



Washington DC

# MULTI-MODAL TRANSPORTATION & STREETSCAPE DESIGN STUDY



June 2008



This report was prepared by Michael Baker Jr., Inc. for the District Department of Transportation using funds from the Federal Highway Administration.



# Acknowledgements

Lead Agency:



**District Department of Transportation**

Transportation Planning and Policy Administration  
Christopher Ziemann  
Transportation Management Specialist, Ward 2  
2000 14th Street, NW  
Washington, DC 20009

Consultant:



**Michael Baker Jr., Inc.**

Vic Siaurusaitis, Principal in Charge

Transportation:

Feng Liu, Ph.D., Project Manager  
Rajan Paradka, P.E.  
Michail Zekkos, EIT

Streetscape:

Oliver Boehm, ASLA, RLA, LEED AP  
Bettina Irps  
Amy DiCarlantonio LEED AP  
Daniel Lee LEED AP

3601 Eisenhower Avenue, Suite 600  
Alexandria, VA 22304

1304 Concourse Drive, Suite 200  
Linthicum, MD 21090

Numerous District agencies, local associations and individuals devoted their time to the production of this document, including, but not limited to:

- DDOT - Infrastructure Project Management Administration
- DDOT - Urban Forestry Administration
- DDOT - Traffic Services Administration
- DDOT - Mass Transit Administration
- District Office of Planning
- Historic Preservation Office
- Office of the Deputy Mayor for Planning and Economic Development
- DC Commission on the Arts and Humanities
- Coalition for Smarter Growth
- Cultural Development Corporation
- ANC2F
- ANC1B
- ANC2B
- MidCity Business Association
- Logan Circle Community Association
- Office of the City Administrator

# Executive Summary



The 14th Street Transportation and Streetscape Design Study was initiated by the Transportation Planning and Policy Administration (TPPA) of the District Department of Transportation (DDOT) to develop streetscape and transportation recommendations to better serve the needs of 14th Street's pedestrians, vehicle, bicycle, and transit users.

DDOT tasked Michael Baker Jr., Inc. to conduct this study. Key objectives included the establishment of a multi-modal transportation and streetscape plan that:

- Preserves, strengthens, and creates a vibrant commercial and residential corridor;
- Improves safety and mobility throughout the neighborhood commercial center and regional transportation system, and
- Supports and guides current and future area development.

The 14th Street corridor study area spans one mile from Thomas Circle to the intersection with Florida Avenue. It traverses through a mix of residential and commercial uses and provides pedestrian and vehicular connections to bus routes and regional Metrorail systems. The corridor continues to evolve as a destination for business, culture and entertainment. Favorable conditions such as wide sidewalks and manageable traffic conditions allow for considerable opportunity to enhance the attractiveness and functionality of this major travel corridor.

The study was comprised of three main phases:

- (1) Assessment of Existing Conditions
- (2) Development of Improvement Options
- (3) Finalizing the Improvement Recommendations

This study assessed the streetscape and transportation assets and challenges of 14th Street and developed a number of short- and long-term recommendations to strengthen a great residential and business community. The development of recommendations started with a focus on the non-motorized users. The importance of making 14th Street a pedestrian and bicycle friendly destination guided the development of transportation recommendations. This public's vision calls for integrated multimodal transportation investments and an appealing and sustainable streetscape to promote the

corridor as a green, pedestrian-oriented corridor, which focuses on the arts and entertainment. Central to all the study recommendations is the introduction of curb extensions known as bulb-outs. Bulb-outs would serve an important function along 14th Street as they would provide pedestrians with greater access to transit modes, as well as safer passage across 14th Street and its cross-streets. The safe and efficient integration of all transportation and streetscape elements will stimulate the continued growth of all residential and economic activities on the 14th Street corridor. The final report marks the conclusion of a year long study, and presents the results of extensive public outreach and exchange of ideas between the project team, DC agencies, technical steering committee, local stakeholders, and the interested public. Information about the study, including graphics and reports, is available on the interactive project website ([www.14thstreetstudy.com](http://www.14thstreetstudy.com)).

## Transportation Assessment

Fourteenth Street is a multi-modal transportation corridor with a diverse range of transportation infrastructure, along with manageable issues and challenges.

With wide sidewalks, designated bike lanes, and many popular arts, entertainment and retail destinations, the corridor has vibrant pedestrian and bicycle activities throughout the day and evening. Yet, the corridor lacks sufficient bicycle parking and storage facilities, therefore bikes are often chained to parking meters, and utility poles. Pedestrian and bicyclist safety is a concern, particularly at major intersections such as U Street, Rhode Island Avenue, and Florida Avenue.

Compared to neighboring radial corridors, 14th Street traffic volumes are at the lower end of the congestion spectrum, typically exhibiting favorable traffic flow throughout the day. Overall the travel and operating conditions on the 14th Street corridor are good during the morning and evening peak hours. All intersections operate at level-of-service “D” or better, indicating acceptable operating conditions with very few delays. Cross-streets that exhibit the highest volumes of traffic have the highest levels of delay and safety incidents, including Florida Avenue, U Street, P Street and Rhode Island Avenue.

Individuals visiting 14th Street have a choice of ways to arrive, either by walking, biking, transit, taxi, or personal vehicle. The study area has two of the busiest bus routes in the city and is within walking distance of several Metro stations. The corridor is served by three north-south Metrobus lines from the National Mall area of the District through the corridor to Columbia Heights and Takoma Park in the north. Additionally, cross town Metrobus services are provided on P Street (G2) and

U Street (90,92,93,96,98,X3). Among commuters the Metrobus and Metrorail are popular choices for travel to and from work, with six Metrorail stations accessible within a ten-minute walk of the study area.

Designated bus stops are located within on-street parking lanes. However, field observations indicate that bus stop obstructions often force buses to block a travel lane while making their stops. Conflicts involving buses stopping in bicycle lanes were also observed throughout the corridor. In addition, delivery trucks often double-park adjacent to storefronts obstructing traffic flow, bicycle, and bus movements.

The availability of parking spaces in the study area includes on-street parking meters, surface parking lots, residential permit parking, and parking garages. As is typical of business/commercial corridors, the demand for parking on 14th Street is high, characterized by high utilization of parking spaces, and the increasing demand for curb space from vehicles, trucks, and buses. The area is well served by several ZipCar locations along the corridor which are heavily utilized by residents. A summary of the transportation assessment is provided in Plan A, Existing Conditions Assessment and Design Considerations, located on page 99.

## Streetscape Assessment

Throughout the 14th Street study area the corridor has a wide range of streetscape elements and a public realm of varying quality. Sidewalks are generally wide but are often uneven, with an inconsistent use of materials throughout the corridor.

Various street tree species and tree box designs are installed along the sidewalk. Many iron tree enclosures are donated and maintained by local community associations; however a substantial number are in disrepair and/or do not provide a healthy growth environment for the trees. While community organizations, business owners and residential stakeholders have taken initiatives to beautify and maintain the public realm, many locations appear dilapidated, lack consistency of materials and are cluttered with parking meters, signs and newspaper boxes.

Public safety concerns affect pedestrian activities along 14th Street and were ranked one of the top three challenges by attendees in the first public meeting. This concern is exacerbated by the absence of pedestrian level lighting. Building on the area’s rich history and recent revitalization, 14th Street has a vibrant and eclectic mix of specialty stores, entertainment venues, and restaurants, each adding unique features to their facade and lending an artistic feel to the corridor. While public art is considered a focus of the community, few examples currently exist. Recent developments along the



corridor have significantly expanded its residential base, commercial activity, and retail space; but the aging public realm does little to support and complement this quickly transitioning corridor. A summary of the streetscape assessment is provided in Plan A, Existing Conditions Assessment and Design Considerations, located on page 99.

### Recommendations

The overall recommendations are specifically designed to address the transportation and streetscape needs of 14th Street. Detailed recommendations are outlined within the report. All recommendations have been analyzed carefully to ensure practicality, functionality, aesthetic appeal, sustainability, and successful implementation. The physical layout of the streetscape and transportation recommendations can be found on the corridor’s layout plan (Plan B, page 141). Key recommendations for the study area are detailed in Tables 1.3 and 1.4. A cost estimate summary is provided in Tables 1.1 and 1.2. Detailed cost estimates for the recommended transportation and streetscape improvements are provided in Chapter 7.

### Schedule

Short-term recommendations can be implemented within the next twelve to twenty-four months and generally would not require substantial investment. Long-term recommendations require greater investment, detailed analysis and design, and could be implemented in 5-7 years.

Table 1.1 - Cost Estimates for Short-term & Long-term Improvements

Improvement	Short-term	Long-term
Transportation	\$119,027	\$1,101,794
Streetscape	\$90,400	\$3,736,680
<b>TOTAL</b>	<b>\$209,426</b>	<b>\$4,838,474</b>

Table 1.2 - Cost Estimates for Short-term & Long-term Improvements Combined

Improvement	Short & Long-term
Transportation	\$1,220,821
Streetscape	\$3,827,080
<b>GRAND TOTAL</b>	<b>\$5,047,901</b>

\* This cost estimate summary table reflects the use of concrete sidewalk treatment instead of London Pavers, exclusive of catch basin costs. Detailed cost estimates are located in Chapter 7, delineating the costs by individual items, including the options of London Pavers and costs of relocating catch basins.

Table 1.3 - Key Streetscape Recommendations

Streetscape Recommendations
<b>Short-term Recommendations</b>
<b>MAINTENANCE</b> - Maintain all existing public realm elements, including sidewalk, tree boxes, and street trees. Prune and monitor tree health at regular intervals.
<b>CURBING</b> - Replace where broken or damaged.
<b>LIGHTING</b> - Replace existing streetlights with broken bulbs and repair broken/wind damaged banners. Consider replacement of these with metal banners to avoid the need for ongoing maintenance.
<b>Long-term Recommendations</b>
<b>SIDEWALKS</b> - Install Poured-in-Place Concrete as the new sidewalk material along the entire length of the corridor and examine opportunities to incorporate sidewalk accents.
<b>FURNISHING/PLANTING ZONE</b> - Install new curb and gutter and permeable Furnishing/Planting Zone surface treatments (unit pavers or tumble finish concrete pavers). Plant new street trees and utilize healthy existing trees according to the sidewalk layout design guidelines. Relocate and provide additional street furnishings, including seating, bicycle racks, and trash receptacles.
<b>LOW IMPACT DEVELOPMENT (LID)</b> - Explore the feasibility of incorporating LID devices into the overall design. Recommended Low Impact Development techniques include bio-retention cells within landscaped bulb-outs at T Intersections, bio-retention cells within tree planting beds along the corridor, gutter filters to augment the DC standard granite curb and brick gutter, and permeable pavers within the parking lane and Furnishing/Planting Zone.
<b>PUBLIC ART/ENTRANCE MARKERS</b> - Engage in focused public art consultation to evaluate opportunity sites and appropriate installation design(s) and funding streams. Commission work from the selected artists and work with DDOT and the local businesses to develop an installation and maintenance strategy.
<b>LIGHTING</b> - Install new roadway lighting, the recommended vehicular/pedestrian light placing is 60’ on center. Where appropriate install added pedestrian level lights to provide additional illumination and improve pedestrian safety.

Table I.4 - Key Transportation Recommendations

<b>Transportation Recommendations</b>
<b>Short-term Recommendations</b>
<p><b>BIKE</b> - Improve bicyclists’ safety through clear pavement markings and/or surface treatment, drawing attention to pedestrian/vehicular/bike conflict zones. Provide bicycle parking throughout the corridor to improve connections between locations and intermodal transfers.</p> <ul style="list-style-type: none"> <li>◦ Extend 5’ bike lane from U Street to Florida Ave and beyond to connect to the bike lanes in the north.</li> <li>◦ Extend existing bike lanes on Q Street from 14th St eastward, on Vermont Avenue from N St, via Logan Circle, to connect with Q Street.</li> <li>◦ Establish SmartBike rental/storage facilities at the Reeves Center, Cardoza Metro, between Q St to R St, and at Rhode Island Avenue.</li> <li>◦ Add bike racks throughout the corridor.</li> </ul>
<p><b>PEDESTRIAN</b> – Facilitate better pedestrian crossing by implementing lagging left during rush hours at intersections with high pedestrian volumes.</p>
<p><b>PARKING</b> - Establish 15-minute parking zones for customer loading at select blocks with short-term parking needs. Establish where appropriate dedicated loading zones for delivery access to retail and commercial establishments. Enhance parking regulation enforcement throughout the corridor. Parking recommendations are distilled in Figure 5.20.</p>
<p><b>TRANSIT</b> - Re-brand Metrobus #52,53,54 to encourage and promote their usage throughout the corridor</p>
<p><b>BUS STOPS</b> - Eliminate: Q Street (near side SB and NB) and S Street (near side SB and NB). Relocate: W Street (near side for SB) is moved to far side at Florida Ave., W Street (far side NB) is moved to near side at Florida Ave., Rhode Island Avenue (far side NB) is moved to near side at P St.</p>
<p><b>VEHICULAR</b> - Improve pavement markings between bicycle lane, travel lanes, and double center lanes. Enhance the signage for one-way side streets to prevent wrong turns.</p>
<b>Long-term Recommendations</b>
<p><b>BIKE</b> - Establish new bike lanes on V St, W St and Rhode Island Avenue. Support proposed bike lanes on 15th Street and M Street.</p>
<p><b>INTERSECTION MODIFICATIONS</b> - Establish bus bulb-outs at primary nodes and major intersections in conjunction with bus stops: Florida Ave, U Street, P Street, T Street, R Street, Rhode Island Avenue, and N Street. Create bulb-outs at T-intersections such as Wallach Place, Swann, Riggs, and Church Street and all other interscetions.</p>
<p><b>ROADWAY</b> – The current 14th Street roadway configuration and cross-sectional design will be maintained for all future recommendations on the corridor. Improve access management to minimize curb cuts and eliminate unused ones along 14th Street.</p>
<p><b>TRANSIT</b> – Develop transit to take into account the importance and synergy between pedestrian and bicycle modes of travel and their effects on the streetscape enhancements of the corridor. Implement transit signal priority. Establish 14th Street as a transit priority corridor and implement an enhanced transit service such as Express/MetroExtra. In consultation with WMATA, selected bus stops within the study area are moved onto the newly created bulb-outs: Florida Avenue (far sides for SB and near side for NB), U Street (far side NB), T Street (near side), R Street (near side), P Street (near side), Rhode Island Avenue (far side), N Street (far sides for SB and near side for NB).</p>
<p><b>MULTI-SPACE PARKING SYSTEM</b> - Install multi-space parking meters along 14th Street and side streets, utilize 100’-150’ spacing coordinated with that of light poles and trees. Improve parking management on residential side streets with enhanced parking regulations. Parking recommendations in this study focus primarily on effectively managing the parking demand and minimizing the conflicts of parking with bicycle, pedestrian, and transit users. Central to implementing the parking recommendations is the installation of the multi-space pay/display parking system that enables use of a variable pricing scheme as an incentive and disincentive to affect travel behavior.</p>

# Table of Contents



Figure I.1 Caroline Mayorga, New Arrivals, The Garden District

**Acknowledgements ..... 3**  
**Executive Summary ..... 4**

## OVERVIEW 11

**Introduction ..... 12**  
 Intent and Scope..... 12  
 The Corridor ..... 13  
 The Study Area ..... 13  
 Study Phases ..... 15  
 Report Format..... 15  
**History ..... 16**  
**Zoning and Land Use Designations .... 20**  
**Public Participation ..... 22**  
 Project Website..... 22  
 Steering Committee ..... 23  
 First Public Meeting..... 24  
 Community Event: Dog Days..... 33  
 Second Public Meeting ..... 34  
 Third Public Meeting..... 38  
 Fourth Public Meeting ..... 39

## EXISTING CONDITIONS TRANSPORTATION 41

**The Transportation System ..... 42**  
**Vehicular/Roadway ..... 42**  
 Traffic Counts..... 44  
 Existing Roadway Conditions Assessment..... 47  
 Truck Loading/Unloading and Heavy Vehicles ..... 50  
 Origin-Destination Patterns..... 53  
 Speed and Travel Time Patterns..... 53  
 Crashes..... 54  
 Intersection Operations ..... 58  
 Arterial Operations ..... 60  
 Intersection Conditions..... 63  
**Pedestrian and Bicycle Activity ..... 68**  
 Overview..... 68  
 Existing Pedestrian Activity ..... 68  
 Bicycle Activity ..... 72  
 Bicycle Lanes and Parking..... 72  
 Pedestrian/Bicycle Safety and Accident Data ..... 76  
 Pedestrian, Bike, and Transit Connectivity..... 81  
 Summary..... 81  
**Transit Services ..... 83**  
 Existing Services ..... 83  
**Parking ..... 88**

## EXISTING CONDITIONS STREETScape 103



**The Public Realm ..... 104**  
 Field Survey.....104  
 Sidewalks .....106  
 Landscaping.....108  
 Furnishings/Transit Shelters .....110  
 Lighting.....112  
 Signage .....114  
 Public Art.....116

LID Strategies within the Corridor.....170  
 Sourcing Materials and Content .....172  
 Sustainable Streetscape Elements.....172

**Focus Areas ..... 174**

Florida Avenue & 14th Street NW .....174  
 U Street & 14th Street NW .....176  
 P Street & 14th Street NW .....178

**Streetscape Elements Library..... 180**

Library Instructions.....181  
 DDOT Approved Standards - Corridor-wide  
 Streetscape Elements.....182  
 Hardscape .....185  
 Landscape .....188  
 Furnishings .....190  
 Signage and Lighting .....191  
 Public Art.....192

**TRANSPORTATION RECOMMENDATIONS 119**

**Introduction ..... 120**  
**Pedestrian..... 122**  
 Recommendations.....122  
 Details .....122  
**Bicycle..... 124**  
 Recommendations.....124  
 Details .....124  
**Transit..... 128**  
 Recommendations.....128  
 Details .....128  
**Vehicular ..... 134**  
 Recommendations.....134  
 Details .....134  
**Parking/Loading ..... 136**  
 Recommendations.....136  
 Details .....137

**IMPLEMENTATION 195**

Implementation Strategy.....196

**ADDENDUM 199**

List of Figures .....200  
 List of Tables .....203  
 Second Public Meeting Survey Results .....204  
 References.....211

**STREETScape RECOMMENDATIONS 147**

**Introduction ..... 148**  
 Overview.....148  
 Recommendations.....148  
**Sidewalk Layout..... 152**  
 Overview.....152  
 Design Guidelines.....154  
 Assumptions .....158  
 Photometric Analysis .....158  
**Public Open Space..... 160**  
 Recommendations.....160  
**History & Art ..... 162**  
 History.....162  
 Art .....163  
**Future Development..... 168**  
 Construction Activity: “A Changing  
 Neighborhood” .....168  
**Sustainable Design ..... 170**  
 Sustainability and Low Impact Development (LID)  
 Overview.....170







# OVERVIEW



# Introduction

## 2

### Intent and Scope

New investments along the I4th Street Corridor have significantly expanded its residential base, commercial activity, and retail space. This has resulted in greater volumes of traffic and an inability to serve the conflicting needs of vehicle, pedestrian, bicycle and transit users effectively. The aging streetscape infrastructure of this quickly transitioning corridor does not complement the vibrant character of the surrounding neighborhoods; rather it detracts from the overall appearance of the community.

DDOT tasked Michael Baker Jr. Inc with developing a multi-modal transportation and streetscape plan for the area that preserves, strengthens, and creates a vibrant commercial and residential corridor; improves safety and mobility throughout the neighborhood commercial center and regional transportation system, and supports current and future area development plans. Ultimately, in cooperation with the community's stakeholders, Baker recommends balanced strategies to achieve the following objectives:

- Coordinate a multi-modal development plan that recognizes the role of transit linkages, bike and pedestrian pathways, and roadways as integral components in the overall city and regional transportation system, and improve their function and efficiency.
- Develop a sustainable streetscape design that defines a variety of public open spaces along the corridor, reinforces its historic character and preservation guidelines, sense of place and uniqueness for I4th Street and the Logan Circle neighborhood.
- Investigate and balance safe and efficient pedestrian, bicycle, transit and auto movement in concert with existing recommendations for adjoining neighborhoods and corridors, e.g. U Street Corridor and Dupont Circle.
- Maintain the neighborhood's cultural originality, mix of land uses, and economic and ethnic diversity.
- Facilitate dialogue between stakeholders, local artists, and the DC Commission on the Arts and Humanities to integrate public art into the streetscape design, thus implementing the goals of the Uptown Arts Overlay designation.
- Establish a flexible, demand-management based parking strategy and implementation plan to support new and existing retail and residential uses.

- Explicitly encourage the use of both Metrorail and buses through enhanced transit connectivity and frequency.
- Create a safe, inviting, and interesting neighborhood that supports a wide range of uses and activities and reinforce the intersection of 14th Street & U Street as an activity hub.
- Identify and support destinations along the corridor that attract visitors to benefit the local economy.

The section of 14th Street that is part of this study is not designated as an emergency evacuation route. Emergency or event route designation on 14th Street only includes 14th Street from I-395 at the 14th Street Bridge to Thomas Circle.

## The Study Area

The 14th Street study area is located in the northwest section of the city and is bounded by Florida Avenue to the north, M Street and Thomas Circle to the south. The study area consists of a larger transportation area that includes a multi-modal transportation plan, and a sub-area which includes a streetscape plan in addition to the overall multi-modal transportation plan.

## The Corridor

14th Street is a designated major arterial located in the northwest and southwest quadrants of Washington, D.C.'s street grid. It runs from the 14th Street Bridge north to Eastern Avenue (See Fig 2.1). The corridor crosses the National Mall and runs near the White House, through Thomas Circle and close to Washington's Logan Circle and Columbia Heights neighborhoods. Because it connects to one of the main bridges crossing the Potomac River into Virginia, 14th Street has always been a major transportation corridor and was the location of one of the first streetcar lines (since removed within the District).

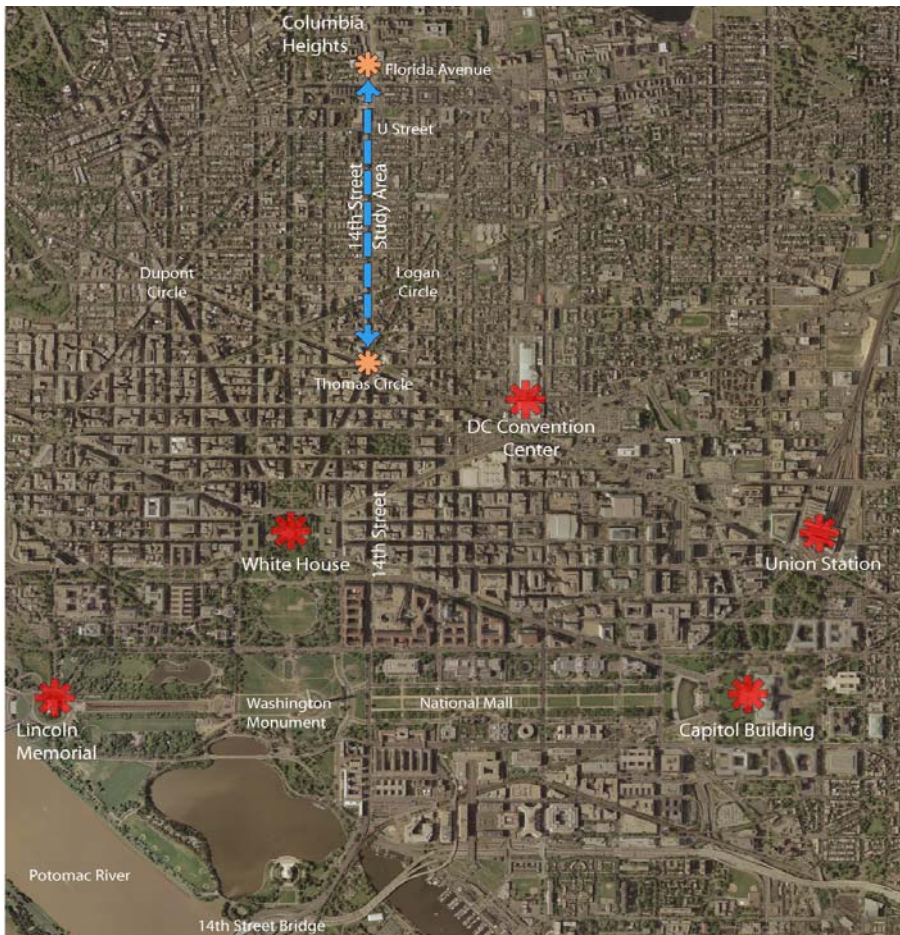
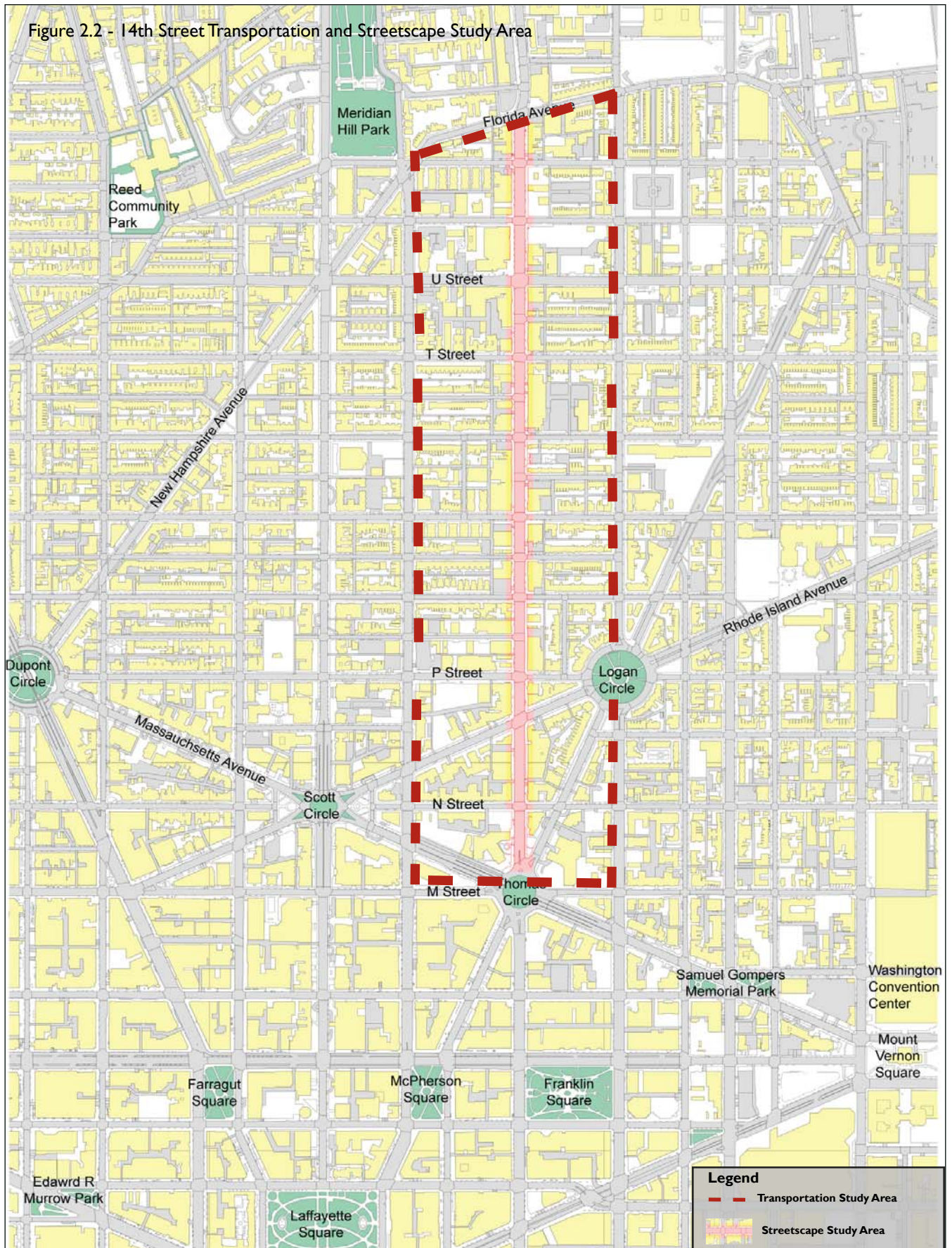


Figure 2.1 - 14th Street's Location within the District of Columbia



# 2

Figure 2.2 - 14th Street Transportation and Streetscape Study Area





The study areas, as shown in Figure 2.2 are defined as follows:

### 1. Parking & Transportation Study Area:

The area one block to the east (13th Street) and west (15th Street) of 14th Street, NW between Florida Avenue to the north and M Street to the south.

### 2. Streetscape Study Sub Area:

14th Street, NW between Florida Avenue to the north and Thomas Circle to the south.

The corridor presents a vibrant mix of land uses which offer the community, residents, and visitors diverse commercial and cultural activities during the day and night. Residential buildings, retail and commercial uses, office uses, and private parking lots are interspersed along its length. The vicinity around U Street, including the U Street/African American Civil War Memorial/ Cardozo Metro station, is considered a hub for both transportation and pedestrian activity within the District. At the southern end of the corridor, the recently redesigned Thomas Circle now forms a gateway to the 14th Street/Shaw neighborhood from Downtown. Several land use designations, including the Comprehensive Plan, the Uptown Arts Overlay District, and the Greater 14th Street and Logan Circle Historic District, support the continued preservation and enhancement of the corridor's mixed use, historic and artistic elements.

## Study Phases

The study was comprised of three main phases:

### (1) Assessment of Existing Conditions

- Scoping, research and collection of regulatory, transportation, and planning data;
- Field survey traffic counts and documentation of infrastructure and streetscape conditions;
- Gathering comments from public and outreach;
- Establishment of an interactive project website;
- Formation of and meeting with the Study Steering Committee;
- Facilitation of the first public meeting to introduce the study;
- Attendance at the Dog Days community event to encourage public input;
- Presentation of research findings, and development of a vision for the corridor;
- Compilation of all information collected and production of a draft document for DDOT review.

### (2) Development of Improvement Options

- Development of potential short-term and long-term options that address transportation and streetscape issues and challenges in the study area and would implement the articulated vision for the 14th Street corridor;
- Facilitation of the second interactive public meeting and additional Steering Committee meetings to solicit public preferences for potential transportation and streetscape improvement options;
- Continued interaction with relevant District agencies and local stakeholders ensured consideration of all aspects related to the needs of the 14th Street corridor;
- Website updates kept the community apprised of upcoming meetings and enabled users to view/download the latest reports;

### (3) Finalizing the Improvement Recommendations

- Input from the public and Steering Committee contributed to the development of draft recommendations and conceptual designs.
- Facilitation of the third public meeting in an open house format gave residents and other stakeholders the opportunity to provide final comment on the recommended improvements for 14th Street.
- Revision of Draft Recommendations to incorporate meeting discussions and outcomes, and finalize graphics and narratives.
- Presentation of the Draft Final Report at the fourth and final public meeting in April 2008.

