Avg. Delay (Sec/Veh)*	Level of Service	Avg. Delay (Sec/Veh)*
1) Third Street at C Street, SW	B	18.0	C	20.9
2) Fourth Street at C Street, SW	A	7.2	A	9.1

* Sec/Veh = Seconds per Vehicle

Source: O. R. George & Associate.

Pedestrian volumes were counted as part of the intersection turning movement counts and are shown in Table 1 (on page 10). The service measure for pedestrians at signalized intersections is the average delay experienced due to the volume of pedestrians, and the signal timing and phasing. The Highway Capacity Manual (HCM) notes the following: "*Research indicates that the average delay of pedestrians at signalized intersection crossings is not constrained by capacity, even when pedestrian flow rates reach 5,000 pedestrians per hour.*"

The pedestrian volumes observed at the study area intersections are in the range of 300-350 pedestrians per hour. Therefore, the delay was calculated based on the HCM equation using the signal cycle length and the observed effective green time available for pedestrians. This is based on current signal timing and phasing. Pedestrian levels of service were computed and presented in the 2008 Assessment report.

[1] *"Level of Service" is a qualitative measure describing operational conditions within a traffic stream or at an intersection, and their perception by roadway users. Principal factors are speed and travel time, delay, and freedom to maneuver, traffic interruptions, comfort, convenience and safety. Current engineering practice defines six (6) Levels of Service (A-F), with "A" representing best operating conditions, and Level of Service "F" representing the worst conditions. Level of Service D is generally considered by the District of Columbia as the minimum acceptable conditions for planning and design purposes*

Field observations of the bicycle traffic show low volumes during the peak hour. A qualitative assessment of the field observations indicate that the bicycle traffic should operate without any operational constraints.

A key consideration in assessing the proposed improvements is the level of queuing (current and future) that will likely occur along each end of the 300 Block of C Street. In order to determine this, the Synchro software was run incorporating the two (2) adjacent intersections as a localized "network." One of the measures of effectiveness and output of the software is the level of queuing which occurs at the approaches to each network intersections (or node). In particular, the output provides the 95th percentile queue length, which represents a good basis for planning and ultimate design of the prospective improvements. The results of the analysis are summarized in Table 5 following. SimTraffic data output sheets are presented in Attachment E.

TABLE 5
EXISTING QUEUING SITUATION FOR C STREET
(BETWEEN THIRD AND FOURTH STREETS, SW)

Direction of Flow	Assessed 95th %-ile Queue Lengths		Available Storage Length
	AM Peak Hour	PM Peak Hour	
1) C Street Eastbound Flow *(i.e., approaching 3rd Street)*	39 Ft.	84 Ft.	584 Ft.
2) C Street Westbound Flow *(i.e., approaching 4th Street)*	52 Ft.	56 Ft.	584 Ft.

* The 95th percentile queue volume indicates that this value will be exceeded only 5.0% of the time.

Source: O. R. George & Associates.

It is noted that the total available storage length along the 300 Block of C Street is approximately 580 Ft. This factor is considered in the following sections, which addresses the future traffic situation along with the proposed geometric improvements for this section of C Street (beginning on page 16). The Synchro simulation is available for presentation to the GSA and the City as one of the project deliverables.

EXISTING SAFETY SITUATION

In order to assess the traffic safety situation within the study area, crash data was obtained from the District Department of Transportation for the study area intersections. This data covered the most recent three-year period for which data is available (i.e., 2006 - 2008). Copies of the crash data are included in Attachment F. The levels of crash occurrences are summarized in Table 6.

TABLE 6

CRASH RECORD SUMMARY (2006-2008)
STUDY AREA INTERSECTIONS

Location	Crashes			Avg./ Year	MEV*	Crash Rate	Ped./Bicyclist Involvement
	2006	2007	2008				
1) Third Street at C Street, SW	4	4	6	4.67	3.72	1.26	None
2) Fourth Street at C Street, SW	5	0	2	2.33	3.74	0.62	None

* MEV = Million Entering Vehicles.

Source: DDOT and O. R. George & Associates.

The crash rate is defined as the number of crashes per million entering vehicles (MEV's) for intersections. The MEV's were developed by estimating average annual traffic based on the existing peak hour traffic volumes, and applying procedures recommended by The Institute of Transportation Engineers.

Typically, an intersection with crash a rate of 2.0 (and greater) warrants further evaluation to determine the need for remedial measures. Based on the number of crashes and the computed crash rates indicated in Table 6, it is concluded that there are currently no significant safety deficiencies at the two (2) study intersections.

When compared with the data for the previous three year, the statistics show a significant reduction from the period 2004 – 2006, when compared with the current period 2006 – 2008. The data is summarized below:

Location	Total Crashes (2004 – 2006)	Total Crashes (2006 – 2008)	Change
1) Third Street at C Street, SW	20	14	(30.0%) Decrease)
2) Fourth Street at C Street, SW	10	7	(30.0% Decrease)

FUTURE SITUATION (TRAFFIC VOLUMES AND LEVELS OF SERVICE)

The improvement concept developed by the General Services Administration for the subject section of C Street, was discussed in the introduction. It involves geometric improvements to the roadway, significant reductions in the number of spaces within these off-street parking lots serving the Switzer and Cohen Buildings, and provides gated entry to the two (2) parking areas. Exhibit 2 (page 4) shows the concept.

The 2008 Traffic Assessment developed weekday peak hour traffic volumes accessing the adjacent parking lots that were part of the concept under consideration at that time. With the proposed reduction in off-street parking, it follows that there should be a commensurate reduction in the traffic volumes accessing the parking. The building modifications will likely involve changes in government agency tenants, along with different work schedules, transportation demand management strategies, and security measures. There is therefore no scientific basis to estimate the future traffic volumes accessing the parking at this stage.

The current concept reduces the adjacent parking supply by approximately two-thirds (65.0%). However, in order to be conservative and evaluate a potential worst case scenario, this assessment utilized the volumes developed for the 2008 traffic analysis (i.e., assuming the significantly greater parking supply). These volumes are shown in Exhibit 6 (page 17). They were analyzed using the Highway Capacity Manual (HCM) methodology, as was done for the existing situation. Table 7 summarized the capacity analysis results for the future conditions at the two (2) signalized intersections. Capacity analysis worksheets are included in Attachment G.

TABLE 7

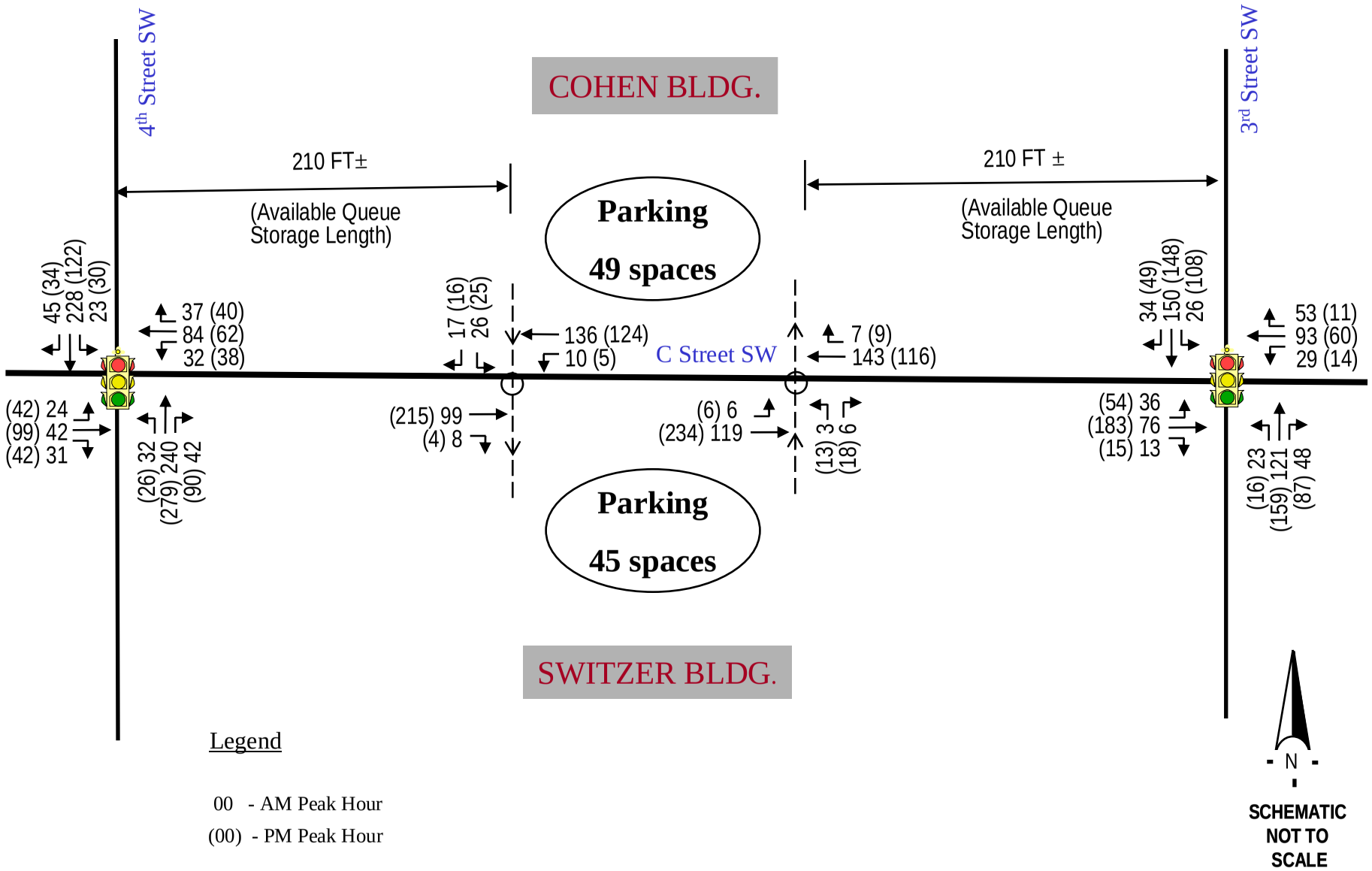
SUMMARY OF CAPACITY ANALYSIS RESULTS - FUTURE SITUATION (WITH PROPOSED PARKING ACCESS CONCEPT)

Intersection	AM Peak Hour		PM Peak Hour	
	Level of Service	Avg. Delay (Sec/Veh)*	Level of Service	Avg. Delay (Sec/Veh)*
1) Third Street at C Street, SW	B	18.6	C	24.2
2) Fourth Street at C Street, SW	A	7.8	A	7.5

* Sec/Veh = Seconds per Vehicle

Source: O. R. George & Associates.

The analysis of the future operational situation is presented in following section (beginning on page 18).



O. R. GEORGE &ASSOCIATES, INC.

Traffic Engineers - Transportation Planners

Exhibit 6: Future Peak Hour Traffic Volumes

C Street at 3rd Street, Southwest, Washington, DC,

FUTURE SITUATION – OPERATIONAL ANALYSIS

It is not unusual to have mid-block parking access to parking garages and lots within the Downtown Area of Washington, D.C. In addition, it was noted that the current proposal for off-street parking adjacent to the subject section of C Street, SW has been substantially reduced under the current concept, when compared with the 2008 concept, as well as with the existing parking situation. Therefore, the critical factor affecting the feasibility of the current proposal is the level of queuing that is likely to occur along C Street approaching 3rd Street (eastbound), and approaching 4th Street (westbound), during the morning and afternoon peak periods.

In order to assess the level of queuing, two (2) software tools were used.

a) The Highway Capacity Software (HCS) methodology; and
b) The Synchro software methodology.

Both methodologies provide results indicating average (50th percentile) queue lengths, as well as potential worst-case queue lengths (or maximum queues that can be expected). These methodologies typically assume the 95th percentile queue length to be the worst-case. The results for the two (2) methodologies are presented in Table 8 below:

TABLE 8

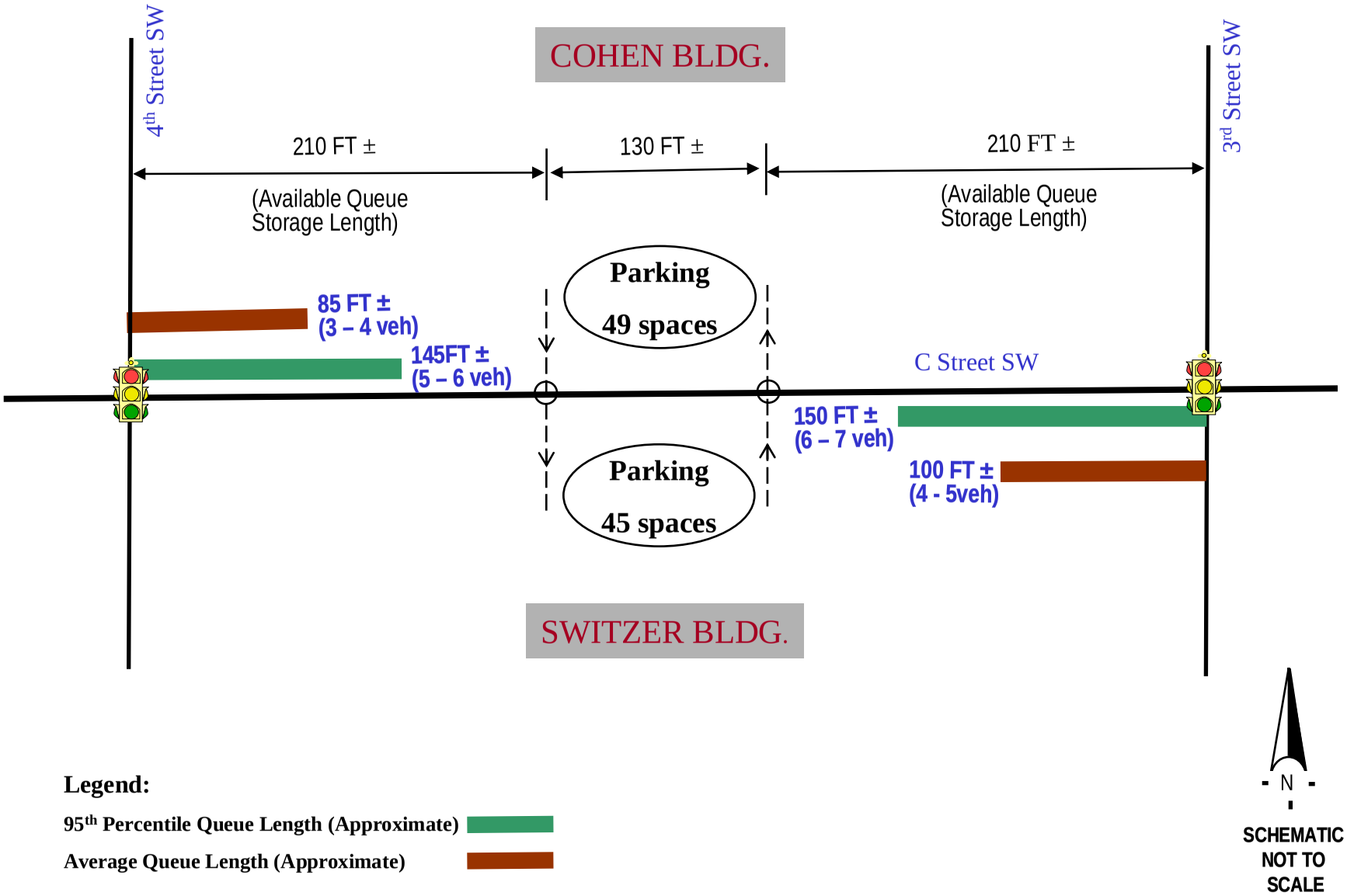
FUTURE QUEUING SITUATION FOR C STREET (BETWEEN THIRD AND FOURTH STREETS, SW)

Direction of Flow	Assessed 95th %-ile Queuing Lengths*		Available Storage Length (Current Concept)
	AM Peak Hour	PM Peak Hour	
1) C Street Eastbound Flow *(i.e., approaching 3rd Street)*			210 Ft.
- Per HCS	128 Ft.	258 Ft.	
- Per Synchro	149 Ft.	111 Ft.	
2) C Street Westbound Flow *(i.e., approaching 4th Street)*			210 Ft.
- Per HCS	200 Ft.	113 Ft.	
- Per Synchro	146 Ft.	130 Ft.	

* The 95th percentile queue length indicates that this value will be exceeded only 5.0% of the time.

Source: O. R. George & Associates.

For ease of presentation, the results reflecting the Synchro software analysis output are illustrated in Exhibit 7. The Synchro worksheets are included in Attachment G. For completeness, the results of the Highway Capacity Software output are also included in Attachment G. Exhibit 7 clearly shows no significant queuing in the vicinity of the two (2) parking lot access points.



Legend:

95th Percentile Queue Length (Approximate)

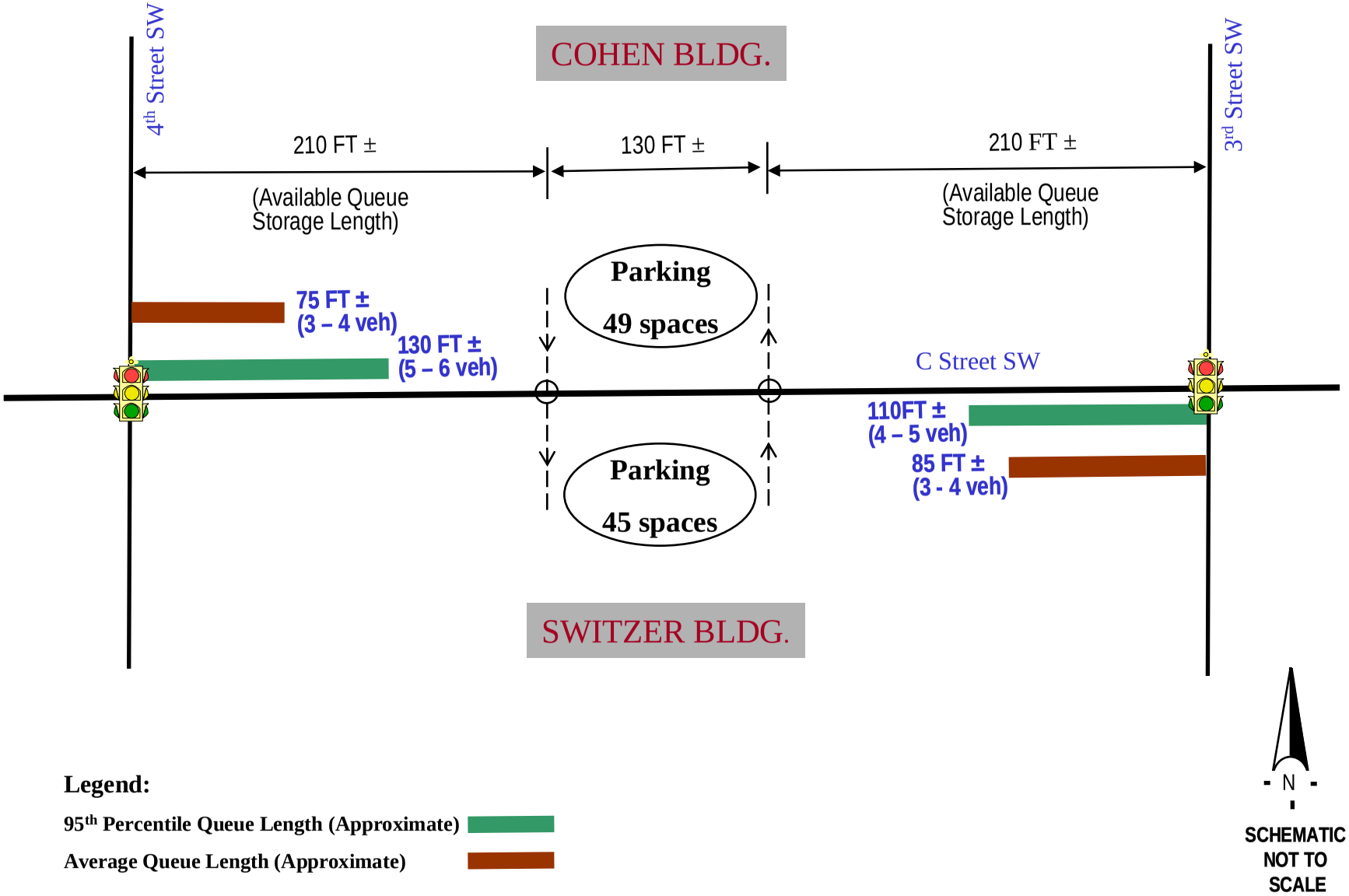
Average Queue Length (Approximate)

O. R. GEORGE &ASSOCIATES, INC.

Traffic Engineers - Transportation Planners

Exhibit 7a: AM Queue Length – SimTraffic Results

C Street at 3rd Street, Southwest, Washington, DC,



Legend:

95th Percentile Queue Length (Approximate)

Average Queue Length (Approximate)

O. R. GEORGE &ASSOCIATES, INC.

Traffic Engineers - Transportation Planners

Exhibit 7b: PM Queue Length – SimTraffic Results

C Street at 3rd Street, Southwest, Washington, DC,

The analysis did not make a specific evaluation of the gate operations in terms of the throughput, since that would depend on the particular security protocol that would be put in place. However, with the gate activity involving less than 20 vehicles per hour during peak access period, it is not envisioned that this would present any operational problems. The concept drawing shows that under the current gate arrangement, vehicles are likely to protrude into the sidewalk area. GSA may therefore consider examining the potential for modifications, in order to provide for a minimum of 25 Ft. storage that would accommodate at least one (1) vehicle. Since the average gap (in time) would be one vehicle every 3 to 4 minutes, the incidence of more than one vehicle is likely to be extremely rare. However, the agency should consider this factor in establishing its security protocol for the gate.

SUMMARY AND CONCLUSION

This report documents the data and analyses that have been undertaken to evaluate the current concept developed by the General Services Administration for modifications to the section of C Street, SW, between 3rd and 4th Streets. More specifically, the analysis and documentation focuses on the agency's proposal to modify the off-street parking and associated driveway access to the two lots that are adjacent to the Cohen and Switzer Buildings. The analysis is an update of the assessment performed in December 2008, and which evaluated earlier parking layouts and access concept. The following is a summary of the key findings and recommendations of the current effort:

a) The proposed parking on either side of the section of C Street has been substantially reduced *(from a total of 245 spaces to 94 spaces).*

b) In lieu of a single point of (driveway) access serving both lots, the entrance and exit were off-set to minimize the vehicular conflicts.

c) The current study has determined that the critical operational consideration would be the volume of traffic and the level of queuing within the block (i.e., for C Street eastbound toward 3rd Street, and westbound toward 4th Street).

d) Operational analyses using the Synchro simulation software and the Highway Capacity Manual procedures show that intersection capacity and the levels of queuing would not be a significant issue with respect to the proposed parking entrances. (Potentially, minor queuing encroachment would occur along the eastbound direction, toward 3rd Street, during the afternoon peak period only.) However, this would be representative of 95th percentile, or worst case scenario and would be quite rare.

e) The parking entrances are gated, and the concept shows that the current position of the gate arms could result in vehicles encroaching within the adjacent sidewalks. While the actual operational situation would be dependent on the security and gate functioning (i.e., manned vs. card-actuated), this is an issue which the agency may wish to consider.