## Report Format

The report is organized into eight sections:

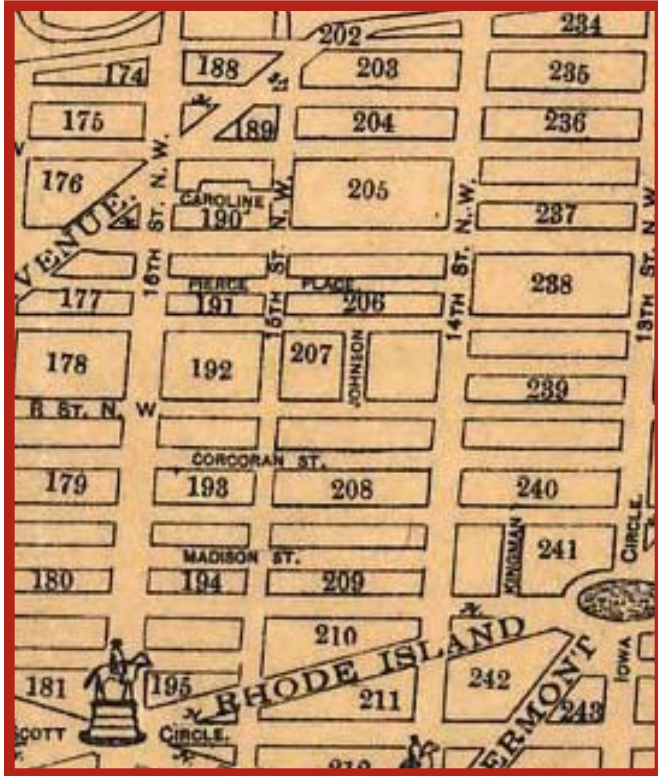
1. Executive Summary
2. Overview
3. Existing Conditions - Transportation
4. Existing Conditions - Streetscape
5. Recommendations - Transportation
6. Recommendations - Streetscape
7. Implementation
8. Addendum

Color-coded tabs on the left and right hand edges identify sub-chapters and help guide the reader through the report.

# History

History 2

After the Civil War, the 14th Street NW area became an attractive destination for Washington's growing middle class. The expansion of the city's infrastructure, such as public sewers, water mains, paving projects, and street car lines, opened up the 14th Street NW area for development. Brisk construction ensued and is representative of Victorian era urban expansion.



The 14th Street corridor from old Downtown DC to the northern border at Florida Avenue developed into a commercial area to serve the growing community. A variety of commercial ventures, such as groceries, drugstores, and other retailers established their businesses along 14th Street. The number and variety of businesses multiplied between the 1870s and the 1880s. Storefronts were often located on the first floor with residences located on the upper floors. In addition, the majority of the commercial buildings were individually designed.

The growth of the commercial corridor along 14th Street was also intertwined with the transportation options provided along the corridor. One of the city's first and most prominent streetcar lines served the growing middle class rowhouse neighborhoods throughout the area. Consequently, from early on in its history the 14th Street corridor became a well utilized commuter route.

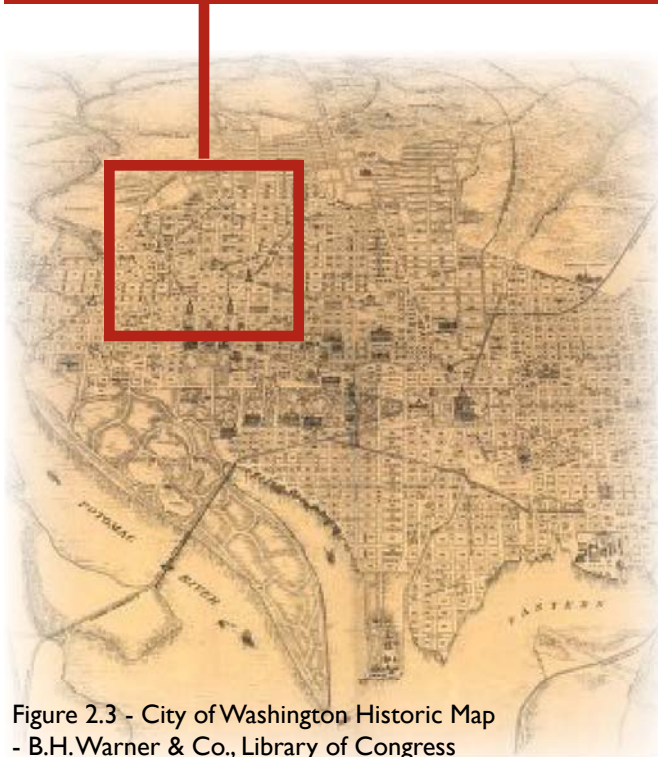


Figure 2.3 - City of Washington Historic Map - B.H. Warner & Co., Library of Congress



Figure 2.4/2.5 - (top to bottom) 14th Street Commercial Advertisement; Horse-drawn Streetcar Line on 14th St. near Florida Ave, 1889



As in most cities in the U.S., the automobile became an increasingly dominant form of transportation at the turn of the 20th century. Then 14th Street captured the machine age spirit and became the hub of Washington automobile activity. Many of the previously constructed Victorian buildings were demolished to make way for new automobile showrooms and garages. The first car sales shop opened in 1898 by Rudolph Jose at 1614 14th Street. As the number of showrooms increased the corridor became affectionately known as “Automobile Row.” The automobile finally triumphed with the removal of the streetcar from 14th Street in 1962. It was the last operating line and marked the abandonment of the entire DC streetcar system.

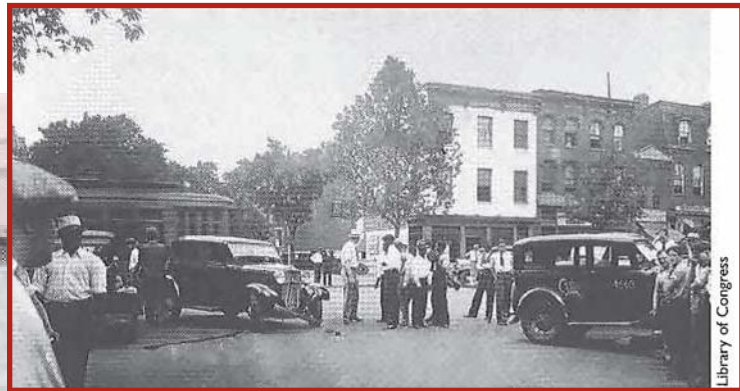
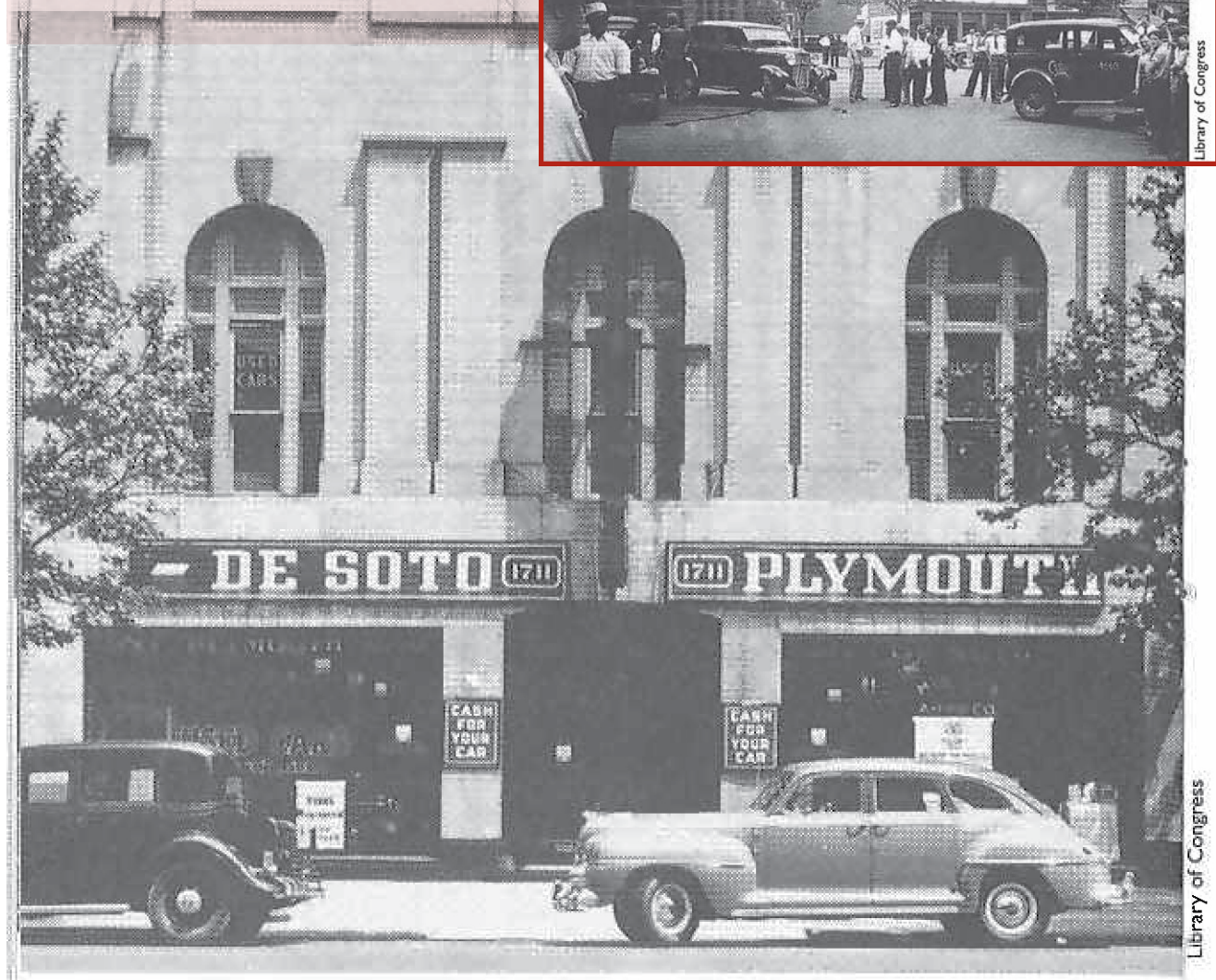


Figure 2.6/2.7/2.8 - (top to bottom) Early 14th Street Commercial Corridor; 14th Street Electric Streetcar and Automobiles; First Automobile Showroom at 1711 14th Street, 1904





The 14th Street area has always been a mixed middle-class residential neighborhood. Originally, public and religious institutions such as The Freedman’s Hospital, Metropolitan Baptist, Vermont Avenue Baptist, and St. Luke’s Episcopal provided anchors for the African-American community. As the 20th century progressed, the area surrounding 14th and U Streets was often thought of as Washington’s “Harlem”. In fact, the 14th and U Street district predates Harlem as an urban focal point for African-Americans. By 1920 the area had become an epicenter for Washington’s African-American city life. However, as Washington continued to expand northwards due to streetcar accessibility and the automobile, the middle-class migrated out to these newly formed suburbs. Following this out-migration the 14th Street corridor entered a period of downturn and many commercial enterprises began to stagnate. Buildings became neglected and started to deteriorate and following the assassination of Martin Luther King, Jr. in 1968, several riots destroyed a number of buildings and businesses on 14th Street.

Recovery was a slow process but the remaining neighborhood assets rose to the surface. In the 1970s, new residents moved to the area attracted by the architecture, history, and affordable property prices. Restoration began on many of the area’s old houses. Logan Circle gained a listing on the National Register of Historic Places in 1972. As new residents occupied the 14th Street area, the commercial corridor entered a period of revitalization which continues today. The 14th Street corridor received an Arts District designation in the 1980s, which became instrumental in regenerating commercial buildings and prompting catalytic projects. For example, The Studio Theatre became an economic and cultural cornerstone of the neighborhood after the 1987 renovation of the former Peerless and REO automobile showroom at 1333 P Street. The Woolly Mammoth Theatre also rented a 14th Street warehouse, which served as the company’s performance space for 13 years. A Whole Foods supermarket branch opened its doors in 2001. Located on P Street just west of 14th Street, Whole Foods stimulated additional commercial and large-scale residential development in the area.

Today, the transformation of the 14th Street corridor continues. The evolution into a dynamic and eclectic commercial and cultural corridor has contributed a unique identity to the neighborhoods through which it passes — particularly Downtown DC, Logan Circle, the U Street Corridor, and Columbia Heights. 14th Street is now known for live theater, cutting-edge art galleries, and trendy restaurants. Historic designation has been conferred upon the entire 14th Street study area. The area south of S Street is known as the Greater 14th Street and Logan Circle Historic District, the northern portion belongs to the Greater U Street Historic District (see Figure 2.12).

Moreover, while the nominal center of the city’s gay life is still Dupont Circle, the Washington Blade magazine called 14th Street between U Street and Massachusetts Avenue (Thomas Circle) the best place to see and be seen for the gay community.

The current trends in the 14th Street area are expected to maintain a steady growth pattern into the future. Additional residential development, adaptive reuse of historic structures, restaurants, performing art spaces, and galleries will further solidify 14th Street as an arts and entertainment center within the Nation’s Capital. As shown in Figure 2.9, developments just north of the Whole Foods along P, Church, 13th and 14th streets could add as much as 600 new residential units to the area, based on a recent Washington Post article (December 20, 2004).

Recent developments since 2001, as compiled by the District Office of Planning, show significant renovation, rehabilitation, and new construction activities in the study area, including:

- (1) Approximately 2,500 units of condominiums, apartments and single family houses.
- (2) 350 hotel rooms;
- (3) 2,200 parking spaces;
- (4) Approximately 300,000 square feet of office, retail, and other commercial space.

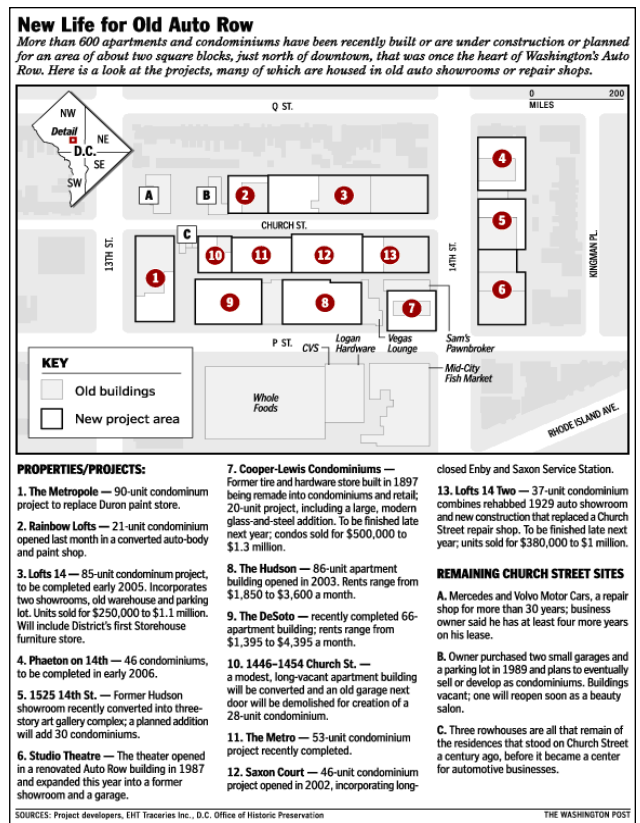


Figure 2.9 Recent Developments (Source: The Washington Post, December 20, 2004)

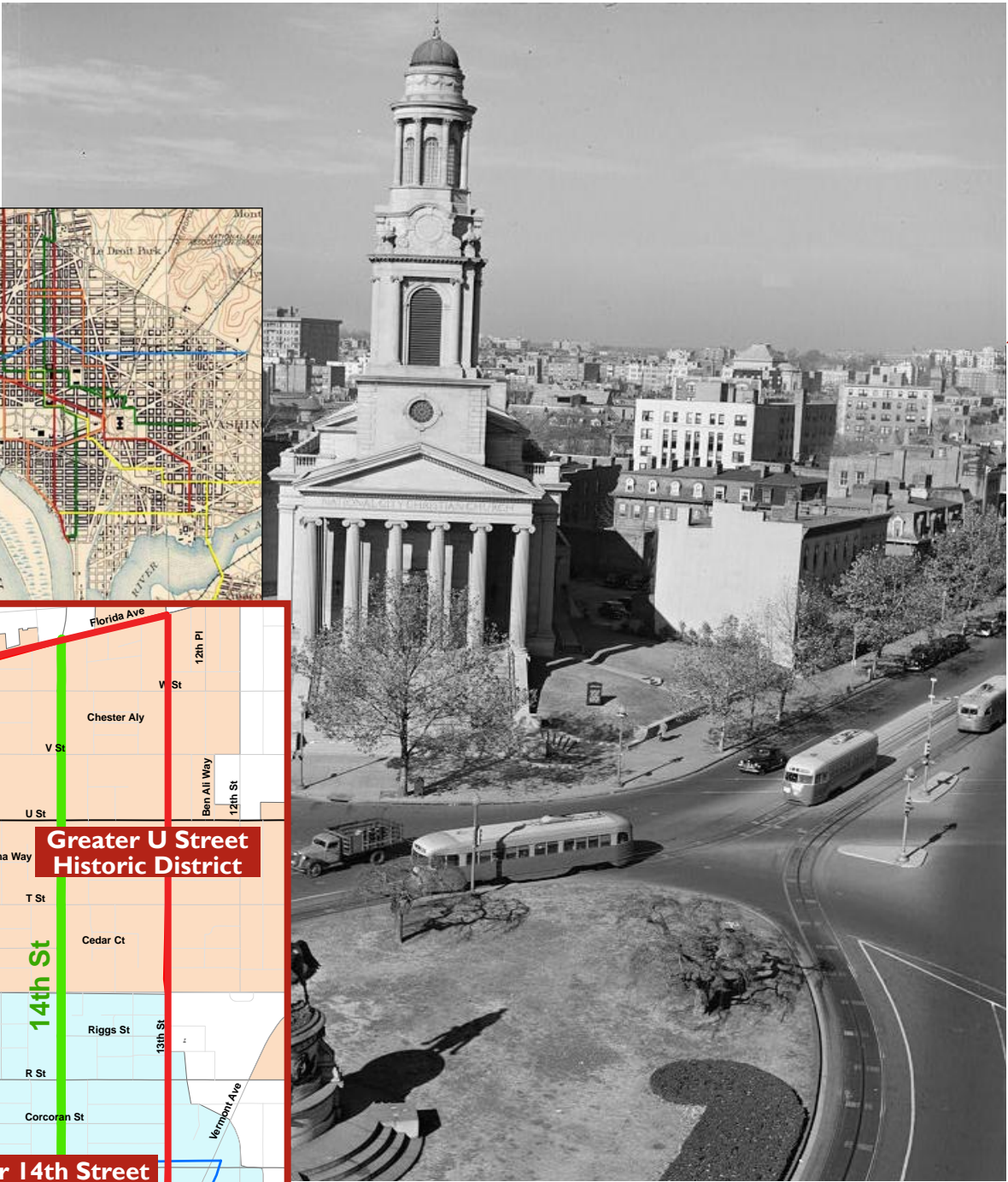


Figure 2.10/ 2.11/ 2.12 - (top to bottom) Thomas Circle, 1943, Library of Congress photo; Map of Washington DC Streetcar System at the end of the Horsecar era, 1888; Greater U Street and Greater 14th Street and Logan Circle Historic Districts



# Zoning and Land Use Designations

Regulatory Information

## 2



District of Columbia Office of Planning  
Date Printed: July, 29, 2003;  
Amendments Through: January 1, 2003

ARTS: Uptown Arts  
DC: Dupont Circle

- C-2-A: Community business center - low moderate density
- C-2-B: Community business center - medium density
- C-3-A: Medium bulk major business and employment
- CR: Mixed residential, retail, businesses & light industrial
- R-4: Row dwellings and flats
- R-5-B: Moderate density apartment houses
- R-5-C: Medium density apartment houses
- R-5-D: Medium - high density apartment houses
- R-5-E: High density

	Major Federal Tracts		Areas of Overlay Districts
	Streets		Water
	PUDs		Buildings

Figure 2.13 - District of Columbia Zoning Map

The 14th Street study area is within the neighborhoods of Logan Circle and Shaw, with areas north of U Street in Ward 1 and south of U Street within Ward 2. Figure 2.13 shows the entire corridor is within the Uptown Arts Overlay District, as designated by the DC Zoning Regulations. This designation provides regulation and guidance as to land use/development in the area and highlights the following goals for this land use type relevant to this study:

- Encourage a scale of development, a mixture of building uses, and other attributes such as safe and efficient conditions for pedestrian and vehicular movement;
- Require uses that encourage pedestrian activity, especially retail, entertainment, and residential uses;
- Provide for an increased presence and integration of the arts and related cultural and arts-related support uses;
- Strengthen the design character and identity of the area by means of physical design standards;
- Foster eighteen hour activity and increased public safety.

The following list summarizes the preferred Arts and Art Related Uses within a Zoning Arts Overlay District.

- Art Center, Gallery, Photographic Studio;
- Art School (e.g. dance, photography, filmmaking, music, writing, painting, sculpturing, or printmaking);
- Artist Housing;
- Craftsman or Artisan Studio;
- Artists' Supply Store, Picture Framing Shop, Arts Services (e.g. set design and art restoration)
- Theater, Cabaret; Concert hall or other performing arts space;
- Performing Arts Ticket Office or Booking Agency;
- Restaurant, Bar, Nightclub, or Cocktail lounge;
- Record Store, Musical Instruments Store;
- Television and Radio Broadcast Studio;
- Book Store;
- Movie Theater; and
- Museum.

Use requirements designate that retail and services uses and the arts related uses, listed previously, shall occupy no less than fifty percent of the ground level of each building that fronts on 14th Street. The only exception to this designation are residential uses with less than 50 ft of frontage who have no such requirement. The northern and central (C-3-A, C-2-B, SP-2) portions of the corridor are designated for medium/high density office, retail and residential development. The remaining SP-2 designation in the center of the corridor around S Street is for lower density residential uses and single family housing uses. The 2006 Washington DC Comprehensive Plan policy



document provides overall guidance for future planning and development of the city. The 14<sup>th</sup> Street corridor is highlighted as a mixed use (residential/commercial) corridor and is predicted to emerge as an even stronger center for arts and entertainment over the next decade and a dynamic street environment (See Fig 2.14). The Comprehensive Plan states that development on the corridor should be designed to minimize impacts on adjacent residential areas, promote adaptive reuse of important historic structures, and preserve long-time neighborhood institutions like churches.

The 14th Street Arts District has been designated to encourage arts activities along 14th Street, in an effort to link the corridor to the arts district along the U Street corridor. Arts related activity can be seen along the corridor with the increased development of theaters, galleries, cultural facilities and activities that promote arts, such as the “Design DC - 14th Street Corridor Project” sponsored by the Commission for the Arts and Humanities.

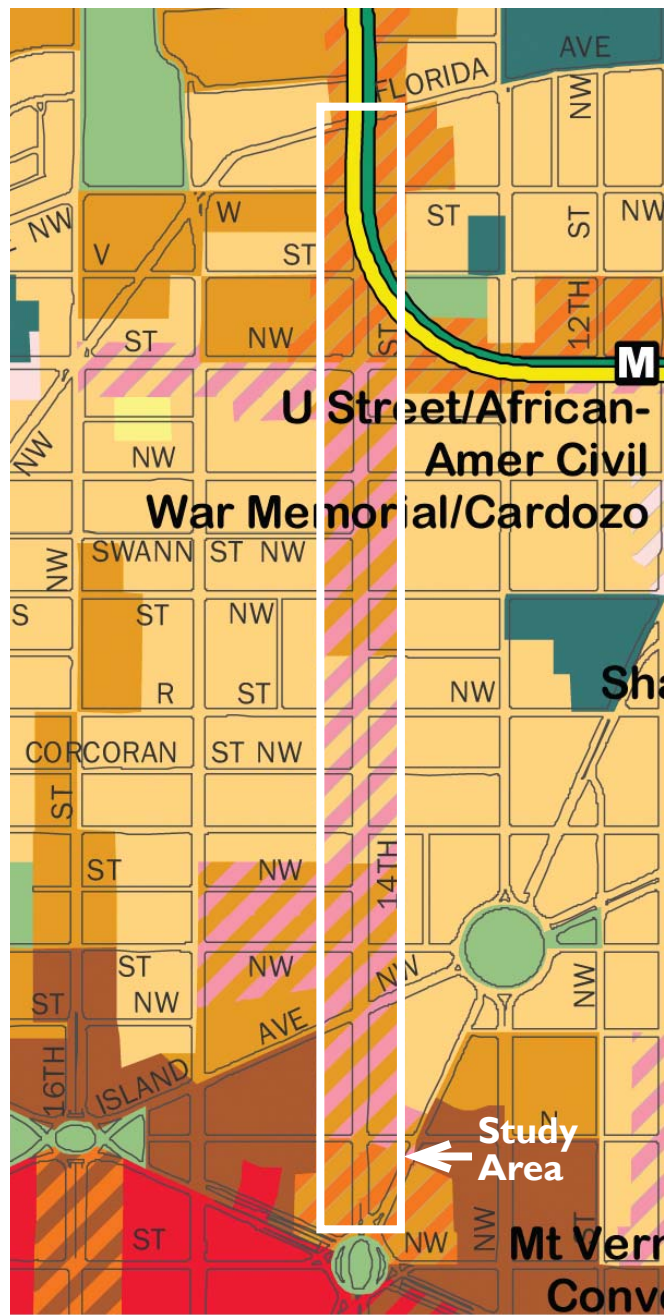


Figure 2.14- DC Comprehensive Plan - Future Land Use

\*\*\* Government of the District of Columbia  
 Adrian M. Fenty, Mayor  
 Office of Planning ~ June, 2007

- Low Density Residential
- Moderate Density Residential
- Medium Density Residential
- High Density Residential
- Low Density Commercial
- Moderate Density Commercial
- Medium Density Commercial
- High Density Commercial
- Production, Distribution, and Repair
- Federal
- Local Public Facilities
- Institutional
- Parks, Recreation, and Open Space
- Mixed Land Use
- WATER

# Public Participation

2



Figure 2.15 - Dog Days Community Event

The 14th Street Transportation and Streetscape Study relies heavily on public participation. The process involves residents, Advisory Neighborhood Commissions (ANCs), business owners, neighborhood organizations, and other stakeholders in and around the study area. For the first phase of the study - the existing conditions assessment - the community helped identify existing issues and assets and form a vision for the corridor; the results and means of outreach are described on the following pages. During the second study phases, community input was essential in collectively developing improvement options and final recommendations; the goal was to strive for consensus among stakeholders and DC agencies about future investments. Therefore, as the project moves forward, the study team continued to reach out to the community and encouraged public input.

## Project Website

A project website, [www.14thstreetstudy.com](http://www.14thstreetstudy.com), was implemented to fully engage residents, elected leaders, retail owners, real estate developers, and other stakeholders. The website is used as a forum to advertise the public meetings and other community engagement activities. It also provides an easily accessible location to post the public meeting presentations, informational and graphic materials. As a result, community members who were unable to attend the public meetings can read study materials at their convenience. The website also contains an interactive element where the public is invited to submit their comments to the project team.



Figure 2.16 - Project Website Screenshots



## Steering Committee

To further enhance continuous communication between the community and the study team, a Steering Committee (SC) was formed and scheduled to meet regularly and before Public Meetings. The SC’s primary role is to help coordinate

a smooth and efficient study process that is equitable, enjoys broad community participation, and results in plans and policies that are achievable. Therefore, along with community representatives, the SC also consists of members from various District agencies whose technical and program expertise is invaluable for developing realistic infrastructure improvement and implementation recommendations.

Table 2.1 - Steering Committee

Affiliation	Contact
DDOT - Transportation Planning and Policy Administration	Chris Ziemann, Transportation Management Specialist, Ward 2; 14th Street Project Manager
DDOT - Transportation Planning and Policy Administration	Jim Sebastian, Bike/Pedestrian Program Coordinator
DDOT - Infrastructure Project Management Administration	Mike Jelen, Team 1 Leader
DDOT - Transportation Planning and Policy Administration	George Brnayan, Pedestrian Program Coordinator
DDOT - Infrastructure Project Management Administration	Sunny Gyani
DDOT - Infrastructure Project Management Administration	Victor Egu
DDOT - Infrastructure Project Management Administration	Steven Gross
DDOT - Mass Transit Administration	Circe Torruellas
DDOT - Mass Transit Administration	Ginger Moored
DC Office of Planning	Zach Dobelbower, Ward 2 Neighborhood Planning Coordinator
DC Office of Planning	Chris Shaheen, Revitalization Program Manager
DC Commission on the Arts and Humanities	Rachel Dickerson, Art in Public Places Manager
ANC1B, Cardozo-Shaw Neighbourhood Association	Phil Spalding
ANC2F	Christopher Dyer, ANC Commissioner 2F03
ANC2B	Ramon Estrada, Chairman
Logan Circle Community Association	Jennifer Trock, President
Logan Circle Community Association	Brian Vargas
Logan Circle Community Association	Robert Maffin
MidCity Business Association	Robert Snellgrove
MidCity Business Association	Scott Pomeroy
Coalition for Smarter Growth, Cardozo-Shaw Neighbourhood Association	Cheryl Cort



## First Public Meeting

The Source, formerly Source Theatre, was the site for the first 14th Street Transportation and Streetscape Study Public Meeting held on June 20, 2007. The theater, located on the northern end of the study area, provided an opportunity for attendees to learn about the study's scope and share their visions for the 14th Street corridor.

The meeting began with a project overview and team introduction. DDOT and Baker provided a presentation which discussed the corridor's historic heritage, current developments, existing transportation assets and challenges, and existing streetscape conditions. Questions were fielded from the audience throughout the presentation. As a result, several discussion points such as previous studies, census data, information provided on the website, streetscape definitions, project timeline, and corridor character were conveyed. Participants were invited to stay for the break-out session, provide feedback, and ask team members additional questions. The presentation was completed by asking participants to complete the individual postcard-size comment cards. Each participant was asked to identify three vision priorities and three challenges for the 14th Street corridor. More than fifty people gathered in the Source to share their visions for the 14th Street corridor .

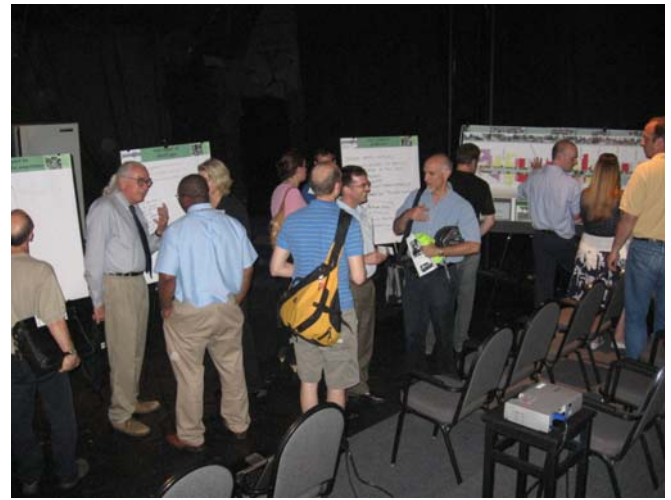


Figure 2.18/2.19/2.20 - Public Meeting I Photos



Figure 2.17 - Source Theatre 14th Street

## Transportation Comment Board

Location specific transportation comments received during the break-out session are listed in Table 2.2. The majority of the comments related to suggestions and concerns in specific locations along the corridor. For this reason, all location specific comments have been consolidated into one table,



Figure 2.21 - Public Meeting I - Transportation Break-out Session

**Table 2.2 - Transportation - Location Specific Comments**

	Comments
1	Could Thomas Circle be used for park? with benches in it?
2	Stated there is a bad design at 14th St. and N St. on the northbound side.
3	Bus stops at P Street (west) on both sides blocked traffic and safety concerns. Suggest moving one away.
4	The crosswalk at 14th St. and Riggs St. does not go all the way across 14th St. The crosswalk only goes halfway across the street and just stops.
5	Enforcements need to be made on double parking, taking up space in the bike lanes. This causes trouble for bikers and also other drivers who must avoid hitting the cars. When double parked in a bike lane, often cars hang into regular traffic lanes and cause trouble for other motorists. Suggest physical separation of bikes lanes to make them more useful.
6	Suggest speed humps on Wallach Pl.
7	Eliminate curb-cuts on 14th St. between S St. and Swan St.
8	Pedestrians don't respect left turn signals on the intersection of 14th St. and U St. Perhaps left hand turns should be banned.
9	Like to see more design crosswalks
10	Like to see more bike storage facilities
11	P Street transit is infrequent (30 min), need more frequent services and more real time service information to help users plan their trips.
12	Like to see more green space along the corridor
13	Bulb-out is not good for 14th Street because of bus movements.
14	Parking along 14th Street and some side streets like P needs to be all metered parking to encourage parking turn-over and eliminate full-day on-street parking.
15	Better attempts to attract hotel guests from south of the corridor and Downtown to come north and use retail and restaurant facilities. The block just north of Thomas Circle is seen as critical in attracting this. Transport connection could also improve this connection.
15	<b>Total # of comments</b>

## Public Meeting I - Vision Priorities

The results of the comment cards and break-out sessions were instrumental in aiding the team to define priorities for the study. Table 2.3 lists the public comments that related to overall vision priorities. The comments were divided into five categories for further analysis: streetscape elements, businesses, public art, transportation, and future development character. The five categories were developed from a natural breakdown of the public comments obtained from the break-out session and the vision priority lists.

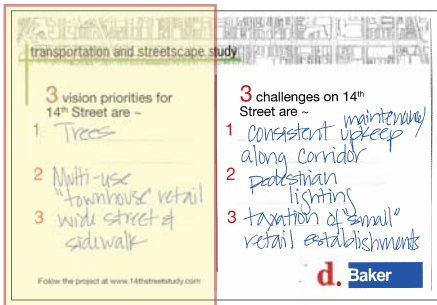
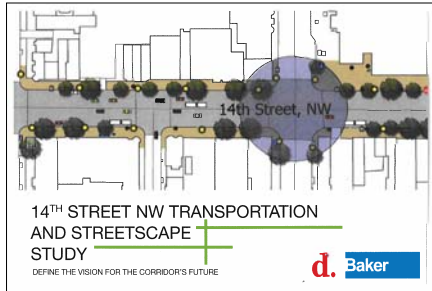


Figure 2.22 - PM I - Comment Card

Table 2.3 - Vision Priorities

### Future Development Character

	Comments
1	Needs to be a destination
2	Retain character as a historic black neighborhood
3	Preservation of individual funky elements
4	No high rises
5	Development that is environmentally aware
6	Biggest priority would be to maintain the unique character of the neighborhood. Not create another Georgetown of Gallery Place
7	Opportunity for interaction with retail/residential and streetscape
8	Enhance sense of neighborhood
9	Preserve/ retain public awareness of historical African American character of the neighborhood
9	<b>Comments Received</b>

### Streetscape Elements

	Comments
1	Leave some open space
2	History highlight to corridors past
3	Environmental/ Sustainability landscape
4	Garage, recycling availability
5	Intense urban greenery
6	Relighting sidewalks, bus shelters, road
7	Beautiful ecologically sound landscaping
8	Trees
9	Wide street and sidewalk
10	Dog park
11	Sustainability-nature we are desperate for living things not inanimate ones. Art abounds here trees do not. Nature has much more impact
12	Green roof reduce underground storm storage
13	Pedestrian lighting
14	Bike racks
15	Trash cleaning in front of McDonalds
16	Furnishings
17	Put in tree planters made so trees can thrive
18	Better lighting on sidewalk
19	If plant tree boxes take away parking where street signs are
20	Amsterdam has less litter than DC - and 14th Street corridor needs anti litter awareness. More recycling maybe more receptacles for trash - involve more stakeholders.
21	Sidewalk paving material made of recycled tire rubber, more flexible not cracked by tree roots less painful if one falls, smoother than bricks
22	How will you deal with the newer residents who are afraid of the homeless sitting at bus stops or on benches? park benches are designed to prevent people from sitting side by side.
23	Street sidewalk surfaces – make sure there is a meaning in the design; Brick is not necessarily historic!
24	Check out creative design at: P Street Dupont Bridge: Scored concrete composite and limestone tree box design.
25	Not enough bus shelters/ encourage rider ship, provide resting places for older residents, discourage homeless people (see 14th and P artists bench on one side)
26	More bike parking
26	<b>Comments Received</b>



**Transportation**

	Comments
1	Bridging the gap between residential and downtown traffic
2	Provide opportunities for construction of a parking garage
3	Parking
4	Transit improved facilities (dedicated lanes and stops)
5	Less vehicles
6	Multi modal
7	Better traffic light co-ordination from Thomas Circle to L
8	Walkability transit we want a trolley!
9	Trolley from downtown to Colorado Avenue
10	Coordinate transportation issues with Columbia Height and 16th Street
11	Transit orientated
12	Parking
13	More daytime crowd
14	Walkable, safe neighborhood
15	Bike and pedestrian orientated
16	Bicycle/pedestrian orientated (physically separated bike lane)
17	Bicycle pedestrian orientated
18	Safety
19	Pedestrian safety
<b>19</b>	<b>Comments Received</b>

**Public Art**

	Comments
1	Encourage visual and performance arts
2	Arts/entertainment
3	Arts /culture strip – conveyed through streetscape
4	Need public space for artists e.g. buskers and painters
5	Needs a defining space or amenity which symbolizes the 14th Street Art district
6	Arts focus
7	Art scene
8	Art culture /public open space
9	Keep the artsy, funky diverse feel of the area
10	Arts entertainment
11	Art
12	Stress arts overlay
13	Commission artists to design uniqueness in the hood e.g. tree boxes lampposts, murals and public art project.
14	Visitors should “see” the arts overlay effect
<b>14</b>	<b>Comments Received</b>

**Businesses**

	Comments
1	Keep the corporate chains OUT we moved here from the suburbs and love the character and variety private small business provides
2	More nightlife throughout the street
3	Retail need e.g. Traders Joes
4	Retail, restaurants, shops. Variety of places to eat and shop
5	Economic development more restaurants, retail
6	Mixed use
7	Multi use “townhouse” retail
8	Small business development
9	Entertainment/beauty
10	Bring in more independent business
11	Maintain the unique retail, restaurants and nightlife. NO CHAINS
12	Retail
13	Mixed Use
14	Retail
15	Mixed use
<b>15</b>	<b>Comments Received</b>

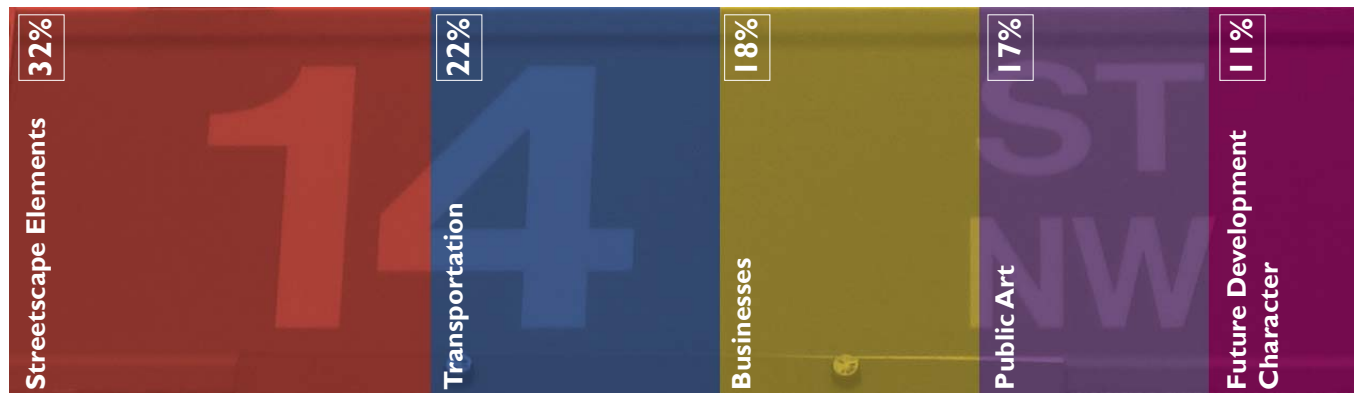
## Vision Priorities - Summary & Analysis

Table 2.4 depicts the five vision priority categories and the percentage of comments received for each category. The majority of public comments related to streetscape elements and transportation. Businesses, public art, and future development character were highlighted to a lesser extent. Table 2.5 further illuminates the topics discussed within each category. Using a word-count, the table draws out common themes within each category. For example, within streetscape elements the most frequently used words were tree, street, and sidewalk. Sustainability, recycle, lighting, and bus stops were also a commonly used terms mentioned by the public. The comments in the transportation category revolved around bicycles, safety, parking and transit. Retail

was the most repeated term in the businesses category. Space and public were commonly used terms in the public art category. Neighborhood and character were terms stressed in the future development character category.

Taken as a whole, the comments represent the public's vision for 14th Street as a green corridor that focuses on the arts and entertainment, encouraging retail, bike and pedestrian activities. While comments referring to 'retail', 'restaurants' etc. led to the formation of the 'businesses' category, it shall be noted that the intent and scope of this study is not to recommend land use policies but to develop infrastructure improvements, which, in turn, may affect future uses.

**Table 2.4 - Public Meeting I: Vision Priority Categories**

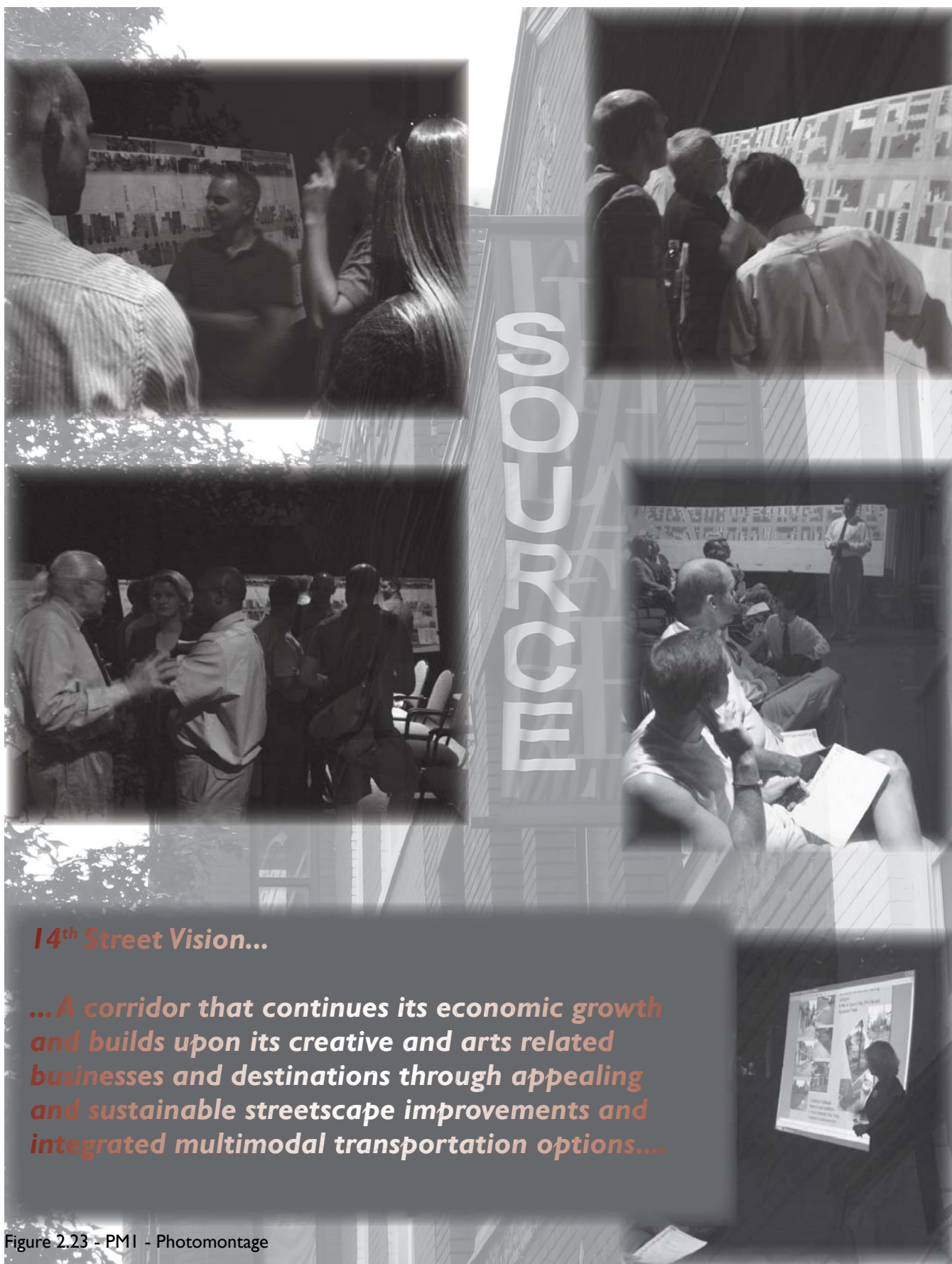


**Table 2.5 - Themes Derived from Public Comments - Word Count**

Streetscape Elements	Transportation	Businesses	Public Art
10 x tree	4 x bike/bicycle	7 x retail	13 x art
5 x street	3 x safety	3 x mixed use	3 x space
5 x sidewalk	3 x parking	3 x small/independent business	3 x public
3 x sustainability	3 x transit	3 x restaurants	2 x entertainment
3 x recycle	2 x trolley	2 x chains	2 x culture
3 x lighting		2 x variety	2 x artists
3 x bus shelter/stop		2 x nightlife	
2 x trash			<b>Future Development Character</b>
2 x landscape			4 x neighborhood
2 x green			3 x character
2 x bike			2 x historic
2 x bench			2 x preserve
			2 x retain

2

Public Participation



**14<sup>th</sup> Street Vision...**

**...A corridor that continues its economic growth and builds upon its creative and arts related businesses and destinations through appealing and sustainable streetscape improvements and integrated multimodal transportation options...**

Figure 2.23 - PMI - Photomontage



## Public Meeting I - Challenges

The participants in the first public meeting were also asked to provide three challenges for the 14th Street corridor. Once again commonalities were drawn out from the public comments and six categories were defined. The categories include: transportation, pedestrian use conflicts, visitor/resident appeal, upkeep/maintenance, coordination/funding, and management of the population increase. Table 2.6 lists the detailed responses under the appropriate category.

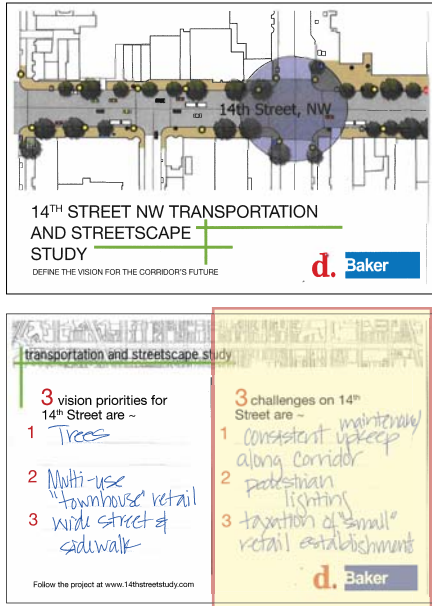


Figure 2.24 - PM I - Comment Card

## Table 2.6 - Challenges

### Coordination/Funding

	Comments
1	Creating an arts/cultural area demands a coordinator
2	How to pay for all the idea, funding sources
3	Historic district restrictions
4	Lack of input from residents
5	Taxation of small retail establishments
6	Involve all aspects of the community rich/poor
7	Generate/encourage sense of ownership of streetscape by neighborhood
<b>7</b>	<b>Comments Received</b>

### Upkeep/Maintenance

	Comments
1	Run down buildings
2	Degraded sidewalk, trees and tree boxes
3	Appropriate number of sidewalk trash bins that are maintained and frequently serviced
4	Dead /gone blighted or underdeveloped areas (14th between N and R, between Q and R)
5	Excessive trash litter
6	Consistent maintenance/upkeep along the corridor
7	Not enough trash cans in front of McDonalds
<b>7</b>	<b>Comments Received</b>

### Manage Population Increase

	Comments
1	Mitigate the negative impacts of an increasingly popular area
2	Welcome new residents visitors AND placate long term residents
3	Getting enough density to support a vibrant corridor
4	Implementing all this without dampening growth in this area
5	Increasing population density
6	Development more than condos needed
7	Keep charm of the neighborhood while promoting development
<b>7</b>	<b>Comments Received</b>

**Transportation**

	Comments
1	Look at transit there will not be sufficient parking to support it. An artsy light rail would open the entire 14th Street corridor.
2	Controlling traffic, crime
3	Provide parking for visitors/shoppers
4	Parking
5	Integrating such a busy commuter corridor with a higher pedestrian use
6	Bus service needs some improvement
7	Too much emphasis on vehicle movement for area with greater than 50% non auto ownership.
8	Manage existing parking
9	Maintain efficient transit
10	Parking
11	Parking
12	Parking
13	Commuter traffic volume is at odds with arts overlay district
14	Parking for visitors
15	Congestion
16	Transportation in and out of the neighborhood
17	Service parking
18	Parking – If parking becomes too hard to find the area will wither like Adams Morgan has. We have got to provide sufficient parking or the whole effort fails
19	Parking
20	Parking – Really need to address this issue before it gets out of control
21	Parking as a resident who currently enjoys available street parking this is a HUGE concern as the area continues to grow
22	Parking
23	Safety, vehicular speed control
<b>23</b>	<b>Comments Received</b>

**Visitor/Residential Appeal**

	Comments
1	Getting outsiders to visit
2	Too many bars, clubs, roof top decks
3	Nightlife attracting crime
4	Sterile building fronts and car lots along the street that are unappealing to pedestrians
5	More trees/ landscaping
6	With mixed use consider impact on housing of streetscape – not just commercial
7	Excessive number of bars and watering holes
8	Pedestrian lighting
9	Green space
10	Lighting
11	Holes in redevelopment of large blocks
12	Tree boxes
<b>12</b>	<b>Comments Received</b>

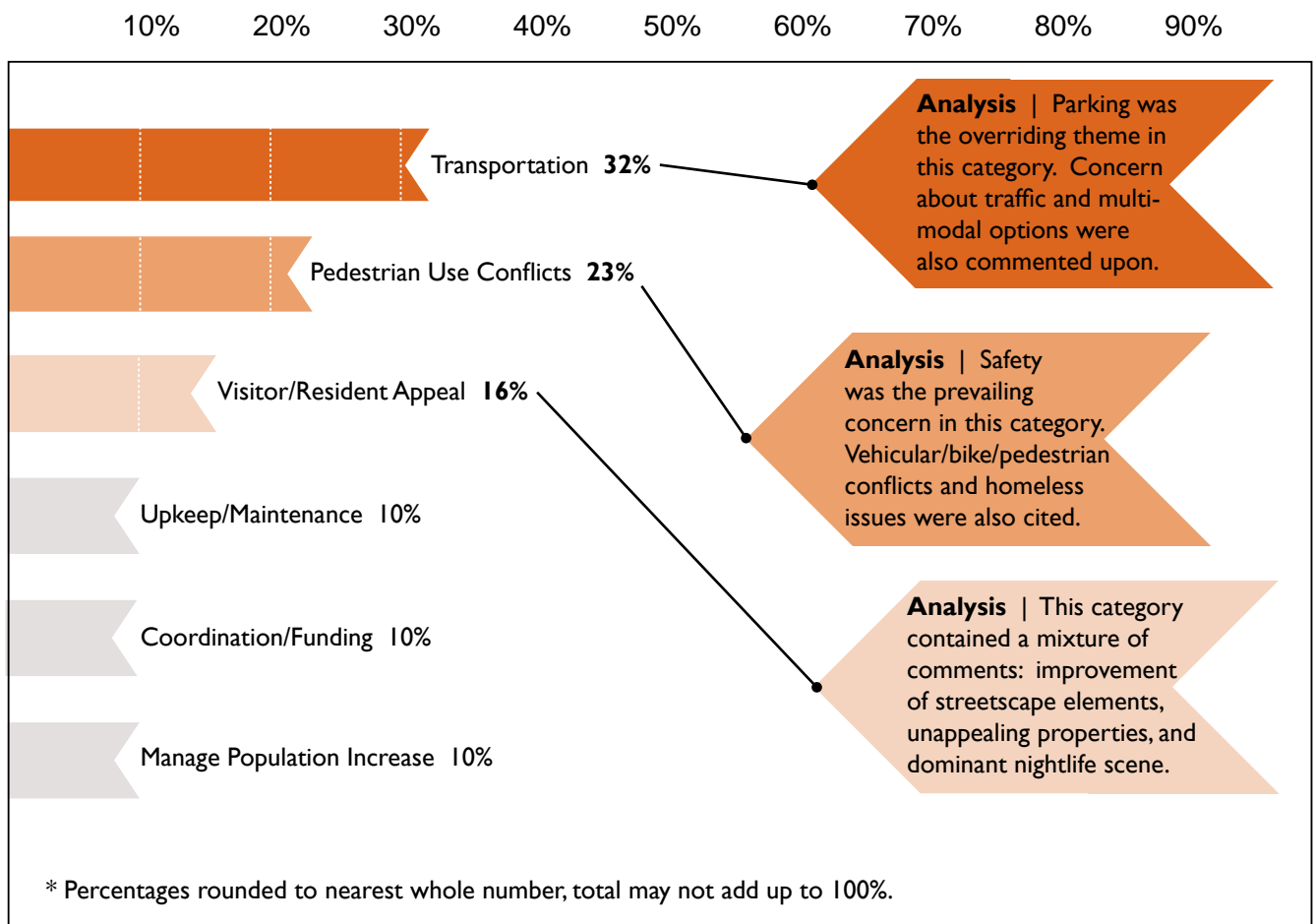
**Pedestrian Use Conflicts**

	Comments
1	Homeless camps
2	Relocation of homeless vagabonds
3	Safety
4	Pedestrian friendly/parking issues
5	Bicycle lanes do not work (deliveries, double parking not suitable for most people)
6	Vehicles using bike lanes for standing/delivery
7	Optimize parking while assuring pedestrian/ bike focused with a commercial loading zone
8	P Street interaction
9	Safety
10	Lack of pedestrian safety
11	Safety
12	Promote development while addressing safety concerns
13	Safety
14	Safety
15	Crime
16	Lack of police foot patrols
17	Interaction of both sides of 14th Street
<b>17</b>	<b>Comments Received</b>

## Challenges - Summary & Analysis

Table 2.7 provides a results summary, percentage of comments received, and analysis for each challenge category. The majority of the challenge comments related to transportation. Within this category, parking emerged as the prevailing issue. Pedestrian use conflicts received the second largest amount of comments and safety was the central concern. With 16 percent of the comments, visitor/resident appeal was the third most commented upon category. Visitor/resident appeal covered a range of challenges including: a concern over the current nightlife scene, underdeveloped and unattractive properties located within the corridor, and the need for streetscape improvements. The remaining three categories, upkeep/maintenance, coordination/funding, and management of population increase, each received 10 percent of the public comments. Prevailing challenges within these categories included degradation of buildings and sidewalk, litter, coordination of various stakeholders, and gaining critical mass while preserving the unique character of the neighborhood.

Table 2.7 - Public Meeting I: Summary of 14th Street Challenges





## Community Event: Dog Days

As part of the public outreach process, the project team presented the 14th Street Study and distributed flyers announcing the 2nd public meeting at the Second Annual Development Showcase (produced by the Cardozo Shaw Neighborhood Association at 1436 U Street, NW).

Despite the heat, many residents came out and engaged in a dialogue about existing conditions and desired improvements along the corridor.

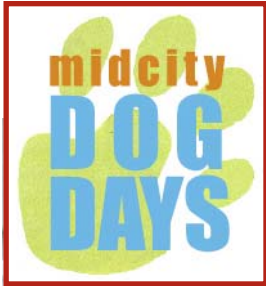


Figure 2.25/2.26/2.27/2.28/2.29 - Community Event Midcity's Dog Days

## Second Public Meeting

The second meeting was held at the National City Christian Church, located on the southern end of the study area, on September 25, 2007. The meeting provided an opportunity for attendees to share their input for the future 14th Street corridor recommendations.

The second public meeting focused on potential options in transportation and streetscape design, both short- and long-term, to achieve the shared vision of the corridor. The participants were encouraged to express their preferences for a variety of options. This was achieved by distributing individual survey sheets that corresponded to a series of display boards. Team members were also located at each display to answer questions and engage participants in a dialogue on how their preferences would create a holistic view of the corridor's future. The surveys essentially led the participants through the meeting room as they chose their preferences. Breaking each transportation and streetscape topic into workable categories allowed participants to work through a large amount of information in a logical sequence and deliver valuable input to the recommendations phase.

Figure 2.31 - PM2 - Coordination between Display Boards and Survey

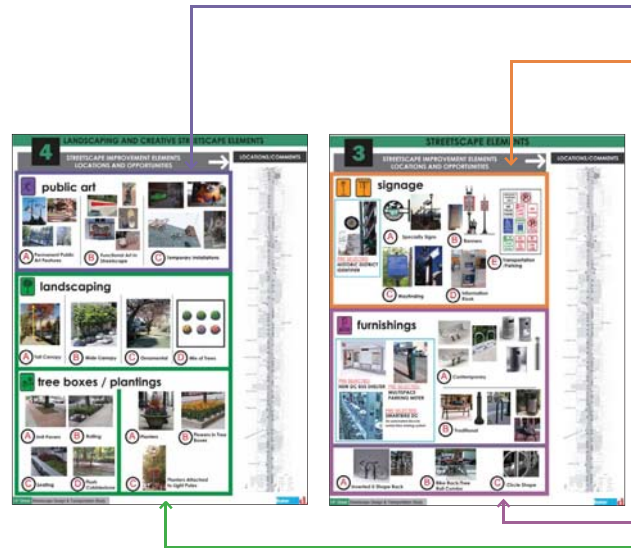


Figure 2.30 - PM2 - Survey

**14TH STREET NW TRANSPORTATION AND STREETScape STUDY**

**WHAT IS THIS QUESTIONNAIRE & HOW DO I USE IT?**

Give your input on future transportation options and try your hand at streetscape design!

- Visit each of our stations and answer the corresponding questions in this survey. In addition, feel free to make notations on our 14th Street corridor map in the center of the room.
- Our staff is here to provide explanations and receive your input. Feel free to ask questions!
- Please drop off the survey on your way out and thank you for your participation.

**LET'S START WITH SOME GENERAL QUESTIONS:**

**I experience 14th Street primarily as a:**

Pedestrian (neighborhood resident)

Pedestrian (non-resident)

Business employee or owner


Vehicular driver

**Rate the importance (1-4) of environmentally friendly applications in:**


Landscaping  Recycle/Using Recycled Content

Energy  Stormwater Management


**PRESELECTED ELEMENTS: While making your choices, please keep in mind that these items have been approved and funded and are awaiting installation:**




Historic District Markers



Multispace Parking Meters



New DC Bus Shelters

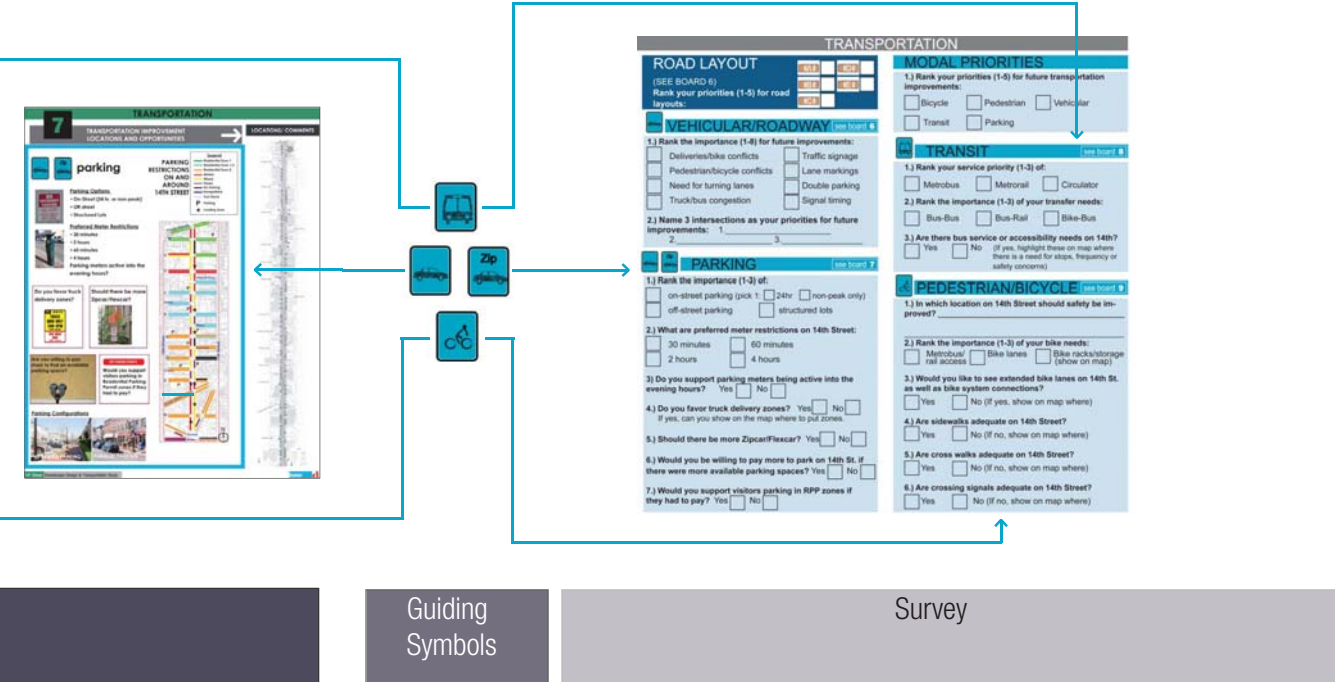
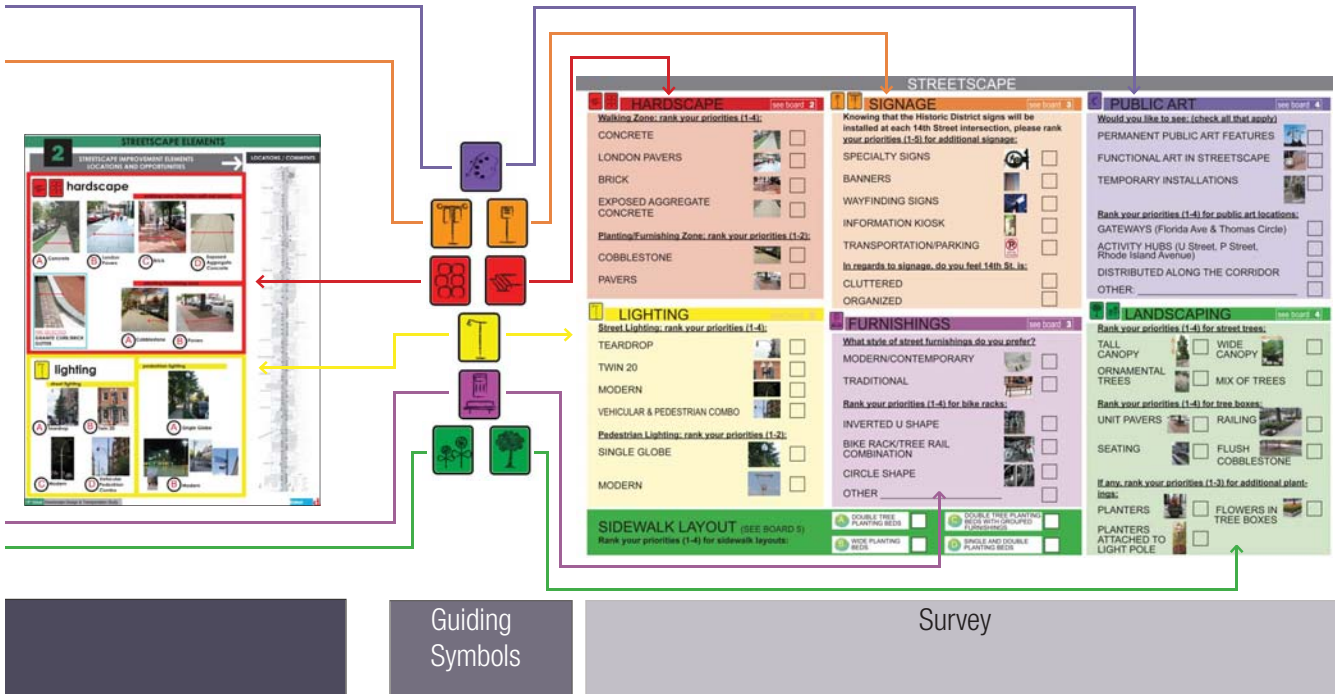


SmartBike DC Automated bicycle rental/sharing system

If we missed anything, please note your comments here:









## Public Meeting 2 - Survey Responses

The majority of survey respondents were residents who enjoy the 14th Street corridor on foot. Landscaping and energy ranked as the most important categories in which environmentally friendly applications should be applied. Strong preferences in the streetscape categories include London Pavers for the Walkway Zone, single globe pedestrian lights, traditional style street furnishings, the inverted U shape bike rack, public art located in activity hubs and distributed along the corridor, street trees with a wide canopy, and flowers in tree boxes as an additional planting option. Equal preference was given to the Teardrop, Twin 20, and vehicular/pedestrian combination lighting options. Banners and wayfinding signs were also given relatively equal preference although the majority of respondents felt 14th Street was cluttered by signage. Respondents would like to see a variety of public art forms, such as permanent, temporary, and functional art pieces, located along the corridor. Four sidewalk layouts were presented at the meeting but respondents did not show a strong preference for a particular sidewalk layout option.