The data, analyses and discussion presented in this report fully response to GSA's requirements under this task order. This report includes responses to comments received from the Project Manager, as well as input from agency staff associated with other developments activity within the local area. As such, this report is submitted as concluding the task assignment.

ACKNOWLEDGEMENT

This report acknowledges that inputs and comments on the draft dated April 29, 2010 was provided by the following persons:

a) Mr. Marlon H. Potter, AIA, Project Manager
Property Development Division
General Services Administration

b) Ms. Suzanne Hill, NEPA Project Specialist
Portfolio Division, Public Building Service
National Capital Region
General Services Administration

c) Stephanie Dyer-Carroll, AICP, Associate
Design and Planning
AECOM

< < << <: : : : : > > > > >

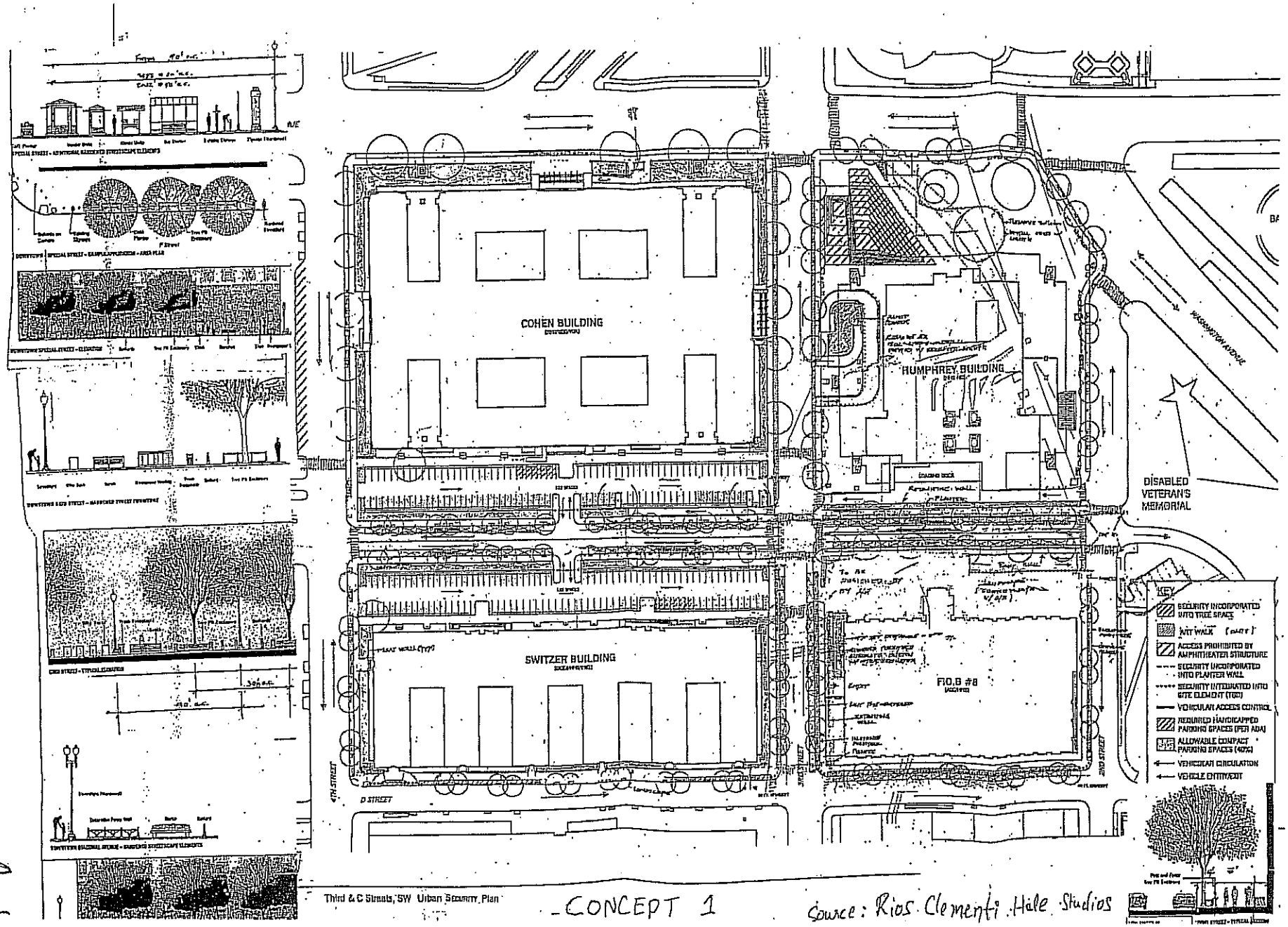
ORG/LL

Attachments: As Noted

ATTACHMENT

A

Parking Access Concepts (2008)



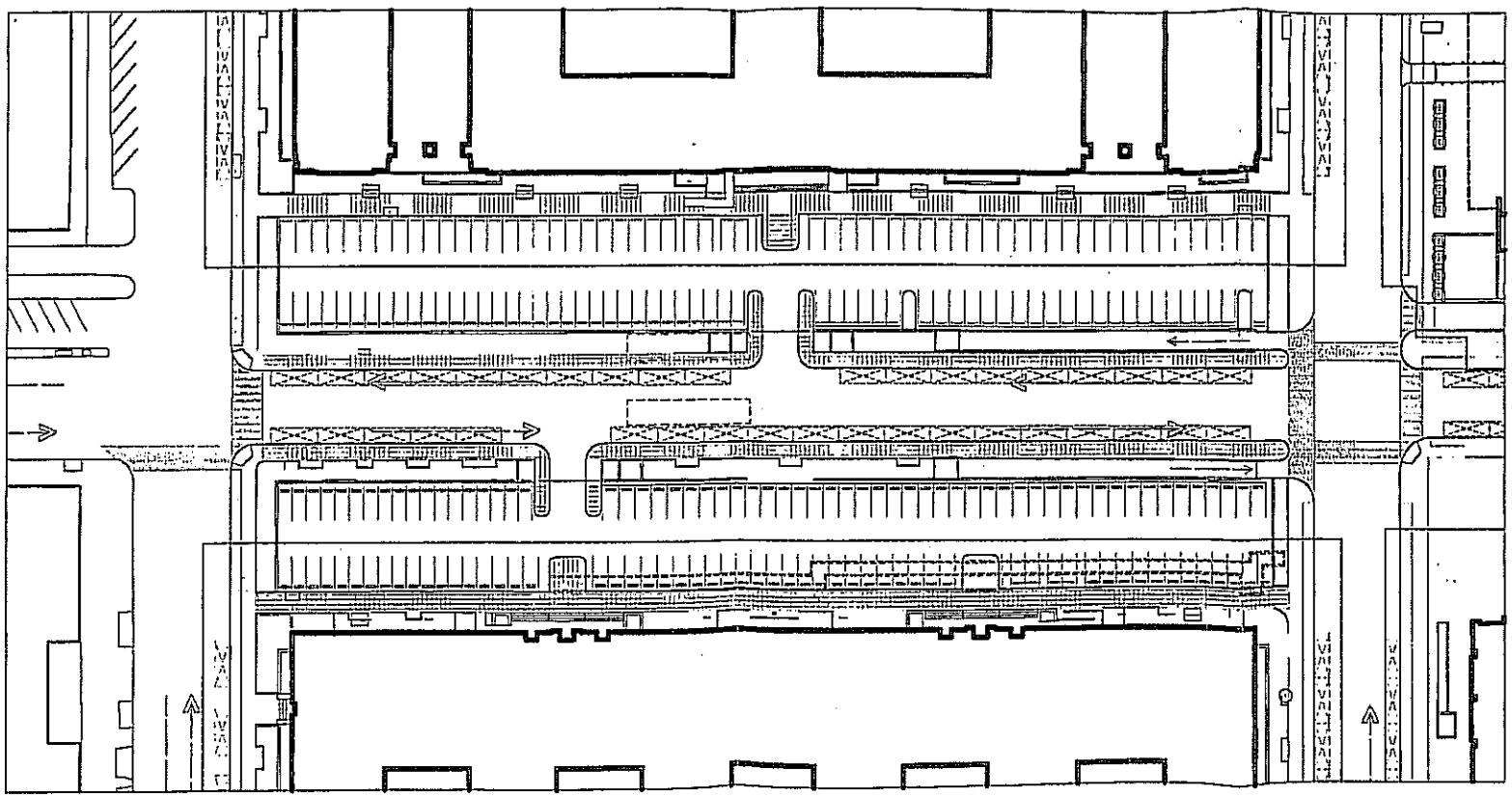
Third & C Streets, SW Urban Security Plan

CONCEPT 1

Source: Rios Clementi Hale Studios

A-1

F.1



CONCEPT 2

Source: Rios Clementi Hale Studios

A-2

ATTACHMENT

B

Traffic Turning Movement Counts and
Entry/Exit Volumes at Ramps and Parking Lots
(Existing Traffic Situation)

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-AL, NB
Board :D4-2236, D4-2239
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 3RD@CST
Site Code : 26342236
Start Date : 7/22/08
Page No : 1

Groups Printed- 1 - Passenger Vehicles - 2 - Trucks - 3 - Buses

	3rd Street, N.E. From North					3rd Street, N.E. From South					C Street, N.E. From East					C Street, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:15 AM	4	26	5	0	35	3	14	3	0	20	2	6	4	0	12	3	17	5	0	25	92
07:30 AM	3	25	9	1	38	5	24	11	0	40	10	18	9	0	37	5	11	0	0	16	131
07:45 AM	5	35	7	0	47	4	26	10	0	40	6	25	10	0	41	10	13	6	0	29	157
08:00 AM	3	32	9	0	44	6	18	11	0	35	3	21	16	0	40	2	3	2	0	7	126
Total	15	118	30	1	164	18	82	35	0	135	21	70	39	0	130	20	44	13	0	77	506
08:15 AM	7	42	7	0	56	3	33	10	0	46	7	21	18	0	46	4	15	1	0	20	168
08:30 AM	6	41	5	0	52	9	22	12	0	43	8	21	13	0	42	7	19	3	0	29	166
08:45 AM	8	35	5	0	48	6	32	13	0	51	9	18	7	0	34	8	7	4	0	19	152
09:00 AM	5	32	12	0	49	3	34	13	0	50	5	23	15	0	43	7	15	3	0	25	167
Total	26	150	29	0	205	21	121	48	0	190	29	83	53	0	165	26	56	11	0	93	653
09:15 AM	3	38	12	0	53	4	32	16	0	52	5	9	10	0	24	9	10	4	0	23	152
09:30 AM	5	34	11	0	50	7	31	21	0	59	1	11	11	0	23	14	8	6	0	28	160
09:45 AM	4	30	6	0	40	5	45	18	0	68	9	14	8	0	31	9	10	3	0	22	161
10:00 AM	2	25	7	0	34	4	25	7	0	36	7	13	12	0	32	6	5	5	0	16	118
Total	14	127	36	0	177	20	133	62	0	215	22	47	41	0	110	38	33	18	0	89	591
10:15 AM	6	32	9	1	48	7	21	7	0	35	4	9	9	0	22	5	12	3	0	20	125
10:30 AM	6	18	7	0	31	8	15	6	0	29	1	3	9	0	13	4	12	4	0	20	93
10:45 AM	8	28	8	0	44	7	23	5	0	35	1	5	11	0	17	6	12	4	0	22	118
11:00 AM	6	22	10	0	38	9	30	12	0	51	3	5	4	0	12	3	6	10	0	19	120
Total	26	100	34	1	161	31	89	30	0	150	9	22	33	0	64	18	42	21	0	81	456
11:15 AM	7	42	8	0	57	8	28	10	0	46	2	9	10	0	21	5	6	8	0	19	143
11:30 AM	3	22	10	0	35	13	26	7	0	46	3	9	6	0	18	7	7	4	0	18	117
11:45 AM	5	27	7	0	39	4	21	14	0	39	4	8	4	0	16	8	13	5	0	26	120
12:00 PM	6	26	17	0	49	5	22	4	0	31	1	4	7	0	12	9	5	0	0	14	106
Total	21	117	42	0	180	30	97	35	0	162	10	30	27	0	67	29	31	17	0	77	486
12:15 PM	4	25	16	0	45	6	16	6	0	28	2	7	4	0	13	6	11	2	0	19	105
12:30 PM	11	20	6	0	37	10	22	9	0	41	0	10	5	0	15	4	18	6	0	28	121
12:45 PM	2	22	10	0	34	5	22	13	0	40	2	6	5	0	13	3	19	5	0	27	114
01:00 PM	9	29	11	0	49	8	40	11	0	59	3	3	10	0	16	7	19	8	0	34	158
Total	26	96	43	0	165	29	100	39	0	168	7	26	24	0	57	20	67	21	0	108	498
01:15 PM	4	30	7	0	41	9	19	15	0	43	4	13	6	0	23	7	11	3	0	21	128
01:30 PM	15	20	10	0	45	2	18	6	0	26	3	5	8	0	16	7	24	1	0	32	119
01:45 PM	13	30	16	0	59	6	24	13	0	43	1	5	7	0	13	4	19	1	0	24	139
02:00 PM	14	32	17	0	63	3	22	14	0	39	2	6	5	0	13	10	9	1	0	20	135
Total	46	112	50	0	208	20	83	48	0	151	10	29	26	0	65	28	63	6	0	97	521

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-AL, NB
Board :D4-2236, D4-2239
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 3RD@CST
Site Code : 26342236
Start Date : 7/22/08
Page No : 2

Groups Printed- 1 - Passenger Vehicles - 2 - Trucks - 3 - Buses

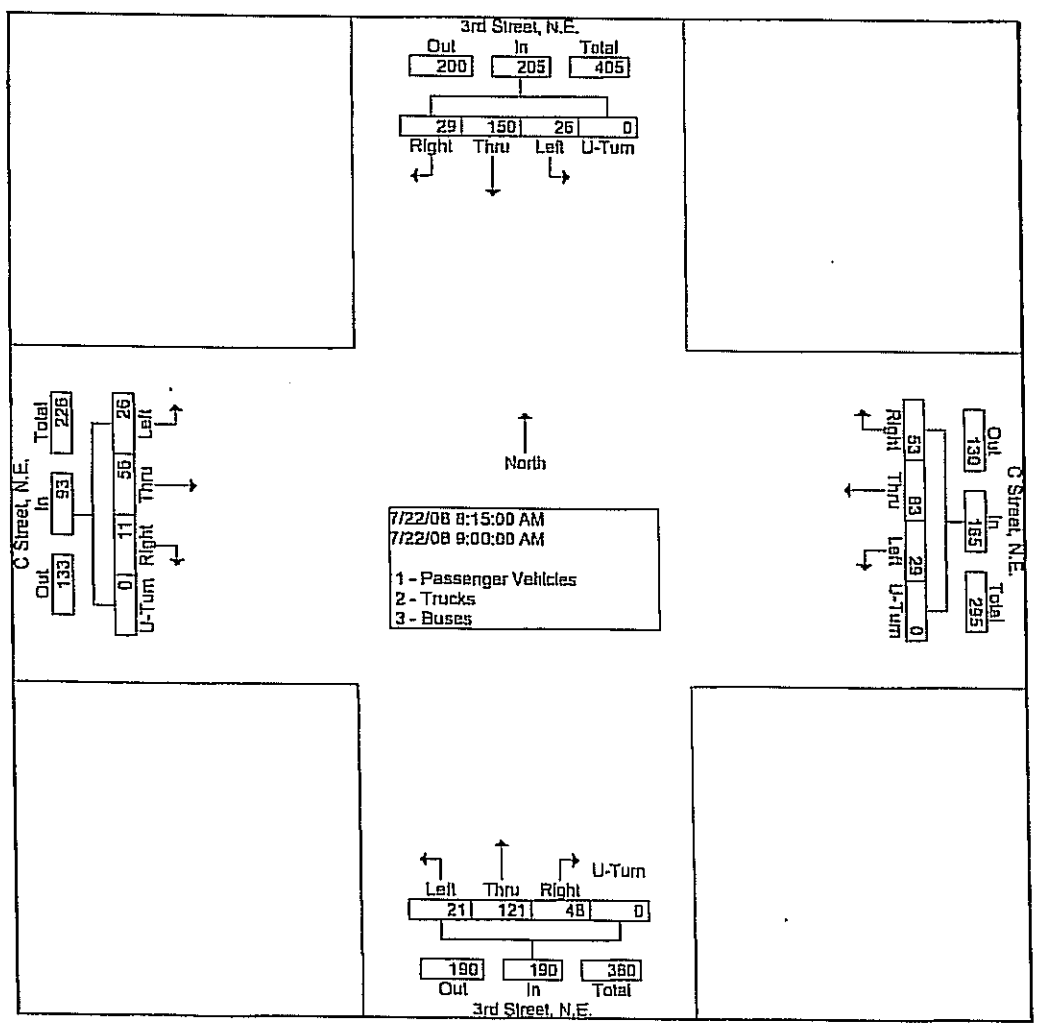
	3rd Street, N.E. From North					3rd Street, N.E. From South					C Street, N.E. From East					C Street, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
02:15 PM	9	26	13	0	48	4	27	18	0	49	3	5	4	0	12	6	15	6	0	27	136
02:30 PM	22	17	10	0	49	6	32	7	0	45	4	6	8	0	18	5	13	8	0	26	138
02:45 PM	12	26	11	0	49	6	26	9	0	41	3	6	9	0	18	6	18	4	0	28	136
03:00 PM	11	24	11	1	47	7	15	15	0	37	3	14	2	0	19	5	22	0	0	27	130
Total	54	93	45	1	193	23	100	49	0	172	13	31	23	0	67	22	68	18	0	108	540
03:15 PM	14	26	4	0	44	2	13	10	0	25	1	7	6	0	14	7	24	2	0	33	116
03:30 PM	14	17	12	0	43	2	29	20	0	51	2	13	3	0	18	8	33	0	0	41	153
03:45 PM	17	30	7	0	54	5	23	16	0	44	1	7	2	0	10	7	36	2	0	45	153
04:00 PM	10	24	12	0	46	4	24	17	0	45	1	15	4	0	20	10	39	3	0	52	163
Total	55	97	35	0	187	13	89	63	0	165	5	42	15	0	62	32	132	7	0	171	585
04:15 PM	17	20	8	0	45	2	18	13	0	33	1	15	4	0	20	9	33	5	0	47	145
04:30 PM	13	20	13	0	46	4	31	16	0	51	4	8	6	0	18	14	41	2	0	57	172
04:45 PM	9	44	17	0	70	4	14	10	0	28	1	8	5	0	14	5	17	1	0	23	135
05:00 PM	15	34	11	0	60	8	32	15	0	55	1	16	7	0	24	3	45	2	0	50	189
Total	54	118	49	0	221	18	95	54	0	167	7	47	22	0	76	31	136	10	0	177	641
05:15 PM	29	32	11	0	72	4	47	14	0	65	3	21	3	0	27	9	44	6	0	59	223
05:30 PM	25	40	14	0	79	5	28	33	0	66	1	13	7	0	21	8	47	1	0	56	222
05:45 PM	32	38	7	0	77	5	45	19	0	69	6	7	1	0	14	13	30	2	0	45	205
06:00 PM	22	38	13	0	73	0	39	21	0	60	4	11	0	0	15	11	38	2	0	51	199
Total	108	148	45	0	301	14	159	87	0	260	14	52	11	0	77	41	159	11	0	211	849
06:15 PM	24	30	10	0	64	3	32	15	0	50	3	4	2	0	9	9	23	3	0	35	158
06:30 PM	20	22	14	0	56	1	21	13	0	35	2	10	4	0	16	2	21	1	0	24	131
06:45 PM	18	39	6	1	64	2	11	2	0	15	3	8	1	0	12	4	12	2	0	18	109
07:00 PM	17	17	9	0	43	1	14	7	0	22	0	9	1	0	10	3	17	5	0	25	100
Total	79	108	39	1	227	7	78	37	0	122	8	31	8	0	47	18	73	11	0	102	498
Grand Total	524	1384	477	4	2389	244	1226	587	0	2057	155	510	322	0	987	323	904	164	0	1391	6824
Apprch %	21.9	57.9	20.0	0.2		11.9	59.6	28.5	0.0		15.7	51.7	32.6	0.0		23.2	65.0	11.8	0.0		
Total %	7.7	20.3	7.0	0.1	35.0	3.6	18.0	8.6	0.0	30.1	2.3	7.5	4.7	0.0	14.5	4.7	13.2	2.4	0.0	20.4	

Counted by:ORGA-AL, NB
Board :D4-2236, D4-2239
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

File Name : 3RD@CST
Site Code : 26342236
Start Date : 7/22/08
Page No : 3

	3rd Street, N.E. From North					3rd Street, N.E. From South					C Street, N.E. From East					C Street, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour From 07:15 AM to 11:45 AM - Peak 1 of 1																					
Intersection	08:15 AM																				
Volume	26	150	29	0	205	21	121	48	0	190	29	83	53	0	165	26	56	11	0	93	653
Percent	12.7	73.2	14.1	0.0		11.1	63.7	25.3	0.0		17.6	50.3	32.1	0.0		28.0	60.2	11.8	0.0		
08:15 Volume	7	42	7	0	56	3	33	10	0	46	7	21	18	0	46	4	15	1	0	20	168
Peak Factor																					0.972
High Int.	08:15 AM					08:45 AM					08:15 AM					08:30 AM					
Volume	7	42	7	0	56	6	32	13	0	51	7	21	18	0	46	7	19	3	0	29	
Peak Factor					0.915					0.931					0.897					0.802	