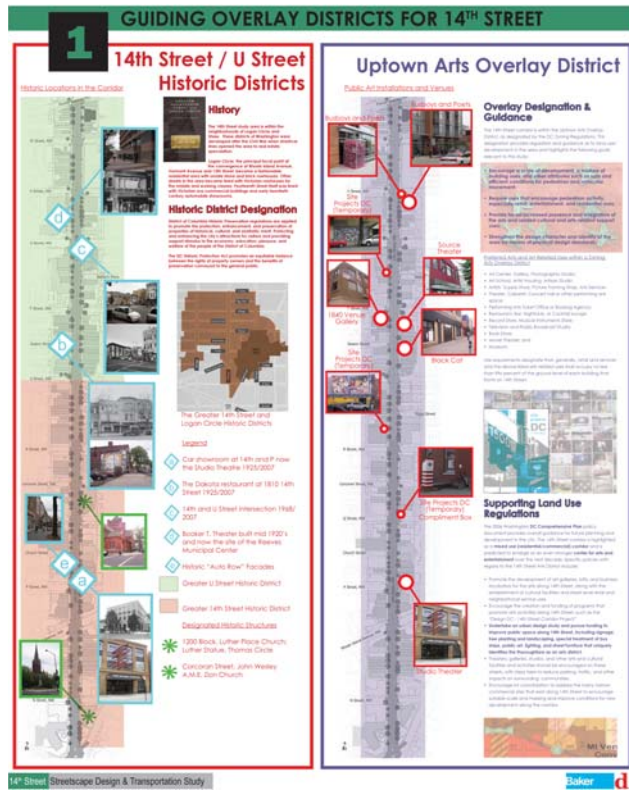
Strong preferences in the transportation categories include future improvements to truck/bus congestion, two hour meter restrictions, truck delivery zones, additional Zipcar locations, pedestrian infrastructure improvements, Metrorail as the first service priority, and bus to rail as the most important transfer need. In terms of bicycle needs on the corridor, respondents felt extended bike lanes with bike system connections were the first priority to serve overall bike needs. Respondents also felt sidewalks, crosswalks, and crossing signals are adequate on 14th Street. On-street parking was considered the most important parking category for the corridor. Respondents also supported visitors parking in Residential Parking Permit (RPP) zones if they had to pay. Respondents are also willing to pay more to park on 14th Street if there were more available spaces but again this result was reached by a narrow margin. See addendum for additional information on the survey results collected at the second public meeting.

# 2

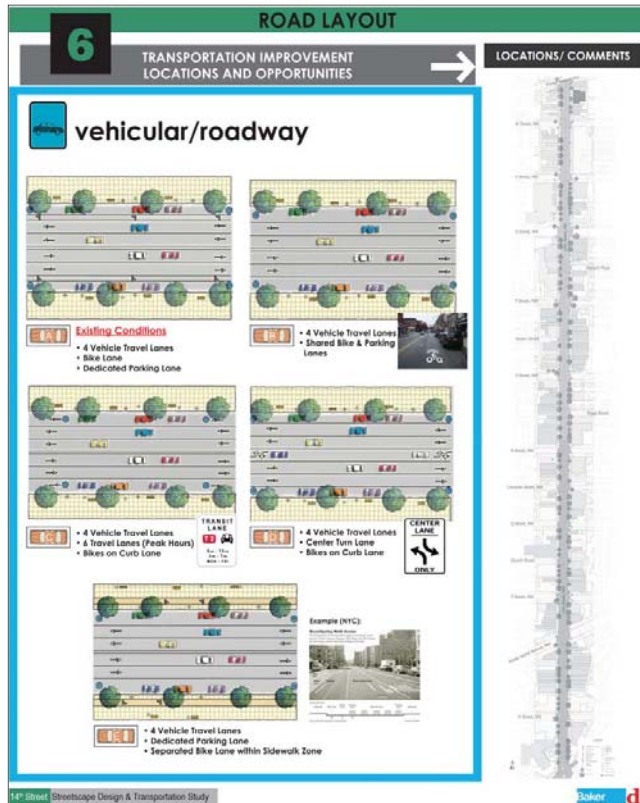
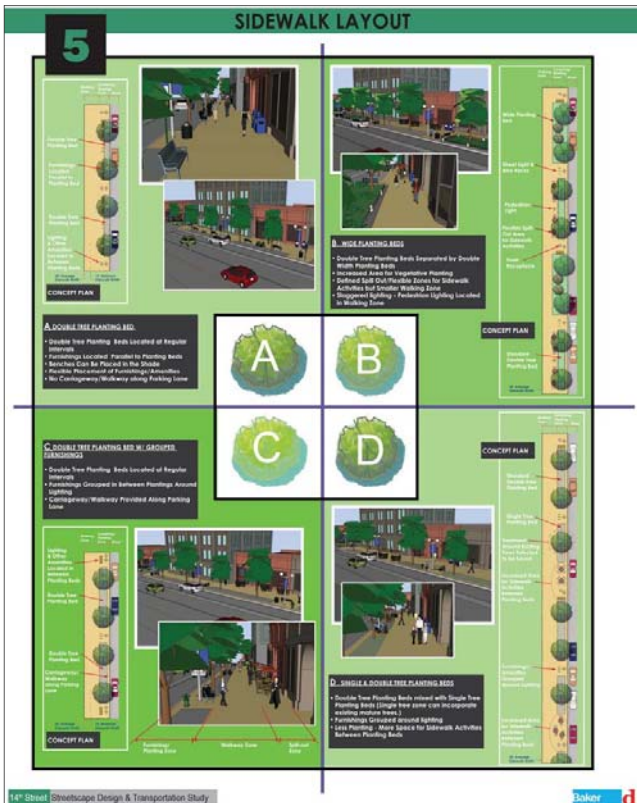
Figure 2.32 - Photos of Public Meeting 2 Participation



Figure 2.33 - Example of PM2 Presentation Boards



2  
Public Participation



Display Boards - Sidewalk and Road Layout Scenarios



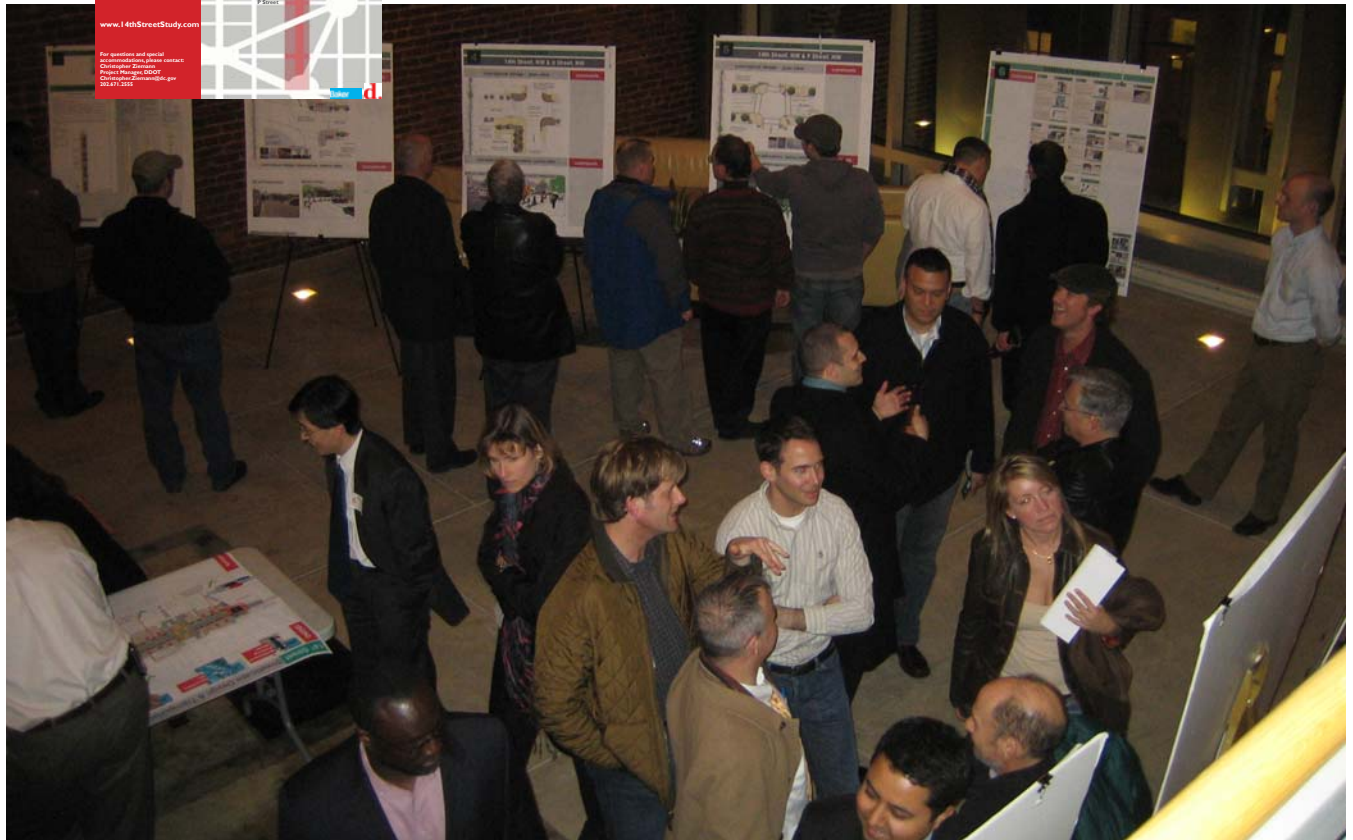
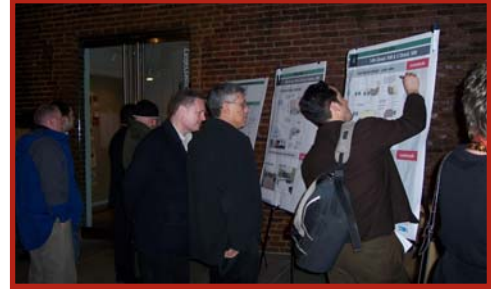
## Third Public Meeting

The third public meeting was held at the Studio Theatre on February 19, 2008. The meeting, located in the middle of the study area, provided an opportunity for attendees to review draft findings and recommendations for the 14th Street corridor. The open house format allowed more than sixty attendees to browse and read the information provided on the presentation boards at their own pace. A large roll-out corridor map graphically depicting all of the potential recommendations was located in the center of the room to provide a holistic view of the future corridor. Attendees were also encouraged to ask questions and provide written feedback on each of the recommendation categories.

Draft recommendations received a lot of positive feedback from the attendees. Attendees expressed their support for the recommendations' emphasis on non-motorized modes of transportation in the corridor. Comments received from the meeting helped to refine the draft recommendations.



Figure 2.34/2.35 - Flyer & Photos of Public Meeting 3 Participation





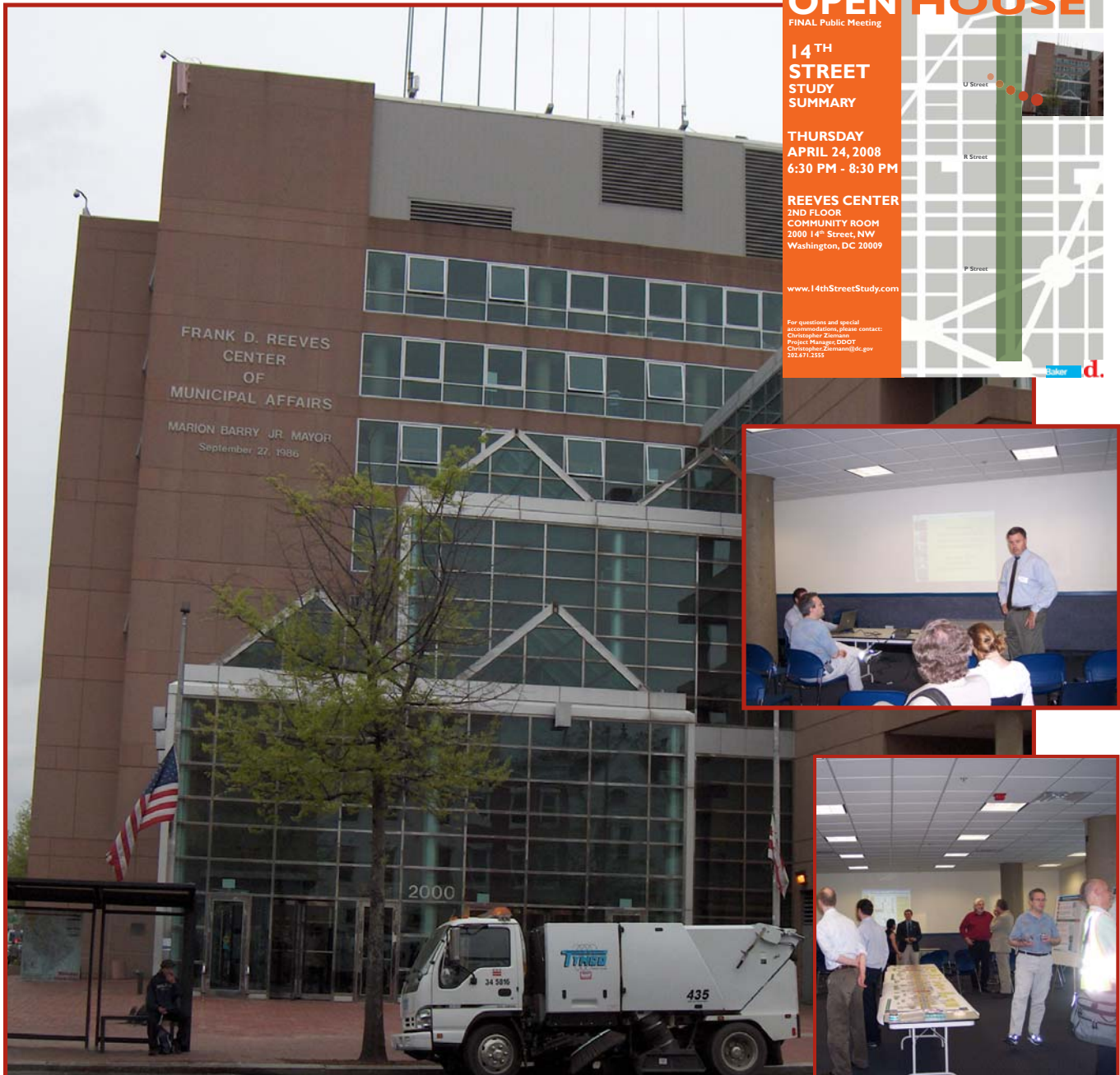
## Fourth Public Meeting

The Reeves Center was the site for the fourth and final 14th Street Transportation and Streetscape Study Public Meeting held on April 24, 2008. The final public meeting of the corridor study served as the official document presentation to DDOT and the community. The final report was made available to the public on both the study's website and in the form of CDs that were available at the meeting.

An open house format similar to the third public meeting was used to present the draft final recommendations,

with posters displaying recommendations by topic areas and a long roll-out plan for a comprehensive summary of recommendations for the 14th Street corridor. In addition, a slide show was conducted to provide an overview of the project and highlight major recommendations. Attendees responded positively to the recommendations and looked forward to moving forward with implementing the final recommendations.

Figure 2.36 - Public Meeting 4 at the Reeves Center

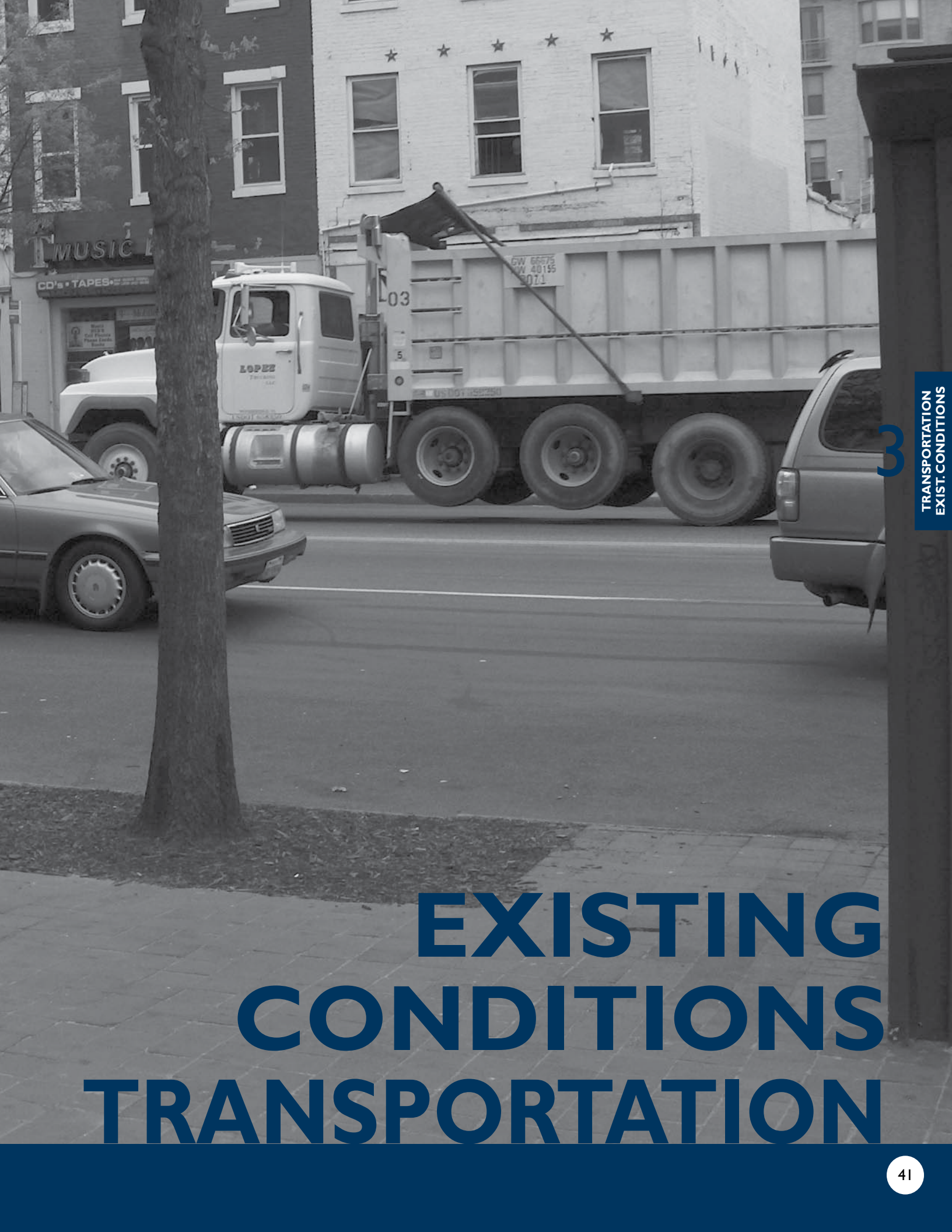




3







# EXISTING CONDITIONS TRANSPORTATION



# The Transportation System

Stretching from the 14<sup>th</sup> Street Bridge over the Potomac River in the south, to Eastern Avenue at the Maryland/District line in the north, the 14<sup>th</sup> Street corridor has served as an important commuter route to the downtown District business and monument core of the District of Columbia. The section of the 14<sup>th</sup> Street corridor under study spans approximately 0.95 miles from Thomas Circle to the intersection with Florida Avenue. This study area section of 14<sup>th</sup> Street continues to evolve with redevelopment and the opportunity to enhance the transportation system for all vehicular and non-motorized modes of use. It traverses through a mix of residential and commercial uses and provides pedestrian and vehicular connections to bus routes and regional rail systems.

This study's comprehensive data collection effort provided information to quantify the study area's transportation components and establishes a baseline for the technical analysis of existing conditions. Data collected during commuter peak and off-peak periods aids in understanding the functionality of the transportation system. Data is collected for a number of items across four general transportation areas: vehicular/roadway, pedestrian/bicycle, transit and parking. The following chapter summarizes the collected data as well as identifies some of the concerns and limitations with the study area's transportation system.

## Vehicular/Roadway

Compared to similar north-south corridors, 14<sup>th</sup> Street volumes are at the lower end of traffic congestion and exhibit favorable traffic flow. Overall the travel and operating conditions on the 14<sup>th</sup> Street corridor are good during the morning and evening peak hours. All intersections operate at LOS D or better indicating acceptable operating conditions with very few delays. Traffic on 14<sup>th</sup> Street is split between those individuals that use the corridor to travel to downtown D.C. and those that will stop along the corridor to access a residence or business. Trucks and buses contribute to delays by using the curb travel lane for stopping. Cross-streets that exhibit the highest volumes of traffic consequently have the highest levels of delay and safety incidents. Cross-streets with these issues include Florida Avenue, U Street, P Street and Rhode Island Avenue. Congestion levels on these cross-streets and other constitute a greater delay and congestion problem than those vehicles moving north and south on 14<sup>th</sup> Street. The bicycle lane in the southern end of 14<sup>th</sup> Street is underutilized with the greatest amount of pedestrian conflicts at U Street.

The vehicular section details the existing transportation infrastructure for the corridor, focusing on the use of the roadway itself, the intersections that cross 14<sup>th</sup> Street, the amount and distribution of traffic on 14<sup>th</sup> Street, and the resulting operational and safety observations. Daily traffic

volumes<sup>1</sup> on the corridor range from approximately 20,050 vehicles per day near Rhode Island Avenue to 14,900 vehicles per day near V Street. The traffic at the south end of the corridor (close to Thomas Circle) is heavier than a similar location on 13th Street to the east but less than that on 16th Street to the west. Observations of peak hour traffic show a full range of traffic activity with heavy volumes of commuter, resident, and tourist traffic, taxis, bike and foot traffic, and heavy trucks and buses. Whether using the Corridor to leave or enter the city or to access 14th Street's businesses, the various modes of travel are increasingly in conflict. Commuters experience delays due to delivery trucks and/or buses. The reverse is often true as well.

As traffic volumes and subsequent conflicts increase, safety becomes a growing concern. Reviewing the corridors vehicular and pedestrian accident data, the accident rate and severity on 14th Street can be categorized as moderate. Of the 358 accidents reported between 2003 and 2005, 8% involved pedestrians. Key to deriving successful recommendations for the corridor is to minimize safety

<sup>1</sup> Source: Traffic Counts along 14<sup>th</sup> Street June 2007.

issues on the corridor, a central focus of the study.

The existing conditions assessment examines the functionality of each intersection in relation to traffic volumes, impeded traffic flow, accidents, origins/destinations of vehicles and vehicle types along the Corridor. Synchro and SimTraffic, traffic simulation and animation programs, replicate and evaluate existing traffic conditions. Synchro, the traffic signal analysis package, is used to analyze each intersection, while SimTraffic, a traffic system animation tool, evaluates the performance of the entire study area corridor. Results of these analysis programs provide insight into the issues and limiting conditions that will require adjustment to arrive at optimum performance for all travel modes using the corridor.

The results of the traffic analysis are used to formulate the recommendations to more equitably meet the needs of businesses, residents and commuters, improve transportation conditions in the corridor, and improve traffic flow.

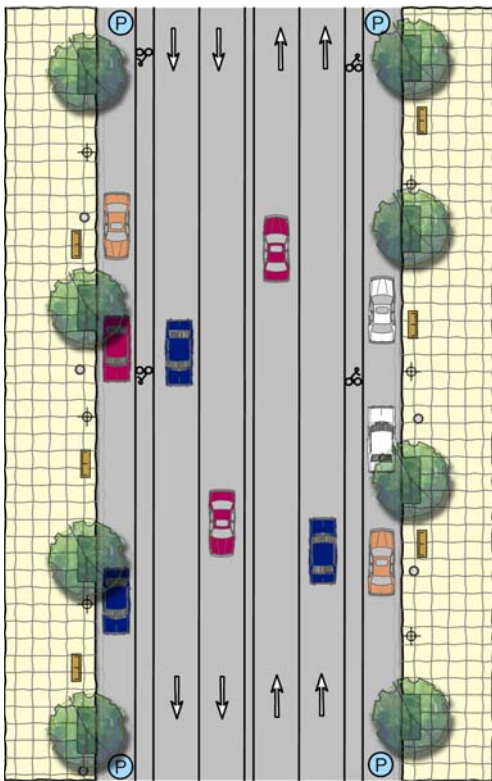


Figure 3.1 - 14th Street Existing Lane Configuration from Thomas Circle to Wallach Place

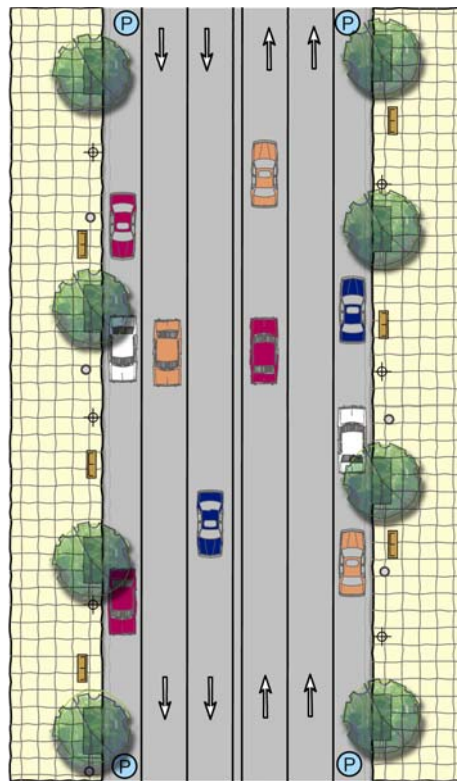


Figure 3.1A - 14th Street Existing Lane Configuration from Wallach Place to Florida Avenue; U Street

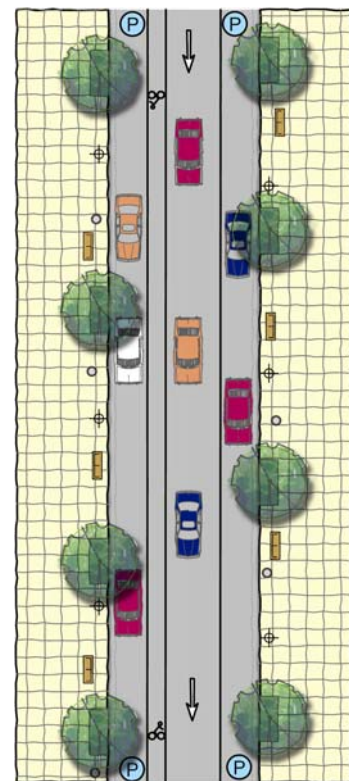


Figure 3.1B - Typical Lane Configuration - R Street & Q Street West Side

## Traffic Counts

For each intersection, the volume of vehicles, commonly referred to as a turning movement counts (TMC), is recorded by 15-minute increments by time of day. Based on the collection of 12-hours of data, the highest two-hour period of volume in the morning and the evening defines the peak periods. These peak periods encompass the most congested times of the day when commuters are traveling to and from work.

From a review of the count data, the a.m. peak period generally occurs from 7:00 to 9:00 a.m., and the p.m. peak period is 4:00 to 6:00 p.m.. Data was collected at nine key higher volume intersections along 14<sup>th</sup> Street from 6:30 a.m. to 9:30 a.m. and from 3:30 p.m. to 6:30 p.m., as listed in Table 3.1. This data provides the information necessary to evaluate existing traffic conditions in the study area since the data provides detailed traffic by travel lane and pedestrian movements by crossing. These counts were recorded during the months of May and June of 2007 before school closing.

Although there was some construction activity during the period when the traffic counts were conducted, the construction activity seemed to have minimal effect on the movement of traffic. Adjustments to traffic volumes and the preparation of projections for future year traffic are based on methodology as presented in the National Cooperative Highway Research Program (NCHRP 255).

As raw data is collected in the field, minor variances are “smoothed” as traffic leaves one intersection and approaches the next. If every intersection on 14<sup>th</sup> Street was counted, no variance should occur for counts performed on the same day between two intersections that have no mid block sink/sources for traffic. Since the study only collected data at nine intersections, some variance did exist. Raw field TMCs were post-processed to remove any volume variances. This process is referred to as count balancing and smoothes volumes between intersections. This ‘smoothing’ process to traffic between intersections results in a uniform flow between intersections.

Based on a review of the traffic count data for each intersection, the peak hours on 14<sup>th</sup> Street are 8:00 a.m. to 9:00 a.m. for the morning and 5:00 p.m. to 6:00 p.m. for the evening. Count data was collected for major intersections.

Figures 3.2 and 3.3 show that during the a.m. peak there are approximately 850 vehicles headed southbound through the corridor from N Street to or past Thomas Circle. In contrast, northbound 14<sup>th</sup> Street carries approximately 50% fewer vehicles in the morning. During the evening p.m. peak hour, approximately 800 vehicles move northbound on 14<sup>th</sup> Street while 550 travel southbound during the p.m. peak. The highest incidents of turns on the corridor occur at Florida Avenue, U Street, S Street and Rhode Island Avenue. The fact that the directional flow of 800-850 vehicles reverses during the morning and evening peak hours is reflective of typical commuter traffic patterns.

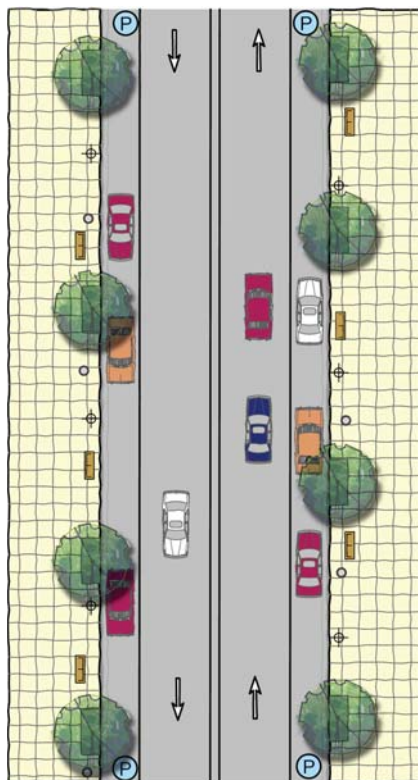


Figure 3.1C

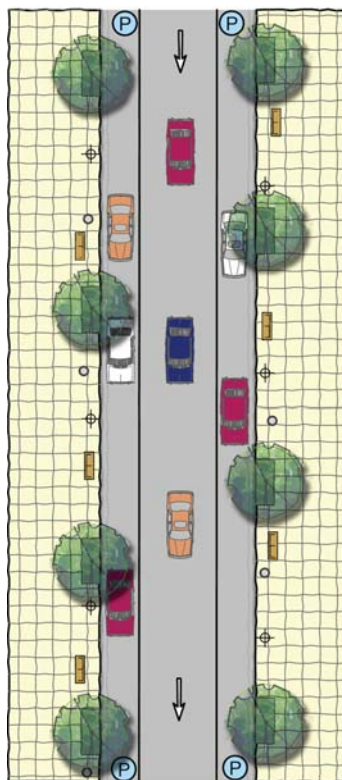


Figure 3.1D

Figure 3.1C - Typical Lane Configuration - P Street, S Street, Rhode Island Avenue, Florida Avenue

Note: Streets and Avenues with this lane configuration vary in width. S Street & P Street East 33 feet, P Street West 46 feet, Rhode Island Avenue 49 feet, Florida Avenue 37 feet.