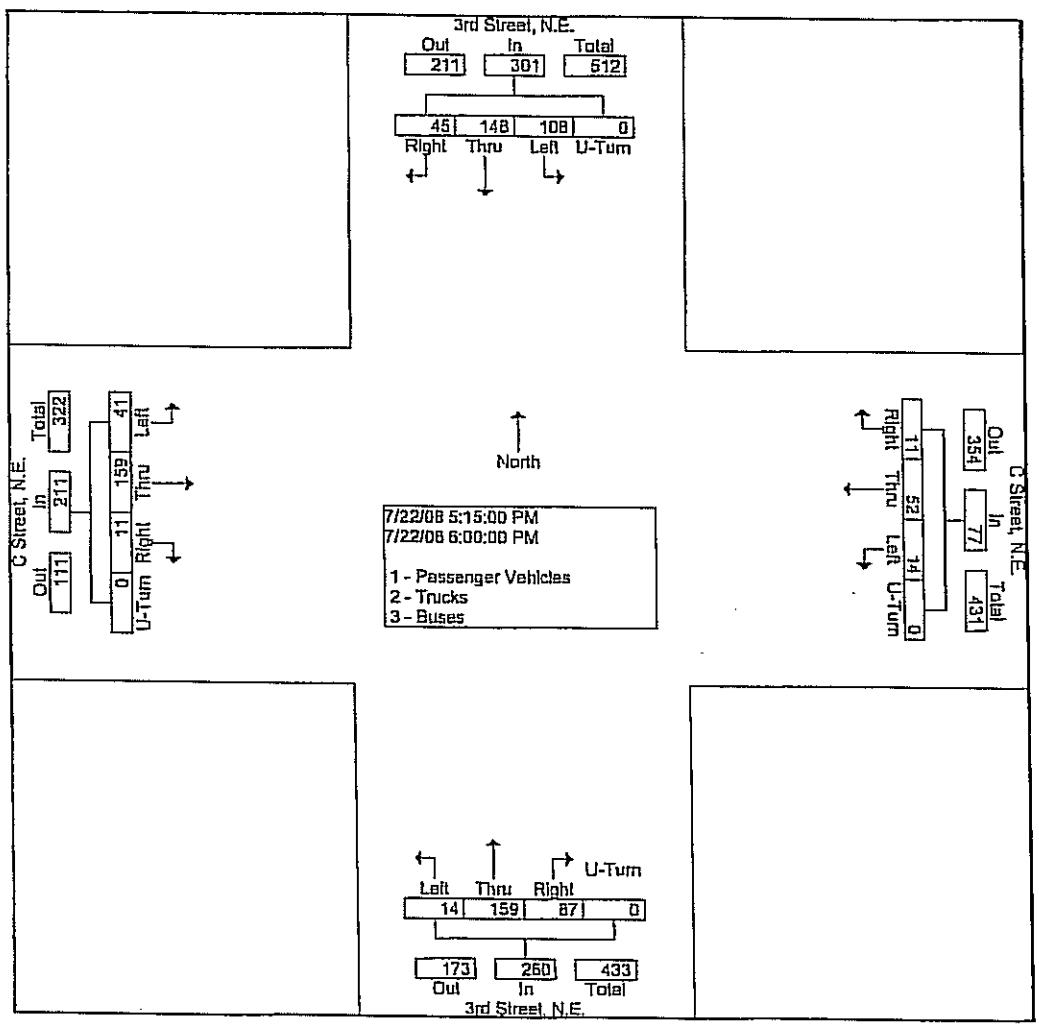
B-3

Counted by:ORGA-AL, NB
Board :D4-2236, D4-2239
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

File Name : 3RD@CST
Site Code : 26342236
Start Date : 7/22/08
Page No : 4

	3rd Street, N.E. From North					3rd Street, N.E. From South					C Street, N.E. From East					C Street, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour From 12:00 PM to 07:00 PM - Peak 1 of 1																					
Intersection	05:15 PM																				
Volume	108	148	45	0	301	14	159	87	0	260	14	52	11	0	77	41	159	11	0	211	849
Percent	35.9	49.2	15.0	0.0		5.4	61.2	33.5	0.0		18.2	67.5	14.3	0.0		19.4	75.4	5.2	0.0		
05:15 Volume	29	32	11	0	72	4	47	14	0	65	3	21	3	0	27	9	44	6	0	59	223
Peak Factor																					0.952
High Int.	05:30 PM					05:45 PM					05:15 PM					05:15 PM					
Volume	25	40	14	0	79	5	45	19	0	69	3	21	3	0	27	9	44	6	0	59	
Peak Factor					0.953					0.942					0.713					0.894	



B-4

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-AL, NB
Board :D4-2236, D4-2239
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 3RD@CST
Site Code : 26342236
Start Date : 7/22/08
Page No : 1

Groups Printed- 4- Pedestrians

	3rd Street, N.E. From North					3rd Street, N.E. From South					C Street, N.E. From East					C Street, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:15 AM	0	0	0	13	13	0	0	0	8	8	0	0	0	34	34	0	0	0	52	52	107
07:30 AM	0	0	0	22	22	0	0	0	15	15	0	0	0	47	47	0	0	0	72	72	156
07:45 AM	0	0	0	21	21	0	0	0	15	15	0	0	0	48	48	0	0	0	69	69	153
08:00 AM	0	0	0	28	28	0	0	0	20	20	0	0	0	47	47	0	0	0	59	59	154
Total	0	0	0	84	84	0	0	0	58	58	0	0	0	176	176	0	0	0	252	252	570
08:15 AM	0	0	0	17	17	0	0	0	13	13	0	0	0	67	67	0	0	0	59	59	156
08:30 AM	0	0	0	22	22	0	0	0	24	24	0	0	0	65	65	0	0	0	102	102	213
08:45 AM	0	0	0	30	30	0	0	0	28	28	0	0	0	89	89	0	0	0	85	85	232
09:00 AM	0	0	0	30	30	0	0	0	22	22	0	0	0	87	87	0	0	0	82	82	221
Total	0	0	0	99	99	0	0	0	87	87	0	0	0	308	308	0	0	0	328	328	822
09:15 AM	0	0	0	39	39	0	0	0	20	20	0	0	0	96	96	0	0	0	68	68	223
09:30 AM	0	0	0	29	29	0	0	0	15	15	0	0	0	76	76	0	0	0	64	64	184
09:45 AM	0	0	0	26	26	0	0	0	28	28	0	0	0	52	52	0	0	0	72	72	178
10:00 AM	0	0	0	23	23	0	0	0	12	12	0	0	0	82	82	0	0	0	65	65	182
Total	0	0	0	117	117	0	0	0	75	75	0	0	0	306	306	0	0	0	269	269	767
10:15 AM	0	0	0	22	22	0	0	0	9	9	0	0	0	54	54	0	0	0	72	72	157
10:30 AM	0	0	0	8	8	0	0	0	5	5	0	0	0	41	41	0	0	0	42	42	96
10:45 AM	0	0	0	3	3	0	0	0	9	9	0	0	0	18	18	0	0	0	44	44	74
11:00 AM	0	0	0	21	21	0	0	0	10	10	0	0	0	22	22	0	0	0	41	41	94
Total	0	0	0	54	54	0	0	0	33	33	0	0	0	135	135	0	0	0	199	199	421
11:15 AM	0	0	0	7	7	0	0	0	10	10	0	0	0	34	34	0	0	0	45	45	96
11:30 AM	0	0	0	3	3	0	0	0	12	12	0	0	0	23	23	0	0	0	57	57	95
11:45 AM	0	0	0	5	5	0	0	0	4	4	0	0	0	30	30	0	0	0	61	61	100
12:00 PM	0	0	0	3	3	0	0	0	16	16	0	0	0	45	45	0	0	0	56	56	120
Total	0	0	0	18	18	0	0	0	42	42	0	0	0	132	132	0	0	0	219	219	411
12:15 PM	0	0	0	4	4	0	0	0	19	19	0	0	0	44	44	0	0	0	66	66	133
12:30 PM	0	0	0	6	6	0	0	0	13	13	0	0	0	80	80	0	0	0	59	59	158
12:45 PM	0	0	0	4	4	0	0	0	27	27	0	0	0	70	70	0	0	0	74	74	175
01:00 PM	0	0	0	23	23	0	0	0	21	21	0	0	0	100	100	0	0	0	71	71	215
Total	0	0	0	37	37	0	0	0	80	80	0	0	0	294	294	0	0	0	270	270	681
01:15 PM	0	0	0	15	15	0	0	0	27	27	0	0	0	99	99	0	0	0	70	70	211
01:30 PM	0	0	0	42	42	0	0	0	18	18	0	0	0	79	79	0	0	0	71	71	210
01:45 PM	0	0	0	36	36	0	0	0	21	21	0	0	0	54	54	0	0	0	83	83	194
02:00 PM	0	0	0	17	17	0	0	0	25	25	0	0	0	83	83	0	0	0	58	58	183
Total	0	0	0	110	110	0	0	0	91	91	0	0	0	315	315	0	0	0	282	282	798

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-AL, NB
Board :D4-2236, D4-2239
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 3RD@CST
Site Code : 26342236
Start Date : 7/22/08
Page No : 2

Groups Printed- 4- Pedestrians

	3rd Street, N.E. From North					3rd Street, N.E. From South					C Street, N.E. From East					C Street, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
02:15 PM	0	0	0	25	25	0	0	0	12	12	0	0	0	69	69	0	0	0	52	52	158
02:30 PM	0	0	0	16	16	0	0	0	15	15	0	0	0	61	61	0	0	0	86	86	178
02:45 PM	0	0	0	17	17	0	0	0	14	14	0	0	0	36	36	0	0	0	52	52	119
03:00 PM	0	0	0	21	21	0	0	0	15	15	0	0	0	37	37	0	0	0	48	48	121
Total	0	0	0	79	79	0	0	0	56	56	0	0	0	203	203	0	0	0	238	238	576
03:15 PM	0	0	0	13	13	0	0	0	5	5	0	0	0	49	49	0	0	0	58	58	125
03:30 PM	0	0	0	6	6	0	0	0	4	4	0	0	0	36	36	0	0	0	57	57	103
03:45 PM	0	0	0	8	8	0	0	0	21	21	0	0	0	41	41	0	0	0	78	78	148
04:00 PM	0	0	0	15	15	0	0	0	22	22	0	0	0	42	42	0	0	0	101	101	180
Total	0	0	0	42	42	0	0	0	52	52	0	0	0	168	168	0	0	0	294	294	556
04:15 PM	0	0	0	12	12	0	0	0	28	28	0	0	0	74	74	0	0	0	109	109	223
04:30 PM	0	0	0	8	8	0	0	0	19	19	0	0	0	64	64	0	0	0	107	107	198
04:45 PM	0	0	0	8	8	0	0	0	11	11	0	0	0	48	48	0	0	0	39	39	106
05:00 PM	0	0	0	18	18	0	0	0	20	20	0	0	0	72	72	0	0	0	80	80	190
Total	0	0	0	46	46	0	0	0	78	78	0	0	0	258	258	0	0	0	335	335	717
05:15 PM	0	0	0	2	2	0	0	0	12	12	0	0	0	84	84	0	0	0	108	108	206
05:30 PM	0	0	0	15	15	0	0	0	15	15	0	0	0	71	71	0	0	0	84	84	185
05:45 PM	0	0	0	10	10	0	0	0	26	26	0	0	0	59	59	0	0	0	76	76	171
06:00 PM	0	0	0	3	3	0	0	0	14	14	0	0	0	80	80	0	0	0	85	85	182
Total	0	0	0	30	30	0	0	0	67	67	0	0	0	294	294	0	0	0	353	353	744
06:15 PM	0	0	0	5	5	0	0	0	21	21	0	0	0	71	71	0	0	0	58	58	155
06:30 PM	0	0	0	6	6	0	0	0	9	9	0	0	0	63	63	0	0	0	57	57	135
06:45 PM	0	0	0	2	2	0	0	0	13	13	0	0	0	41	41	0	0	0	37	37	93
07:00 PM	0	0	0	3	3	0	0	0	4	4	0	0	0	33	33	0	0	0	52	52	92
Total	0	0	0	16	16	0	0	0	47	47	0	0	0	208	208	0	0	0	204	204	475
Grand Total	0	0	0	732	732	0	0	0	766	766	0	0	0	2797	2797	0	0	0	3243	3243	7538
Apprch %	0.0	0.0	0.0	100.0		0.0	0.0	0.0	100.0		0.0	0.0	0.0	100.0		0.0	0.0	0.0	100.0		
Total %	0.0	0.0	0.0	9.7	9.7	0.0	0.0	0.0	10.2	10.2	0.0	0.0	0.0	37.1	37.1	0.0	0.0	0.0	43.0	43.0	

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-AL, NB
Board :D4-2236, D4-2239
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 3RD@CST-Parking Lots
Site Code : 26342236
Start Date : 7/22/08
Page No : 1

Groups Printed- 1 - Passenger Vehicles

	Parking Lot 1 From Northwest			Parking Lot 2 From Southwest			
End Time	Out	In	App. Total	Out	In	App. Total	Int. Total
07:15 AM	3	2	5	0	0	0	5
07:30 AM	17	4	21	0	0	0	21
07:45 AM	5	0	5	0	0	0	5
08:00 AM	10	0	10	0	0	0	10
Total	35	6	41	0	0	0	41
08:15 AM	4	1	5	4	0	4	9
08:30 AM	16	0	16	1	0	1	17
08:45 AM	11	0	11	0	0	0	11
09:00 AM	12	0	12	1	0	1	13
Total	43	1	44	6	0	6	50
09:15 AM	4	0	4	0	0	0	4
09:30 AM	1	0	1	0	0	0	1
09:45 AM	1	0	1	0	0	0	1
10:00 AM	2	0	2	1	0	1	3
Total	8	0	8	1	0	1	9
*** BREAK ***							
10:30 AM	2	0	2	0	0	0	2
10:45 AM	4	0	4	0	0	0	4
11:00 AM	0	0	0	1	0	1	1
Total	6	0	6	1	0	1	7
11:15 AM	1	0	1	0	0	0	1
11:30 AM	1	0	1	1	0	1	2
11:45 AM	0	0	0	1	0	1	1
12:00 PM	2	0	2	1	0	1	3
Total	4	0	4	3	0	3	7
12:15 PM	4	0	4	0	0	0	4
12:30 PM.	1	0	1	0	0	0	1
12:45 PM	2	0	2	0	0	0	2
01:00 PM	3	0	3	1	0	1	4
Total	10	0	10	1	0	1	11
01:15 PM	0	0	0	1	0	1	1
01:30 PM	2	0	2	0	0	0	2
*** BREAK ***							
02:00 PM	3	0	3	1	0	1	4
Total	5	0	5	2	0	2	7

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-AL, NB
Board :D4-2236, D4-2239
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 3RD@CST-Parking Lots
Site Code : 26342236
Start Date : 7/22/08
Page No : 2

Groups Printed- 1 - Passenger Vehicles

	Parking Lot 1 From Northwest			Parking Lot 2 From Southwest			
End Time	Out	In	App. Total	Out	In	App. Total	Int. Total
02:15 PM	1	0	1	4	0	4	5
02:30 PM	0	0	0	1	0	1	1
02:45 PM	2	0	2	0	0	0	2
03:00 PM	3	0	3	1	0	1	4
Total	6	0	6	6	0	6	12
03:15 PM	1	0	1	0	0	0	1
03:30 PM	4	0	4	4	0	4	8
03:45 PM	3	0	3	0	0	0	3
04:00 PM	10	0	10	2	0	2	12
Total	18	0	18	6	0	6	24
04:15 PM	6	0	6	1	0	1	7
04:30 PM	9	0	9	1	0	1	10
04:45 PM	7	0	7	2	0	2	9
05:00 PM	8	0	8	0	0	0	8
Total	30	0	30	4	0	4	34
05:15 PM	11	0	11	2	0	2	13
05:30 PM	8	0	8	2	0	2	10
05:45 PM	12	0	12	1	0	1	13
06:00 PM	10	0	10	3	0	3	13
Total	41	0	41	8	0	8	49
06:15 PM	12	0	12	3	0	3	15
06:30 PM	5	0	5	3	0	3	8
06:45 PM	8	0	8	2	0	2	10
07:00 PM	4	0	4	1	0	1	5
Total	29	0	29	9	0	9	38
Grand Total	235	7	242	47	0	47	289
Apprch %	97.1	2.9		100.0	0.0		
Total %	81.3	2.4	83.7	16.3	0.0	16.3	

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-AL, NB
Board :D4-2236, D4-2239
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 3RD@CST-Ramps
Site Code : 26342236
Start Date : 7/22/08
Page No : 1

Groups Printed- 1 - Passenger Vehicles

	Ramp 1 From Northeast			Ramp 2 From Northwest			Ramp 3 From Southwest			
End Time	Out	In	App. Total	Out	In	App. Total	Out	In	App. Total	Int. Total
07:15 AM	0	0	0	1	2	3	1	0	1	4
07:30 AM	0	0	0	4	10	14	2	0	2	16
07:45 AM	1	0	1	0	0	0	0	0	0	1
08:00 AM	1	0	1	0	4	4	1	0	1	6
Total	2	0	2	5	16	21	4	0	4	27
08:15 AM	0	0	0	1	2	3	0	0	0	3
08:30 AM	2	0	2	0	2	2	1	0	1	5
08:45 AM	0	0	0	0	1	1	0	0	0	1
09:00 AM	1	0	1	0	3	3	1	0	1	5
Total	3	0	3	1	8	9	2	0	2	14
*** BREAK ***										
09:30 AM	0	0	0	1	0	1	1	0	1	2
09:45 AM	0	0	0	2	1	3	0	0	0	3
10:00 AM	1	0	1	0	3	3	1	0	1	5
Total	1	0	1	3	4	7	2	0	2	10
10:15 AM	0	0	0	0	4	4	2	0	2	6
10:30 AM	1	0	1	0	1	1	2	0	2	4
10:45 AM	1	0	1	0	3	3	2	0	2	6
11:00 AM	3	0	3	0	1	1	0	0	0	4
Total	5	0	5	0	9	9	6	0	6	20
11:15 AM	0	0	0	0	1	1	0	0	0	1
*** BREAK ***										
11:45 AM	1	0	1	0	0	0	0	0	0	1
12:00 PM	0	0	0	0	1	1	0	0	0	1
Total	1	0	1	0	2	2	0	0	0	3
12:15 PM	0	0	0	0	2	2	0	0	0	2
12:30 PM	2	0	2	0	1	1	3	0	3	6
12:45 PM	1	0	1	0	1	1	0	0	0	2
01:00 PM	1	0	1	0	1	1	0	0	0	2
Total	4	0	4	0	5	5	3	0	3	12
01:15 PM	2	0	2	0	1	1	2	0	2	5
01:30 PM	0	0	0	0	2	2	2	0	2	4
01:45 PM	0	0	0	0	0	0	2	0	2	2
*** BREAK ***										
Total	2	0	2	0	3	3	6	0	6	11

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-AL, NB
Board :D4-2236, D4-2239
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 3RD@CST-Ramps
Site Code : 26342236
Start Date : 7/22/08
Page No : 2

Groups Printed- 1 - Passenger Vehicles

	Ramp 1 From Northeast			Ramp 2 From Northwest			Ramp 3 From Southwest			
End Time	Out	In	App. Total	Out	In	App. Total	Out	In	App. Total	Int. Total
02:15 PM	0	0	0	0	1	1	0	0	0	1
*** BREAK ***										
03:00 PM	0	0	0	0	0	0	2	0	2	2
Total	0	0	0	0	1	1	2	0	2	3
03:15 PM	3	0	3	0	0	0	0	0	0	3
03:30 PM	0	0	0	0	0	0	2	0	2	2
03:45 PM	1	0	1	0	2	2	1	0	1	4
04:00 PM	0	0	0	0	0	0	1	0	1	1
Total	4	0	4	0	2	2	4	0	4	10
04:15 PM	1	0	1	0	0	0	0	0	0	1
*** BREAK ***										
05:00 PM	0	0	0	0	0	0	2	0	2	2
Total	1	0	1	0	0	0	2	0	2	3
*** BREAK ***										
05:30 PM	0	0	0	0	0	0	1	0	1	1
05:45 PM	0	0	0	0	2	2	2	0	2	4
06:00 PM	1	0	1	0	0	0	2	0	2	3
Total	1	0	1	0	2	2	5	0	5	8
*** BREAK ***										
Grand Total	24	0	24	9	52	61	36	0	36	121
Apprch %	100.0	0.0		14.8	85.2		100.0	0.0		
Total %	19.8	0.0	19.8	7.4	43.0	50.4	29.8	0.0	29.8	

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-TD, RN
Board :D4-2240, D4-2238
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 4TH@CST
Site Code : 26342236
Start Date : 7/22/08
Page No : 1

Groups Printed- 1 - Passenger Vehicles - 2 - Trucks - 3 - Buses

	4th Street, N.E. From North					4th Street, N.E. From South					C Street, N.E. From East					C Street, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:15 AM	4	20	4	0	28	3	32	12	0	47	1	1	1	0	3	2	5	6	0	13	91
07:30 AM	5	34	6	0	45	4	29	3	0	36	0	5	3	0	8	6	9	6	0	21	110
07:45 AM	2	49	7	0	58	11	37	5	0	53	2	6	2	0	10	8	8	7	0	23	144
08:00 AM	6	53	10	0	69	7	38	9	0	54	7	16	3	0	26	5	5	7	0	17	166
Total	17	156	27	0	200	25	136	29	0	190	10	28	9	0	47	21	27	26	0	74	511
08:15 AM	8	52	12	0	72	9	45	6	0	60	1	13	5	0	19	5	5	9	0	19	170
08:30 AM	4	48	4	0	56	8	44	7	0	59	11	11	9	0	31	8	9	6	0	23	169
08:45 AM	5	63	9	0	77	6	67	12	0	85	6	15	6	0	27	5	13	7	0	25	214
09:00 AM	2	54	8	0	64	11	58	5	0	74	8	17	9	0	34	5	2	11	0	18	190
Total	19	217	33	0	269	34	214	30	0	278	26	56	29	0	111	23	29	33	0	85	743
09:15 AM	5	46	16	0	67	8	56	13	0	77	9	12	8	0	29	6	6	5	0	17	190
09:30 AM	4	65	12	0	81	7	59	9	0	75	6	5	3	0	14	8	7	8	0	23	193
09:45 AM	6	38	12	0	56	6	76	12	0	94	4	10	11	0	25	8	7	15	0	30	205
10:00 AM	5	27	6	0	38	9	36	6	0	51	3	4	11	0	18	6	7	15	0	28	135
Total	20	176	46	0	242	30	227	40	0	297	22	31	33	0	86	28	27	43	0	98	723
10:15 AM	5	22	10	0	37	11	43	8	0	62	1	7	4	0	12	9	10	7	0	26	137
10:30 AM	3	29	9	0	41	8	28	8	0	44	2	4	4	0	10	3	9	4	0	16	111
10:45 AM	2	32	8	0	42	6	32	12	0	50	3	2	2	0	7	4	7	9	0	20	119
11:00 AM	2	33	15	0	50	8	37	14	0	59	7	5	4	0	16	6	8	14	0	28	153
Total	12	116	42	0	170	33	140	42	0	215	13	18	14	0	45	22	34	34	0	90	520
11:15 AM	6	34	7	0	47	5	31	3	0	39	3	2	11	0	16	4	7	9	0	20	122
11:30 AM	6	24	12	0	42	5	23	9	0	37	7	3	2	0	12	5	12	14	0	31	122
11:45 AM	3	33	11	0	47	7	29	10	0	46	6	7	3	0	16	3	9	9	0	21	130
12:00 PM	3	41	16	0	60	3	27	7	0	37	8	4	4	0	16	4	13	10	0	27	140
Total	18	132	46	0	196	20	110	29	0	159	24	16	20	0	60	16	41	42	0	99	514
12:15 PM	5	30	14	0	49	9	34	4	0	47	7	8	6	0	21	10	6	5	0	21	138
12:30 PM	6	33	13	0	52	7	43	8	0	58	5	9	7	0	21	4	10	8	0	22	153
12:45 PM	6	22	5	0	33	5	39	6	0	50	6	4	7	0	17	7	3	6	0	16	116
01:00 PM	4	30	4	0	38	5	52	12	0	69	2	4	3	0	9	8	6	6	0	20	136
Total	21	115	36	0	172	26	168	30	0	224	20	25	23	0	68	29	25	25	0	79	543
01:15 PM	6	44	11	0	61	9	32	4	0	45	6	4	2	0	12	8	11	4	0	23	141
01:30 PM	5	31	12	0	48	7	31	4	0	42	4	4	3	0	11	9	6	9	0	24	125
01:45 PM	1	23	14	0	38	3	31	11	0	45	1	4	6	0	11	9	8	8	0	25	119
02:00 PM	5	36	17	0	58	8	37	9	0	54	7	10	18	0	35	6	17	15	0	38	185
Total	17	134	54	0	205	27	131	28	0	186	18	22	29	0	69	32	42	36	0	110	570