Figure 3.1D - Typical Lane Configuration - Q, T, V, W Streets and Corcoran St., Swann St., Church St., Riggs St., and Wallach Place

Table 3.1 - Traffic Count Locations

N Street and 14 <sup>th</sup> Street
Rhode Island and 14 <sup>th</sup> Street
Q Street and 14 <sup>th</sup> Street
R Street and 14 <sup>th</sup> Street
S Street and 14 <sup>th</sup> Street
U Street and 14 <sup>th</sup> Street
V Street and 14 <sup>th</sup> Street
W Street and 14 <sup>th</sup> Street
Florida Avenue and 14 <sup>th</sup> Street



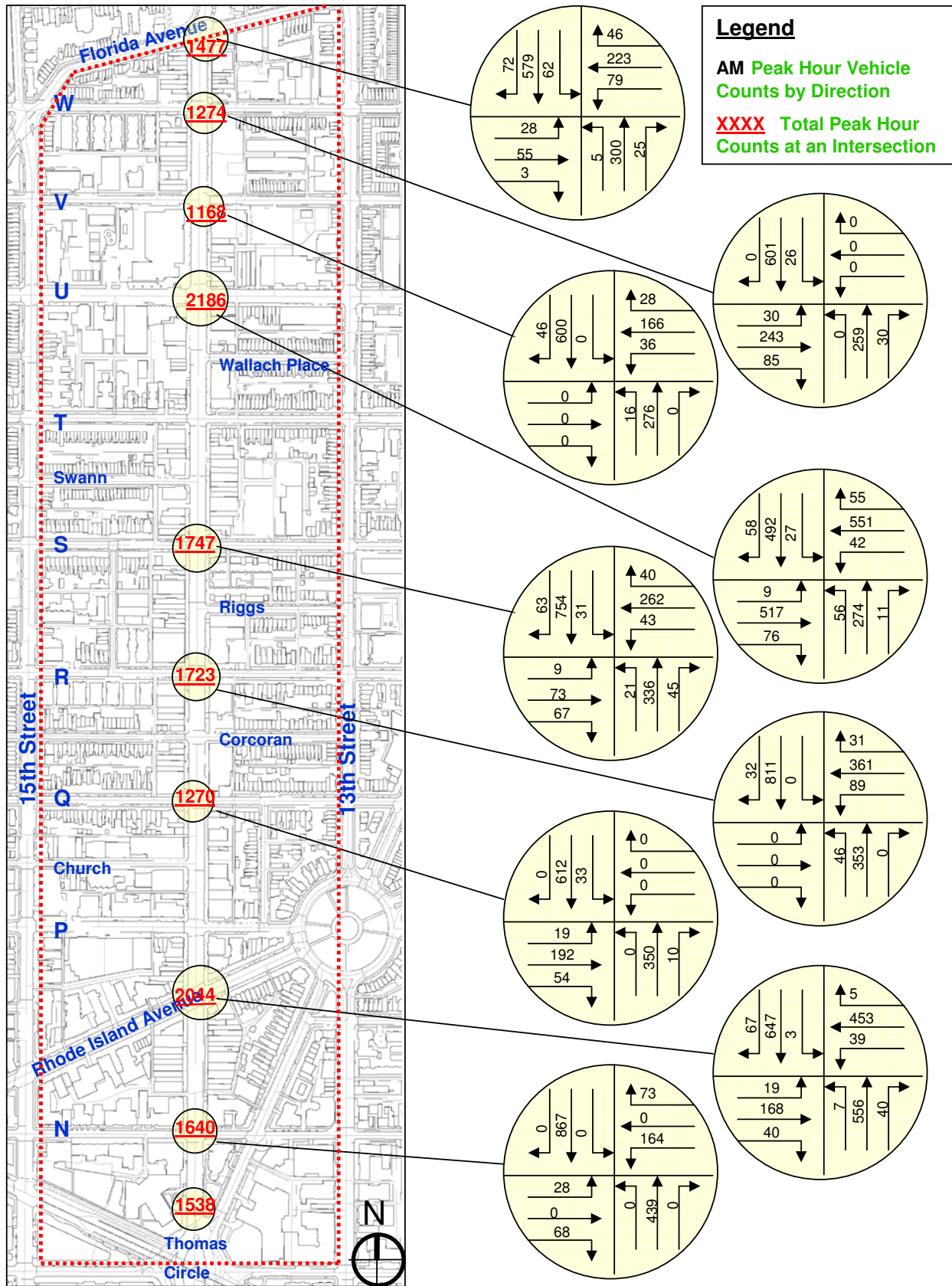


Figure 3.2 - 2007 Existing AM Peak Hour Traffic Volumes

3

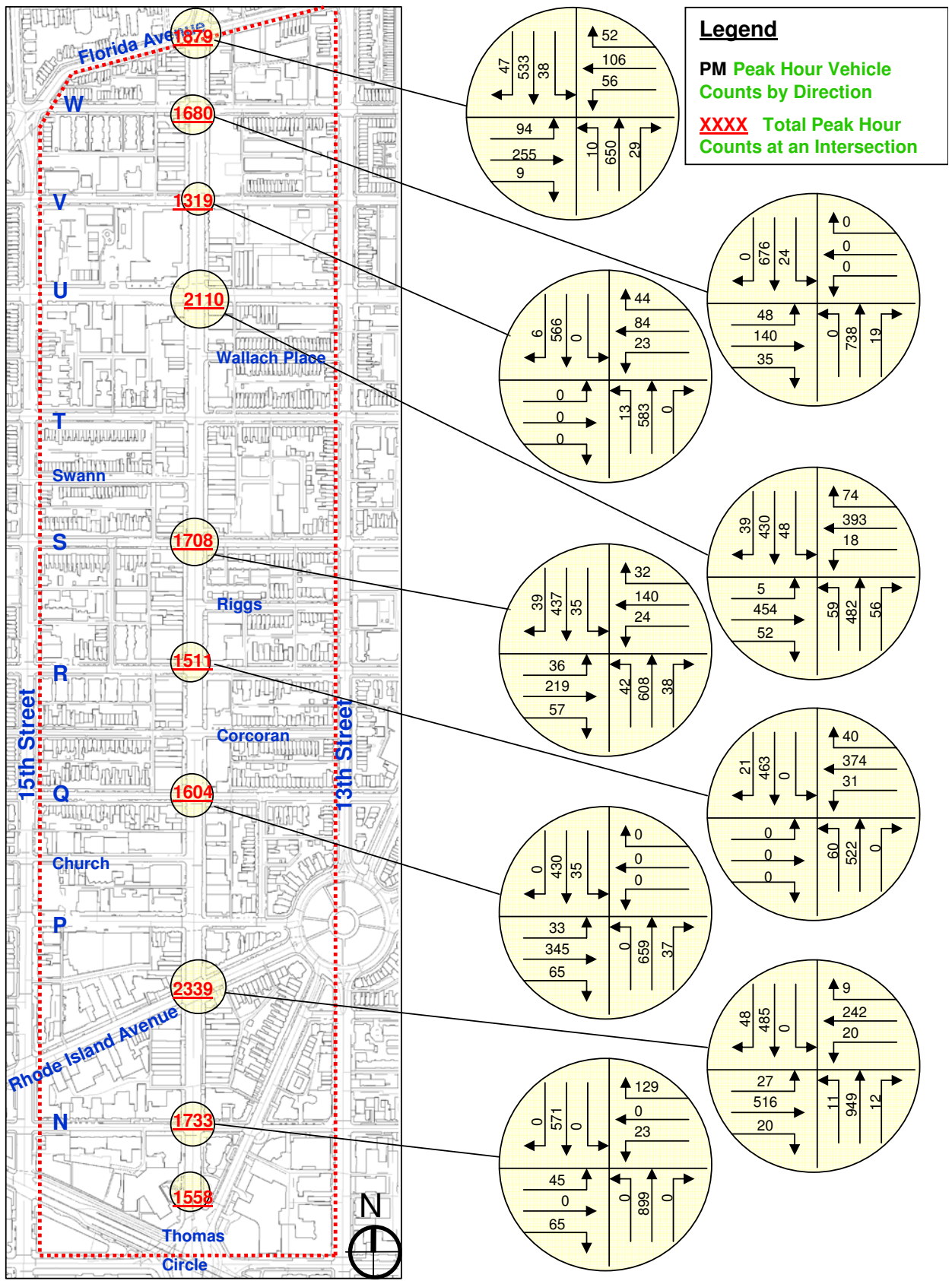


Figure 3.3 - 2007 Existing PM Peak Hour Traffic Volumes

## Existing Roadway Conditions Assessment

The study area for the 14<sup>th</sup> Street corridor is comprised of the corridor itself and the major streets that cross it. The analysis focuses primarily on the 14<sup>th</sup> Street corridor and transportation activity one city block east or west of the corridor. Cross streets are not assessed so much for recommending physical improvements, but to determine their influence on 14<sup>th</sup> Street in terms of parking and traffic circulation. Note that at the time of this report, current transportation analysis is being performed to determine the impacts of converting 15<sup>th</sup> Street from a one-way to a two-way street. Impacts from the 15<sup>th</sup> Street analysis will be discussed in the recommendations report for this project.

The following overview provides detailed information about the roadways that constitute the 14<sup>th</sup> Street study area. In addition, the Thomas Circle traffic circle is discussed as it is an important distribution point, and serves as the gateway on the south end of the corridor. In the following section, detail is provided on the 14<sup>th</sup> Street corridor and the major roadways and cross streets directly contributing to the traffic in this study.

### 14<sup>th</sup> Street

Within the Study Area, 14<sup>th</sup> Street is a two-way, 4-lane arterial running north-south from Thomas Circle in the south to Florida Avenue NW in the north as shown in Figure 3.1. The posted speed limit along this signalized roadway is 25 mph and is 15 mph when children are present at locations near schools and day care facilities. From Thomas Circle to Wallach Place there are 2-lanes in each direction for vehicles and a five-foot bike lane that runs along both sides of the road. Beyond Wallach Place Street, the bike lanes end and the roadway continues as a 4-lane arterial. There is one designated curb parking lane on each side of 14<sup>th</sup> Street within the study area.

The 14<sup>th</sup> Street roadway is surrounded by residential neighborhoods, with frontage businesses of commercial, retail, institutional and governmental uses. Parking restrictions vary throughout the Corridor. Parking includes on-street metered and non-metered parking and limited off-street surface parking. There are bus stops with bus shelters along both sides of 14<sup>th</sup> Street, with stops every one to two blocks. Metrobus routes 52, 53 and 54 serve the 14<sup>th</sup> Street Corridor. There are also Zipcar and Flexcar carsharing pickup and drop-off locations along this corridor.

### Thomas Circle

Traffic circles are the result of L'Enfant's roadway vision

where major thoroughfares intersect to connect major landmarks throughout Washington, D.C. where avenues intersect with each other and with streets. Thomas Circle forms the junction of Massachusetts Avenue, Vermont Avenue, 14<sup>th</sup> Street and M Street NW. The circle is considered to mark the boundary between the "downtown" section of 14<sup>th</sup> Street and the emerging uptown 14<sup>th</sup> Street neighborhood north of Thomas Circle.

There are two southbound lanes entering and exiting Thomas Circle from 14<sup>th</sup> Street. There is a bike lane that also runs along both sides of the road and through the center of the traffic circle. There is on-street parking on both sides of 14<sup>th</sup> Street north of Thomas Circle. There are bus stops on both sides of 14<sup>th</sup> Street between Thomas Circle and N Street. Pavement, pavement markings, sidewalks and handicap access ramps at this traffic circle have been recently reconstructed, and the circle has been returned to its original geometric design.

### N Street

N Street is a one-way, one-lane collector running eastbound west of 14<sup>th</sup> Street and running westbound east of 14<sup>th</sup> Street. The speed limit along this residential roadway is 15 mph. Speed limit is not posted on the blocks immediately adjacent to 14<sup>th</sup> Street. The intersection of N Street and 14<sup>th</sup> Street is signalized. There is on-street directional parking on N Street, designated as a residential permit parking area. Inspection of the pavement, sidewalk and handicap access ramps conditions in N Street adjacent to 14<sup>th</sup> Street indicated that they were satisfactory.

### Rhode Island Avenue

Rhode Island Avenue is a 2-way, 2-lane arterial running northeast from Baltimore Avenue (US 1) to southwest at the intersection of Connecticut Avenue and M Street N.W. During off-peak periods, the roadway maintains one travel lane in each direction and one designated parking lane in each direction. There are no bike lanes on Rhode Island Avenue near 14<sup>th</sup> Street. The posted speed limit along this roadway is 25 mph. Rhode Island Avenue runs parallel to New York Avenue and is a major commuter route carrying US Route 1 traffic into Washington D.C. from the Maryland suburbs of Prince George's County. The intersection of Rhode Island Avenue and 14<sup>th</sup> Street is signalized. Nine blocks further east, at the intersection of Rhode Island Avenue and R Street, the Shaw-Howard University Green Line Metro Station is located. Inspection of the condition of pavement, sidewalks and handicap access ramps on Rhode Island Avenue adjacent to 14<sup>th</sup> Street indicated that they were satisfactory.



## P Street

P Street is a 2-way, 2-lane collector road running east-west from Florida Avenue to Georgetown University. The posted speed limit along this roadway is 25 mph. The intersection of P Street and 14<sup>th</sup> Street is signalized. The pavement markings on the west approach of P Street are faded. The conditions of the pavement, sidewalks and handicap access ramps on P Street adjacent to 14<sup>th</sup> Street were satisfactory. The west leg of P Street at 14<sup>th</sup> Street contains many commercial restaurants and stores which makes this intersection a major attraction for pedestrian traffic. There is on-street parking on P Street. The east leg is mainly residential, while the west leg is mostly commercial. Metrobus route G2 runs along P Street.

## Church Street

Church Street is a 1-way, 1-lane minor street that runs from 14<sup>th</sup> Street to 18<sup>th</sup> Street NW. The pavement conditions as well as lane markings on Church Street are poor. The condition of the sidewalks and handicap ramps are acceptable. There is on-street residential permit parking on both sides of the street. There is a two-hour parking limit for all non-permit holders between 7 a.m. and 8:30 p.m. from Monday to Friday. The intersection of Church Street and 14<sup>th</sup> Street is unsignalized. The speed limit along this residential roadway is 15 mph, however it is not posted within a block of 14<sup>th</sup> Street.

## Q Street

Q Street is a 1-way, 1-lane eastbound collector road that runs from Wisconsin Avenue in the west to the intersection of North Capitol Street and Florida Avenue in the east. There is a bike lane along Q Street. The intersection of Q Street and 14<sup>th</sup> Street is signalized. There is on-street parking on both sides of Q Street. The condition of pavement and pavement markings on the east approach of Q Street is poor and there was on-going roadwork on this approach when this field data was being collected. The speed limit along this residential roadway is 15 mph, however it is not posted within a block of 14<sup>th</sup> Street. The handicap ramps on the east approach are not ADA compliant.

## Corcoran Street

Corcoran Street is a 1-way, 1-lane eastbound minor street that runs from 13<sup>th</sup> Street to 19<sup>th</sup> Street NW. The condition of pavement, sidewalks and handicap access ramps is acceptable although the handicap ramps are not ADA compliant. There is on street residential permit parking on both sides of the street. The intersection

of Corcoran Street and 14<sup>th</sup> Street is unsignalized. The speed limit along this roadway is 15 mph.

## R Street

R Street is a 1-way, 1-lane westbound collector road that runs from 3<sup>rd</sup> Street passing through North Capitol Street and ends at Sheridan Circle NW. There is a designated bike lane along R Street in the vicinity of 14<sup>th</sup> Street. The intersection of R Street and 14<sup>th</sup> Street is signalized. There is on-street parking on both sides of R Street. The speed limit along this residential roadway is 25 mph, however it is not posted within a block of 14<sup>th</sup> Street. The condition of pavement, sidewalks and handicap access ramps is acceptable although the handicap ramps are not ADA compliant.

## Riggs Street

Riggs Street is a 1-way, 1-lane westbound minor road that connects 13<sup>th</sup> Street to 14<sup>th</sup> Street. This is mainly a residential street with on-street parking on both sides of the road. The intersection of Riggs Street and 14<sup>th</sup> Street is unsignalized. The conditions of pavement, sidewalks and handicap access ramps at this intersection are satisfactory although the handicap ramps are not ADA compliant. The speed limit along Riggs Street is 15 mph, however it is not posted.

## S Street

S Street is a 2-way, 2-lane collector road running east-west from North Capitol Street in the east to Massachusetts Avenue NW. The intersection of S Street and 14<sup>th</sup> Street is signalized. The condition of sidewalk on the west side of 14<sup>th</sup> Street near this intersection is poor. The condition of all other sidewalks, pavements and handicap access ramps was satisfactory although the handicap ramps are not ADA compliant. There is on-street residential permit parking in both directions of S Street. The posted speed limit on this road is 25 mph.

## Swann Street

Swann Street is a 1-way, 1-lane eastbound minor street that connects New Hampshire Avenue to 14<sup>th</sup> Street. This is mainly a residential street with on-street parking on both sides of the road. The intersection of Swann Street and 14<sup>th</sup> Street is unsignalized. The condition of pavement on Swann Street is poor. The condition of pavement markings, sidewalks and handicap access ramps at this intersection are satisfactory. The posted speed limit along Swann Street is 15 mph.

## T Street

T Street is a 1-way, 1-lane eastbound collector road that runs from Connecticut Avenue in the west and passes through North Capitol Street and ends at 5<sup>th</sup> Street NE. The intersection of T Street and 14<sup>th</sup> Street is signalized. There is on-street parking on both sides of T Street. The condition of pavement and pavement markings on the east leg of T Street is poor. The condition of all other sidewalks, pavements and handicap access ramps was satisfactory however the handicap ramps are not ADA compliant. The speed limit along this residential roadway is 15 mph, however it is not posted within a block of 14<sup>th</sup> Street.

## Wallach Place

Wallach Place is a 1-way, 1-lane westbound minor road that connects 13<sup>th</sup> Street to 14<sup>th</sup> Street. This is mainly a residential street with on-street parking on both sides of the road. The intersection of Wallach Place and 14<sup>th</sup> Street is unsignalized. The conditions of pavement, sidewalks and handicap access ramps at this intersection are satisfactory although the handicap ramps are not ADA compliant. The speed limit along Wallach Place is 15 mph, however it is not posted.

## U Street

U Street is a 2-way, 4-lane arterial running east-west and extends from 9<sup>th</sup> Street on the east to 18<sup>th</sup> Street and Florida Avenue on the west. There is one designated parking lane in each direction of U Street. There are no bike lanes on U Street. There are bus stops along U Street that serve Metrobus routes 90, 92, 93, 96, 98 and X3. There is also a Metro rail stop for U Street/African American Civil War Memorial/Cardozo Green Line on U Street within 2 blocks east of 14<sup>th</sup> Street. The posted speed limit along this roadway is 25 mph. The majority of U Street has been designated as a historic district. The intersection of U Street and 14<sup>th</sup> Street is signalized. The condition of pavement, sidewalks and handicap access ramps was satisfactory however the handicap ramps are not ADA compliant.

## V Street

V Street is a 1-way, 1-lane westbound collector road that runs from Vermont Avenue NW to Florida Avenue NW. The intersection of V Street and 14<sup>th</sup> Street is signalized. There is on-street parking on both sides of V Street. New construction on V Street immediately east of 14<sup>th</sup> Street has eliminated parking, with only temporary delivery and drop-off spaces. The speed limit along V Street is 25 mph, however there is a school zone on the west side of 14<sup>th</sup> Street and the speed limit is 15 mph. The posted speed

limit on 14<sup>th</sup> Street is also 15 mph within this block which is designated as a school zone. Vehicles are also restricted from entering V Street off 14<sup>th</sup> Street during school days from 11:30 a.m. to 1:30 pm. The condition of pavement, sidewalks and handicap access ramps is acceptable.

## W Street

W Street is a 1-way, 1-lane eastbound collector road that runs from 16<sup>th</sup> Street NW to Florida Avenue NW. The intersection of W Street and 14<sup>th</sup> Street is signalized. There is on-street parking on both sides of W Street. New construction on the east side of 14<sup>th</sup> Street between W Street and V Street has eliminated parking on W Street immediately east of 14<sup>th</sup> Street. The speed limit along W Street is 25 mph, however since this is a school zone the speed limit in the block around 14<sup>th</sup> Street has a speed limit of 15 mph when children are present. The posted speed limit on 14<sup>th</sup> Street is also 15 mph within this block which is designated as a school zone. The condition of pavement, sidewalks and handicap access ramps is acceptable although the lane markings were faded on all approaches.

## Florida Avenue

Florida Avenue is a 2-way, 2-lane arterial that acts as a major east west distributor for vehicles that may access 14<sup>th</sup> Street at the northern end of the study area. It connects with many other major cross streets that form the major roadway network in the District including Massachusetts Avenue and 16<sup>th</sup> Street to the west, and Georgia Avenue, Rhode Island Avenue, North Capitol Street and New York Avenue to the east. The posted speed limit along this roadway is 25 mph. At the intersection of Florida Avenue and 13<sup>th</sup> Street, the U Street/African-American Civil War Memorial/Cardozo Green Line Metro Station is located. Parking in the vicinity of 14<sup>th</sup> Street lines both sides of the street. The sidewalk on the southwest corner of 14<sup>th</sup> Street and Florida Avenue is new construction. The condition of the pavement, sidewalks and handicap access ramps was satisfactory although the pavement markings on all approaches were faded.

## Truck Loading/Unloading and Heavy Vehicles

Operational characteristics associated with heavy vehicles differ from automobiles and consequently produce different effects on the traffic flow. Field observations indicate that there is a constant flow of truck traffic throughout the day. Few deliveries were noted during peak hour field visits; however, public comments indicate that truck unloading and loading slow traffic along the corridor. Delivery trucks often double-park along storefronts to unload or load. Double-parked trucks create the loss of a through-lane and leads to build-up and queuing behind the trucks. It also causes dangerous weaving patterns as vehicles swerve to avoid being delayed behind the truck.

Truck loading zones are designated in seven places along the 14th Street corridor as shown in Figure 3.4. They are generally in effect from 7:00 a.m. to 6:30 p.m., Monday through Friday, and vary in size from one- to four-car lengths.

Turning movement counts indicate that truck traffic is heavier in the morning rush hour than in the evening rush hour at most intersections along the corridor as shown in Figure 3.5 (AM Truck Volumes) and Figure 3.6 (PM Truck Volumes). The Rhode Island Avenue/14th Street intersection recorded the highest amount of truck traffic in the morning rush hour, almost four times higher than truck traffic in the evening rush hour. U Street /14th Street intersection had the heaviest truck traffic of all observed intersections in the evening rush hour, which constituted only half the amount of truck traffic in the morning rush hour. Truck movements were predominantly north-south through the corridor, while very few trucks made turning movements at intersections in the corridor.

On average, truck traffic consisted of approximately one-fourth of the total traffic along this corridor, which is relatively high for a major urban arterial, compared with less than 10% on 14th Street north of the study area. A higher percentage of trucks was observed between U and V Street (29%) than between Rhode Island Avenue and N Street (18%). Of all trucks, more than three-quarters are light trucks, while medium and heavy trucks only accounted for 13% and 4%, respectively. In this review, light trucks are class 3 vehicles, including pick up trucks, vans, and 1 & 2- axle trailer, four-tire vehicles. Medium trucks are class 5, 6, and 7 vehicles, including two-to-four axle single unit trucks. Heavy trucks are 4 or more axle tractors, or trailers (class 8 through 13). Temporal distribution of truck traffic during a day is different from passenger cars. Truck traffic generally peaked during the morning and early afternoon on a weekday. On the weekend, trucks showed a reverse pattern, peaking around midnight.

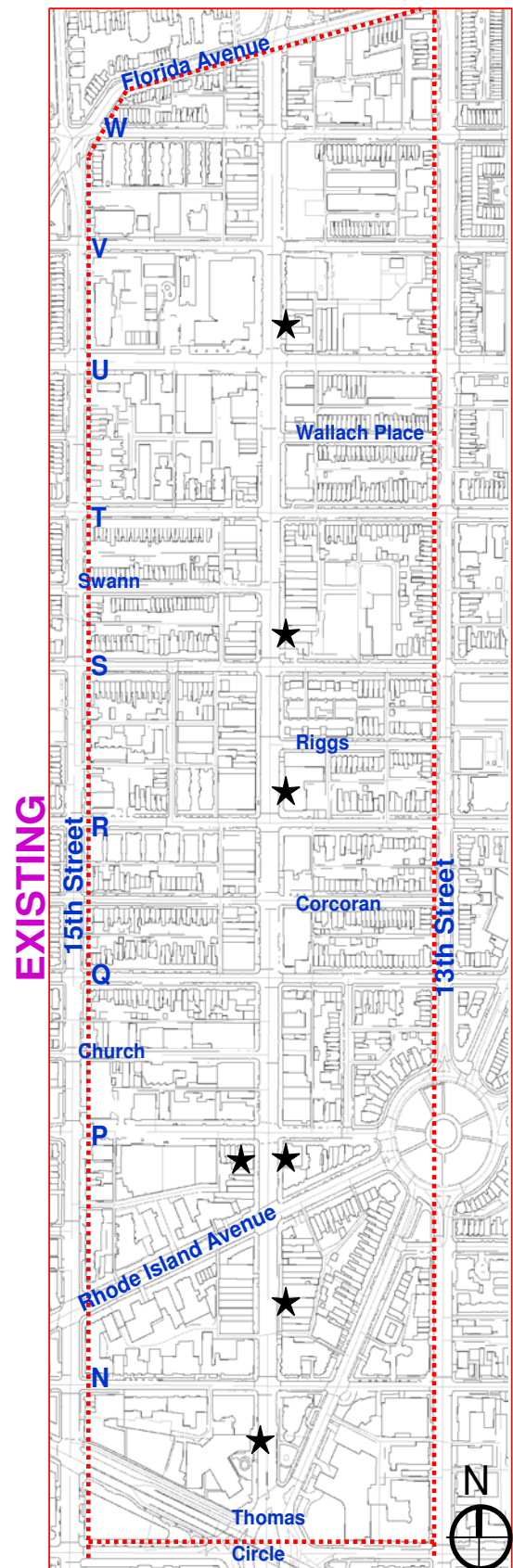


Figure 3.4 - Existing On-Street Loading Zones



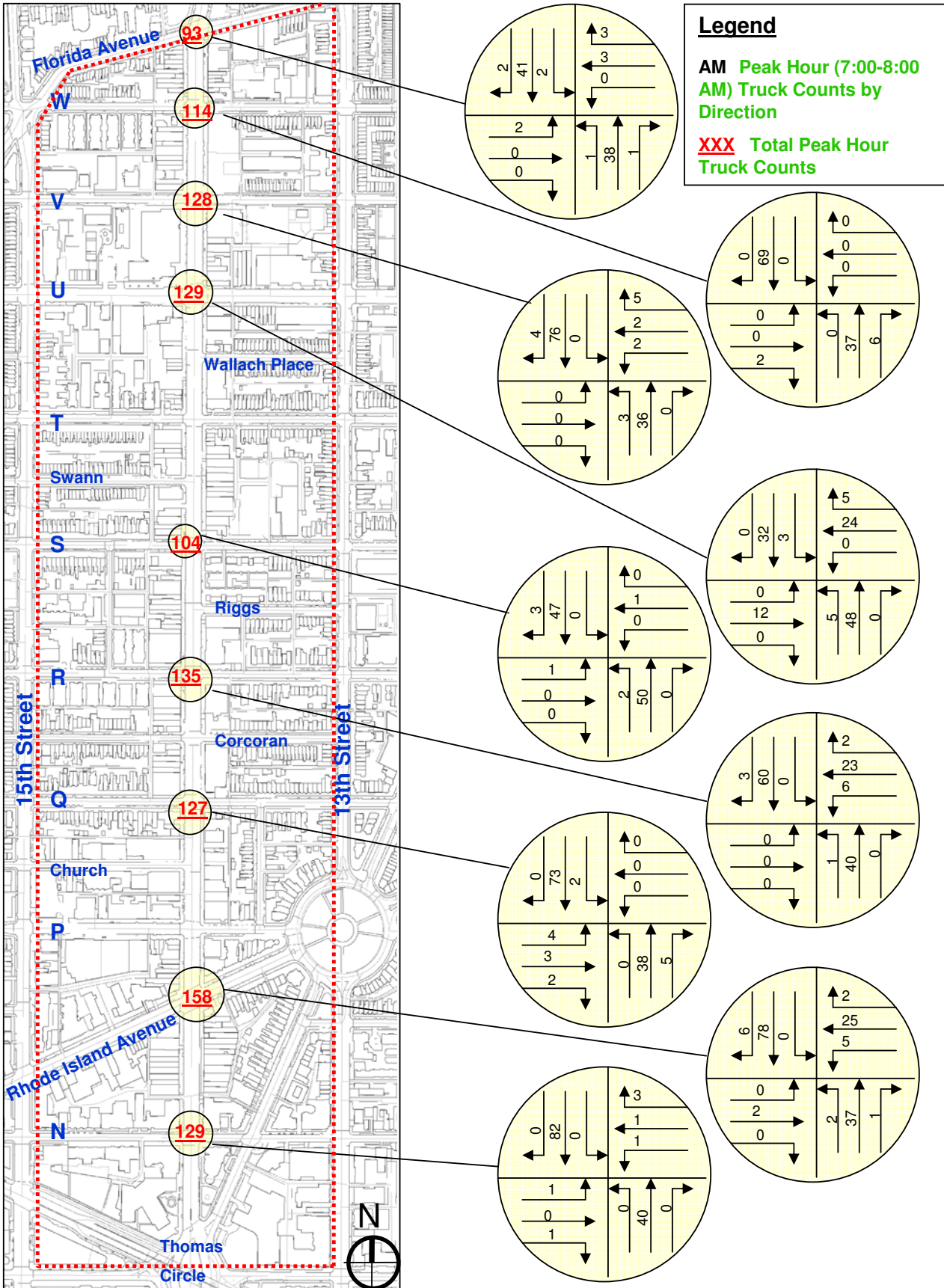


Figure 3.5 -AM Truck Volumes

# 3

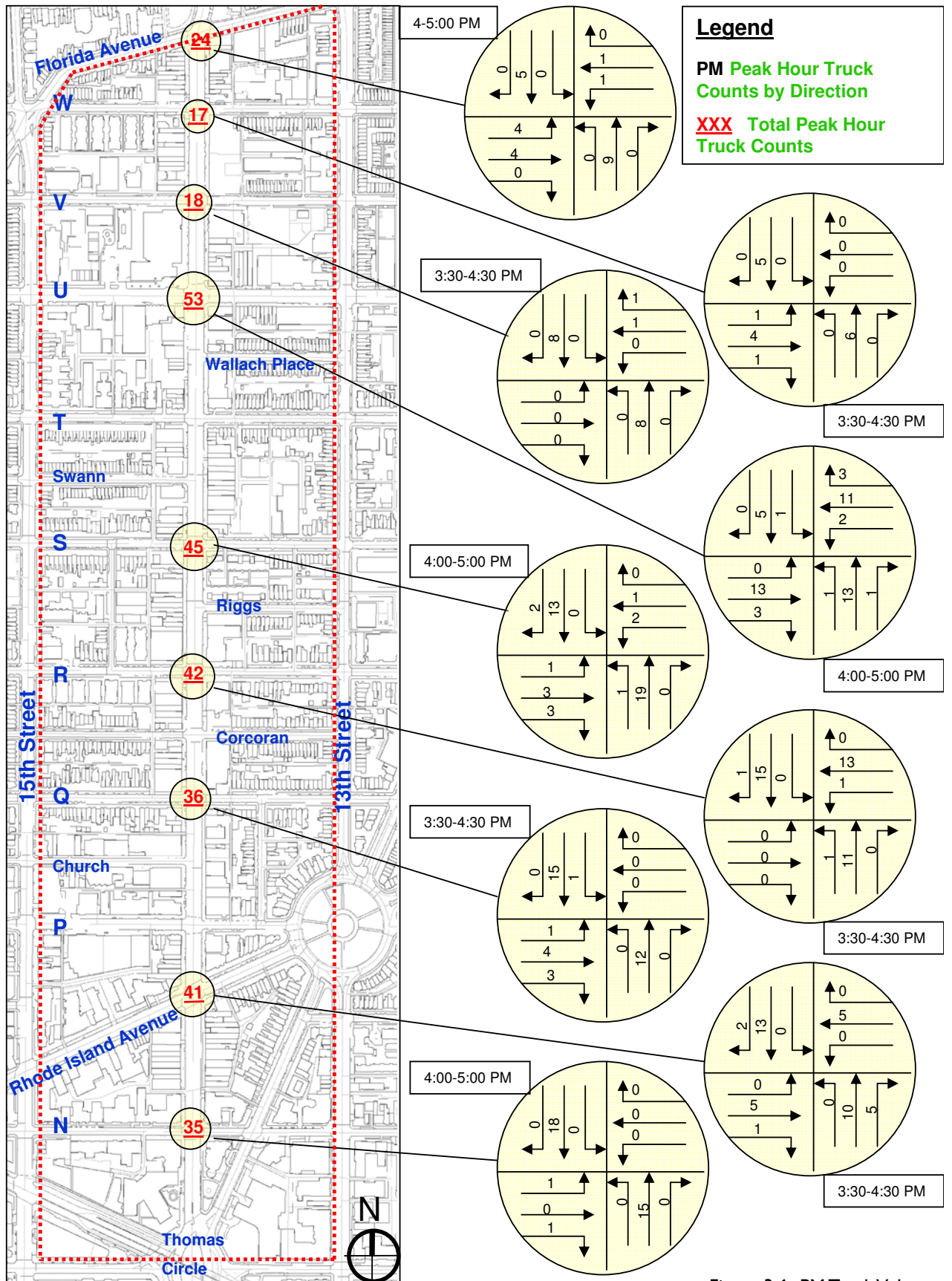


Figure 3.6 -PM Truck Volumes

## Origin-Destination Patterns

A license plate origin-destination survey, was conducted on April 26, 2007. The survey records 14<sup>th</sup> Street users at the north end of the corridor at Florida Avenue, at several points along the corridor, and in the south at Thomas Circle. The survey determines the magnitude of traffic destined to 14<sup>th</sup> Street’s businesses (including vehicles using part of the corridor and turning to side streets) versus traffic that passes through the corridor. It does so by comparing vehicle license plate observations at different locations along the corridor. License plate numbers were recorded for a category of autos and for all trucks at different locations along the corridor in the morning peak period for southbound traffic. It is not possible to collect all autos during the survey, therefore a selected sample is collected.