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-TD, RN
Board :D4-2240, D4-2238
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 4TH@CST
Site Code : 26342236
Start Date : 7/22/08
Page No : 2

Groups Printed- 1 - Passenger Vehicles - 2 - Trucks - 3 - Buses

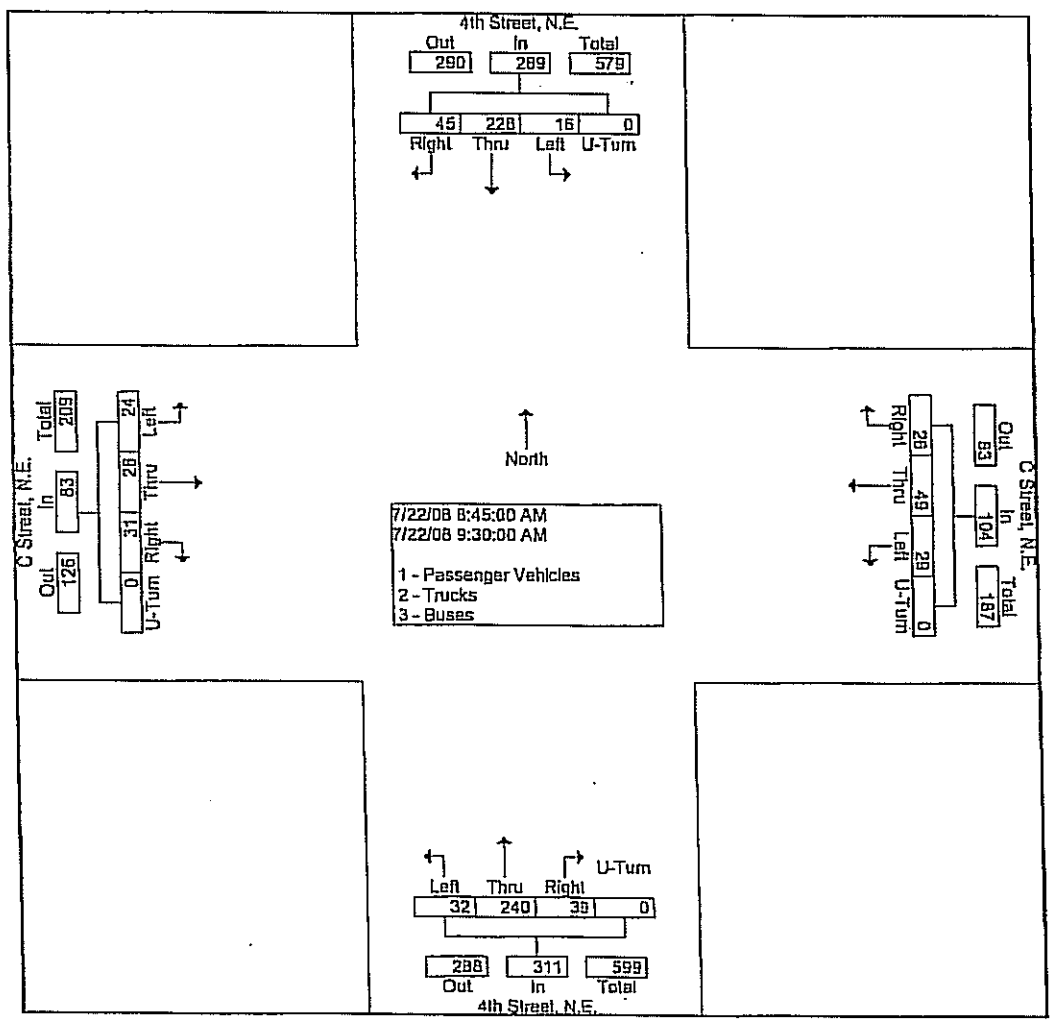
	4th Street, N.E. From North					4th Street, N.E. From South					C Street, N.E. From East					C Street, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
02:15 PM	7	26	18	0	51	10	42	6	0	58	6	6	11	0	23	8	12	11	0	31	163
02:30 PM	4	16	5	0	25	7	44	10	0	61	4	5	7	0	16	4	6	8	0	18	120
02:45 PM	7	22	6	0	35	5	41	10	0	56	3	6	14	0	23	4	17	9	0	30	144
03:00 PM	8	33	4	0	45	8	26	15	0	49	6	11	15	0	32	10	9	9	0	28	154
Total	26	97	33	0	156	30	153	41	0	224	19	28	47	0	94	26	44	37	0	107	581
03:15 PM	7	35	4	0	46	2	16	6	0	24	2	3	1	0	6	0	4	2	0	6	82
03:30 PM	4	38	10	0	52	3	43	16	0	62	3	2	3	0	8	7	17	10	0	34	156
03:45 PM	11	34	13	0	58	7	38	14	0	59	8	1	2	0	11	8	13	7	0	28	156
04:00 PM	11	34	5	0	50	5	37	23	0	65	0	7	8	0	15	11	14	11	0	36	166
Total	33	141	32	0	206	17	134	59	0	210	13	13	14	0	40	26	48	30	0	104	560
04:15 PM	8	31	8	0	47	8	44	20	0	72	7	9	7	0	23	10	9	6	0	25	167
04:30 PM	6	27	4	0	37	9	68	17	0	94	3	8	11	0	22	5	19	5	0	29	182
04:45 PM	5	30	8	0	43	8	63	23	0	94	6	16	7	0	29	13	22	7	0	42	208
05:00 PM	3	25	6	0	34	8	72	25	0	105	7	7	10	0	24	10	19	15	0	44	207
Total	22	113	26	0	161	33	247	85	0	365	23	40	35	0	98	38	69	33	0	140	764
05:15 PM	7	25	5	0	37	6	66	22	0	94	12	16	4	0	32	15	31	10	0	56	219
05:30 PM	10	42	15	0	67	4	78	18	0	100	8	11	4	0	23	4	17	10	0	31	221
05:45 PM	5	38	8	0	51	6	80	22	0	108	4	4	1	0	9	10	21	3	0	34	202
06:00 PM	3	42	5	0	50	6	74	17	0	97	1	7	5	0	13	5	19	6	0	30	190
Total	25	147	33	0	205	22	298	79	0	399	25	38	14	0	77	34	88	29	0	151	832
06:15 PM	7	29	8	0	44	10	53	21	0	84	0	3	1	0	4	5	22	9	0	36	168
06:30 PM	7	27	7	0	41	10	58	13	0	81	3	7	2	0	12	1	15	6	0	22	156
06:45 PM	2	14	7	0	23	1	48	8	0	57	1	4	2	0	7	7	8	7	0	22	109
07:00 PM	5	26	4	0	35	8	40	10	0	58	3	1	1	0	5	5	7	4	0	16	114
Total	21	96	26	0	143	29	199	52	0	280	7	15	6	0	28	18	52	26	0	96	547
Grand Total	251	1640	434	0	2325	326	2157	544	0	3027	220	330	273	0	823	313	526	394	0	1233	7408
Apprch %	10.8	70.5	18.7	0.0		10.8	71.3	18.0	0.0		26.7	40.1	33.2	0.0		25.4	42.7	32.0	0.0		
Total %	3.4	22.1	5.9	0.0	31.4	4.4	29.1	7.3	0.0	40.9	3.0	4.5	3.7	0.0	11.1	4.2	7.1	5.3	0.0	16.6	

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-TD, RN
Board :D4-2240, D4-2238
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 4TH@CST
Site Code : 26342236
Start Date : 7/22/08
Page No : 3

	4th Street, N.E. From North					4th Street, N.E. From South					C Street, N.E. From East					C Street, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour From 07:15 AM to 11:45 AM - Peak 1 of 1																					
Intersection	08:45 AM																				
Volume	16	228	45	0	289	32	240	39	0	311	29	49	26	0	104	24	28	31	0	83	787
Percent	5.5	78.9	15.6	0.0		10.3	77.2	12.5	0.0		27.9	47.1	25.0	0.0		28.9	33.7	37.3	0.0		
08:45 Volume	5	63	9	0	77	6	67	12	0	85	6	15	6	0	27	5	13	7	0	25	214
Peak Factor																					0.919
High Int.	09:30 AM					08:45 AM					09:00 AM					08:45 AM					
Volume	4	65	12	0	81	6	67	12	0	85	8	17	9	0	34	5	13	7	0	25	
Peak Factor					0.892					0.915					0.765					0.830	

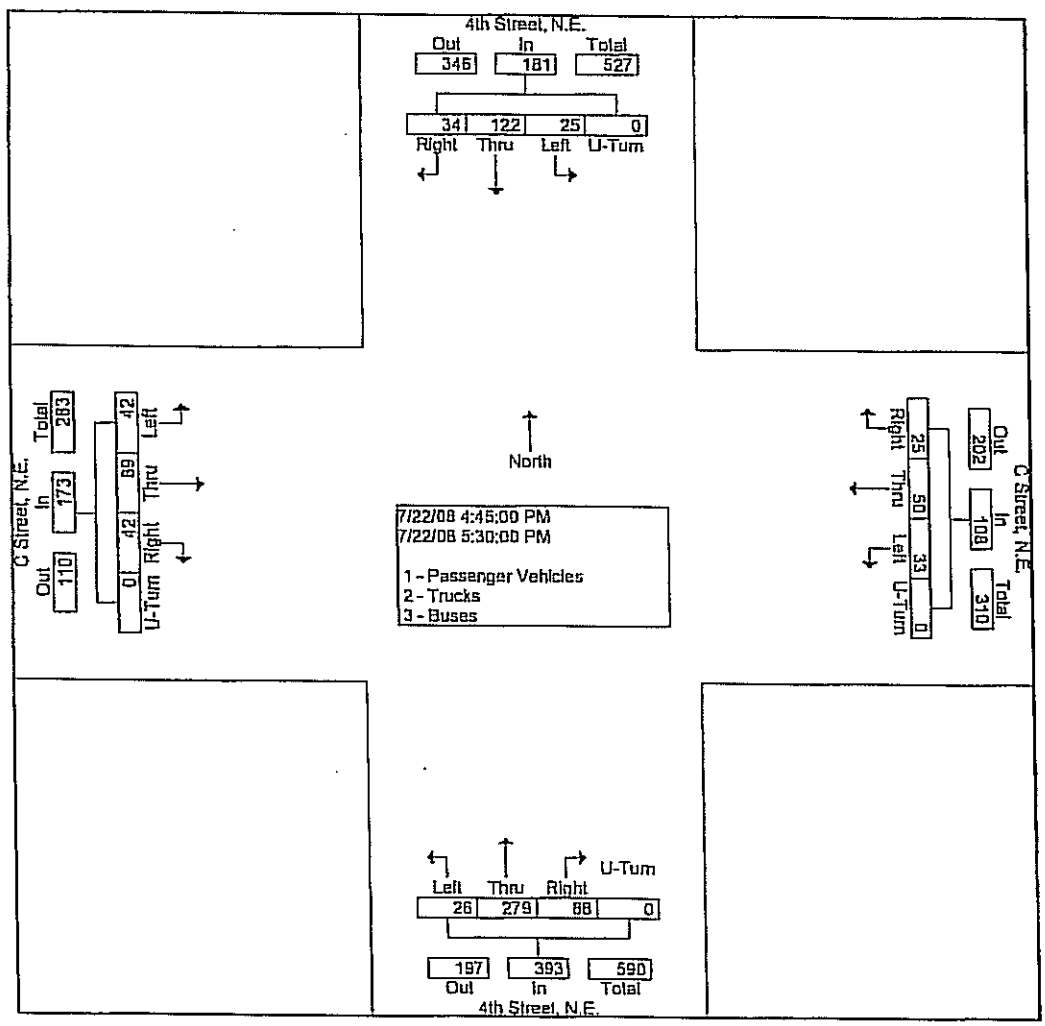


O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-TD, RN
Board :D4-2240, D4-2238
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 4TH@CST
Site Code : 26342236
Start Date : 7/22/08
Page No : 4

	4th Street, N.E. From North					4th Street, N.E. From South					C Street, N.E. From East					C Street, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour From 12:00 PM to 07:00 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	25	122	34	0	181	26	279	88	0	393	33	50	25	0	108	42	89	42	0	173	855
Percent	13.8	67.4	18.8	0.0		6.6	71.0	22.4	0.0		30.6	46.3	23.1	0.0		24.3	51.4	24.3	0.0		
05:30 Volume	10	42	15	0	67	4	78	18	0	100	8	11	4	0	23	4	17	10	0	31	221
Peak Factor																					0.967
High Int.	05:30 PM					05:00 PM					05:15 PM					05:15 PM					
Volume	10	42	15	0	67	8	72	25	0	105	12	16	4	0	32	15	31	10	0	56	
Peak Factor					0.675					0.936					0.844					0.772	



B-14

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-TD, RN
Board :D4-2240, D4-2238
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 4TH@CST
Site Code : 26342236
Start Date : 7/22/08
Page No : 1

Groups Printed- 4- Pedestrians

	4th Street, N.E. From North					4th Street, N.E. From South					C Street, N.E. From East					C Street, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:15 AM	0	0	0	8	8	0	0	0	5	5	0	0	0	6	6	0	0	0	14	14	33
07:30 AM	0	0	0	15	15	0	0	0	16	16	0	0	0	4	4	0	0	0	31	31	66
07:45 AM	0	0	0	39	39	0	0	0	23	23	0	0	0	7	7	0	0	0	30	30	99
08:00 AM	0	0	0	25	25	0	0	0	30	30	0	0	0	23	23	0	0	0	38	38	116
Total	0	0	0	87	87	0	0	0	74	74	0	0	0	40	40	0	0	0	113	113	314
08:15 AM	0	0	0	52	52	0	0	0	25	25	0	0	0	3	3	0	0	0	39	39	119
08:30 AM	0	0	0	38	38	0	0	0	27	27	0	0	0	9	9	0	0	0	31	31	105
08:45 AM	0	0	0	51	51	0	0	0	18	18	0	0	0	16	16	0	0	0	26	26	111
09:00 AM	0	0	0	36	36	0	0	0	23	23	0	0	0	14	14	0	0	0	20	20	93
Total	0	0	0	177	177	0	0	0	93	93	0	0	0	42	42	0	0	0	116	116	428
09:15 AM	0	0	0	58	58	0	0	0	26	26	0	0	0	11	11	0	0	0	24	24	119
09:30 AM	0	0	0	53	53	0	0	0	49	49	0	0	0	8	8	0	0	0	38	38	148
09:45 AM	0	0	0	21	21	0	0	0	26	26	0	0	0	5	5	0	0	0	21	21	73
10:00 AM	0	0	0	25	25	0	0	0	26	26	0	0	0	5	5	0	0	0	29	29	85
Total	0	0	0	157	157	0	0	0	127	127	0	0	0	29	29	0	0	0	112	112	425
10:15 AM	0	0	0	25	25	0	0	0	29	29	0	0	0	6	6	0	0	0	43	43	103
10:30 AM	0	0	0	14	14	0	0	0	14	14	0	0	0	6	6	0	0	0	21	21	55
10:45 AM	0	0	0	12	12	0	0	0	11	11	0	0	0	4	4	0	0	0	18	18	45
11:00 AM	0	0	0	18	18	0	0	0	13	13	0	0	0	4	4	0	0	0	21	21	56
Total	0	0	0	69	69	0	0	0	67	67	0	0	0	20	20	0	0	0	103	103	259
11:15 AM	0	0	0	11	11	0	0	0	8	8	0	0	0	5	5	0	0	0	20	20	44
11:30 AM	0	0	0	34	34	0	0	0	15	15	0	0	0	3	3	0	0	0	29	29	81
11:45 AM	0	0	0	18	18	0	0	0	23	23	0	0	0	9	9	0	0	0	28	28	78
12:00 PM	0	0	0	15	15	0	0	0	33	33	0	0	0	3	3	0	0	0	33	33	84
Total	0	0	0	78	78	0	0	0	79	79	0	0	0	20	20	0	0	0	110	110	287
12:15 PM	0	0	0	31	31	0	0	0	46	46	0	0	0	23	23	0	0	0	22	22	122
12:30 PM	0	0	0	27	27	0	0	0	32	32	0	0	0	18	18	0	0	0	62	62	139
12:45 PM	0	0	0	54	54	0	0	0	54	54	0	0	0	22	22	0	0	0	74	74	204
01:00 PM	0	0	0	46	46	0	0	0	33	33	0	0	0	12	12	0	0	0	60	60	151
Total	0	0	0	158	158	0	0	0	165	165	0	0	0	75	75	0	0	0	218	218	616
01:15 PM	0	0	0	42	42	0	0	0	49	49	0	0	0	23	23	0	0	0	62	62	176
01:30 PM	0	0	0	37	37	0	0	0	50	50	0	0	0	22	22	0	0	0	80	80	189
01:45 PM	0	0	0	38	38	0	0	0	46	46	0	0	0	14	14	0	0	0	73	73	171
02:00 PM	0	0	0	22	22	0	0	0	30	30	0	0	0	11	11	0	0	0	66	66	129
Total	0	0	0	139	139	0	0	0	175	175	0	0	0	70	70	0	0	0	281	281	665

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by: ORGA-TD, RN
Board : D4-2240, D4-2238
City/County: Washington, D.C.
Weather : Hot/Cloudy/Dry

File Name : 4TH@CST
Site Code : 26342236
Start Date : 7/22/08
Page No : 2

Groups Printed- 4- Pedestrians

	4th Street, N.E. From North					4th Street, N.E. From South					C Street, N.E. From East					C Street, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
02:15 PM	0	0	0	27	27	0	0	0	22	22	0	0	0	20	20	0	0	0	46	46	115
02:30 PM	0	0	0	31	31	0	0	0	36	36	0	0	0	13	13	0	0	0	47	47	127
02:45 PM	0	0	0	39	39	0	0	0	22	22	0	0	0	9	9	0	0	0	31	31	101
03:00 PM	0	0	0	35	35	0	0	0	29	29	0	0	0	10	10	0	0	0	32	32	106
Total	0	0	0	132	132	0	0	0	109	109	0	0	0	52	52	0	0	0	156	156	449
03:15 PM	0	0	0	16	16	0	0	0	21	21	0	0	0	15	15	0	0	0	23	23	75
03:30 PM	0	0	0	11	11	0	0	0	25	25	0	0	0	20	20	0	0	0	20	20	76
03:45 PM	0	0	0	45	45	0	0	0	15	15	0	0	0	10	10	0	0	0	24	24	94
04:00 PM	0	0	0	34	34	0	0	0	21	21	0	0	0	23	23	0	0	0	13	13	91
Total	0	0	0	106	106	0	0	0	82	82	0	0	0	68	68	0	0	0	80	80	336
04:15 PM	0	0	0	39	39	0	0	0	24	24	0	0	0	14	14	0	0	0	27	27	104
04:30 PM	0	0	0	40	40	0	0	0	27	27	0	0	0	15	15	0	0	0	43	43	125
04:45 PM	0	0	0	42	42	0	0	0	16	16	0	0	0	10	10	0	0	0	47	47	115
05:00 PM	0	0	0	40	40	0	0	0	17	17	0	0	0	16	16	0	0	0	18	18	91
Total	0	0	0	161	161	0	0	0	84	84	0	0	0	55	55	0	0	0	135	135	435
05:15 PM	0	0	0	34	34	0	0	0	27	27	0	0	0	7	7	0	0	0	24	24	92
05:30 PM	0	0	0	25	25	0	0	0	15	15	0	0	0	20	20	0	0	0	30	30	90
05:45 PM	0	0	0	44	44	0	0	0	25	25	0	0	0	23	23	0	0	0	21	21	113
06:00 PM	0	0	0	48	48	0	0	0	12	12	0	0	0	22	22	0	0	0	33	33	115
Total	0	0	0	151	151	0	0	0	79	79	0	0	0	72	72	0	0	0	108	108	410
06:15 PM	0	0	0	30	30	0	0	0	19	19	0	0	0	10	10	0	0	0	23	23	82
06:30 PM	0	0	0	22	22	0	0	0	15	15	0	0	0	14	14	0	0	0	23	23	74
06:45 PM	0	0	0	26	26	0	0	0	12	12	0	0	0	12	12	0	0	0	20	20	70
07:00 PM	0	0	0	21	21	0	0	0	21	21	0	0	0	17	17	0	0	0	28	28	87
Total	0	0	0	99	99	0	0	0	67	67	0	0	0	53	53	0	0	0	94	94	313
Grand Total	0	0	0	1514	1514	0	0	0	1201	1201	0	0	0	596	596	0	0	0	1626	1626	4937
Apprch %	0.0	0.0	0.0	100.0		0.0	0.0	0.0	100.0		0.0	0.0	0.0	100.0		0.0	0.0	0.0	100.0		
Total %	0.0	0.0	0.0	30.7	30.7	0.0	0.0	0.0	24.3	24.3	0.0	0.0	0.0	12.1	12.1	0.0	0.0	0.0	32.9	32.9	