Figure 3.7 shows that traffic along 14<sup>th</sup> Street is almost evenly split between those vehicles that will stop on or divert along the study corridor, and those that will pass through. Through-traffic constitutes 49% of the corridor traffic at different locations along the corridor, while 51% of the traffic using 14<sup>th</sup> Street is accessing side streets or stopping along 14<sup>th</sup> Street. Considering the location and roadway conditions of 14<sup>th</sup> Street and its direct connection from the northern city limits to downtown Washington D.C., this traffic pattern would be expected. This large volume of through-traffic may burden the transportation infrastructure of 14<sup>th</sup> Street, but can also be viewed as a potential “pass-by” market for the businesses along 14<sup>th</sup> Street.

## Speed and Travel Time Patterns

Data was collected for both northbound and southbound traffic along three locations of the corridor for a 24-hour period in June 12-13, 2007. The results from the speed count study are summarized in Table 3.2. From the data, the 50th and 85th percentile speeds were determined. The 50th percentile speed, or the median speed, is the speed at which half of the vehicles are traveling faster and the other half are traveling slower. On average, vehicles are moving slightly below posted speeds on 14<sup>th</sup> Street, generally 25 mph. The 85th percentile speed is a measure of the upper limit of reasonable speeds for the prevailing non-congested condition. Speeds during these non-congested periods average slightly higher than the posted speed, generally 25 mph.

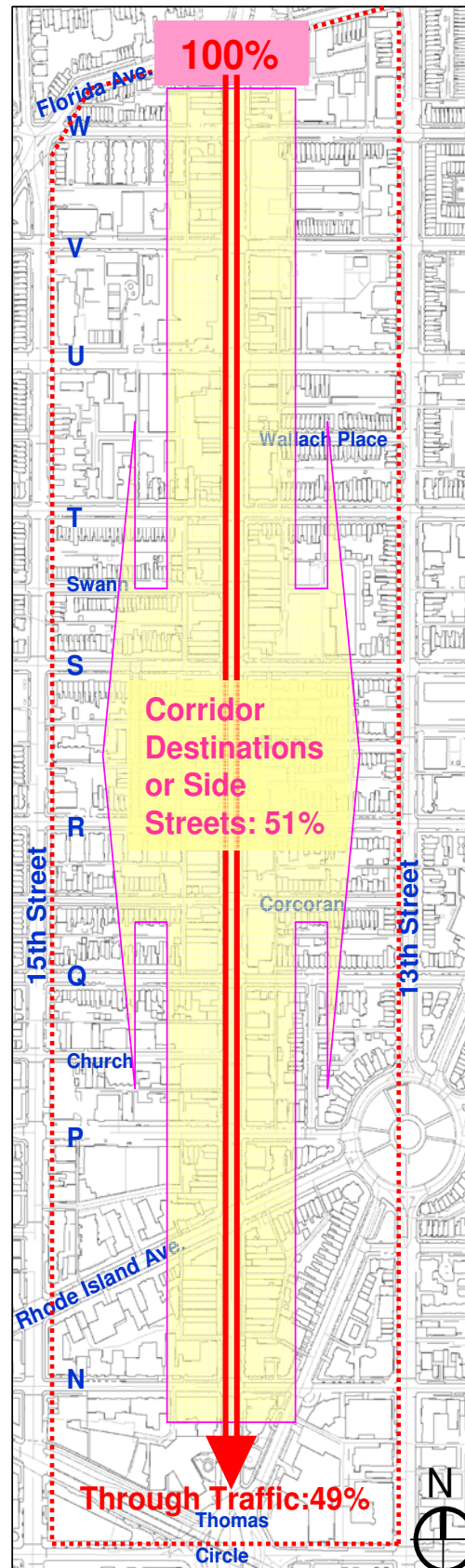


Figure 3.7 - Destination Origin Data



Table 3.2 - Peak Hour Speed on 14th Street

14 <sup>th</sup> Street between	V St & U St	Corcoran St & Q St	Rhode Island Ave & N St
<b>Northbound</b>			
50 <sup>th</sup> Percentile Speed (mph)	19.5	19.5	19
85 <sup>th</sup> Percentile Speed (mph)	27.5	28	28
<b>Southbound</b>			
50 <sup>th</sup> Percentile Speed (mph)	14	16	19.5
85 <sup>th</sup> Percentile Speed (mph)	25	26.5	29

### Vehicle-to-Vehicle Collisions

Table 3.4 summarizes the frequency of vehicle-to-vehicle accidents along 14<sup>th</sup> Street. The table indicates where and how commonly the accidents involving only vehicular traffic occur along the whole corridor. The following are some observations on the accident data included in Table 3.6:

- One of the most severe accidents is a right-angle crash, when one vehicle is impacted on its side by an on-coming vehicle. Of all the right angle accidents, most occurred at Q Street, W Street and P Street. Right angles often stem from running red lights, limited visibility or the lack of a traffic control. The cars parked along 14<sup>th</sup> Street along with large number of pedestrians may distract drivers and could be the cause for limited sight distance for vehicles making a right turn from the side streets onto 14<sup>th</sup> Street.
- Head on collisions occurred at U Street, W Street and Florida Avenue. Head on collisions are caused by driver distraction, driver impairment or traveling the wrong way down a one-way street. W Street is one-way.
- The most frequently occurring type of accident along the 14<sup>th</sup> Street corridor is a rear end accident followed by a side swipe. Most of the rear end collisions occurred along U Street, P Street and Rhode Island Avenue. U Street had the highest number of side swipe collisions as well, followed by Thomas Circle and W Street. Rear end accidents commonly result from driver distraction, sight distance, sudden changes in speed or sudden stops by other vehicles. Side swipes result from drivers trying to pass another vehicle or trying to avoid something in the road. At many of these intersections, storefront deliveries, double parking or patronage may be to blame. Additionally, the shared left through lanes may induce weaving/swerving.
- Of all the intersections along 14<sup>th</sup> Street, the intersection at U Street recorded the maximum accidents, suggesting a safety review at this location. Majority of the rear end and side swipe accidents occurred at this location. Half of all head on collisions also occurred at this location. Table 3.4 suggests that almost 85% of these accidents occurred during the off-peak period.
- One left turn accident at Florida Avenue also involved the only fatality along this corridor.

## Crashes

A safety assessment includes the examination of historical accident records by incident location to look for frequency of accident occurrences. Several factors are quantified, such as day of the week, time of day, type of accident and number of injuries.

Available accident data (2003-2005) from the District Department of Transportation for a 3-year period (2003-2005) provided incident data for each intersection along 14<sup>th</sup> Street are summarized in Tables 3.3 to 3.5. Table 3.3 shows an overall summary of 14<sup>th</sup> Street NW, with total accidents and total injuries by intersection as well as day of the week and time of day.

### All Collisions

These tables indicate that between 2003 and 2005, the intersection with the highest number of incidents is 14<sup>th</sup> Street and U Street, with 88 accidents and 20 injuries. The next highest incidents were recorded at the intersections of 14<sup>th</sup> Street with P Street, Rhode Island Avenue and W Street, with 44, 42 and 41 accidents and 8, 10 and 7 injuries respectively. The intersection of 14<sup>th</sup> Street and Florida Avenue had 12 injuries making it the intersection with the second highest number of injuries. Figure 3.8 shows intersections with total crashes and vehicle to non-vehicle collisions.

Of the accidents occurred on 14<sup>th</sup> Street, 24% involved injuries. Almost 44% of all the collisions occurred during the midday and 38% during the evening off peak periods. Only 18% of the total collisions occurred during the morning and evening peak periods. The weekdays accounted for almost 69% of the accident.

# 3

Table 3.3 - Accident Summary for all Collision Types

<i>14<sup>th</sup> Street and</i>	Thomas Circle	N St	Rhode Island Ave	P St	Church St	Q St	Corcoran St	R St	S St	Swann St	T St	Wallach Pl	U St	V St	W St	Florida Ave	Totals
<b>Day of Week as % of Total Accidents</b>																	
Weekday	77%	56%	62%	70%	67%	76%	64%	69%	81%	33%	62%	70%	74%	85%	68%	69%	69%
Weekend	23%	44%	38%	30%	33%	24%	36%	31%	19%	67%	38%	30%	26%	15%	32%	31%	31%
<b>Time of Day as % of Total Accidents</b>																	
AM Peak	3%	11%	5%	9%	0%	14%	9%	0%	4%	0%	5%	0%	6%	10%	12%	13%	7%
MID Peak	52%	44%	45%	43%	33%	52%	27%	44%	46%	33%	48%	40%	40%	65%	37%	38%	44%
PM Peak	19%	6%	5%	16%	0%	5%	9%	13%	12%	17%	14%	0%	9%	0%	17%	16%	11%
Evening	26%	39%	45%	32%	67%	29%	55%	44%	38%	50%	33%	60%	45%	25%	34%	34%	38%
Total Accidents	31	18	42	44	3	21	11	16	26	6	21	10	88	20	41	32	358
Total Injuries	8	1	10	8	1	8	2	5	4	1	5	4	20	7	7	12	86

Notes: AM Peak (0700-0900), Mid (0900-1700), PM Peak (1700-1900), Eve (1900-0700). Red font indicates high values.

Table 3.4 - Vehicle to Vehicle type Collision Summary

<i>14<sup>th</sup> Street and</i>	Thomas Circle	N St	Rhode Island Ave	P St	Church St	Q St	Corcoran St	R St	S St	Swann St	T St	Wallach Pl	U St	V St	W St	Florida Ave	Totals
Right Angle	3	2	3	5	0	5	0	3	2	0	1	1	3	1	5	0	34
Left Turn	1	2	5	4	1	2	0	0	0	1	3	1	5	2	6	5	38
Right Turn	0	0	0	0	0	1	0	0	0	0	1	1	4	0	0	2	9
Rear End	7	2	11	13	0	7	4	3	7	2	3	1	26	5	2	9	102
Side Swipe	13	3	7	8	2	1	2	4	3	1	5	0	20	3	10	6	88
Head On	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	1	4
Backing Hit	1	3	4	3	0	2	0	2	1	0	1	1	5	4	6	2	35

# 3

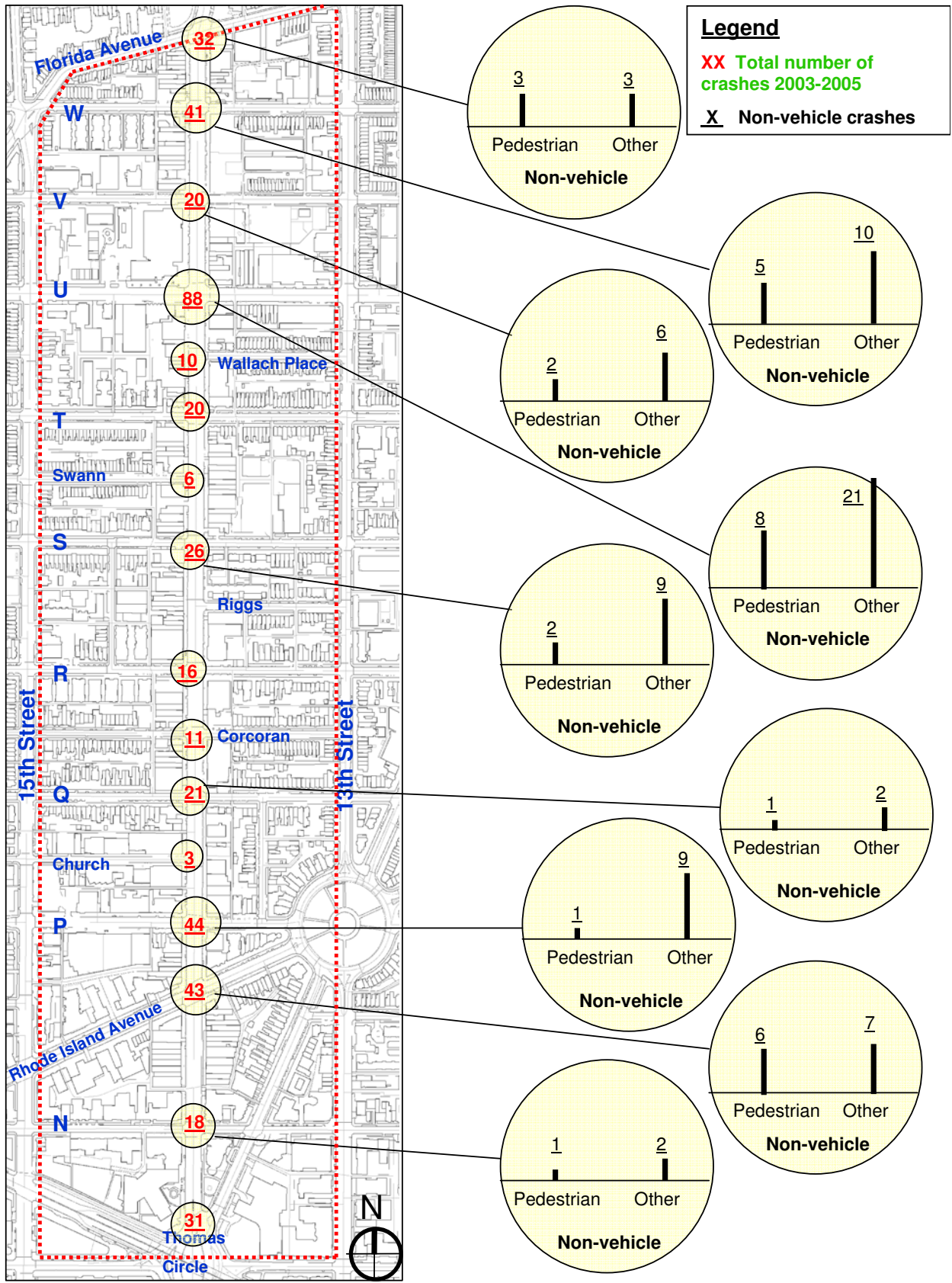


Figure 3.8 - Vehicle to Non-Vehicle Type Collisions



### Vehicle to Non-Vehicle Collisions

Figure 3.8 shows all vehicle accidents involving either a pedestrian or a fixed object. Accidents with non-motorized objects are categorized into two types of accidents including pedestrian and ‘other’. ‘Other’ accidents refer to collisions with bicycles or fixed objects, running off the road, hitting a parked vehicle, backing into something or any other incident that does not involve another vehicle. More detailed discussion on pedestrian and bicycle accidents are discussed in the Pedestrian and Bicycle section. The following trends become apparent upon closer inspection of the data:

- Almost 30% of all incidents occurring at Wallach Place involved pedestrians.
- The majority of ‘other’ accidents occur at U Street.
- Pedestrian accidents accounted for almost 12% of all accidents along the corridor while
- Other accidents made 25% of the accidents.

- Most pedestrian accidents occur at U Street, followed by Rhode Island Avenue, W Street and Thomas Circle.

<i>14th Street and</i>	Thomas Circle	N St	Rhode Island Ave	P St	Church St	Q St	Corcoran St	R St	S St	Swann St	T St	Wallach Pl	U St	V St	W St	Florida Ave	Totals
2003	8	4	10	10	2	6	2	3	8	3	3	2	27	7	7	6	108
2004	13	8	22	18	0	7	5	7	8	0	13	6	28	8	21	14	178
2005	10	6	11	16	1	8	4	6	10	3	4	2	33	5	13	12	144
Total	31	18	43	44	3	21	11	16	26	6	20	10	88	20	41	32	430

Table 3.5 - Crashes at Intersections along 14th Street by Year

## Intersection Operations

To evaluate how well the intersections along 14th Street accommodate the volumes of traffic that use them throughout the day, an assessment of the operational conditions of each intersection was conducted. The analysis quantifies how well each intersection functions and how well motorists perceive them to function.

For the purpose of the 14th Street study, traffic simulation and animation programs were used to replicate and evaluate existing traffic conditions. Synchro7.0, a traffic signal analysis package, serves as the intersection analysis tool. Synchro provides a complete application of the 2000 Highway Capacity Manual, the standard accepted procedures for traffic analysis. SimTraffic, a traffic network package to simulate and animate traffic, is used to evaluate the system wide operation.

The Synchro and SimTraffic models perform capacity analyses, provide animation of traffic and produce a list of measures of effectiveness (MOE). MOE are criteria that measure how well an intersection functions. Synchro serves to:

- Replicate the existing roadway network,
- Replicate the existing traffic conditions,
- Identify and verify locations of estimated problems.

Synchro provides a time-space-diagram for 14<sup>th</sup> Street that graphically portrays the interaction and vehicular movements of the transportation systems and its' users. For this study, Synchro provides intersection Level of Service (LOS), intersection delays and intersection Volume to Capacity (V/C) ratios. The evaluation analyses are reviewed in regard to overall network performance and in terms of driver expectations.

SimTraffic represents existing conditions through animated simulation of the modeling results to identify trouble areas and weak points within the network. SimTraffic provides network travel time, travel delays and average speed.

The simulation software is populated with locally collected data. Data collected through field observations and DDOT turning movement counts in May and June of 2007 included:

- Intersection and lane geometries, including length of turn lanes,
- Intersection turning movement counts, a.m./p.m. traffic volumes,
- Speed of traffic flow,
- Lane assignments,
- Typical queue length, and
- Signal timing/phasing, including pedestrian timing.

The existing network data file is coded to reflect the actual on-street conditions. To more exactly replicate 14<sup>th</sup> Street intersection configurations, data is augmented with the following information:

- Turning restrictions by time of day,
- Current phasing, splits and offsets,
- Existing roadway segment distances,
- Percentage of heavy vehicles, and
- Pedestrian volumes.

Synchro evaluates potential cycle lengths and maintains a common cycle throughout the network to achieve the desired progression. Measures of effectiveness, including the time-space-diagrams, stops, delays, level of service and capacity, cycle failures, average and projected maximum queues are reviewed.

SimTraffic animates existing traffic conditions to observe, evaluate, estimate and provide the impacts of individual vehicles and their resultant interaction with other vehicles in the network. This information aids in analyzing over-saturated arterial roadways, closely spaced intersections with mid-block driveways, and arterial systems that have heavy inputs from left and right turning movements on the side streets.

Both an a.m. and a p.m. computer model was developed for 14th Street, to replicate existing traffic conditions. The models contain approximately 16 intersections, 45 roadway segments and 12 signalized intersections. Simulation of the study area encompasses segments of 3 major arterials, 5 minor arterials and 8 collector roadways.

### Measures of Effectiveness

Synchro and SimTraffic program output provide a comprehensive list of Measures of Effectiveness. MOEs measure operational performance and reckoning, such as total delay, vehicle delay, stop delay, travel distance, travel time and average speed.

**Levels of Service:** One of the best means of interpreting the performance of an entire arterial, as well as each of its intersections, is to analyze the level of service (LOS). LOS is a standardized measure of the operability of an intersection based upon the delay encountered by a vehicle using that intersection. Based on the Highway Capacity Manual, LOS is defined differently for freeways, signalized, and un-signalized intersections. LOS for signalized intersections, which is the typical type of intersections under study in this corridor, is defined based on average controlled delay time per vehicle (see Table 3.6). A letter grade A-F, defines an intersection's ability to pass traffic through the intersection. A LOS

(A) represents excellent free flow conditions and LOS (F) represents failing conditions. Generally, LOS (D) is considered to be in acceptable traffic conditions and as a target to achieve at the intersections along the corridor. LOS grades are calculated for each intersection during the a.m. and p.m. peak hours to analyze and compare intersection operations and traffic service levels.

LOS tables summarize the simulation results for the major intersections during the a.m. and p.m. peak hours. They compare the LOS at key intersections along the corridor. Summaries reveal intersection approach LOS, vehicle queues, overall LOS, lane configurations and turning movements. Intersection LOS is two-fold as it measures the operability of the whole intersection and each of its approach legs. At various locations, the overall intersection LOS may be better than that of its approach legs' LOS. That is, although one or several of the streets of an intersection are congested, the intersection as a whole may perform at an acceptable level.

Demand Volume Versus Roadway Capacity: To add perspective to how and why the intersections perform as they do, the following section reviews the analysis of the roadways that convey volume to these intersections. The major roadways' directional peak hour volumes are summarized. They represent an approximation of the intersections' turning movement counts. At some locations, intersections receive significant volumes, often in excess of the roadway carrying capacity.

LOS	Description	Average Control Delay (Second)
A	Little or no delay, extremely favorable progression	<10
B	A few vehicle stop; Good progression / short cycle lengths,	10-20
C	Significant number of vehicles stop; Fair progression / longer cycle lengths.	20-35
D	Many vehicles stops; Noticeable influence of congestion, Noticeable cycle failures; Some unfavorable progression / longer cycle lengths.	35-55
E	Frequent cycle failures; Poor progression; Long cycle lengths; high volume/capacity (v/c) ratios.	55-80
F	Unacceptable to most drivers; Many cycle failures; Arrival flow rates exceed the capacity of the intersection; High v/c ratios; Poor progression.	>80

Table 3.6 Level of Service Definitions: Source: 2000 Highway Capacity Manual.



## Arterial Operations

Arterial operations are analyzed with SimTraffic software, which creates a 3-D operation animation of the corridor and provides a list of MOEs. SimTraffic’s MOEs for arterial operations takes the overall condition on the corridor and divides this by the number of vehicles traveling on the corridor. These results are listed by average criteria by vehicle. Using the analysis inputs for each study intersection, the aggregate measures are summarized in Table 3.7.

Table 3.7 - Analysis of Arterial Operations

AM Peak	14 <sup>th</sup> Street
Total Delay per Vehicle (s)	24.1
Stop Delay per Vehicle (s)	19.3
Number of Stops per Vehicle	0.66
Calculated Average Speed (mph)	12
PM Peak	
Total Delay per Vehicle	24.5
Stop Delay per Vehicle	19.6
Number of Stops per Vehicle	0.72
Calculated Average Speed	12

Table Notes: Delay in seconds/vehicle, Average speed in mph

Operating conditions on 14th Street are similar when comparing the a.m. versus p.m. peak periods. Total delay per vehicle along the Corridor is approximately 24 seconds while the stop delay per vehicle is approximately 19.5 seconds. The length of the Corridor is approximately one mile and at the posted speed limit along the corridor it would take approximately 150 seconds to traverse the Corridor under free flowing conditions. This indicates that most vehicles experience very little delay along the corridor. The analysis indicates that on 14th Street most vehicles move successfully through the signalized intersection with very few stops. This is facilitated by signal coordination and the fact that vehicles travel in small platoons that move through the corridor. The average speed of 12 mph is below the posted speed, but with the addition of vehicle stops and starts at signals and crosswalks, this figure can be misleading. Lower speeds do not necessarily indicate poor performance if there are a lot of vehicle stops and starts. Overall the arterial operation under current condition are relatively favorable with moderate amounts of traffic during peak hours, accumulating as you move from north to south in the corridor, fostered by the increase in overall traffic volumes as you travel south on 14th Street.

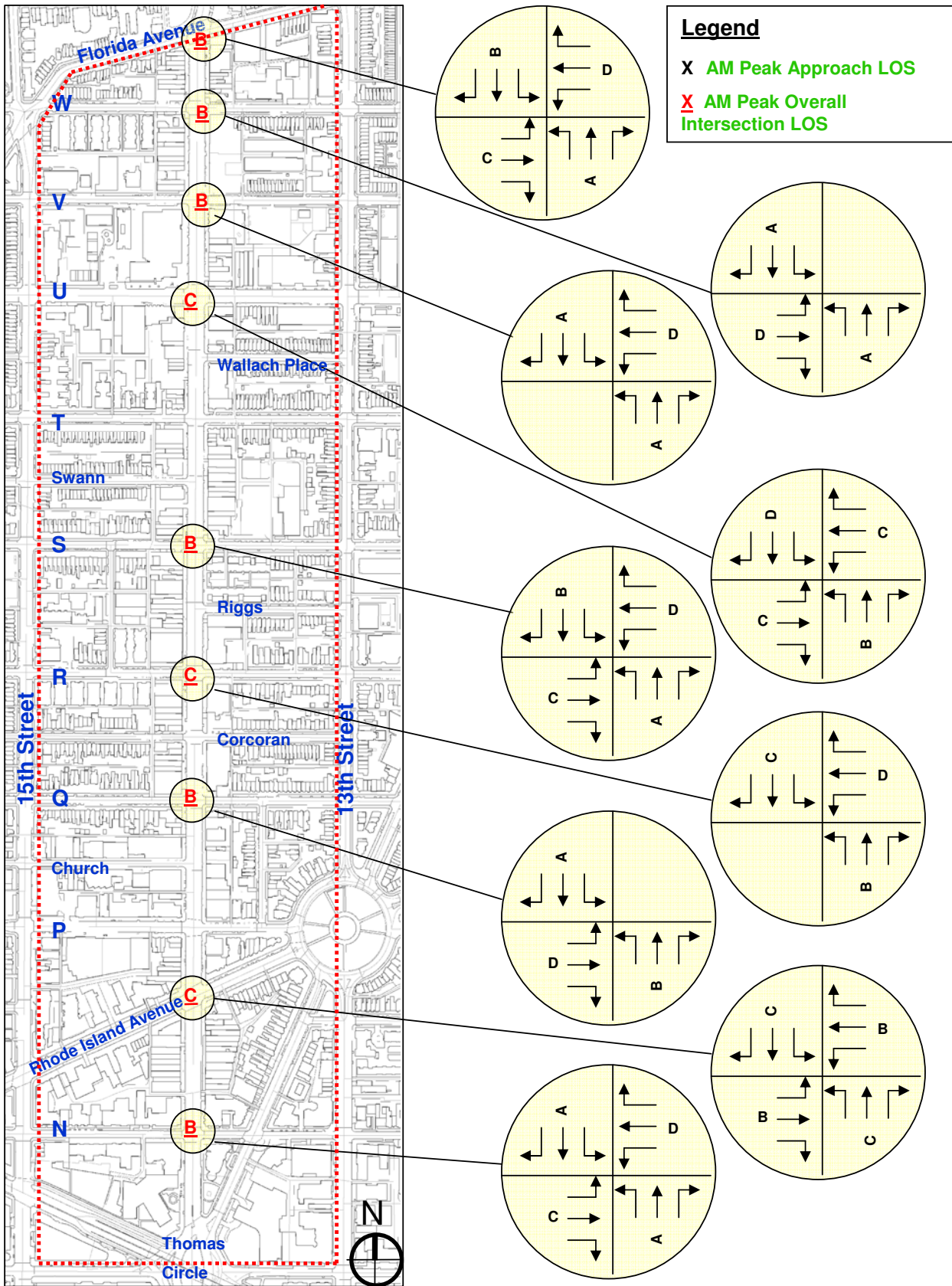


Figure 3.9 - AM Peak Overall and Approach Existing Levels of Service (LOS)

# 3

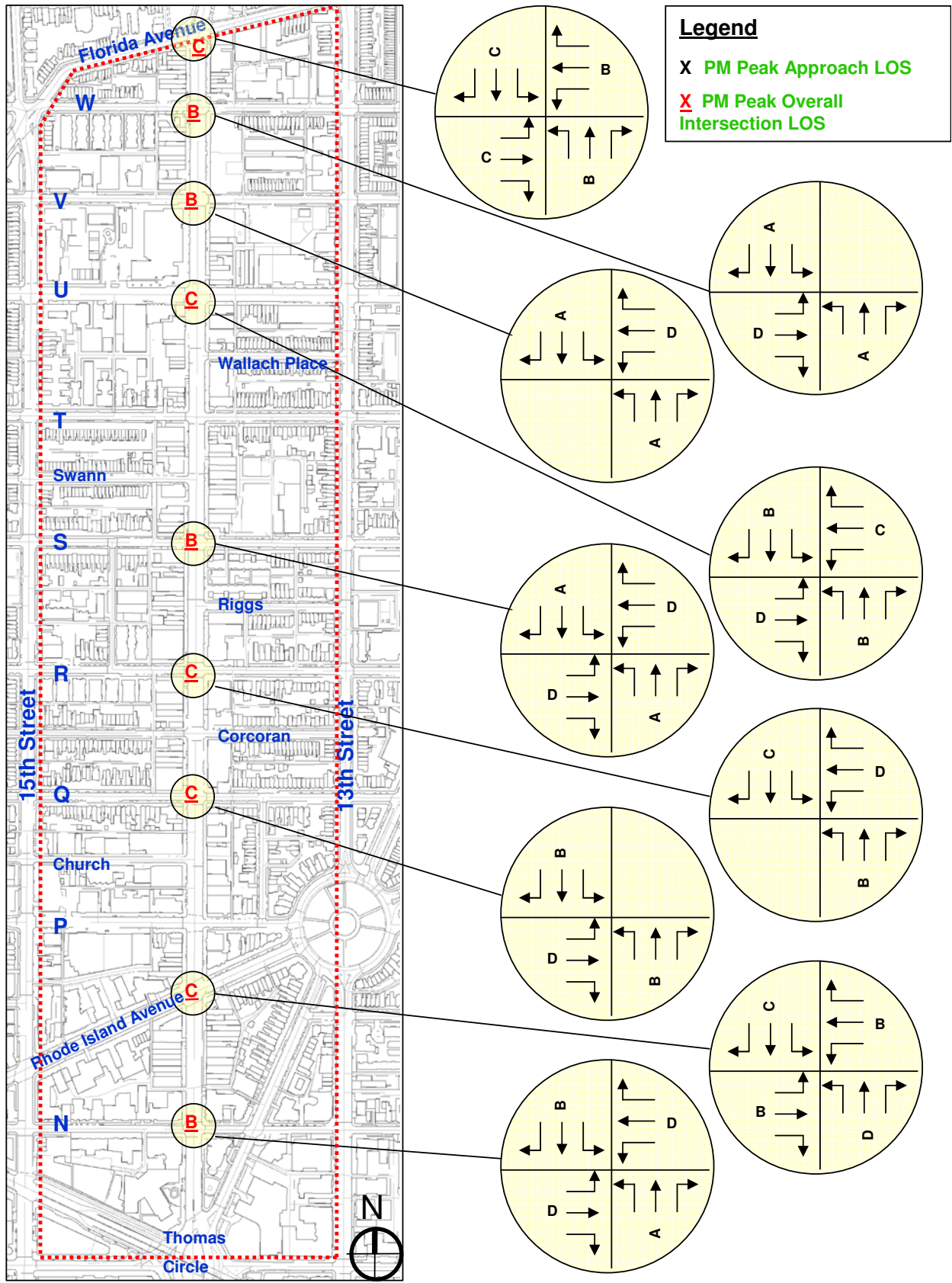


Figure 3.10 - PM Peak Overall and Approach Existing Levels of Service (LOS)



## Intersection Conditions

With the understanding of arterial operations, an analysis of the individual intersection components that make up the arterial system will further identify specific needs on 14th Street. The following information demonstrates the interdependence of the intersections within the study area and how the performance of one intersection affects surrounding intersections. The results of this analysis are summarized in Table 3.8 and shown graphically in Figures 3.11 through 3.20. For both a.m. and p.m. peak conditions, the 14th Street corridor moves traffic with little delay in the northbound and southbound direction. Travel conditions are worse for traffic moving

eastbound and westbound across the 14th Street corridor, but are still at acceptable congestion and delay levels with no movement having a LOS worse than D.