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-AL, NB
Board :D4-2236, D4-2239
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 4TH@CST-Parking Lots
Site Code : 26342236
Start Date : 7/22/08
Page No : 1

Groups Printed- 1 - Passenger Vehicles

	Parking Lot 1 From Northeast			Parking Lot 2 From Northwest			Parking Lot 3 From Southeast			
End Time	Out	In	App. Total	Out	In	App. Total	Out	In	App. Total	Int. Total
07:15 AM	0	1	1	0	0	0	0	0	0	1
07:30 AM	0	2	2	0	2	2	0	1	1	5
07:45 AM	0	8	8	0	4	4	2	6	8	20
08:00 AM	0	5	5	0	4	4	0	8	8	17
Total	0	16	16	0	10	10	2	15	17	43
08:15 AM	0	4	4	0	0	0	3	11	14	18
08:30 AM	0	5	5	0	2	2	0	2	2	9
08:45 AM	0	3	3	0	1	1	0	3	3	7
09:00 AM	0	1	1	0	2	2	1	2	3	6
Total	0	13	13	0	5	5	4	18	22	40
09:15 AM	0	2	2	0	3	3	2	3	5	10
09:30 AM	0	5	5	0	0	0	0	2	2	7
09:45 AM	0	6	6	0	2	2	0	0	0	8
10:00 AM	0	3	3	0	0	0	0	1	1	4
Total	0	16	16	0	5	5	2	6	8	29
10:15 AM	0	4	4	0	1	1	0	0	0	5
10:30 AM	0	4	4	0	0	0	0	2	2	6
*** BREAK ***										
11:00 AM	0	0	0	0	0	0	1	2	3	3
Total	0	8	8	0	1	1	1	4	5	14
11:15 AM	0	1	1	0	0	0	0	1	1	2
11:30 AM	0	0	0	0	0	0	2	2	4	4
11:45 AM	0	1	1	0	0	0	2	0	2	3
12:00 PM	0	3	3	0	0	0	0	0	0	3
Total	0	5	5	0	0	0	4	3	7	12
12:15 PM	0	0	0	0	0	0	1	2	3	3
12:30 PM	0	2	2	0	0	0	2	3	5	7
12:45 PM	0	1	1	0	0	0	2	2	4	5
01:00 PM	0	1	1	0	0	0	0	1	1	2
Total	0	4	4	0	0	0	5	8	13	17
01:15 PM	0	1	1	0	0	0	2	8	10	11
01:30 PM	0	0	0	0	0	0	4	3	7	7
01:45 PM	0	1	1	0	0	0	5	3	8	9
02:00 PM	0	1	1	0	1	1	2	4	6	8
Total	0	3	3	0	1	1	13	18	31	35

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-AL, NB
Board :D4-2236, D4-2239
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 4TH@CST-Parking Lots
Site Code : 26342236
Start Date : 7/22/08
Page No : 2

Groups Printed- 1 - Passenger Vehicles

	Parking Lot 1 From Northeast			Parking Lot 2 From Northwest			Parking Lot 3 From Southeast			
End Time	Out	In	App. Total	Out	In	App. Total	Out	In	App. Total	Int. Total
02:15 PM	0	3	3	0	1	1	1	2	3	7
02:30 PM	0	4	4	0	0	0	5	4	9	13
02:45 PM	0	2	2	0	0	0	2	3	5	7
03:00 PM	0	1	1	0	0	0	0	1	1	2
Total	0	10	10	0	1	1	8	10	18	29
03:15 PM	0	1	1	0	0	0	1	0	1	2
03:30 PM	0	3	3	0	0	0	1	1	2	5
03:45 PM	0	20	20	0	0	0	3	3	6	26
04:00 PM	0	9	9	0	0	0	1	5	6	15
Total	0	33	33	0	0	0	6	9	15	48
04:15 PM	0	9	9	0	0	0	3	2	5	14
04:30 PM	0	3	3	0	0	0	7	2	9	12
04:45 PM	0	8	8	0	0	0	9	6	15	23
05:00 PM	0	4	4	0	0	0	5	2	7	11
Total	0	24	24	0	0	0	24	12	36	60
05:15 PM	0	0	0	0	0	0	8	2	10	10
05:30 PM	0	5	5	0	1	1	1	1	2	8
05:45 PM	0	2	2	0	0	0	1	3	4	6
06:00 PM	0	8	8	0	0	0	0	3	3	11
Total	0	15	15	0	1	1	10	9	19	35
06:15 PM	0	4	4	0	1	1	5	1	6	11
06:30 PM	0	1	1	0	1	1	0	2	2	4
06:45 PM	0	5	5	0	0	0	5	0	5	10
07:00 PM	0	0	0	0	0	0	2	0	2	2
Total	0	10	10	0	2	2	12	3	15	27
Grand Total	0	157	157	0	26	26	91	115	206	389
Apprch %	0.0	100.0		0.0	100.0		44.2	55.8		
Total %	0.0	40.4	40.4	0.0	6.7	6.7	23.4	29.6	53.0	

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-TD, RN
Board :D4-2240, D4-2238
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 2ND@CST
Site Code : 26342236
Start Date : 7/23/08
Page No : 1

Groups Printed- 1 - Passenger Vehicles - 2 - Trucks - 3 - Buses

	2nd Street, N.E. From North					2nd Street, N.E. (One Way) From South					C Street, N.E. From East					C Street, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:15 AM	0	4	2	0	6	0	0	0	0	0	28	37	0	0	65	0	5	1	0	6	77
07:30 AM	0	6	2	0	8	0	0	0	0	0	39	43	0	1	83	0	7	1	0	8	99
07:45 AM	0	8	2	0	10	0	0	0	0	0	42	50	0	0	92	0	10	2	0	12	114
08:00 AM	0	1	3	0	4	0	0	0	0	0	48	44	0	0	92	0	8	1	0	9	105
Total	0	19	9	0	28	0	0	0	0	0	157	174	0	1	332	0	30	5	0	35	395
08:15 AM	0	5	4	0	9	0	0	0	0	0	60	46	0	0	106	0	12	1	0	13	128
08:30 AM	2	5	5	0	12	0	0	0	0	0	44	47	0	0	91	0	19	0	0	19	122
08:45 AM	0	6	2	0	8	0	0	0	0	0	46	41	0	0	87	0	19	5	0	24	119
09:00 AM	0	14	5	0	19	0	0	0	0	0	41	48	0	0	89	0	26	6	0	32	140
Total	2	30	16	0	48	0	0	0	0	0	191	182	0	0	373	0	76	12	0	88	509
09:15 AM	0	8	1	0	9	0	0	0	0	0	32	49	0	1	82	0	31	5	0	36	127
09:30 AM	1	1	4	0	6	0	0	0	0	0	23	39	0	0	62	0	21	2	0	23	91
09:45 AM	0	2	4	0	6	0	0	0	0	0	24	24	0	0	48	0	15	4	0	19	73
10:00 AM	1	2	1	0	4	0	0	0	0	0	36	41	0	0	77	0	24	5	0	29	110
Total	2	13	10	0	25	0	0	0	0	0	115	153	0	1	269	0	91	16	0	107	401
10:15 AM	1	4	3	0	8	0	0	0	0	0	42	28	0	0	70	0	15	10	0	25	103
10:30 AM	0	6	3	0	9	0	0	0	0	0	51	20	0	1	72	0	12	9	0	21	102
10:45 AM	0	5	4	0	9	0	0	0	0	0	26	13	0	0	39	0	9	11	0	20	68
11:00 AM	0	6	2	0	8	0	0	0	0	0	19	15	0	0	34	0	10	7	0	17	59
Total	1	21	12	0	34	0	0	0	0	0	138	76	0	1	215	0	46	37	0	83	332
11:15 AM	0	5	7	0	12	0	0	0	0	0	25	14	0	0	39	0	18	4	0	22	73
11:30 AM	1	5	7	0	13	0	0	0	0	0	22	8	0	0	30	0	6	3	0	9	52
11:45 AM	0	3	4	0	7	0	0	0	0	0	20	8	0	0	28	0	11	5	0	16	51
12:00 PM	0	6	4	0	10	0	0	0	0	0	31	10	0	0	41	0	9	4	0	13	64
Total	1	19	22	0	42	0	0	0	0	0	98	40	0	0	138	0	44	16	0	60	240
12:15 PM	0	5	1	0	6	0	0	0	0	0	50	8	0	0	58	0	14	12	0	26	90
12:30 PM	3	3	4	0	10	0	0	0	0	0	40	20	0	0	60	0	10	9	0	19	89
12:45 PM	0	3	5	0	8	0	0	0	0	0	33	11	0	0	44	0	18	12	0	30	82
01:00 PM	0	2	4	0	6	0	0	0	0	0	24	9	0	0	33	0	8	8	0	16	55
Total	3	13	14	0	30	0	0	0	0	0	147	48	0	0	195	0	50	41	0	91	316
01:15 PM	1	4	7	0	12	0	0	0	0	0	31	4	0	0	35	0	21	10	0	31	78
01:30 PM	0	4	5	0	9	0	0	0	0	0	37	12	0	0	49	0	19	6	0	25	83
01:45 PM	0	3	2	0	5	0	0	0	0	0	37	8	0	0	45	0	18	8	0	26	76
02:00 PM	2	2	0	0	4	0	0	0	0	0	29	9	0	0	38	0	23	12	0	35	77
Total	3	13	14	0	30	0	0	0	0	0	134	33	0	0	167	0	81	36	0	117	314

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-TD, RN
Board :D4-2240, D4-2238
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 2ND@CST
Site Code : 26342236
Start Date : 7/23/08
Page No : 2

Groups Printed- 1 - Passenger Vehicles - 2 - Trucks - 3 - Buses

	2nd Street, N.E. From North					2nd Street, N.E. (One Way) From South					C Street, N.E. From East					C Street, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
02:15 PM	1	5	6	0	12	0	0	0	0	0	42	12	0	0	54	0	9	12	0	21	87
02:30 PM	1	2	3	0	6	0	0	0	0	0	29	16	0	1	46	0	24	11	0	35	87
02:45 PM	0	2	3	0	5	0	0	0	0	0	53	14	0	0	67	0	15	15	0	30	102
03:00 PM	0	6	3	0	9	0	0	0	0	0	51	12	0	0	63	0	15	10	0	25	97
Total	2	15	15	0	32	0	0	0	0	0	175	54	0	1	230	0	63	48	0	111	373
03:15 PM	1	4	4	0	9	0	0	0	0	0	35	19	0	0	54	0	16	18	0	34	97
03:30 PM	2	6	5	0	13	0	0	0	0	0	41	14	0	0	55	0	29	8	0	37	105
03:45 PM	0	5	2	0	7	0	0	0	0	0	33	13	0	0	46	0	16	7	0	23	76
04:00 PM	1	5	0	0	6	0	0	0	0	0	47	14	0	0	61	0	26	8	0	34	101
Total	4	20	11	0	35	0	0	0	0	0	156	60	0	0	216	0	87	41	0	128	379
04:15 PM	2	7	5	0	14	0	0	0	0	0	39	11	0	0	50	0	34	1	0	35	99
04:30 PM	1	7	5	0	13	0	0	0	0	0	52	10	0	0	62	0	23	13	0	36	111
04:45 PM	0	6	1	0	7	0	0	0	0	0	43	12	0	1	56	0	27	2	0	29	92
05:00 PM	3	0	4	0	7	0	0	0	0	0	49	15	0	0	64	0	40	4	0	44	115
Total	6	20	15	0	41	0	0	0	0	0	183	48	0	1	232	0	124	20	0	144	417
05:15 PM	0	5	4	0	9	0	0	0	0	0	55	22	0	0	77	0	28	10	0	38	124
05:30 PM	0	4	1	0	5	0	0	0	0	0	69	22	0	0	91	0	65	8	0	73	169
05:45 PM	0	3	0	0	3	0	0	0	0	0	70	13	0	0	83	0	48	10	0	58	144
06:00 PM	1	1	2	0	4	0	0	0	0	0	75	20	0	0	95	0	38	9	0	47	146
Total	1	13	7	0	21	0	0	0	0	0	269	77	0	0	346	0	179	37	0	216	583
06:15 PM	0	3	0	0	3	0	0	0	0	0	79	13	0	0	92	0	30	7	0	37	132
06:30 PM	1	2	0	0	3	0	0	0	0	0	127	13	0	1	141	0	18	0	0	18	162
06:45 PM	0	3	0	0	3	0	0	0	0	0	147	20	0	0	167	0	17	3	0	20	190
07:00 PM	1	6	0	0	7	0	0	0	0	0	107	14	0	0	121	0	16	13	0	29	157
Total	2	14	0	0	16	0	0	0	0	0	460	60	0	1	521	0	81	23	0	104	641
Grand Total	27	210	145	0	382	0	0	0	0	0	2223	1005	0	6	3234	0	952	332	0	1284	4900
Apprch %	7.1	55.0	38.0	0.0		0.0	0.0	0.0	0.0		68.7	31.1	0.0	0.2		0.0	74.1	25.9	0.0		
Total %	0.6	4.3	3.0	0.0	7.8	0.0	0.0	0.0	0.0	0.0	45.4	20.5	0.0	0.1	66.0	0.0	19.4	6.8	0.0	26.2	

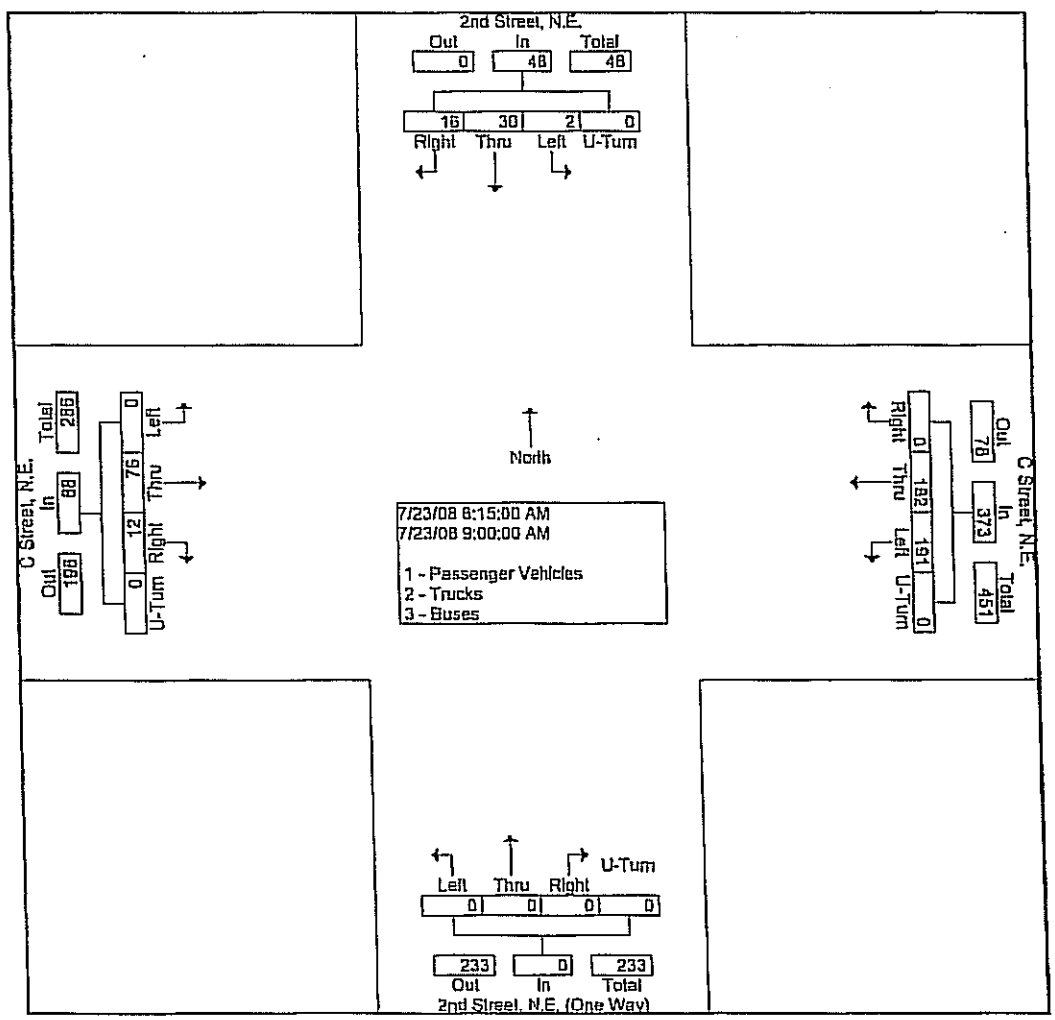
B-20

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-TD, RN
Board :D4-2240, D4-2238
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 2ND@CST
Site Code : 26342236
Start Date : 7/23/08
Page No : 3

	2nd Street, N.E. From North					2nd Street, N.E. (One Way) From South					C Street, N.E. From East					C Street, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour From 07:15 AM to 11:45 AM - Peak 1 of 1																					
Intersection	08:15 AM																				
Volume	2	30	16	0	48	0	0	0	0	0	191	182	0	0	373	0	76	12	0	88	509
Percent	4.2	62.5	33.3	0.0		0.0	0.0	0.0	0.0		51.2	48.8	0.0	0.0		0.0	86.4	13.6	0.0		
09:00 Volume	0	14	5	0	19	0	0	0	0	0	41	48	0	0	89	0	26	6	0	32	140
Peak Factor																					0.909
High Int.	09:00 AM					7:00:00 AM					08:15 AM					09:00 AM					
Volume	0	14	5	0	19	0	0	0	0	0	60	46	0	0	106	0	26	6	0	32	
Peak Factor					0.632										0.880					0.688	



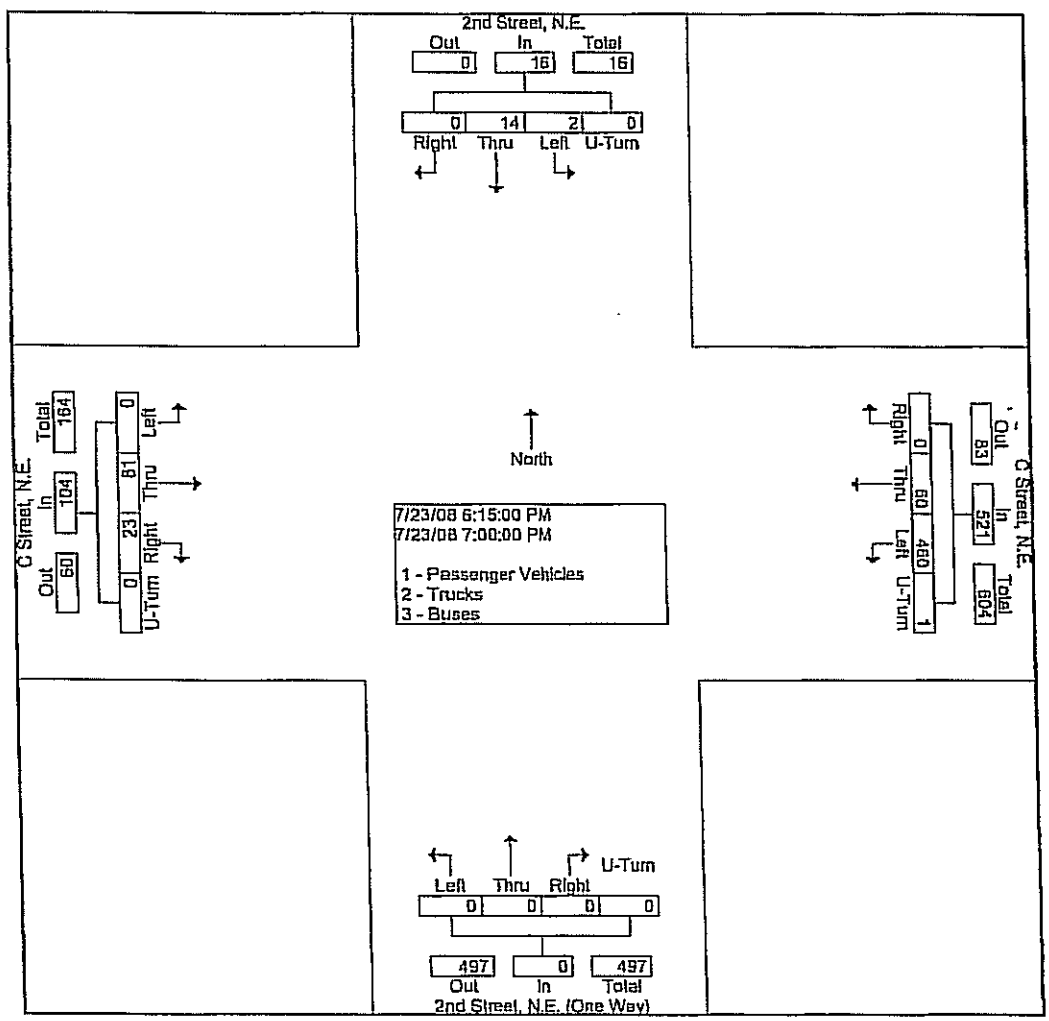
B-21

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-TD, RN
Board :D4-2240, D4-2238
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 2ND@CST
Site Code : 26342236
Start Date : 7/23/08
Page No : 4

	2nd Street, N.E. From North					2nd Street, N.E. (One Way) From South					C Street, N.E. From East					C Street, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour From 12:00 PM to 07:00 PM - Peak 1 of 1																					
Intersection	06:15 PM																				
Volume	2	14	0	0	16	0	0	0	0	0	460	60	0	1	521	0	81	23	0	104	641
Percent	12.5	87.5	0.0	0.0		0.0	0.0	0.0	0.0		88.3	11.5	0.0	0.2		0.0	77.9	22.1	0.0		
06:45 Volume	0	3	0	0	3	0	0	0	0	0	147	20	0	0	167	0	17	3	0	20	190
Peak Factor																					0.843
High Int.	07:00 PM										06:45 PM					06:15 PM					
Volume	1	6	0	0	7	0	0	0	0	0	147	20	0	0	167	0	30	7	0	37	
Peak Factor					0.571										0.780					0.703	



B-22

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-TD, RN
Board :D4-2240, D4-2238
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 2ND@CST
Site Code : 26342236
Start Date : 7/23/08
Page No : 1