The following section adds detail to the preceding tables and investigates each intersection individually by time of day. The performance of each intersection is described in following tables. A detailed table accompanies the description if the intersection experiences LOS problems. If one or more movements reach or exceed capacity, its failing LOS designation affects the overall intersection LOS. Note again that the overall intersection LOS in Table 3.8 may have a better LOS than its individual approach legs as detailed below for each intersection.

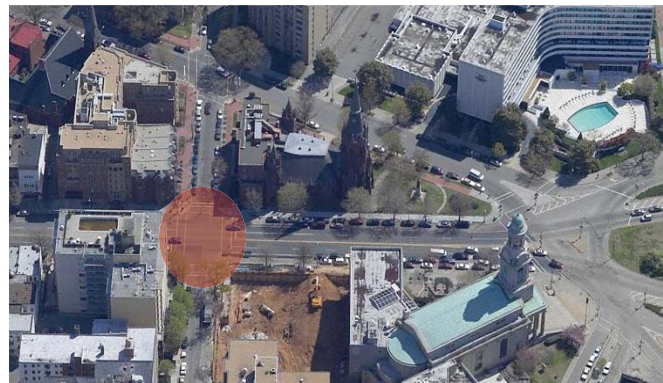
### Thomas Circle

Re-configured in 2006, Thomas Circle now accommodates multi-modal access, including bicyclists and pedestrians. By eliminating the cut-through lanes, all vehicular traffic is now directed to the perimeter of the Circle, where signals were coordinated. Field observations at 14th Street show fairly good progression of vehicular movements, without noticeable cycle failures. It operates at an acceptable level of service.



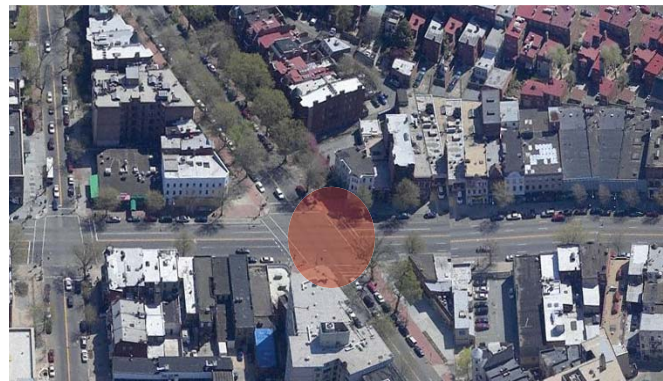
### N Street

The N Street/14<sup>th</sup> Street intersection operates at above average LOS during the a.m. and p.m. peak periods. The major movements on 14th Street during both peaks operate at above average or higher LOS, with the worst traffic movement being westbound on N Street (See Table 3.9 for details).



### Rhode Island Avenue

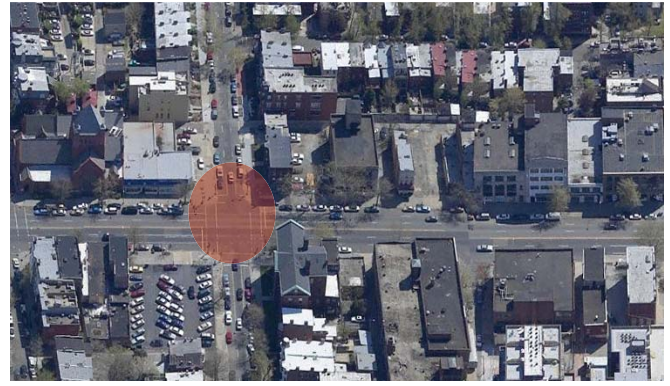
The Rhode Island Avenue /14<sup>th</sup> Street intersection operates at above average LOS during the a.m. and p.m. peak periods. The major movements on 14<sup>th</sup> Street during both peaks operate at above average or higher LOS. Substantial queues occur during the evening peak hour in the northbound direction. During the morning peak, motorists experience minor vehicle queues on the westbound and northbound directions (See Table 3.10 for details).





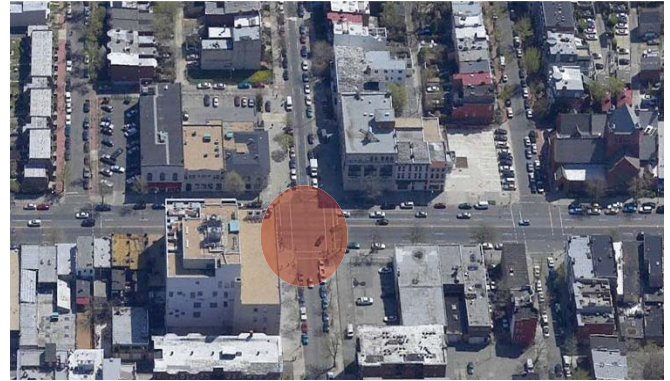
## Q Street

The Q Street/14<sup>th</sup> Street intersection operates at above average LOS during the a.m. and p.m. peak periods. The major movements on 14<sup>th</sup> Street during both peaks operate at above average or higher LOS, with the worst traffic movement eastbound on Q Street. There are substantial vehicle queues on the minor approach both the peak periods. Details are provided in the following table (See Table 3.11 for details).



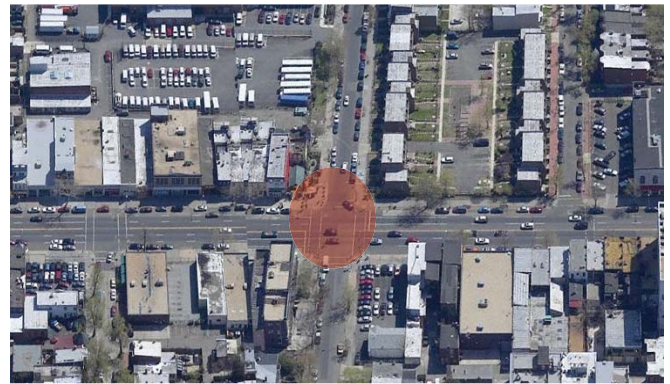
## R Street

The R Street/14<sup>th</sup> Street intersection operates at above average LOS during the a.m. and p.m. peak periods. The major movements on 14<sup>th</sup> Street during both peaks operate at above average or higher LOS, with the worst traffic on westbound R Street. During both the peak periods, motorists experience substantial queues on the R Street approaches (See Table 3.12 for details).



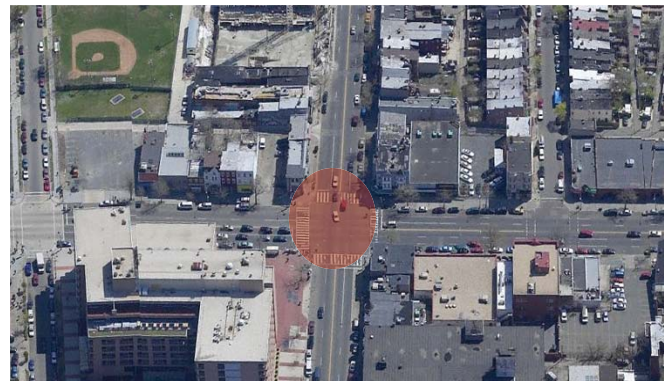
## S Street

The S Street/14<sup>th</sup> Street intersection operates at above average LOS during the a.m. and p.m. peak periods. The major movements on 14<sup>th</sup> Street during both peaks operate at above average or higher LOS. Approaches that experience the highest congestion are westbound on S Street during both peak hours; and eastbound on S Street during the p.m. peak hour. There is a reasonable queue experienced by the westbound movement during the morning peak. All other movements experience minor queues during both peak periods (See Table 3.13 for details).



## U Street

The U Street/14<sup>th</sup> Street intersection operates at above average LOS during the a.m. and p.m. peak periods. The major movements on 14<sup>th</sup> Street during both peaks operate at above average or higher LOS. Southbound 14<sup>th</sup> Street in the a.m. peak and eastbound U Street in the p.m. peak experience the highest traffic volumes and accompanying congestion. During both peaks, motorists experience minor vehicle queues for the U Street approaches and a small queue on the southbound approach of 14<sup>th</sup> Street in the morning peak (See Table 3.14 for details).



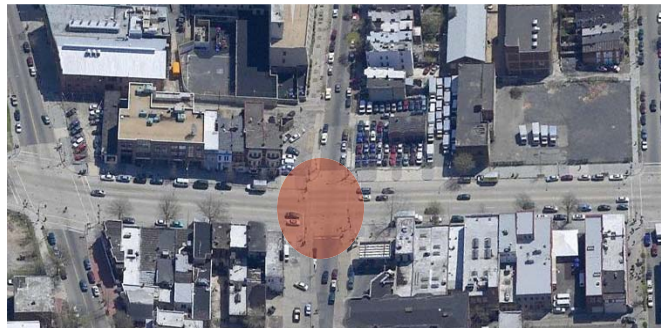
### V Street

The V Street/14<sup>th</sup> Street intersection operates at above average LOS during the a.m. and p.m. peak periods. The major movements on 14<sup>th</sup> Street during both peaks operate at above average or higher LOS, with westbound V Street experiencing the highest congestion levels (See Table 3.15 for details).



### W Street

The W Street/14<sup>th</sup> Street intersection operates at above average LOS during the a.m. and p.m. peak periods. The major movements on 14<sup>th</sup> Street during both peaks operate at above average or higher LOS, with eastbound W Street experiencing the highest congestion levels. During both the peaks there are minor vehicle queues for the W Street approach and a reasonable queue in the 14<sup>th</sup> Street northbound movement in the a.m. peak (See Table 3.16 for details).



### Florida Avenue

The Florida Avenue/14<sup>th</sup> Street intersection operates at above average LOS during the a.m. and p.m. peak periods. The major movements on 14<sup>th</sup> Street during both peaks operate at above average or higher LOS. Westbound Florida Avenue does experience the highest congestion in the a.m. peak hour. There is a reasonable vehicle queue in the westbound Florida Avenue approach in the morning peak and in the eastbound Florida Avenue approach during the evening peak (See Table 3.17 for details).



Figure 3.11-3.20 - Aerial views of 14th Street intersections  
Source: Windows Live Local Imagery

Table 3.8 - Intersection Operations

14 <sup>th</sup> Street and	N St	Rhode Island Ave	Q St	R St	S St	U St	V St	W St	Florida Ave
<b>AM Overall LOS</b>	B	C	B	C	B	C	B	B	B
<b>Approach LOS</b>									
Eastbound	C	B	D	-	C	C	-	D	C
Westbound	D	B	-	D	D	C	D	-	D
Northbound	A	C	B	B	A	B	A	A	A
Southbound	A	C	A	C	B	D	A	A	B
<b>PM Overall LOS</b>	B	C	C	C	B	C	B	B	C
<b>Approach LOS</b>									
Eastbound	D	B	D	-	D	D	-	D	C
Westbound	D	B	-	D	D	C	D	-	B
Northbound	A	D	B	B	A	B	A	A	B
Southbound	B	C	B	C	A	B	A	A	C



Table 3.9 - N Street Intersection Performance

	AM PEAK HOUR				PM PEAK HOUR			
	V/C	Delay	LOS	95% Q	V/C	Delay	LOS	95% Q
N St at 14 <sup>th</sup> Street								
Eastbound	0.17	29.9	C	81	0.41	39.9	D	93
Westbound	0.76	45.5	D	194	0.63	45.0	D	101
Northbound	0.25	7.5	A	92	0.40	5.3	A	104
Southbound	0.45	2.9	A	125	0.24	15.6	B	150
Overall Intersection	0.53	11.7	B	-	0.44	14.9	B	-

Table 3.10 - Rhode Island Avenue Intersection Performance

	AM PEAK HOUR				PM PEAK HOUR			
	V/C	Delay	LOS	95% Q	V/C	Delay	LOS	95% Q
Rhode Island Ave at 14 <sup>th</sup> Street								
Eastbound	0.22	13.9	B	118	0.44	18.1	B	166
Westbound	0.49	17.3	B	228	0.20	15.3	B	109
Northbound	0.63	21.5	C	262	0.86	36.7	D	368
Southbound	0.77	31.1	C	162	0.47	22.3	C	150
Overall Intersection	0.61	22.6	C	-	0.63	26.4	C	-

Table 3.11 - Q Street Intersection Performance

	AM PEAK HOUR				PM PEAK HOUR			
	V/C	Delay	LOS	95% Q	V/C	Delay	LOS	95% Q
Q St at 14 <sup>th</sup> Street								
Eastbound	0.77	45.0	D	273	0.84	43.4	D	395
Northbound	0.25	11.3	B	118	0.46	17.4	B	154
Southbound	0.36	7.3	A	139	0.33	10.0	B	129
Overall Intersection	0.47	17.1	B	-	0.59	22.0	C	-

Table 3.12 - R Street Intersection Performance

	AM PEAK HOUR				PM PEAK HOUR			
	V/C	Delay	LOS	95% Q	V/C	Delay	LOS	95% Q
R St at 14 <sup>th</sup> Street								
Westbound	0.88	45.8	D	410	0.83	37.7	D	406
Northbound	0.40	12.4	B	140	0.40	14.0	B	181
Southbound	0.63	22.7	C	137	0.38	20.3	C	139
Overall Intersection	0.72	26.2	C	-	0.58	23.8	C	-

Table 3.13 - S Street Intersection Performance

	AM PEAK HOUR				PM PEAK HOUR			
	V/C	Delay	LOS	95% Q	V/C	Delay	LOS	95% Q
S St at 14 <sup>th</sup> Street								
Eastbound	0.34	29.2	C	125	0.82	47.4	D	256
Westbound	0.81	43.9	D	328	0.60	35.9	D	128
Northbound	0.26	8.9	A	131	0.40	8.8	A	140
Southbound	0.51	11.6	B	160	0.33	8.2	A	116
Overall Intersection	0.60	19.5	B	-	0.52	19.1	B	-

Table 3.14 - U Street Intersection Performance

	AM PEAK HOUR				PM PEAK HOUR			
	V/C	Delay	LOS	95% Q	V/C	Delay	LOS	95% Q
U St at 14 <sup>th</sup> Street								
Eastbound	0.56	25.4	C	223	0.76	36.4	D	181
Westbound	0.83	34.5	C	286	0.50	30.2	C	163
Northbound	0.34	13.8	B	119	0.42	10.3	B	122
Southbound	0.61	37.6	D	290	0.40	14.5	B	127
Overall Intersection	0.69	29.7	C	-	0.53	22.8	C	-

Table 3.15 - V Street Intersection Performance

	AM PEAK HOUR				PM PEAK HOUR			
	V/C	Delay	LOS	95% Q	V/C	Delay	LOS	95% Q
V St at 14 <sup>th</sup> Street								
Westbound	0.73	45.3	D	195	0.62	45.1	D	158
Northbound	0.17	9.6	A	86	0.26	2.6	A	81
Southbound	0.34	2.8	A	148	0.28	8.9	A	150
Overall Intersection	0.43	12.9	B	-	0.32	10.7	B	-

Table 3.16 - W Street Intersection Performance

	AM PEAK HOUR				PM PEAK HOUR			
	V/C	Delay	LOS	95% Q	V/C	Delay	LOS	95% Q
W St at 14 <sup>th</sup> Street								
Eastbound	0.80	44.6	D	261	0.82	43.1	D	227
Northbound	0.18	6.1	A	310	0.44	8.0	A	181
Southbound	0.39	4.6	A	284	0.36	9.9	A	162
Overall Intersection	15.7	15.7	B	-	0.56	16.7	B	-

Table 3.17 - Florida Avenue Intersection Performance

	AM PEAK HOUR				PM PEAK HOUR			
	V/C	Delay	LOS	95% Q	V/C	Delay	LOS	95% Q
Florida Ave at 14 <sup>th</sup> Street								
Eastbound	0.29	29.1	C	107	0.69	24.4	C	366
Westbound	0.82	45.7	D	306	0.35	17.6	B	182
Northbound	0.25	3.7	A	117	0.59	18.8	B	235
Southbound	0.52	12.1	B	192	0.61	24.6	C	186
Overall Intersection	0.62	18.2	B	-	0.65	21.8	B	-

Notes for Tables 3.9-3.17: V/C=Volume/Capacity, Delay=Control Delay in seconds, 95% Q=Queue in feet

# Pedestrian and Bicycle Activity

## Overview

With the availability of bike lanes and the heavy pedestrian traffic to and from businesses on the 14th Street corridor, pedestrian and bicycle services play an increasingly important role in providing safe and convenient modes of transportation to and from 14th Street. Pedestrian and bicycle facilities are a crucial link between residential areas, for commuting, recreational purposes and connections to transit. An improved pedestrian/bicycle environment, besides attracting more people to the corridor, will support transit and reduce parking requirements. The existing pedestrian and bicycle data along the corridor includes an inventory of pedestrian and bicycle facilities, counts and movements, signals and timing for pedestrian crossings, crosswalks, and historical accident data. Figures 3.21 to 3.24 show some general pedestrian conditions on the 14th Street Corridor.

## Existing Pedestrian Activity

Pedestrian activities throughout the corridor depend on land use and transit services. This section describes pedestrian counts and movements along the corridor. The current cross street pedestrian movements as well as those pedestrians walking across 14<sup>th</sup> Street at each intersection for the a.m. peak period (6:30-9:30) and p.m. peak (3:30-6:30) are shown in Table 3.18 and represented graphically in Figure 3.25.

Pedestrian movements in the study area do not appear to impact vehicular traffic. However, pedestrian movements are impacted by vehicular traffic at some intersections due to: (i) heavy vehicular traffic, (ii) wide vehicular right-of-ways,



Figure 3.21 - 14<sup>th</sup> and U Streets, looking southeast



and (iii) lack of signal timing for pedestrian crossings. Thomas Circle is particularly challenging for pedestrians. Throughout the corridor, pedestrians use many areas of 14th Street during the day, as well as during evening and night time.

U Street Intersection

The U Street intersection experiences the heaviest foot-traffic along the corridor, demonstrating its importance as an activity center in the corridor. Survey recorded 1,500 pedestrians in the morning peak period and 2,100 pedestrians in the afternoon peak period, with particularly heavy traffic on the north and west crosswalks. This reflects the presence of the Reeves Municipal Building and a bus stop at the northwest corner, and a Metro station to the east.

Thomas Circle to Q Street

Pedestrian volumes are heavy, with the greatest activity concentrated at the intersections of 14th Street and N Street/Rhode Island Avenue. With 2,500 crossings in a.m. and p.m. peak periods, the N Street intersection experiences the corridor’s second highest number of pedestrian crossings.

Q Street intersection has the lowest pedestrian traffic along the corridor, recorded a total of 1,100 pedestrian crossings for both a.m. and p.m. peak combined. Evening peak has more pedestrian traffic than morning peak.

Corcoran Street to Wallach Place

Pedestrian traffic is moderate with around 1,500 crossings in the peak periods. The north leg of 14th Street at R Street and east leg at S Street experience the heaviest pedestrian traffic, particularly during the evening peak period.

V Street to Florida Avenue

Pedestrian volumes increased from around 1,200 at V Street to 1,500 at Florida Avenue. West legs at V Street and Florida Avenue have the heaviest pedestrian activities. New construction along this section currently affect pedestrian movements, particularly at the east leg of the V Street intersection.

Figure 3.22 - 14th and N Streets, looking south



Intersection / Pedestrians	AM Peak East-West	PM Peak East-West	AM Peak North-South	PM Peak North-South	Total Peak
14 <sup>th</sup> & N St	401	591	550	953	
14 <sup>th</sup> & R.I. Ave.	303	487	332	470	
14 <sup>th</sup> & Q St	130	204	333	431	
14 <sup>th</sup> & R St	419	603	286	283	
14 <sup>th</sup> & S St	232	319	391	496	
14 <sup>th</sup> & U St	803	1,124	651	968	
14 <sup>th</sup> & V St	220	319	333	297	
14 <sup>th</sup> & W St	462	360	297	301	
14 <sup>th</sup> & Florida Ave.	314	232	413	570	

Table 3.18 - Pedestrian Counts/Movements at Intersections (AM Peak Period 0630-0930, PM Peak Period 1530-1830)

Intersection / Pedestrians	AM Peak East-West	PM Peak East-West	AM Peak North-South	PM Peak North-South	Total Peak
14 <sup>th</sup> & N St	27	34	182	132	375
14 <sup>th</sup> & R.I. Ave.	101	115	44	61	321
14 <sup>th</sup> & Q St	140	199	32	70	441
14 <sup>th</sup> & R St	137	140	97	58	432
14 <sup>th</sup> & S St	23	29	167	131	350
14 <sup>th</sup> & U St	143	83	19	41	286
14 <sup>th</sup> & V St	123	115	27	26	291
14 <sup>th</sup> & W St	109	104	12	12	237
14 <sup>th</sup> & Florida Ave.	128	127	135	95	485

Table 3.19 - Bicycle Counts/Movements at Intersections (AM Peak Period 0630-0930, PM Peak Period 1530-1830)

# 3

Figure 3.23 (below) - 14<sup>th</sup> Street between Riggs and S Streets  
 Figure 3.24 (right) - 14<sup>th</sup> and R Streets, looking south





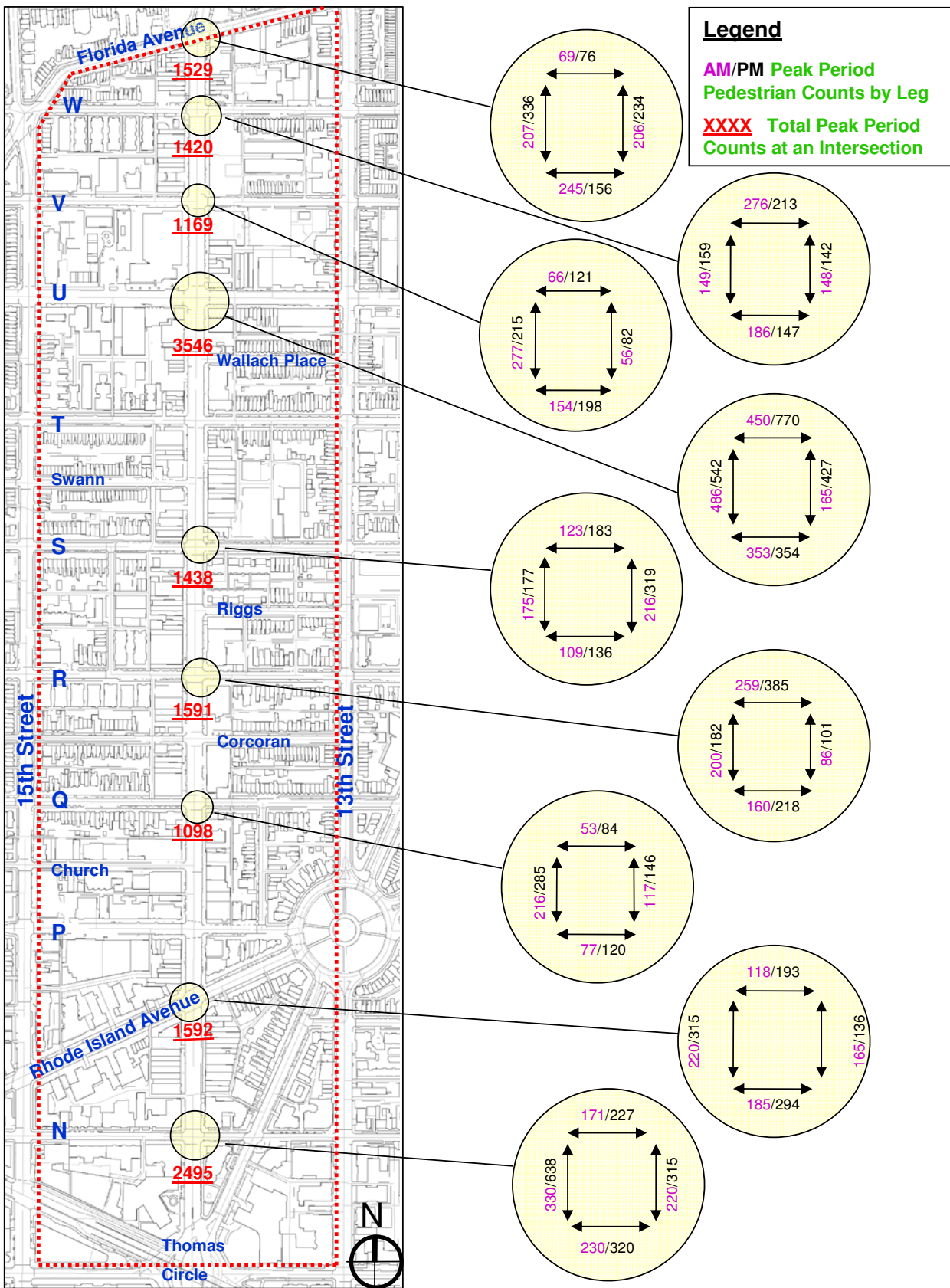


Figure 3.25 - AM/PM Peak Pedestrian Movement at the Intersections along 14<sup>th</sup> Street NW



## Bicycle Activity

The study area has bicycle facilities, including designated bike lanes along 14th Street between Thomas Circle and Wallach Place, along R Street, and along Q Street west of 14th Street. Figure 3.26 through 3.29 show general bicycle facility and activity conditions in the corridor. Field surveys show patterns and variations in bicycle activities along the corridor in the a.m. peak period (6:30-9:30 AM) in Figure 3.31 and in the p.m. peak period (3:30-6:30 PM) in Figure 3.32.

Throughout the corridor, bicyclists use many areas of 14th Street during the day, as well as during evening. During the three-hour a.m. or p.m. peak period, the surveyed intersections recorded 100 to 300 bicyclists. The 14th Street/Florida Avenue intersection experienced the highest volume with 263 bicyclists during the a.m. peak period, while the Q Street intersection recorded the highest volume of 269 bicyclists during the p.m. peak period. Florida Avenue is at the top of the list for total combined bicycle counts during a.m. and p.m. periods, followed by Q and R Streets.

At Florida Avenue, the highest bicycle activities occurred on the north and west legs during the morning peak period and on the south and west legs during the evening peak period. The east-west bicycle movements were also prevalent at several other intersections including W, V, U, Q Streets and Rhode Island Avenue, which experienced the heaviest bicycle volume on the north legs during the morning peak period. The north-south movements were dominant at N, R, and S Street intersections during the morning peak period. During the evening rush hours, the east-west bicycle movements were dominant at Rhode Island Avenue, Q, R, V, and W Streets, while the south-north movements were prevalent at N and S Street intersections.

## Bicycle Lanes and Parking

Designated bicycle lanes are a great asset in the study area, and connect the corridor to the west and east. Unfortunately, the designated bicycle lane along 14th Street ends at Thomas Circle in the south and Wallach Place in the north and disconnects with the bicycle lane north of Newton Street, more than a dozen or so blocks away. Conflicts were also observed when trucks or buses blocked the bike lane. Generally, the study area has inadequate bicycle parking and storage facilities.

The District of Columbia Bicycle Master Plan identifies the section of 14th Street within the study corridor as part of the formal bicycle trail network, with proposed bicycle lanes all the way from Thomas Circle to north of U Street. This makes addressing bicycle needs within the corridor a concern from a regional standpoint.