Groups Printed- 4- Pedestrians

	2nd Street, N.E. From North					2nd Street, N.E. (One Way) From South					C Street, N.E. From East					C Street, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:15 AM	0	0	0	2	2	0	0	0	1	1	0	0	0	1	1	0	0	0	2	2	6
07:30 AM	0	0	0	2	2	0	0	0	0	0	0	0	0	1	1	0	0	0	4	4	7
07:45 AM	0	0	0	4	4	0	0	0	3	3	0	0	0	0	0	0	0	0	7	7	14
08:00 AM	0	0	0	5	5	0	0	0	1	1	0	0	0	0	0	0	0	0	7	7	13
Total	0	0	0	13	13	0	0	0	5	5	0	0	0	2	2	0	0	0	20	20	40
08:15 AM	0	0	0	2	2	0	0	0	1	1	0	0	0	1	1	0	0	0	4	4	8
08:30 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	5
08:45 AM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	5
09:00 AM	0	0	0	4	4	0	0	0	9	9	0	0	0	1	1	0	0	0	7	7	21
Total	0	0	0	9	9	0	0	0	10	10	0	0	0	2	2	0	0	0	18	18	39
09:15 AM	0	0	0	8	8	0	0	0	3	3	0	0	0	0	0	0	0	0	4	4	15
09:30 AM	0	0	0	7	7	0	0	0	3	3	0	0	0	1	1	0	0	0	1	1	12
09:45 AM	0	0	0	7	7	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	10
10:00 AM	0	0	0	6	6	0	0	0	0	0	0	0	0	3	3	0	0	0	7	7	16
Total	0	0	0	28	28	0	0	0	6	6	0	0	0	5	5	0	0	0	14	14	53
10:15 AM	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	6
10:30 AM	0	0	0	3	3	0	0	0	7	7	0	0	0	1	1	0	0	0	4	4	15
10:45 AM	0	0	0	5	5	0	0	0	1	1	0	0	0	3	3	0	0	0	5	5	14
11:00 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	4
Total	0	0	0	14	14	0	0	0	8	8	0	0	0	4	4	0	0	0	13	13	39
11:15 AM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	7
11:30 AM	0	0	0	3	3	0	0	0	0	0	0	0	0	4	4	0	0	0	5	5	12
11:45 AM	0	0	0	4	4	0	0	0	11	11	0	0	0	1	1	0	0	0	5	5	21
12:00 PM	0	0	0	7	7	0	0	0	5	5	0	0	0	8	8	0	0	0	11	11	31
Total	0	0	0	16	16	0	0	0	16	16	0	0	0	13	13	0	0	0	26	26	71
12:15 PM	0	0	0	18	18	0	0	0	0	0	0	0	0	6	6	0	0	0	10	10	34
12:30 PM	0	0	0	12	12	0	0	0	0	0	0	0	0	1	1	0	0	0	8	8	21
12:45 PM	0	0	0	22	22	0	0	0	0	0	0	0	0	12	12	0	0	0	17	17	51
01:00 PM	0	0	0	17	17	0	0	0	3	3	0	0	0	5	5	0	0	0	7	7	32
Total	0	0	0	69	69	0	0	0	3	3	0	0	0	24	24	0	0	0	42	42	138
01:15 PM	0	0	0	15	15	0	0	0	0	0	0	0	0	8	8	0	0	0	4	4	27
01:30 PM	0	0	0	19	19	0	0	0	0	0	0	0	0	8	8	0	0	0	0	0	27
01:45 PM	0	0	0	35	35	0	0	0	0	0	0	0	0	12	12	0	0	0	2	2	49
02:00 PM	0	0	0	16	16	0	0	0	3	3	0	0	0	4	4	0	0	0	25	25	48
Total	0	0	0	85	85	0	0	0	3	3	0	0	0	32	32	0	0	0	31	31	151

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-TD, RN
Board :D4-2240, D4-2238
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 2ND@CST
Site Code : 26342236
Start Date : 7/23/08
Page No : 2

Groups Printed- 4- Pedestrians

	2nd Street, N.E. From North					2nd Street, N.E. (One Way) From South					C Street, N.E. From East					C Street, N.E. From West					
End Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
02:15 PM	0	0	0	14	14	0	0	0	2	2	0	0	0	4	4	0	0	0	10	10	30
02:30 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	1	1	3
02:45 PM	0	0	0	14	14	0	0	0	0	0	0	0	0	1	1	0	0	0	12	12	27
03:00 PM	0	0	0	4	4	0	0	0	1	1	0	0	0	5	5	0	0	0	8	8	18
Total	0	0	0	32	32	0	0	0	4	4	0	0	0	11	11	0	0	0	31	31	78
03:15 PM	0	0	0	5	5	0	0	0	0	0	0	0	0	2	2	0	0	0	4	4	11
03:30 PM	0	0	0	4	4	0	0	0	0	0	0	0	0	10	10	0	0	0	4	4	18
03:45 PM	0	0	0	9	9	0	0	0	0	0	0	0	0	8	8	0	0	0	1	1	18
04:00 PM	0	0	0	4	4	0	0	0	0	0	0	0	0	9	9	0	0	0	7	7	20
Total	0	0	0	22	22	0	0	0	0	0	0	0	0	29	29	0	0	0	16	16	67
04:15 PM	0	0	0	8	8	0	0	0	1	1	0	0	0	1	1	0	0	0	17	17	27
04:30 PM	0	0	0	7	7	0	0	0	0	0	0	0	0	2	2	0	0	0	5	5	14
04:45 PM	0	0	0	9	9	0	0	0	0	0	0	0	0	2	2	0	0	0	2	2	13
05:00 PM	0	0	0	1	1	0	0	0	2	2	0	0	0	5	5	0	0	0	4	4	12
Total	0	0	0	25	25	0	0	0	3	3	0	0	0	10	10	0	0	0	28	28	66
05:15 PM	0	0	0	3	3	0	0	0	0	0	0	0	0	2	2	0	0	0	4	4	9
05:30 PM	0	0	0	5	5	0	0	0	1	1	0	0	0	1	1	0	0	0	8	8	15
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	4	4	5
06:00 PM	0	0	0	5	5	0	0	0	1	1	0	0	0	6	6	0	0	0	7	7	19
Total	0	0	0	13	13	0	0	0	2	2	0	0	0	10	10	0	0	0	23	23	48
06:15 PM	0	0	0	11	11	0	0	0	1	1	0	0	0	7	7	0	0	0	5	5	24
06:30 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	7	7	0	0	0	0	0	9
06:45 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	5	5	0	0	0	3	3	10
07:00 PM	0	0	0	10	10	0	0	0	0	0	0	0	0	2	2	0	0	0	4	4	16
Total	0	0	0	25	25	0	0	0	1	1	0	0	0	21	21	0	0	0	12	12	59
Grand Total	0	0	0	351	351	0	0	0	61	61	0	0	0	163	163	0	0	0	274	274	849
Apprch %	0.0	0.0	0.0	100.0		0.0	0.0	0.0	100.0		0.0	0.0	0.0	100.0		0.0	0.0	0.0	100.0		
Total %	0.0	0.0	0.0	41.3	41.3	0.0	0.0	0.0	7.2	7.2	0.0	0.0	0.0	19.2	19.2	0.0	0.0	0.0	32.3	32.3	

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-AL, RN
Board :D4-2236, D4-2238
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 2ND@CST-Ramps
Site Code : 26342236
Start Date : 7/23/08
Page No : 1

Groups Printed- 1 - Passenger Vehicles - 2 - Trucks - 3 - Buses

	Ramp 1 From Northwest			Ramp 2 From Southwest			Ramp 3 (To I-395 South) From Southeast			
End Time	Out	In	App. Total	Out	In	App. Total	Out	In	App. Total	Int. Total
07:15 AM	0	0	0	0	1	1	0	5	5	6
07:30 AM	0	0	0	0	2	2	0	9	9	11
07:45 AM	0	2	2	0	0	0	0	11	11	13
08:00 AM	0	0	0	0	0	0	0	2	2	2
Total	0	2	2	0	3	3	0	27	27	32
08:15 AM	0	2	2	1	0	1	0	4	4	7
08:30 AM	0	0	0	0	0	0	0	8	8	8
08:45 AM	0	1	1	0	0	0	0	7	7	8
09:00 AM	0	0	0	0	0	0	0	9	9	9
Total	0	3	3	1	0	1	0	28	28	32
09:15 AM	0	0	0	0	0	0	0	7	7	7
09:30 AM	0	2	2	0	0	0	0	5	5	7
09:45 AM	0	3	3	0	2	2	0	6	6	11
10:00 AM	0	0	0	1	1	2	0	5	5	7
Total	0	5	5	1	3	4	0	23	23	32
10:15 AM	0	0	0	0	0	0	0	7	7	7
10:30 AM	0	1	1	0	0	0	0	12	12	13
10:45 AM	0	0	0	0	0	0	0	7	7	7
11:00 AM	0	2	2	0	0	0	0	9	9	11
Total	0	3	3	0	0	0	0	35	35	38
11:15 AM	0	2	2	0	0	0	0	13	13	15
11:30 AM	0	2	2	0	0	0	0	15	15	17
11:45 AM	0	1	1	0	0	0	0	14	14	15
12:00 PM	0	2	2	0	1	1	0	12	12	15
Total	0	7	7	0	1	1	0	54	54	62
12:15 PM	0	0	0	0	0	0	0	13	13	13
12:30 PM	0	0	0	1	0	1	0	7	7	8
12:45 PM	0	0	0	0	0	0	0	19	19	19
01:00 PM	0	1	1	0	1	1	0	8	8	10
Total	0	1	1	1	1	2	0	47	47	50
01:15 PM	0	1	1	2	2	4	0	8	8	13
01:30 PM	0	0	0	0	1	1	0	10	10	11
01:45 PM	0	1	1	1	0	1	0	10	10	12
02:00 PM	0	2	2	1	0	1	0	13	13	16
Total	0	4	4	4	3	7	0	41	41	52

O. R. George & Associates, Inc.
10210 Greenbelt Road, Suite 310
Lanham, MD 20706-2218
Tel: (301) 794-7700 Fax: (301) 794-4400

Counted by:ORGA-AL, RN
Board :D4-2236, D4-2238
City/County:Washington, D.C.
Weather :Hot/Cloudy/Dry

File Name : 2ND@CST-Ramps
Site Code : 26342236
Start Date : 7/23/08
Page No : 2

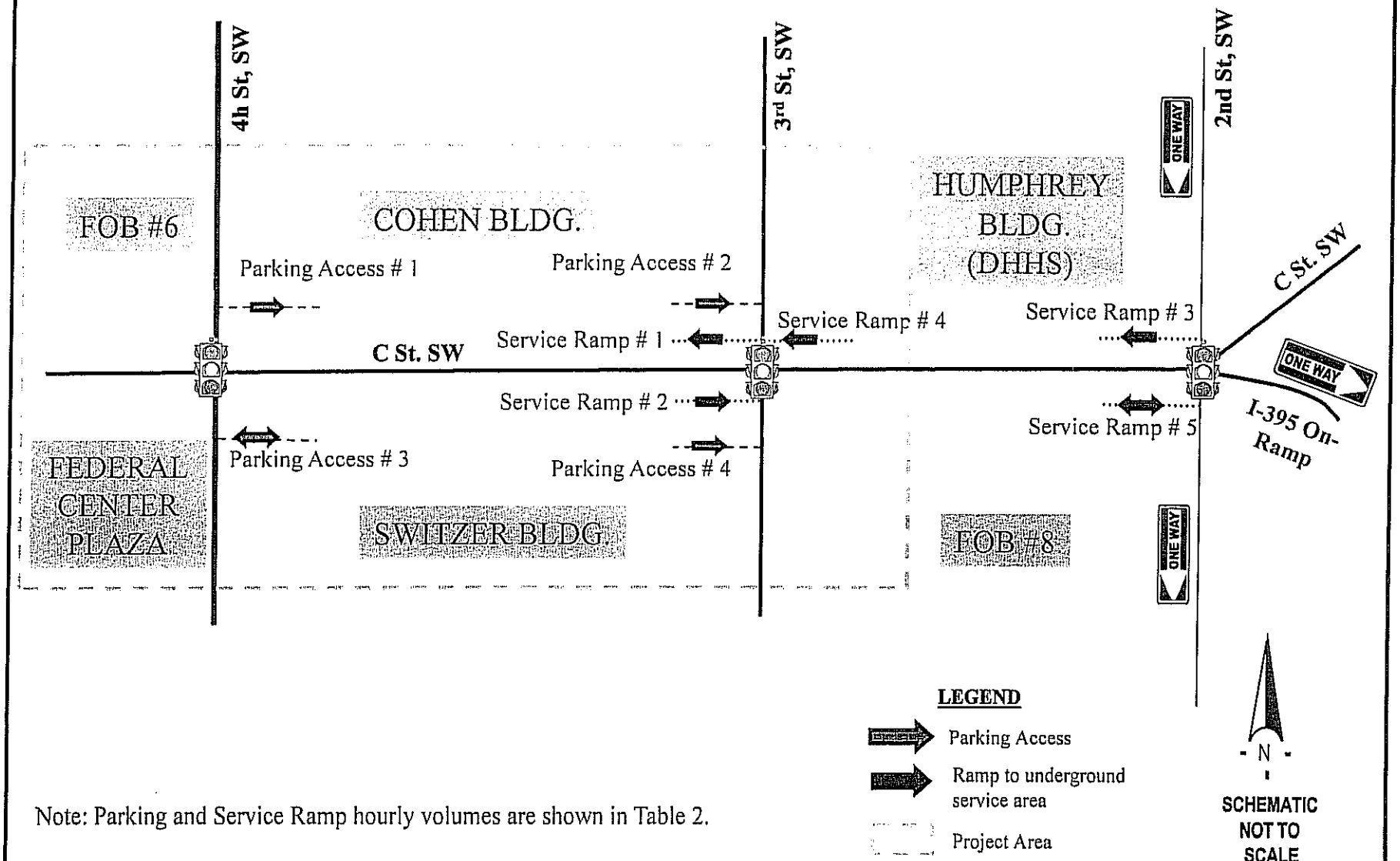
Groups Printed- 1 - Passenger Vehicles - 2 - Trucks - 3 - Buses

	Ramp 1 From Northwest			Ramp 2 From Southwest			Ramp 3 (To I-395 South) From Southeast			
End Time	Out	In	App. Total	Out	In	App. Total	Out	In	App. Total	Int. Total
02:15 PM	0	0	0	0	2	2	0	16	16	18
02:30 PM	0	0	0	0	1	1	0	18	18	19
02:45 PM	0	1	1	0	0	0	0	13	13	14
03:00 PM	0	2	2	1	1	2	0	13	13	17
Total	0	3	3	1	4	5	0	60	60	68
03:15 PM	0	0	0	0	0	0	0	8	8	8
03:30 PM	0	0	0	2	0	2	0	21	21	23
03:45 PM	0	1	1	0	0	0	0	20	20	21
04:00 PM	0	0	0	0	1	1	0	33	33	34
Total	0	1	1	2	1	3	0	82	82	86
04:15 PM	0	0	0	0	0	0	0	19	19	19
04:30 PM	0	0	0	0	1	1	0	28	28	29
04:45 PM	0	0	0	0	0	0	0	20	20	20
05:00 PM	0	0	0	0	12	12	0	19	19	31
Total	0	0	0	0	13	13	0	86	86	99
05:15 PM	0	0	0	0	1	1	0	18	18	19
05:30 PM	0	0	0	0	0	0	0	38	38	38
05:45 PM	0	0	0	0	0	0	0	30	30	30
06:00 PM	0	0	0	0	0	0	0	20	20	20
Total	0	0	0	0	1	1	0	106	106	107
06:15 PM	0	0	0	0	0	0	0	31	31	31
06:30 PM	0	0	0	0	0	0	0	12	12	12
06:45 PM	0	0	0	0	0	0	0	11	11	11
07:00 PM	0	0	0	0	0	0	0	14	14	14
Total	0	0	0	0	0	0	0	68	68	68
Grand Total	0	29	29	10	30	40	0	657	657	726
Apprch %	0.0	100.0		25.0	75.0		0.0	100.0		
Total %	0.0	4.0	4.0	1.4	4.1	5.5	0.0	90.5	90.5	

ATTACHMENT

C

Parking Access Numbering Scheme
(Existing Situation)



Note: Parking and Service Ramp hourly volumes are shown in Table 2.

O. R. GEORGE &ASSOCIATES, INC.
Traffic Engineers - Transportation Planners

Parking Access and Service Ramps

Traffic Data and Engineering Survey for the Neighborhood of 3rd and C Street, Southwest, Washington, DC

C-1

ATTACHMENT

D

Highway Capacity Software
Capacity Analysis Worksheets
(Existing Traffic Situation)

SHORT REPORT

General Information		Site Information	
Analyst	Lili Liang	Intersection	3rd St SW and C St SW
Agency or Co.	ORGA	Area Type	CBD or Similar
Date Performed	3/25/2010	Jurisdiction	Washington DC
Time Period	AM Peak	Analysis Year	2010

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	2	0	0	1	1	0	2	0	0	2	0
Lane group		LTR			LT	R		LTR			LTR	
Volume (vph)	26	56	11	29	83	53	21	121	48	26	150	29
% Heavy veh	4	4	4	4	4	4	4	4	4	4	4	4
PHF	0.80	0.80	0.80	0.90	0.90	0.90	0.93	0.93	0.93	0.92	0.92	0.92
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0			2.0	2.0		2.0			2.0	
Ext. eff. green		2.0			2.0	2.0		2.0			2.0	
Arrival type		5			5	5		5			5	
Unit Extension		3.0			3.0	3.0		3.0			3.0	
Ped/Bike/RTOR Volume	87	0	0	90	0	0	308	0	0	328	0	0
Lane Width		16.0			11.0	11.0		12.0			12.0	
Parking/Grade/Parking	N	0	Y	N	0	Y	N	0	Y	N	0	Y
Parking/hr			10			10			10			10
Bus stops/hr		6			6	0		0			0	
Unit Extension		3.0			3.0	3.0		3.0			3.0	

Phasing	EW Perm	02	03	04	Peds Only	NS Perm	SB Only	08
Timing	G = 26.0	G =	G =	G =	G = 20.0	G = 15.0	G = 7.0	G =
	Y = 4	Y =	Y =	Y =	Y = 0	Y = 4	Y = 4	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		116			124	59		205			223	
Lane group cap.		879			454	487		393			777	
v/c ratio		0.13			0.27	0.12		0.52			0.29	
Green ratio		0.32			0.32	0.46		0.19			0.32	
Unif. delay d1		19.0			20.0	12.2		29.3			20.1	
Delay factor k		0.50			0.50	0.50		0.50			0.50	
Increm. delay d2		0.3			1.5	0.5		4.9			0.9	
PF factor		0.679			0.679	0.426		0.846			0.679	
Control delay		13.2			15.1	5.7		29.6			14.6	
Lane group LOS		B			B	A		C			B	
Apprch. delay	13.2			12.1			29.6			14.6		
Approach LOS	B			B			C			B		
Intersec. delay	18.0			Intersection LOS						B		

HCS2000™ Copyright © 2000 University of Florida, All Rights Reserved Version 4.1f

D-1

SHORT REPORT

General Information		Site Information	
Analyst	Lili Liang	Intersection	3rd ST SW and C ST SW
Agency or Co.	O. R. George & Associstes	Area Type	CBD or Similar
Date Performed	3/25/2010	Jurisdiction	Washington DC
Time Period	PM Peak	Analysis Year	2010

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	2	0	0	1	1	0	2	0	0	2	0
Lane group		LTR			LT	R		LTR			LTR	
Volume (vph)	41	159	11	14	52	11	14	159	87	108	148	45
% Heavy veh	4	4	4	4	4	4	4	4	4	4	4	4
PHF	0.89	0.89	0.89	0.71	0.71	0.71	0.94	0.94	0.94	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0			2.0	2.0		2.0			2.0	
Ext. eff. green		2.0			2.0	2.0		2.0			2.0	
Arrival type		5			5	5		5			5	
Unit Extension		3.0			3.0	3.0		3.0			3.0	
Ped/Bike/RTOR Volume	67	0	0	30	0	0	294	0	0	353	0	0
Lane Width		16.0			11.0	11.0		12.0			12.0	
Parking/Grade/Parking	N	0	Y	N	0	Y	N	0	Y	N	0	Y
Parking/hr			10			10			10			10
Bus stops/hr		6			6	0		0			0	
Unit Extension		3.0			3.0	3.0		3.0			3.0	

Phasing	EW Perm	02	03	04	Peds Only	NS Perm	SB Only	08
Timing	G = 26.0	G =	G =	G =	G = 20.0	G = 15.0	G = 7.0	G =
	Y = 4	Y =	Y =	Y =	Y = 0	Y = 4	Y = 4	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		237			93	15		277			317	
Lane group cap.		923			460	517		416			646	
v/c ratio		0.26			0.20	0.03		0.67			0.49	
Green ratio		0.32			0.32	0.46		0.19			0.32	
Unif. delay d1		19.9			19.5	11.7		30.2			21.7	
Delay factor k		0.50			0.50	0.50		0.50			0.50	
Increm. delay d2		0.7			1.0	0.1		8.2			2.7	
PF factor		0.679			0.679	0.426		0.846			0.679	
Control delay		14.2			14.2	5.1		33.7			17.4	
Lane group LOS		B			B	A		C			B	
Apprch. delay	14.2			13.0			33.7			17.4		
Approach LOS	B			B			C			B		
Intersec. delay	20.9			Intersection LOS						C		

HCS2000™ Copyright © 2000 University of Florida, All Rights Reserved Version 4.1f

D-2

SHORT REPORT

General Information		Site Information	
Analyst	Lili Liang	Intersection	4th ST SW and C ST SW
Agency or Co.	O. R. George & Associstes	Area Type	CBD or Similar
Date Performed	3/25/2010	Jurisdiction	Washington DC
Time Period	AM Peak	Analysis Year	2010

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	2	0	0	1	1	0	2	0	0	2	0
Lane group		LTR			LT	R		LTR			LTR	
Volume (vph)	24	28	31	29	49	26	32	240	39	16	228	45
% Heavy veh	4	4	4	4	4	4	4	4	4	4	4	4
PHF	0.83	0.83	0.83	0.57	0.57	0.57	0.92	0.92	0.92	0.89	0.89	0.89
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0			2.0	2.0		2.0			2.0	
Ext. eff. green		2.0			2.0	2.0		2.0			2.0	
Arrival type		5			5	5		5			5	
Unit Extension		3.0			3.0	3.0		3.0			3.0	
Ped/Bike/RTOR Volume	116	0	0	198	0	0	49	0	0	108	0	0
Lane Width		10.0			16.0	11.0		9.0			9.0	
Parking/Grade/Parking	N	0	Y	N	0	Y	N	0	Y	N	0	Y
Parking/hr			10			10			10			10
Bus stops/hr		6			6	0		0			0	
Unit Extension		3.0			3.0	3.0		3.0			3.0	

Phasing	EW Perm	WB Only	03	04	NS Perm	06	07	08
Timing	G = 22.0	G = 8.0	G =	G =	G = 43.0	G =	G =	G =
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 85.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		100			137	46		338			325	
Lane group cap.		509			640	354		1148			1157	
v/c ratio		0.20			0.21	0.13		0.29			0.28	
Green ratio		0.26			0.40	0.40		0.51			0.51	
Unif. delay d1		24.6			16.7	16.1		12.2			12.1	
Delay factor k		0.50			0.50	0.50		0.50			0.50	
Increm. delay d2		0.9			0.8	0.8		0.7			0.6	
PF factor		0.767			0.556	0.556		0.317			0.317	
Control delay		19.7			10.1	9.7		4.5			4.4	
Lane group LOS		B			B	A		A			A	
Apprch. delay	19.7			10.0			4.5			4.4		
Approach LOS	B			A			A			A		
Intersec. delay	7.2			Intersection LOS						A		

HCS2000™ Copyright © 2000 University of Florida, All Rights Reserved Version 4.1f

D-3

SHORT REPORT

General Information		Site Information	
Analyst	Lili Liang	Intersection	4th ST SW and C ST SW
Agency or Co.	O. R. George & Associstes	Area Type	CBD or Similar
Date Performed	3/25/2010	Jurisdiction	Washington DC
Time Period	PM Peak	Analysis Year	2010

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	2	0	0	1	1	0	2	0	0	2	0
Lane group		LTR			LT	R		LTR			LTR	
Volume (vph)	42	89	42	33	50	25	26	279	88	25	122	34
% Heavy veh	4	4	4	4	4	4	4	4	4	4	4	4
PHF	0.77	0.77	0.77	0.84	0.84	0.84	0.94	0.94	0.94	0.68	0.68	0.68
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0			2.0	2.0		2.0			2.0	
Ext. eff. green		2.0			2.0	2.0		2.0			2.0	
Arrival type		5			5	5		5			5	
Unit Extension		3.0			3.0	3.0		3.0			3.0	
Ped/Bike/RTOR Volume	75	0	0	141	0	0	53	0	0	119	0	0
Lane Width		10.0			16.0	11.0		9.0			9.0	
Parking/Grade/Parking	N	0	Y	N	0	Y	N	0	Y	N	0	Y
Parking/hr			10			10			10			10
Bus stops/hr		6			6	0		0			0	
Unit Extension		3.0			3.0	3.0		3.0			3.0	

Phasing	EW Perm	WB Only	03	04	NS Perm	06	07	08
Timing	G = 22.0	G = 8.0	G =	G =	G = 43.0	G =	G =	G =
	Y = 4	Y = 4	Y =	Y =	Y = 4	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 85.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		226			99	30		419			266	
Lane group cap.		545			631	384		1162			1083	
v/c ratio		0.41			0.16	0.08		0.36			0.25	
Green ratio		0.26			0.40	0.40		0.51			0.51	
Unif. delay d1		26.2			16.3	15.8		12.7			11.8	
Delay factor k		0.50			0.50	0.50		0.50			0.50	
Increm. delay d2		2.3			0.5	0.4		0.9			0.5	
PF factor		0.767			0.556	0.556		0.317			0.317	
Control delay		22.4			9.6	9.2		4.9			4.3	
Lane group LOS		C			A	A		A			A	
Apprch. delay	22.4			9.5			4.9			4.3		
Approach LOS	C			A			A			A		
Intersec. delay	9.1			Intersection LOS						A		

HCS2000™ Copyright © 2000 University of Florida, All Rights Reserved Version 4.1f

D-4

ATTACHMENT

E

SimTraffic Data Output Sheets
(Existing Traffic Situation)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	11	11	11	12	12	12	12	12	12
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	3133	0	0	1301	1148	0	2763	0	0	2809	0
Flt Permitted		0.865			0.904			0.906			0.908	
Satd. Flow (perm)	0	2749	0	0	1192	1148	0	2519	0	0	2566	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14				59		52			31	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		515			200			96			75	
Travel Time (s)		11.7			4.5			2.2			1.7	
Volume (vph)	26	56	11	29	83	53	21	121	48	26	150	29
Peak Hour Factor	0.80	0.80	0.80	0.90	0.90	0.90	0.93	0.93	0.93	0.92	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0
Parking (#/hr)		10	10		10	10		10	10		10	10
Lane Group Flow (vph)	0	116	0	0	124	59	0	205	0	0	223	0
Turn Type	Perm			Perm		custom	Perm			custom		
Protected Phases		3			7	2		1			6 2	
Permitted Phases	3			7		7	1			2	2	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	20.0	20.0	20.0	0.0	20.0	60.0	0.0
Act Effct Green (s)		16.0			16.0	36.0		16.0			36.0	
Actuated g/C Ratio		0.20			0.20	0.45		0.20			0.45	
v/c Ratio		0.21			0.52	0.11		0.38			0.19	
Control Delay		24.6			37.5	4.3		22.8			11.8	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		24.6			37.5	4.3		22.8			11.8	
LOS		C			D	A		C			B	
Approach Delay		24.6			26.8			22.8			11.8	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)		22			56	0		34			28	
Queue Length 95th (ft)		39			110	20		65			50	
Internal Link Dist (ft)		435			120			16			1	
Turn Bay Length (ft)												
Base Capacity (vph)		561			238	549		545			1172	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.21			0.52	0.11		0.38			0.19	

Intersection Summary

Area Type: CBD
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 8:Ped, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 20.7 Intersection LOS: C
Intersection Capacity Utilization 35.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: C STREET SW & 3RD STREET SW

ø1	ø2	ø3	ø4
20 s	20 s	20 s	20 s
ø6		ø7	ø8
40 s		20 s	20 s

E-1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	16	16	16	9	9	9	9	9	9
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	2448	0	0	1518	1346	0	2525	0	0	2502	0
Flt Permitted		0.864			0.875			0.897			0.930	
Satd. Flow (perm)	0	2134	0	0	1346	1310	0	2268	0	0	2331	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		234			515			93			83	
Travel Time (s)		5.3			11.7			2.1			1.9	
Volume (vph)	24	28	31	29	49	26	32	240	39	16	228	45
Confl. Peds. (#/hr)	20		20	20		20	20		20	20		20
Peak Hour Factor	0.83	0.83	0.83	0.57	0.57	0.57	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0
Parking (#/hr)		10	10		10	10		10	10		10	10
Lane Group Flow (vph)	0	100	0	0	137	46	0	338	0	0	325	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		3			4			2			6	
Permitted Phases	3			4		4	2			6		
Total Split (s)	26.0	26.0	0.0	38.0	38.0	38.0	47.0	47.0	0.0	47.0	47.0	0.0
Act Effct Green (s)		22.0			34.0	34.0		43.0			43.0	
Actuated g/C Ratio		0.26			0.40	0.40		0.51			0.51	
v/c Ratio		0.18			0.25	0.09		0.29			0.28	
Control Delay		25.6			18.7	16.5		13.1			12.9	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		25.6			18.7	16.5		13.1			12.9	
LOS		C			B	B		B			B	
Approach Delay		25.6			18.1			13.1			12.9	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)		22			48	15		52			50	
Queue Length 95th (ft)		38			52	22		80			75	
Internal Link Dist (ft)		154			435			13			3	
Turn Bay Length (ft)												
Base Capacity (vph)		552			538	524		1147			1179	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.18			0.25	0.09		0.29			0.28	

Intersection Summary

Area Type: CBD
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.29
Intersection Signal Delay: 15.3 — Intersection LOS: B
Intersection Capacity Utilization 50.0% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 6: C STREET SW & 4TH STREET SW

ø2	ø4	
47 s	38 s	
ø6	ø3	ø8
47 s	26 s	12 s

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	11	11	11	12	12	12	12	12	12
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	3178	0	0	1304	1148	0	2746	0	0	2767	0
Flt Permitted		0.885			0.906			0.926			0.758	
Satd. Flow (perm)	0	2841	0	0	1195	1148	0	2550	0	0	2133	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				12		81			41	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		515			200			96			75	
Travel Time (s)		11.7			4.5			2.2			1.7	
Volume (vph)	41	159	11	14	52	11	14	159	78	108	148	54
Peak Hour Factor	0.80	0.80	0.80	0.90	0.90	0.90	0.93	0.93	0.93	0.92	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0
Parking (#/hr)		10	10		10	10		10	10		10	10
Lane Group Flow (vph)	0	264	0	0	74	12	0	270	0	0	337	0
Turn Type	Perm			Perm		custom	Perm			custom		
Protected Phases		3			7	2		1			6 2	
Permitted Phases	3			7		7	1			2	2	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	20.0	20.0	20.0	0.0	20.0	60.0	0.0
Act Effct Green (s)		16.0			16.0	36.0		16.0			36.0	
Actuated g/C Ratio		0.20			0.20	0.45		0.20			0.45	
v/c Ratio		0.46			0.31	0.02		0.47			0.34	
Control Delay		30.6			31.5	6.7		22.6			13.6	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		30.6			31.5	6.7		22.6			13.6	
LOS		C			C	A		C			B	
Approach Delay		30.6			28.1			22.6			13.6	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)		60			32	0		43			47	
Queue Length 95th (ft)		84			70	9		80			78	
Internal Link Dist (ft)		435			120			16			1	
Turn Bay Length (ft)												
Base Capacity (vph)		573			239	523		575			982	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.46			0.31	0.02		0.47			0.34	

Intersection Summary

Area Type: CBD
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 8:Ped, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.47
Intersection Signal Delay: 22.1 — Intersection LOS: C
Intersection Capacity Utilization 41.9% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: C STREET SW & 3RD STREET SW

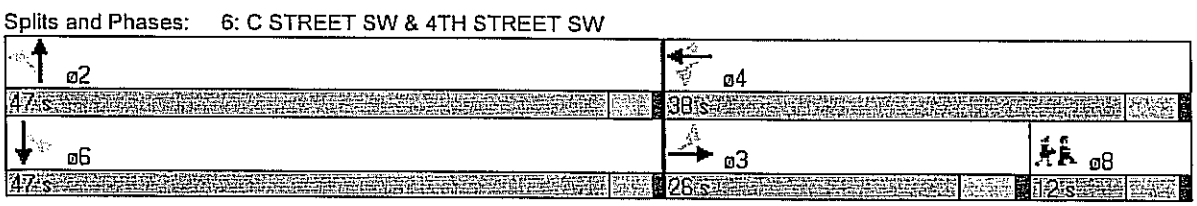
ø1	ø2	ø3	ø4
20 s	20 s	20 s	20 s
ø6		ø7	ø8
40 s		20 s	20 s

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	16	16	16	9	9	9	9	9	9
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	0	2514	0	0	1517	1346	0	2480	0	0	2476	0
Flt Permitted		0.855			0.825			0.928			0.877	
Satd. Flow (perm)	0	2166	0	0	1270	1310	0	2303	0	0	2182	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		234			515			93			83	
Travel Time (s)		5.3			11.7			2.1			1.9	
Volume (vph)	42	89	42	33	50	25	26	279	88	25	122	34
Confl. Peds. (#/hr)	20		20	20		20	20		20	20		20
Peak Hour Factor	0.83	0.83	0.83	0.57	0.57	0.57	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Bus Blockages (#/hr)	0	6	0	0	6	0	0	0	0	0	0	0
Parking (#/hr)		10	10		10	10		10	10		10	10
Lane Group Flow (vph)	0	209	0	0	146	44	0	427	0	0	203	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		3			4			2			6	
Permitted Phases	3			4		4	2			6		
Total Split (s)	26.0	26.0	0.0	38.0	38.0	38.0	47.0	47.0	0.0	47.0	47.0	0.0
Act Effct Green (s)		22.0			34.0	34.0		43.0			43.0	
Actuated g/C Ratio		0.26			0.40	0.40		0.51			0.51	
v/c Ratio		0.37			0.29	0.08		0.37			0.18	
Control Delay		28.2			19.3	16.5		13.9			12.0	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		28.2			19.3	16.5		13.9			12.0	
LOS		C			B	B		B			B	
Approach Delay		28.2			18.6			13.9			12.0	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)		48			52	14		68			29	
Queue Length 95th (ft)		73			56	22		102			48	
Internal Link Dist (ft)		154			435			13			3	
Turn Bay Length (ft)												
Base Capacity (vph)		561			508	524		1165			1104	
Starvation Cap Reductn		0			0	0		0			0	
Spillback Cap Reductn		0			0	0		0			0	
Storage Cap Reductn		0			0	0		0			0	
Reduced v/c Ratio		0.37			0.29	0.08		0.37			0.18	

Intersection Summary

Area Type: CBD
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.37
Intersection Signal Delay: 17.3 — Intersection LOS: B
Intersection Capacity Utilization 66.7% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 6: C STREET SW & 4TH STREET SW



ATTACHMENT

F

Traffic Safety Data (2006 - 2008)
C Street at 2nd, 3rd and 4th Streets

DDOT: Accident Summary Report (R-7)

Date: 4/28/2010
Prepared by: Eric Walden

Location:
THIRD ST And C ST

Quadrant:
SW

2006		2007		2008	
Accidents	Injuries	Accidents	Injuries	Accidents	Injuries
4	0	4	1	6	2

2006 - 2008 SUMMARIES

Contributing Factors:

Diver:		Vehicle:		Roadway:		Unknown:	
6	42.86%	0	0.00%	0	0.00%	6	42.86%

Collision Types:

Right Angle:	Left Turn:	Right Turn:	Rear End:	Side Swiped:	Head On:	Parked:
0	1	2	5	1	2	0

Fixed Object:	Ran Off Road:	Pedestrian:	Backing:	Non Collision:	Other:
1	1	0	0	0	1

Accident Times:

	2006		2007		2008	
Time	**# ACC**	**Percent**	**# ACC**	**Percent**	**# ACC**	**Percent**
07:30-09:30	0	0.00%	1	25.00%	1	16.67%
09:30-11:30	1	25.00%	0	0.00%	0	0.00%
11:30:13:30	0	0.00%	1	25.00%	2	33.33%
13:30-16:00	0	0.00%	1	25.00%	1	16.67%
16:00-18:30	0	0.00%	1	25.00%	1	16.67%
18:30-07:30	3	75.00%	0	0.00%	1	16.67%
Total	4	100.00%	4	100.00%	6	100.00%
Weekday	2	50.00%	3	75.00%	5	83.33%
Weekend	2	50.00%	0	0.00%	1	16.67%

DDOT: Accident Summary Report (R-7)

Date: 4/28/2010
Prepared by: Eric Walden

Location:
C ST And FOURTH ST

Quadrant:
SW

2006		2007		2008	
Accidents	Injuries	Accidents	Injuries	Accidents	Injuries
5	22	0	0	2	0

2006 - 2008 SUMMARIES

Contributing Factors:

Diver:		Vehicle:		Roadway:		Unknown:	
2	28.57%	0	0.00%	0	0.00%	4	57.14%

Collision Types:

Right Angle:	Left Turn:	Right Turn:	Rear End:	Side Swiped:	Head On:	Parked:
1	1	1	1	1	0	0

Fixed Object:	Ran Off Road:	Pedestrian:	Backing:	Non Collision:	Other:
2	0	0	0	0	0

Accident Times:

	2006		2007		2008	
Time	**# ACC**	**Percent**	**# ACC**	**Percent**	**# ACC**	**Percent**
07:30-09:30	0	0.00%	0	0.00%	0	0.00%
09:30-11:30	0	0.00%	0	0.00%	1	50.00%
11:30:13:30	1	20.00%	0	0.00%	0	0.00%
13:30-16:00	0	0.00%	0	0.00%	0	0.00%
16:00-18:30	2	40.00%	0	0.00%	1	50.00%
18:30-07:30	2	40.00%	0	0.00%	0	0.00%
Total	5	100.00%	0	0.00%	2	100.00%
Weekday	2	40.00%	0	0.00%	2	100.00%
Weekend	1	20.00%	0	0.00%	0	0.00%

F-2

ATTACHMENT

G

Analysis Output Sheets
(Future Traffic Conditions
with Parking Access Concept)

Intersection: 3: C STREET SW & 3RD STREET SW

Movement	EB	WB	WB	NB	NB	B9	B9	SB	SB	B5
Directions Served	LTR	LT	R	LT	TR	T	T	LT	TR	T
Maximum Queue (ft)	140	118	30	92	90	71	73	91	67	31
Average Queue (ft)	98	57	17	68	50	14	15	59	37	12
95th Queue (ft)	149	126	41	106	86	61	63	103	75	38
Link Distance (ft)	132	160	160	36	36	127	127	8	8	184
Upstream Blk Time (%)	5			33	17			29	6	
Queuing Penalty (veh)	6			0	0			0	0	
Storage Bay Dist (ft)										
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 6: C STREET SW & 4TH STREET SW

Movement	EB	EB	WB	NB	NB	B8	SB	SB	B1
Directions Served	LT	R	LTR	LT	TR	T	LT	TR	T
Maximum Queue (ft)	27	47	132	94	70	48	70	74	28
Average Queue (ft)	21	30	84	71	24	10	54	37	6
95th Queue (ft)	39	47	146	116	73	41	78	78	24
Link Distance (ft)	193	193	132	28	28	140	15	15	201
Upstream Blk Time (%)			5	26	10		33	23	
Queuing Penalty (veh)			8	0	0		0	0	
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 10: C STREET SW & Entrance

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 13: C STREET SW & Exit

Movement	WB	SB
Directions Served	LT	LR
Maximum Queue (ft)	51	56
Average Queue (ft)	17	35
95th Queue (ft)	53	53
Link Distance (ft)	83	54
Upstream Blk Time (%)		1
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Nework Summary

Network wide Queuing Penalty: 15

Intersection: 3: C STREET SW & 3RD STREET SW

Movement	EB	WB	NB	NB	B9	SB	SB	B5
Directions Served	LTR	LT	LT	TR	T	LT	TR	T
Maximum Queue (ft)	112	72	107	88	29	80	69	76
Average Queue (ft)	86	42	70	48	6	70	51	35
95th Queue (ft)	111	70	109	89	25	86	78	85
Link Distance (ft)	132	160	36	36	127	8	8	184
Upstream Blk Time (%)	0		27	11		58	30	
Queuing Penalty (veh)	0		0	0		0	0	
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 6: C STREET SW & 4TH STREET SW

Movement	EB	EB	WB	NB	NB	B8	SB	SB
Directions Served	LT	R	LTR	LT	TR	T	LT	TR
Maximum Queue (ft)	72	53	132	99	92	32	50	51
Average Queue (ft)	47	42	75	67	73	6	37	23
95th Queue (ft)	96	61	130	105	100	28	53	55
Link Distance (ft)	193	193	132	28	28	140	15	15
Upstream Blk Time (%)			4	37	34		12	9
Queuing Penalty (veh)			6	0	0		0	0
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 10: C STREET SW & Entrance

Movement	NB
Directions Served	LR
Maximum Queue (ft)	32
Average Queue (ft)	18
95th Queue (ft)	42
Link Distance (ft)	67
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 13: C STREET SW & Exit

Movement	WB	SB
Directions Served	LT	LR
Maximum Queue (ft)	39	32
Average Queue (ft)	14	12
95th Queue (ft)	41	37
Link Distance (ft)	83	54
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Nework Summary

Network wide Queuing Penalty: 6

Intersection at 3rd Street, SW and C Street, SW
AM Peak Hour

BACK OF QUEUE WORKSHEET

	Eastbound	Westbound		Northbound	Southbound
LaneGroup	LTR	LT	R	LTR	LTR
Init Queue	0.0	0.0	0.0	0.0	0.0
Flow Rate	156	135	59	108	119
So	1900	1900	1900	1900	1900
No.Lanes	0 1 0	0 1	1	0 2 0	0 2 0
SL	1324	1400	1053	1072	1197
LnCapacity	430	455	487	201	389
Flow Ratio	0.12	0.10	0.06	0.10	0.10
v/c Ratio	0.36	0.30	0.12	0.54	0.31
Grn Ratio	0.32	0.32	0.46	0.19	0.32
I Factor	1.000	1.000		1.000	1.000
AT or PVG	5	5	5	5	5
Pltn Ratio	1.67	1.67	1.67	1.67	1.67
PF2	0.75	0.73	0.44	0.91	0.73
Q1	2.0	1.6	0.3	2.0	1.4
kB	0.6	0.6	0.6	0.3	0.5
Q2	0.3	0.3	0.1	0.4	0.2
Q Average	2.3	1.9	0.4	2.4	1.6
Q Spacing	25.0	25.0	25.0	25.0	25.0
Q Storage	0	0	0	0	0
Q S Ratio					
70th Percentile Output:					
fB%	1.3	1.3	1.3	1.3	1.3
BOQ	2.9	2.4	0.5	3.0	2.0
QSRatio					
85th Percentile Output:					
fB%	1.6	1.6	1.7	1.6	1.6
BOQ	3.7	3.0	0.7	3.8	2.6
QSRatio					
90th Percentile Output:					
fB%	1.8	1.8	2.0	1.8	1.9
BOQ	4.2	3.5	0.8	4.3	3.0
QSRatio					
95th Percentile Output:					
fB%	2.2	2.3	2.5	2.2	2.3
BOQ	5.1	4.3	1.1	5.3	3.7
QSRatio					
98th Percentile Output:					
fB%	2.6	2.7	3.1	2.6	2.8
BOQ	6.1	5.2	1.3	6.2	4.5
QSRatio					

Intersection at 3rd Street, SW and C Street, SW
PM Peak Hour

BACK OF QUEUE WORKSHEET

	Eastbound	Westbound		Northbound	Southbound
LaneGroup	LTR	LT	R	LTR	LTR
Init Queue	0.0	0.0	0.0	0.0	0.0
Flow Rate	281	105	15	146	169
So	1900	1900	1900	1900	1900
No.Lanes	0 1 0	0 1	1	0 2 0	0 2 0
SL	1389	1421	1117	1060	976
LnCapacity	451	462	517	199	317
Flow Ratio	0.20	0.07	0.01	0.14	0.17
v/c Ratio	0.62	0.23	0.03	0.73	0.53
Grn Ratio	0.32	0.32	0.46	0.19	0.32
I Factor	1.000	1.000		1.000	1.000
AT or PVG	5	5	5	5	5
Pltn Ratio	1.67	1.67	1.67	1.67	1.67
PF2	0.82	0.72	0.43	0.95	0.79
Q1	4.3	1.2	0.1	2.9	2.2
kB	0.6	0.6	0.7	0.3	0.5
Q2	1.0	0.2	0.0	0.8	0.5
Q Average	5.3	1.4	0.1	3.7	2.7
Q Spacing	25.0	25.0	25.0	25.0	25.0
Q Storage	0	0	0	0	0
Q S Ratio					
70th Percentile Output:					
fB%	1.2	1.3	1.3	1.2	1.3
BOQ	6.5	1.8	0.1	4.6	3.4
QSRatio					
85th Percentile Output:					
fB%	1.5	1.6	1.7	1.5	1.6
BOQ	7.9	2.3	0.2	5.7	4.2
QSRatio					
90th Percentile Output:					
fB%	1.7	1.9	2.0	1.7	1.8
BOQ	8.8	2.6	0.2	6.5	4.8
QSRatio					
95th Percentile Output:					
fB%	1.9	2.4	2.6	2.1	2.2
BOQ	10.3	3.3	0.3	7.7	5.9
QSRatio					
98th Percentile Output:					
fB%	2.2	2.8	3.2	2.4	2.6
BOQ	11.7	4.0	0.3	9.0	6.9
QSRatio					

Intersection at 4th Street, SW and C Street, SW
AM Peak Hour

BACK OF QUEUE WORKSHEET

	Eastbound		Westbound	Northbound	Southbound
LaneGroup	LT	R	LTR	LTR	LTR
Init Queue	0.0	0.0	0.0	0.0	0.0
Flow Rate	80	37	268	179	174
So	1900	1900	1900	1900	1900
No.Lanes	0 1	1	0 1 0	0 2 0	0 2 0
SL	1242	1012	1314	1186	1201
LnCapacity	497	405	526	600	607
Flow Ratio	0.06	0.04	0.20	0.15	0.14
v/c Ratio	0.16	0.09	0.51	0.30	0.29
Grn Ratio	0.40	0.40	0.40	0.51	0.51
I Factor	1.000		1.000	1.000	1.000
AT or PVG	5	3	5	5	5
Pltn Ratio	1.67	1.00	1.67	1.67	1.67
PF2	0.58	1.00	0.67	0.36	0.36
Q1	0.7	0.5	3.2	0.9	0.8
kB	0.7	0.6	0.7	0.8	0.8
Q2	0.1	0.1	0.7	0.3	0.3
Q Average	0.8	0.6	3.9	1.2	1.2
Q Spacing	25.0	25.0	25.0	25.0	25.0
Q Storage	0	0	0	0	0
Q S Ratio					
70th Percentile Output:					
fB%	1.3	1.3	1.2	1.3	1.3
BOQ	1.1	0.8	4.9	1.5	1.5
QSRatio					
85th Percentile Output:					
fB%	1.7	1.7	1.5	1.6	1.6
BOQ	1.4	1.0	6.0	2.0	1.9
QSRatio					
90th Percentile Output:					
fB%	1.9	1.9	1.7	1.9	1.9
BOQ	1.6	1.2	6.8	2.3	2.2
QSRatio					
95th Percentile Output:					
fB%	2.4	2.5	2.1	2.4	2.4
BOQ	2.0	1.5	8.0	2.9	2.8
QSRatio					
98th Percentile Output:					
fB%	3.0	3.0	2.4	2.9	2.9
BOQ	2.5	1.8	9.3	3.5	3.3
QSRatio					

Intersection at 4th Street, SW and C Street, SW
PM Peak Hour

BACK OF QUEUE WORKSHEET

	Eastbound		Westbound	Northbound	Southbound
LaneGroup	LT	R	LTR	LTR	LTR
Init Queue	0.0	0.0	0.0	0.0	0.0
Flow Rate	184	55	164	221	143
So	1900	1900	1900	1900	1900
No.Lanes	0 1	1	0 1 0	0 2 0	0 2 0
SL	1284	1047	1263	1199	1099
LnCapacity	514	419	505	606	556
Flow Ratio	0.14	0.05	0.13	0.18	0.13
v/c Ratio	0.36	0.13	0.32	0.36	0.26
Grn Ratio	0.40	0.40	0.40	0.51	0.51
I Factor	1.000		1.000	1.000	1.000
AT or PVG	5	3	5	5	5
Pltn Ratio	1.67	1.00	1.67	1.67	1.67
PF2	0.63	1.00	0.62	0.37	0.35
Q1	1.9	0.8	1.6	1.2	0.7
kB	0.7	0.6	0.7	0.8	0.7
Q2	0.4	0.1	0.3	0.4	0.3
Q Average	2.3	0.9	2.0	1.6	0.9
Q Spacing	25.0	25.0	25.0	25.0	25.0
Q Storage	0	0	0	0	0
Q S Ratio					
70th Percentile Output:					
fB%	1.3	1.3	1.3	1.3	1.3
BOQ	2.9	1.2	2.5	2.1	1.2
QSRatio					
85th Percentile Output:					
fB%	1.6	1.6	1.6	1.6	1.6
BOQ	3.6	1.5	3.2	2.6	1.5
QSRatio					
90th Percentile Output:					
fB%	1.8	1.9	1.8	1.9	1.9
BOQ	4.1	1.7	3.6	3.0	1.8
QSRatio					
95th Percentile Output:					
fB%	2.2	2.4	2.3	2.3	2.4
BOQ	5.1	2.2	4.5	3.8	2.3
QSRatio					
98th Percentile Output:					
fB%	2.7	2.9	2.7	2.8	2.9
BOQ	6.0	2.7	5.3	4.5	2.7
QSRatio					

SHORT REPORT

General Information		Site Information	
Analyst	Lili Liang	Intersection	3rd ST SW and C ST SW
Agency or Co.	O. R. George & Associstes	Area Type	CBD or Similar
Date Performed	3/25/2010	Jurisdiction	Washington DC
Time Period	AM Peak	Analysis Year	2010

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	0	0	1	1	0	2	0	0	2	0
Lane group		LTR			LT	R		LTR			LTR	
Volume (vph)	36	76	13	29	93	53	23	121	48	26	150	34
% Heavy veh	4	4	4	4	4	4	4	4	4	4	4	4
PHF	0.80	0.80	0.80	0.90	0.90	0.90	0.93	0.93	0.93	0.92	0.92	0.92
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0			2.0	2.0		2.0			2.0	
Ext. eff. green		2.0			2.0	2.0		2.0			2.0	
Arrival type		5			5	5		5			5	
Unit Extension		3.0			3.0	3.0		3.0			3.0	
Ped/Bike/RTOR Volume	87	0	0	90	0	0	308	0	0	328	0	0
Lane Width		16.0			11.0	11.0		12.0			12.0	
Parking/Grade/Parking	N	0	Y	N	0	Y	N	0	Y	N	0	Y
Parking/hr			10			10			10			10
Bus stops/hr		6			6	0		0			0	
Unit Extension		3.0			3.0	3.0		3.0			3.0	

Phasing	EW Perm	02	03	04	Peds Only	NS Perm	SB Only	08
Timing	G = 26.0	G =	G =	G =	G = 20.0	G = 15.0	G = 7.0	G =
	Y = 4	Y =	Y =	Y =	Y = 0	Y = 4	Y = 4	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 80.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		156			135	59		207			228	
Lane group cap.		430			455	487		383			741	
v/c ratio		0.36			0.30	0.12		0.54			0.31	
Green ratio		0.32			0.32	0.46		0.19			0.32	
Unif. delay d1		20.7			20.2	12.2		29.4			20.3	
Delay factor k		0.50			0.50	0.50		0.50			0.50	
Increm. delay d2		2.4			1.7	0.5		5.4			1.1	
PF factor		0.679			0.679	0.426		0.846			0.679	
Control delay		16.4			15.4	5.7		30.3			14.8	
Lane group LOS		B			B	A		C			B	
Apprch. delay	16.4			12.4			30.3			14.8		
Approach LOS	B			B			C			B		
Intersec. delay	18.6			Intersection LOS						B		

HCS2000™ Copyright © 2000 University of Florida, All Rights Reserved Version 4.1f

G-9

SHORT REPORT

General Information		Site Information	
Analyst	Lili Liang	Intersection	3rd ST SW and C ST SW
Agency or Co.	O. R. George & Associstes	Area Type	CBD or Similar
Date Performed	3/25/2010	Jurisdiction	Washington DC
Time Period	PM Peak	Analysis Year	2010

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	0	0	1	1	0	2	0	0	2	0
Lane group		LTR			LT	R		LTR			LTR	
Volume (vph)	54	183	15	14	60	11	16	159	87	108	148	49
% Heavy veh	4	4	4	4	4	4	4	4	4	4	4	4
PHF	0.89	0.90	0.89	0.71	0.71	0.71	0.94	0.94	0.94	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0			2.0	2.0		2.0			2.0	
Ext. eff. green		2.0			2.0	2.0		2.0			2.0	
Arrival type		5			5	5		5			5	
Unit Extension		3.0			3.0	3.0		3.0			3.0	
Ped/Bike/RTOR Volume	67	0	0	30	0	0	294	0	0	353	0	0
Lane Width		16.0			11.0	11.0		12.0			12.0	
Parking/Grade/Parking	N	0	Y	N	0	Y	N	0	Y	N	0	Y
Parking/hr			10			10			10			10
Bus stops/hr		6			6	0		0			0	
Unit Extension		3.0			3.0	3.0		3.0			3.0	

Phasing	EW Perm	02	03	04	Peds Only	NS Perm	SB Only	08
Timing	G = 26.0	G =	G =	G =	G = 20.0	G = 15.0	G = 7.0	G =
	Y = 4	Y =	Y =	Y =	Y = 0	Y = 4	Y = 4	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 80.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		281			105	15		279			322	
Lane group cap.		451			462	517		379			604	
v/c ratio		0.62			0.23	0.03		0.74			0.53	
Green ratio		0.32			0.32	0.46		0.19			0.32	
Unif. delay d1		22.9			19.7	11.7		30.6			22.0	
Delay factor k		0.50			0.50	0.50		0.50			0.50	
Increm. delay d2		6.4			1.1	0.1		12.0			3.3	
PF factor		0.679			0.679	0.426		0.846			0.679	
Control delay		21.9			14.5	5.1		38.0			18.3	
Lane group LOS		C			B	A		D			B	
Apprch. delay	21.9			13.3			38.0			18.3		
Approach LOS	C			B			D			B		
Intersec. delay	24.2			Intersection LOS						C		

HCS2000™ Copyright © 2000 University of Florida, All Rights Reserved Version 4.1f

G-10

SHORT REPORT

General Information		Site Information	
Analyst	Lili Liang	Intersection	4th ST SW and C ST SW
Agency or Co.	O. R. George & Associstes	Area Type	CBD or Similar
Date Performed	3/25/2010	Jurisdiction	Washington DC
Time Period	AM Peak	Analysis Year	2010

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	1	0	1	0	0	2	0	0	2	0
Lane group		LT	R		LTR			LTR			LTR	
Volume (vph)	24	42	31	32	84	37	32	240	42	23	228	45
% Heavy veh	4	4	4	4	4	4	4	4	4	4	4	4
PHF	0.83	0.83	0.83	0.57	0.57	0.57	0.92	0.92	0.92	0.89	0.89	0.89
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0	2.0		2.0			2.0			2.0	
Ext. eff. green		2.0	2.0		2.0			2.0			2.0	
Arrival type		5	3		5			5			5	
Unit Extension		3.0	3.0		3.0			3.0			3.0	
Ped/Bike/RTOR Volume	116	0	0	198	0	0	49	0	0	108	0	0
Lane Width		10.0	10.0		16.0			9.0			9.0	
Parking/Grade/Parking	N	0	Y	N	0	Y	N	0	Y	N	0	Y
Parking/hr			10			10			10			10
Bus stops/hr		6	0		6			0			0	
Unit Extension		3.0	3.0		3.0			3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 34.0	G =	G =	G =	G = 43.0	G =	G =	G =
	Y = 4	Y =	Y =	Y =	Y = 4	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 Cycle Length C = 85.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		80	37		268			342			333	
Lane group cap.		497	405		526			1143			1157	
v/c ratio		0.16	0.09		0.51			0.30			0.29	
Green ratio		0.40	0.40		0.40			0.51			0.51	
Unif. delay d1		16.4	15.9		19.2			12.2			12.1	
Delay factor k		0.50	0.50		0.50			0.50			0.50	
Increm. delay d2		0.7	0.4		3.5			0.7			0.6	
PF factor		0.556	1.000		0.556			0.317			0.317	
Control delay		9.8	16.3		14.2			4.6			4.5	
Lane group LOS		A	B		B			A			A	
Apprch. delay	11.8			14.2			4.6			4.5		
Approach LOS	B			B			A			A		
Intersec. delay	7.8			Intersection LOS						A		

HCS2000™ Copyright © 2000 University of Florida, All Rights Reserved Version 4.1f

G-11

SHORT REPORT

General Information		Site Information	
Analyst	Lili Liang	Intersection	4th ST SW and C ST SW
Agency or Co.	O. R. George & Associstes	Area Type	CBD or Similar
Date Performed	3/25/2010	Jurisdiction	Washington DC
Time Period	PM Peak	Analysis Year	2010

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	1	0	1	0	0	2	0	0	2	0
Lane group		LT	R		LTR			LTR			LTR	
Volume (vph)	42	99	42	38	60	40	26	279	90	30	122	34
% Heavy veh	4	4	4	4	4	4	4	4	4	4	4	4
PHF	0.77	0.77	0.77	0.84	0.84	0.84	0.94	0.94	0.94	0.68	0.68	0.68
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0	2.0		2.0			2.0			2.0	
Ext. eff. green		2.0	2.0		2.0			2.0			2.0	
Arrival type		5	3		5			5			5	
Unit Extension		3.0	3.0		3.0			3.0			3.0	
Ped/Bike/RTOR Volume	75	0	0	141	0	0	53	0	0	119	0	0
Lane Width		10.0	10.0		16.0			9.0			9.0	
Parking/Grade/Parking	N	0	Y	N	0	Y	N	0	Y	N	0	Y
Parking/hr			10			10			10			10
Bus stops/hr		6	0		6			0			0	
Unit Extension		3.0	3.0		3.0			3.0			3.0	

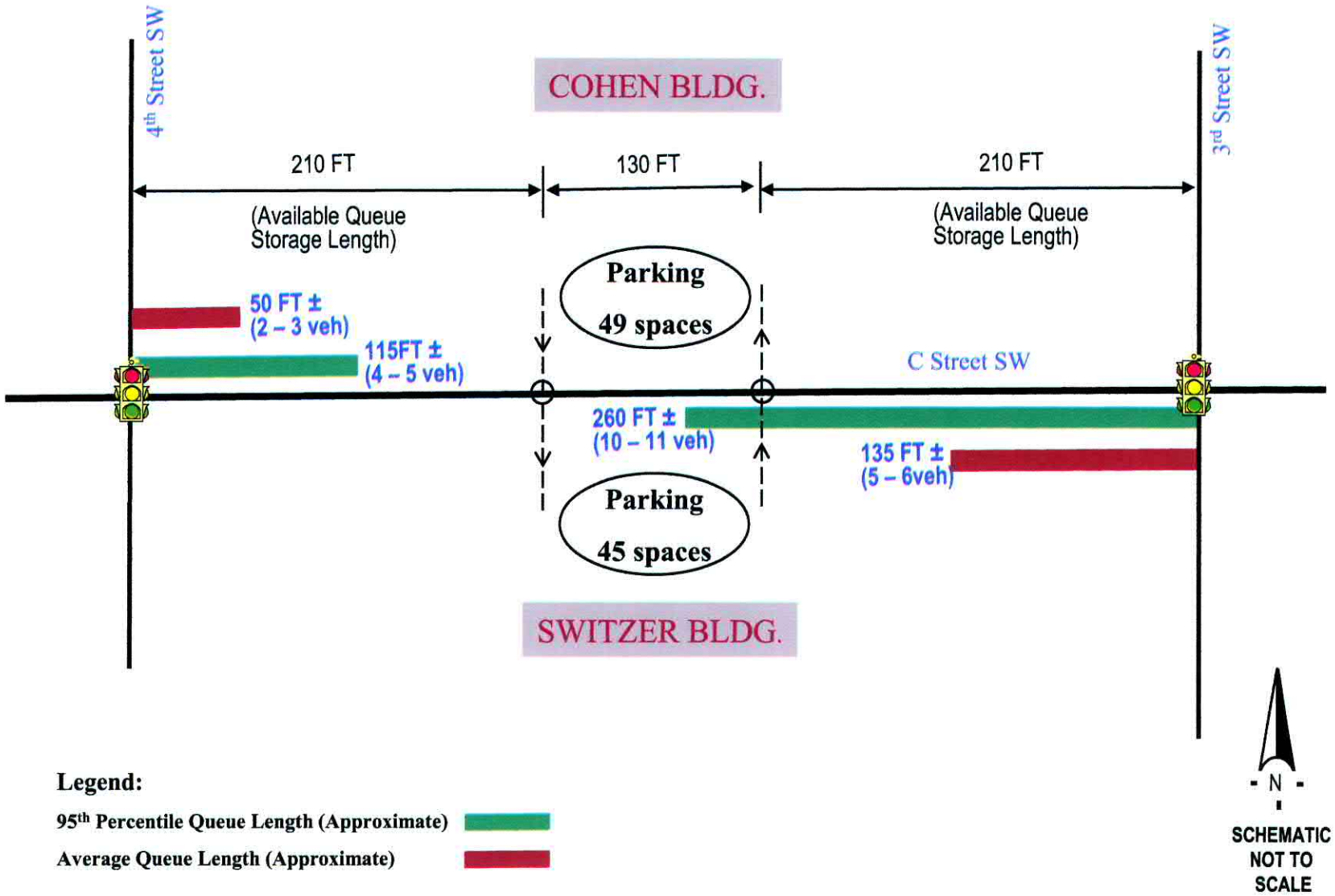
Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 34.0	G =	G =	G =	G = 43.0	G =	G =	G =
	Y = 4	Y =	Y =	Y =	Y = 4	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 85.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		184	55		164			421			273	
Lane group cap.		514	419		505			1155			1059	
v/c ratio		0.36	0.13		0.32			0.36			0.26	
Green ratio		0.40	0.40		0.40			0.51			0.51	
Unif. delay d1		17.9	16.1		17.6			12.7			11.9	
Delay factor k		0.50	0.50		0.50			0.50			0.50	
Increm. delay d2		1.9	0.6		1.7			0.9			0.6	
PF factor		0.556	1.000		0.556			0.317			0.317	
Control delay		11.9	16.8		11.5			4.9			4.4	
Lane group LOS		B	B		B			A			A	
Apprch. delay	13.0			11.5			4.9			4.4		
Approach LOS	B			B			A			A		
Intersec. delay	7.5			Intersection LOS						A		

HCS2000™ Copyright © 2000 University of Florida, All Rights Reserved Version 4.1f

G-12



Legend:

95th Percentile Queue Length (Approximate)

Average Queue Length (Approximate)

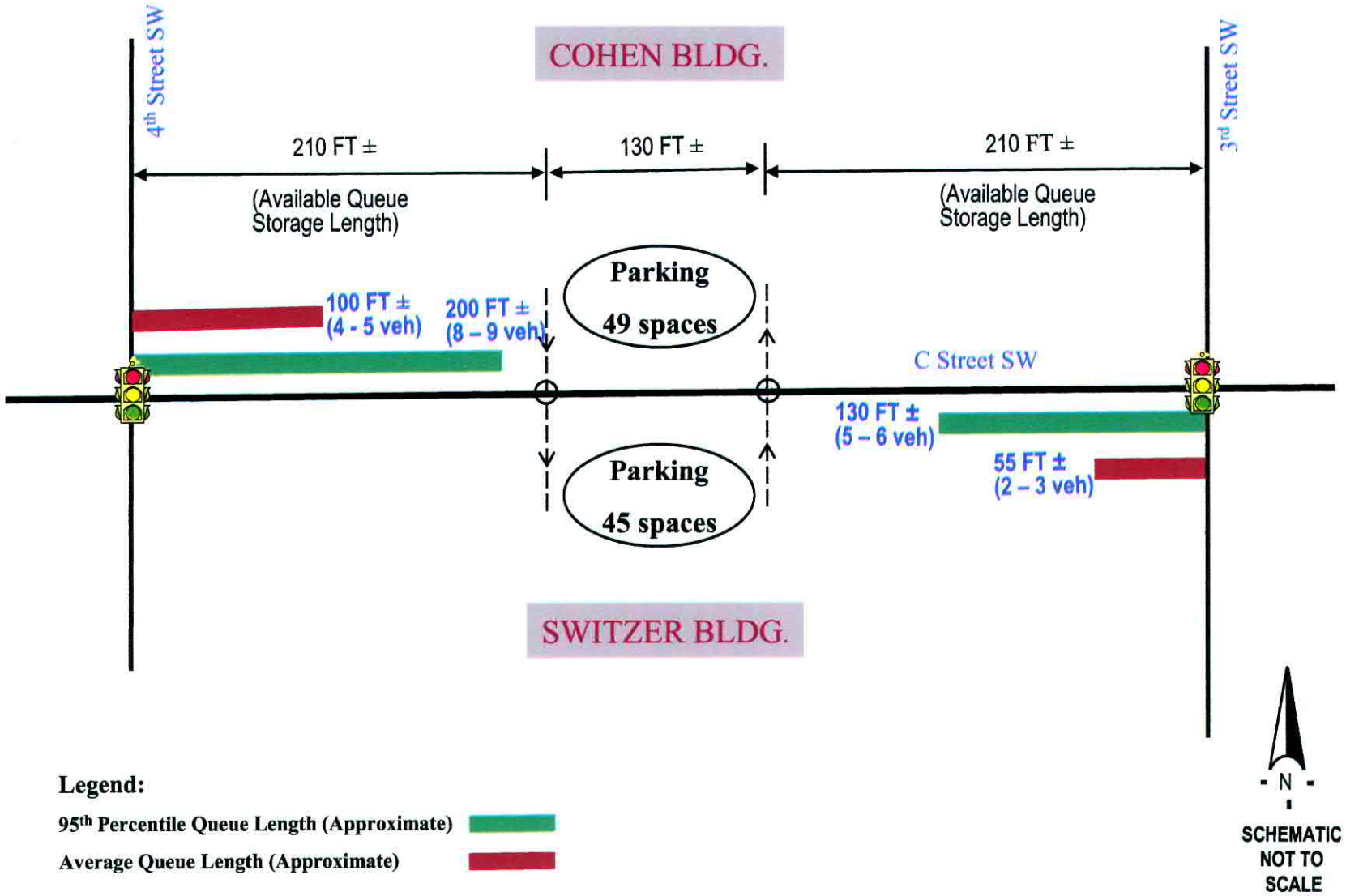
O. R. GEORGE &ASSOCIATES, INC.

Traffic Engineers - Transportation Planners

PM Queue Length – HCS Results

C Street at 3rd Street, Southwest, Washington, DC,

8-13



Legend:

95th Percentile Queue Length (Approximate)

Average Queue Length (Approximate)

O. R. GEORGE &ASSOCIATES, INC.

Traffic Engineers - Transportation Planners

AM Queue Length – HCS Results

C Street at 3rd Street, Southwest, Washington, DC,

G-14