Figures 3.26/3.27/3.28/3.29 (Top to Bottom) - Bike Lane at 14<sup>th</sup> and P Streets, looking south/ 14<sup>th</sup> and R Streets, looking east/ 14<sup>th</sup> and P Streets/ 14<sup>th</sup> and R Streets, looking west

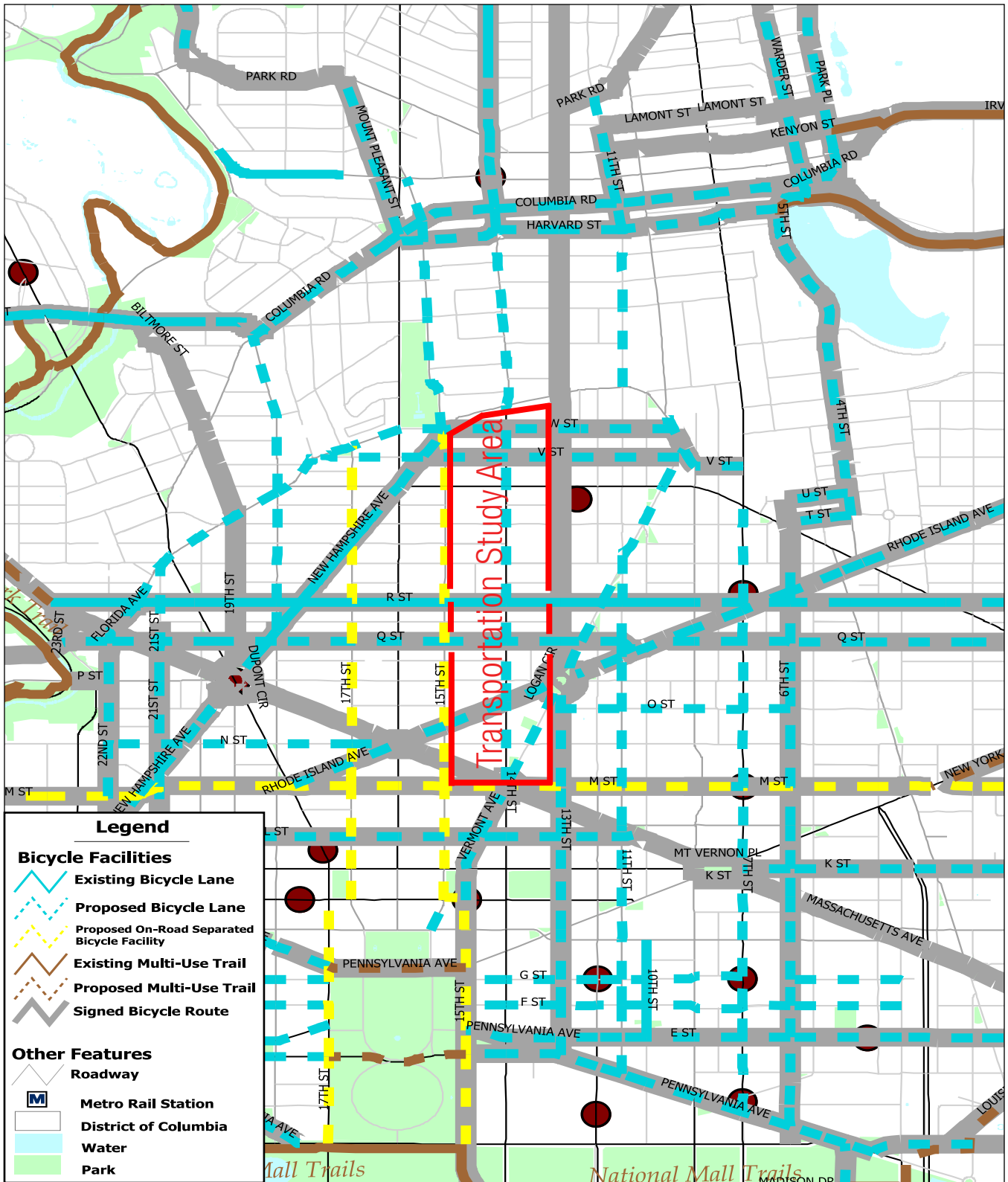


Figure 3.30 - 14th Street within the DC Bicycle Master Plan  
 Source: DDOT DC Bicycle Master Plan

3

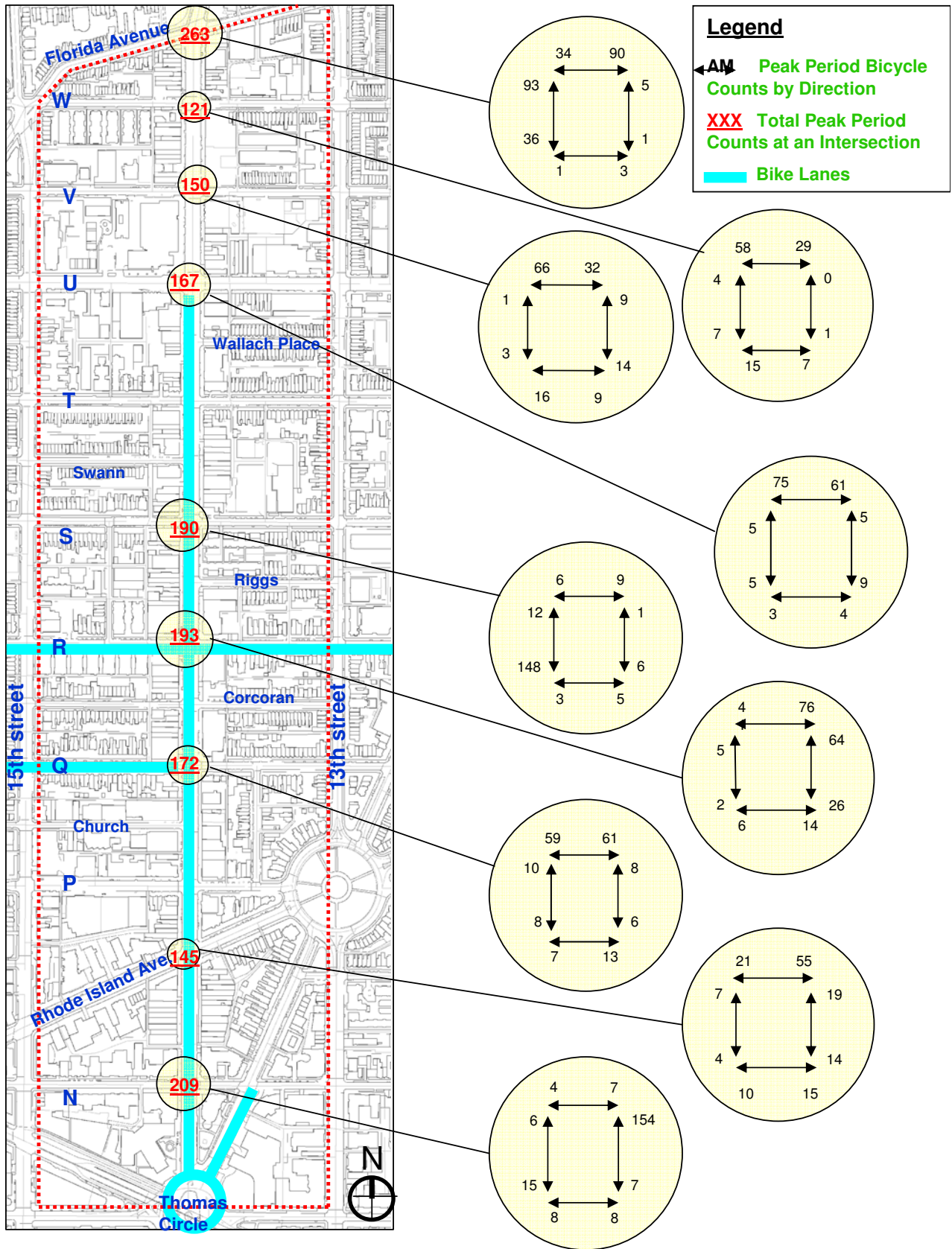


Figure 3.3I - AM Peak Period Bicycle Movements at the Intersections along 14th Street NW



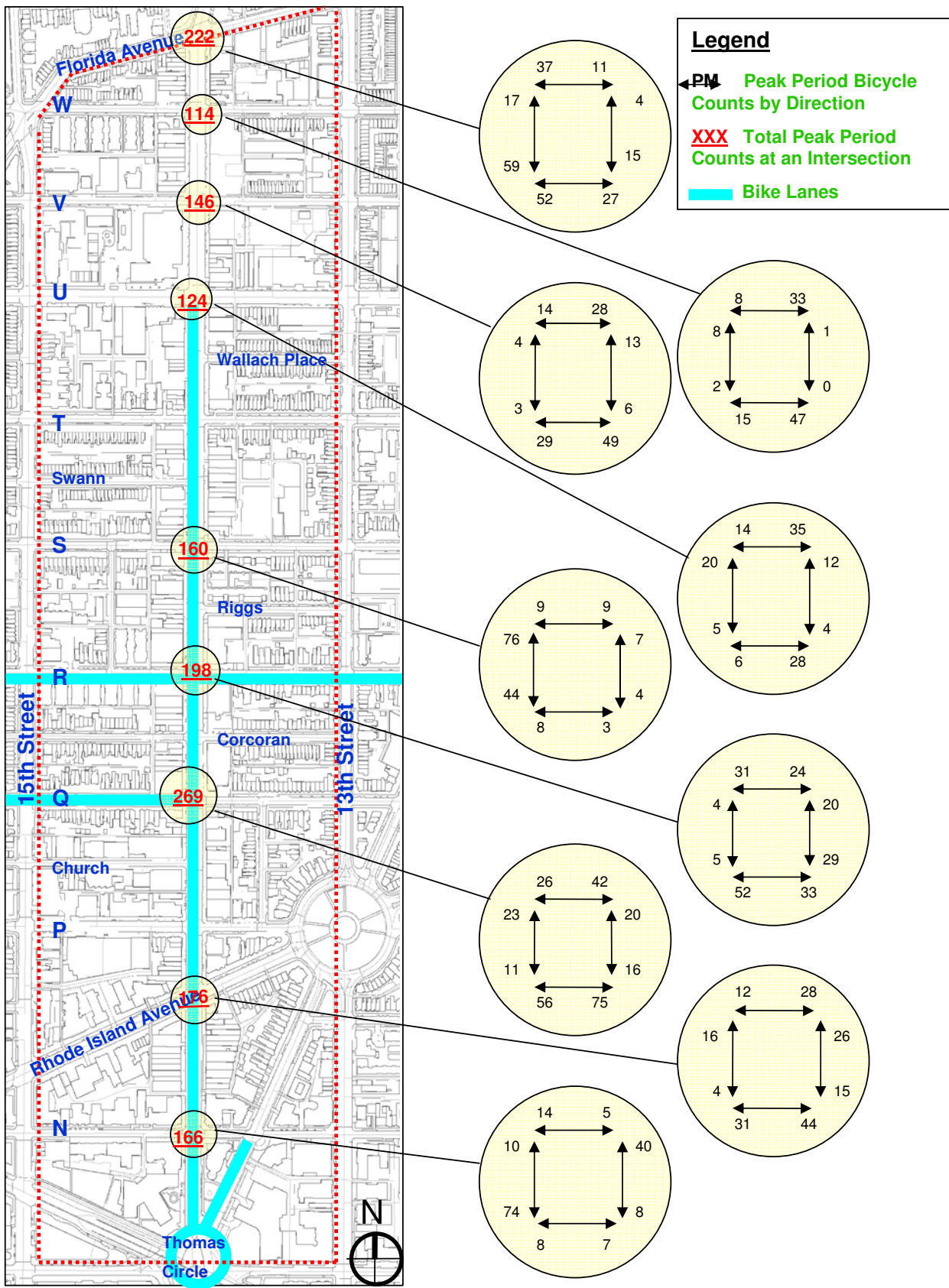


Figure 3.32 - PM Peak Period Bicycle Movements at the Intersections along 14<sup>th</sup> Street NW

## Pedestrian/Bicycle Safety and Accident Data

The 14th Street Corridor has tremendous assets both in terms of pedestrian and bicycle facilities. However, challenges remain in regards to providing a better, safer and improved bicycle/pedestrian environment. The 14th Street corridor has vibrant pedestrian and bicycle activities throughout the day and evening, and an analysis of the land use and demographic data showed continuous growth in the past throughout the study area. As new public and private developments come online, both those programmed and currently underway, vehicular and pedestrian traffic will continue to increase. However, several significant pedestrian, bicycle, and vehicle conflicts already exist in the corridor that warrant further investigation.

Crash data from the District Department of Transportation for the 2-year period from 2003 to 2005 provided useful information including the number, location and characteristics of vehicular and non-motorized crashes within the study corridor. Additional data was taken from the 2000-2006 pedestrian crash data included in the District of Columbia Pedestrian Master Plan.

Although the 14th Street corridor currently has extensive pedestrian and bicycle facilities, it also has issues and challenges which were identified during the field surveys and through the traffic and bicycle/pedestrian safety reviews. As indicated by the crash data and observed pedestrian/bicycle movements, several intersections along the corridor pose a high risk for pedestrian-vehicle conflicts, including U Street, Rhode Island Avenue, and Florida Avenue. The Florida Avenue intersection is also a high-risk intersection for bicyclists, having both the highest volumes and accident rates for bicycles in the study area. At this location in particular, traffic and pedestrian signal timings along with pedestrian/bicycle safety needs warrant further examination.

The study area and the 14th Street corridor in particular lack sufficient bicycle parking and storage facilities. Bicycles are usually chained to parking meters, utility poles, and signs because there are no bike racks nearby. Public safety concerns also affect pedestrian activities along 14th Street. Public safety was ranked one of the top three challenges by attendees in the first public meeting of this study. Residents have expressed concerns about the problem of drugs, panhandlers, and homelessness, particularly along the 14th Street corridor between P Street and Thomas Circle. These problems contribute to the lingering perception that the corridor is unsafe, and safety is one of the most significant deterrents to pedestrian and bicycle activities within the Corridor. While sidewalks along the corridor are generally wide, their quality is uneven and

sidewalk design is inconsistent throughout the corridor.

Pedestrian and bicycle travel will be increasingly important as the area's population grows, traffic congestion worsens and parking shortages intensify. Investments, incentives, and/or programs directed towards increasing pedestrian activities and bicycle ridership could provide travel options for the underage population, for those who do not own cars, and for the population in general, while at the same time decreasing traffic impacts throughout the corridor area.

### Pedestrian Collisions

General observations on pedestrian collisions gathered from the District Department of Transportation database included the following:

- 7% of all traffic accidents involved pedestrians.
- 20% of all pedestrian collisions are hit-and-run.
- The majority of all pedestrian collisions occur in the afternoon and evening hours, particularly between 2:00 p.m. and 8:00 p.m.
- The 2nd leading time period for pedestrian collisions is during the midday between 12:00 p.m. to 2:00 p.m.
- Rhode Island Avenue, U and V Streets were the worst intersections for pedestrian collisions, recording the highest number (4-5) of accidents reported over the 2-year period reviewed. R Street, Church Street, and Riggs Street intersections had no pedestrian collisions reported.
- More than two-thirds of collisions involving pedestrians were straight hits and left turn hits.

The accident data from the Pedestrian Master Plan is represented in Figure 3.38 and revealed the following characteristics:

- Rhode Island Avenue, Florida Avenue, U Street, and V Street have the highest pedestrian volumes and correspondingly the highest number of pedestrian collisions, 5-8 over the 6 year period reviewed.
- Rhode Island Avenue and U Street intersections had the heaviest vehicle traffic movements in the morning and evening rush hours, with U Street intersection also recording the highest pedestrian traffic volume.
- The Rhode Island Avenue and U Street intersections have high east-west vehicle traffic movements in addition to north-south movements. As a result, the conflict between pedestrians and vehicles are the highest at these two intersections.
- The north and west legs of the U Street intersection recorded the highest pedestrian

activity as well as the high vehicle movement making this location a particular concern.

- The intersections at N, P, Q, S, Swan, T, and W Streets, recorded 2-4 pedestrian collisions over the same 6-year period. Vehicle movements along these streets are predominantly in the north-south direction, making crossing 14<sup>th</sup> Street the primary concern at these locations.
- No pedestrian collisions were recorded at R, Church, and Riggs streets for the years reviewed
- In addition, 14th and U streets NW is the second on the list of dangerous pedestrian crossings from 2004 through 2006.

### Bicycle Crashes

While it is generally believed that many bike crashes involving a vehicle are not reported to the police, official records still provide valuable insights and help to identify locations with significant vehicle-bicycle conflicts.

Official crash statistics involving bicycles within the study corridor are shown in Figure 3.39. The following intersections were identified as locations of concern:

- The highest number of bicycle crashes occurred at the intersection of 14th Street and Florida Avenue, with a total of 5 crashes involving bicycles over the 2-year period.
- The intersection of 14th and V streets recorded 3 crashes involving bicycles over the same period
- T Street and U Street intersections each reported two crashes.
- R, S and W Street intersections each recorded a single crash during the 2-year period.

Bicycle conditions at these intersections should be further analyzed to improve safety and overall travel. Further review of the crash data revealed the following general characteristics of bicycle accidents along the corridor:

- 21% of all bicycle collisions are hit-and-run.
- The majority of collisions occur in the p.m. peak, between 3:30 p.m. and 7:30 p.m.
- The 2nd leading time period for bike crashes is during the midday, between 10:00 a.m. and 3:30 p.m.
- There are more bike accidents during the week than on weekends.
- Most accidents occur in the summer months.
- ‘Right angle’ collisions occurred most often, and then second highest collision types were ‘Straight hit pedestrians’.



Figure 3.33 - Top, Capitol Hill neighborhood



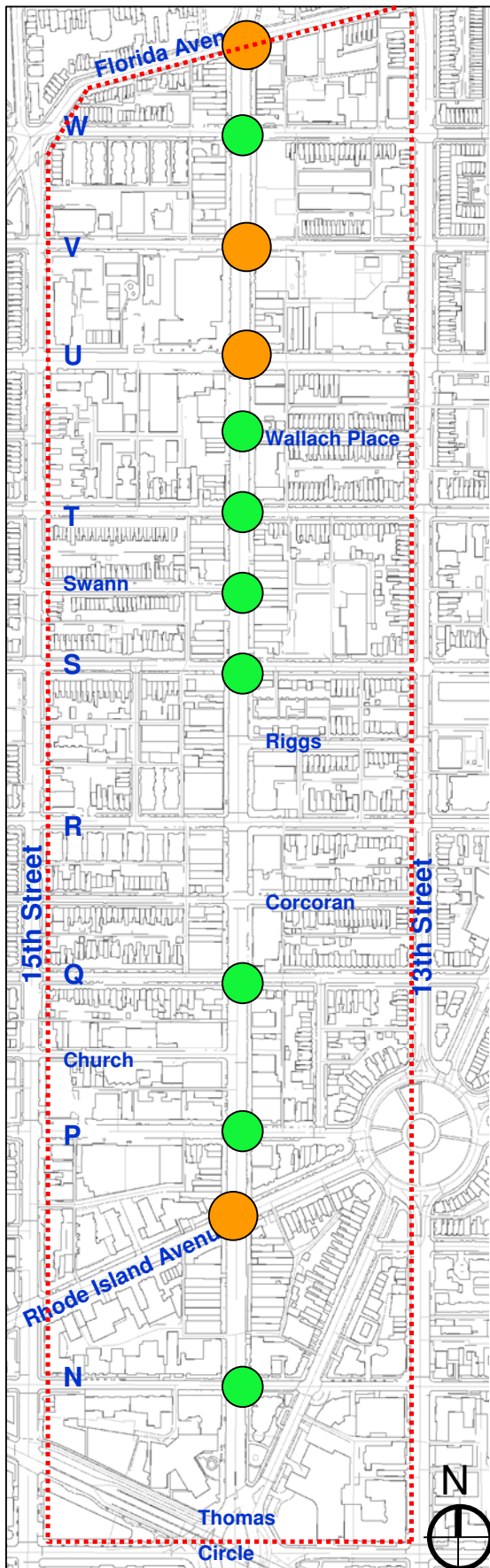
Figure 3.34 - Example of Pedestrian Friendly Environment



3



Figure 3.35/36/37 (top to bottom)  
- Bike Rack between R and S Street,  
Tree Box Used as Bike Rack on  
14th Street, Current End of 14th  
Street Bike Lane at Wallach Place



**Legend:**

- 2-4 Crashes
- 5-8 Crashes

Figure 3.38 - Pedestrian Accidents along 14th Corridor (2000-2006)



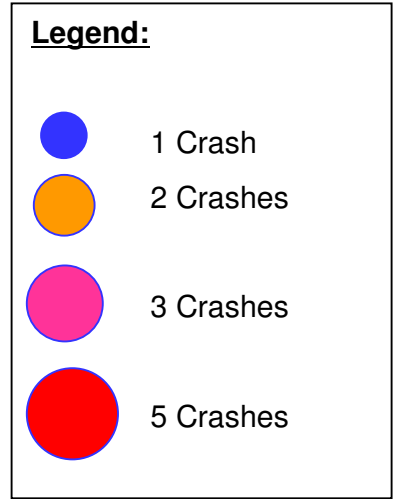
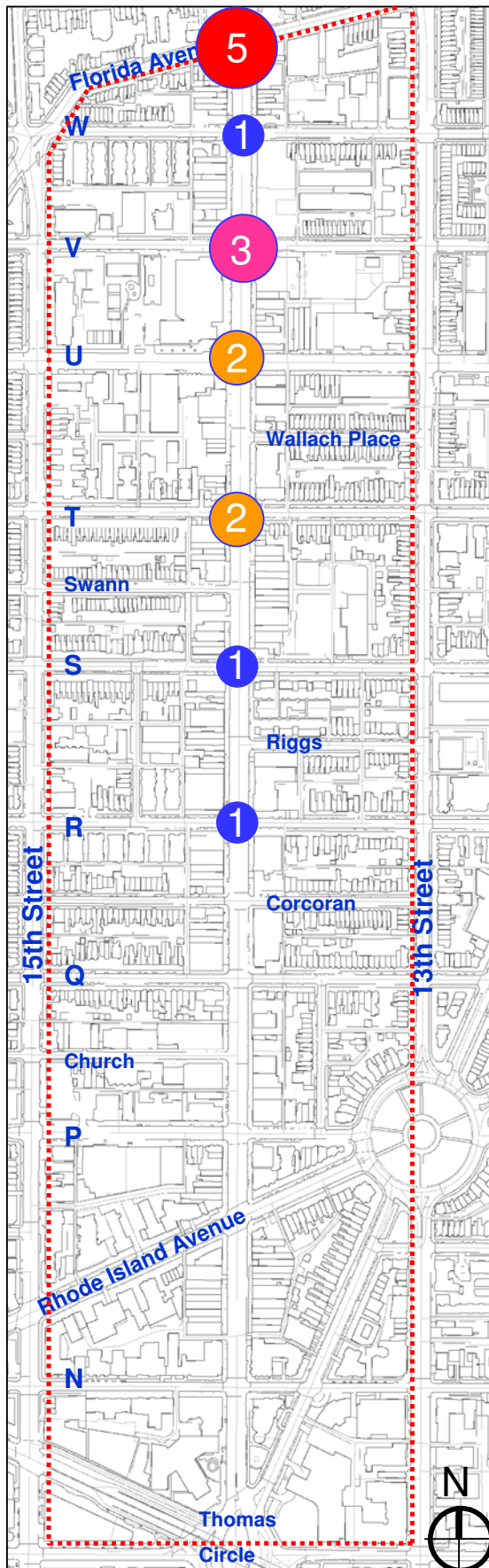


Figure 3.39 - Bicycle Accidents along 14th Corridor (2002-2004)



## Pedestrian, Bike, and Transit Connectivity

### Pedestrian and Bike Connections

Important trip origin and destination points, such as Metrorail stations, academic and cultural facilities (universities, schools, churches, and theatres), recreation centers, museums, higher density residences, and employment centers should become a part of the larger pedestrian/bike network, and could enable pedestrian and bicycle travel to become an attractive transportation mode. This would necessitate creating an aesthetically pleasing public realm and transportation routes that are safe and convenient for pedestrians and cyclists.

### Sidewalk Expansion

Expansion of sidewalks could ease the pedestrian movement and provide additional space for “spill out” activities. However, the challenge lies in balancing the sidewalk expansion with the needs of vehicles and transit.

### Bike Lane Improvements and Bike Parking Facilities

Although designated bike lanes are tremendous assets in the study area, there are conflicts between bicycles and motorized vehicles such as buses and trucks, which block the bike lanes. Design options should be considered to provide visual deterrent for blocking the bike lanes. Bike parking facilities are much needed at major activity nodes such as U street and Rhode Island Avenue, as well as along the corridor.

### Bike-Transit Transfer Enhancements

Because bicycle travel serves as a crucial feeder system to transit services, enhancements to the local bike-transit transfers are important ways of encouraging more people to ride transit. More bicycle amenities on Metro buses, under WMATA’s Bike-‘N-Ride program and at bus stops (Figure 3.40) are needed. Currently, the lack of existing secure bike lockers at bus stops prevents many cyclists from riding their bike to work.

## Summary

The 14th Street Corridor has tremendous assets in pedestrian and bicycle facilities, while there are also issues and challenges for better, safer and improved bike/



Figure 3.40 - Bike-Bus Transfer as Part of WMATA’s Bike-n-Ride Program (WMATA)

pedestrian services along the corridor. The 14th Street corridor has vibrant pedestrian and bicycle activities throughout the day and evening. As projected public and private developments come on-line, both vehicular and pedestrian traffic will increase. A combination of traffic calming measures, changes in pedestrian signal timing, and design improvements could reduce the number of future pedestrian-vehicular conflicts within the Corridor.

The land use and demographic analysis reveals continuous growth along the corridor. The higher-density developments fronting the corridor and growth of retail and commercial activities will increase pedestrian traffic considerably, necessitating a better pedestrian environment throughout the corridor. If the Corridor is to truly become a neighborhood-oriented commercial area, then pedestrian and bicycle needs must become a priority. This will allow neighborhood amenities to become more accessible. Proposed enhancements to bicycle routes throughout the District, together with additional public realm improvements, sidewalk expansions, bike lane designations, and bike-transit transfer enhancements can create a more pedestrian and bicycle friendly environment.

Although the 14th Street corridor has tremendous assets in pedestrian and bicycle facilities and services, it also has some issues and challenges, which are identified based on field surveys and observations, traffic data collected, and safety data compiled and analyzed. As shown by the accident data and the pedestrian/bicycle movement patterns, several intersections along the Corridor pose the risk for pedestrian-vehicle conflicts, including U Street, Rhode Island Avenue, and Florida Avenue.

The Florida Avenue intersection is also a high-risk intersection for bicycle, with the highest bicycle volume and bicycle accidents. Traffic signal timing, pedestrian signal timing, and pedestrian/bicycle safety considerations needed to be examined in much detail to improve the intersection.

Pedestrian and bicycle travel will be increasingly important as the area's population grows and congestion and shortage of parking increases. Provision of bicycle, parking, and storage facilities, addressing real and perceived safety issues, and improving the sidewalk conditions and design are all issues to consider for improving the non-motorized travel experience in the corridor. Investments, incentives, and/or programs directed towards increasing pedestrian activities and bicycle ridership will provide important travel options for the underage population, for those who do not own cars, and for the population generally, while at the same time decreasing traffic impacts throughout the Corridor area.

# Transit Services

As a multi-modal transportation corridor, 14th Street has a great deal of assets in transportation infrastructure and particularly transit facilities. However, as the corridor grows, the needs for improved transit services also increases. In addition, intermodal connectivity is critical for an efficient transportation system in the study area. Opportunities to improve transit services include better transfers between bus services and between bike and bus services, provision of real transit time, better transit linkages, access and coordination with all transit services, updated routing, improved travel times, and safer, cleaner, and more comfortable buses and bus stops.

The study area has two of the busiest bus routes in the city and is within walking distance to several Metro stations. Two intersection areas—U Street/14th Street and P Street/14th Street—are critical nodes for improving public realm such that multi-modal conflicts among pedestrian, buses, and automobiles should be minimized and easier bus-bus transfers are maximized. Approximately half of the Metrobus stops provide shelters, and in general, these shelters are in good condition. Conflicts among buses stopping, use of bicycle lanes, and automobile movements were also observed throughout the corridor.

The 14th Street corridor is a multi-modal transportation system, and transit plays an important role in allowing people the necessary access to residential and business uses. This section documents the existing transit services and how well the services meet the current needs. It focuses on various components of transit services (Metrorail and Metrobus) and identifies areas of deficiencies based on stakeholder interviews, community comments and field reconnaissance.

## Existing Services

### Metrobus Corridors

As shown in Figure 3.41, 14th Street is a major Metrobus corridor, directly served by Metrobus routes 52, 53, and 54 on 14th Street. Crossing 14th Street, Metrobus Line U Street-Garfield (#90, 92, 93), East Capital-Cardozo Line (#96), Adam Morgan-U Street Line (#98), and Benning Road Line (X3) all run on U Street. Metrobus Line P Street - LeDroit Park (G2) runs on P Street across 14th Street.

Routes 52, 53, and 54 are a major north-south Metrobus route through the District, running primarily on 14th Street and connecting the corridor to Takoma Park and Columbia Heights stations in the north and to downtown and the L'Enfant Plaza Station in the South.

The 90, 92, and 93 routes connect the 14th Street corridor to Woodley Park/National Zoo, Adams Morgan and



3

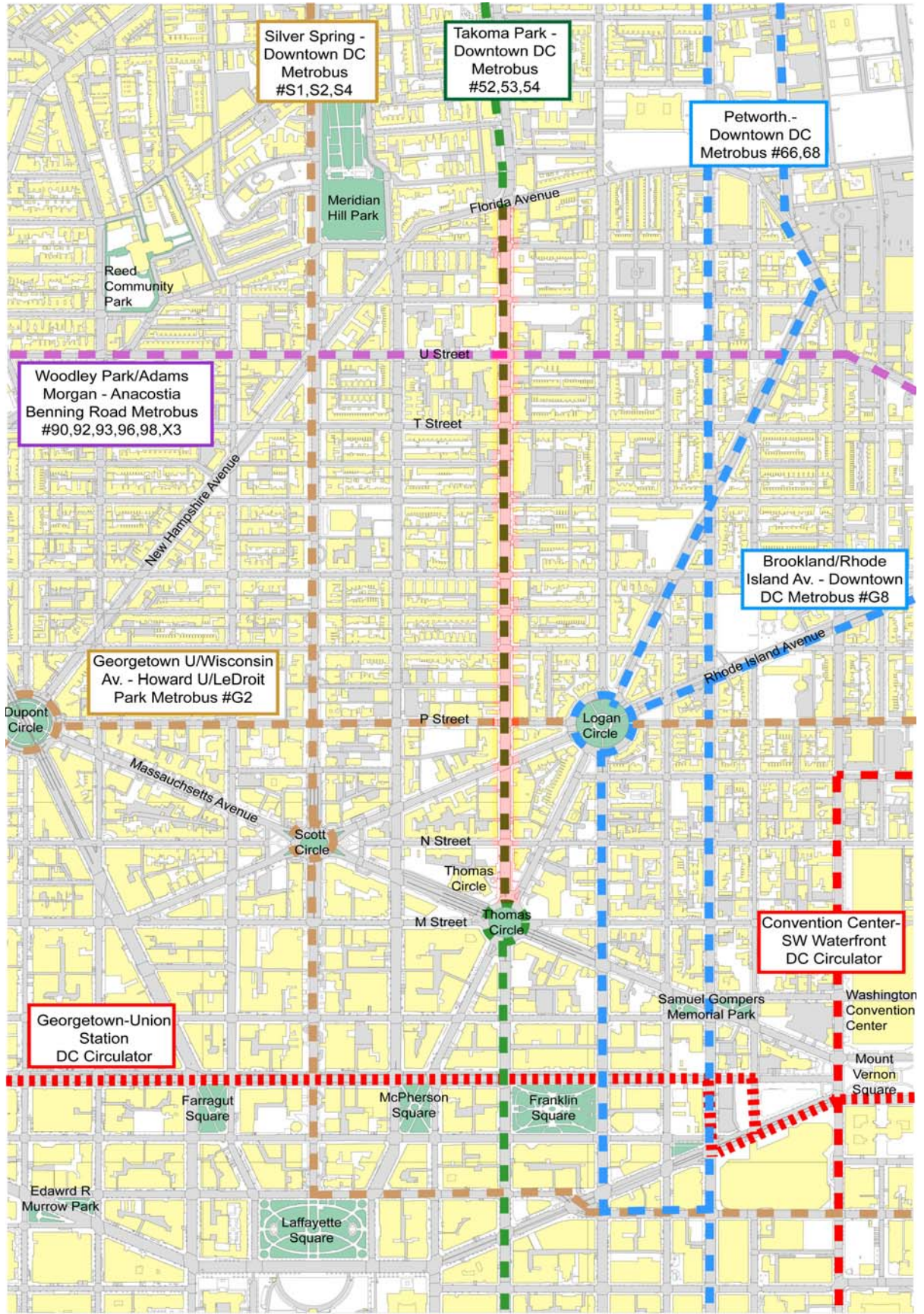


Figure 3.41 - Transit Routes along 14<sup>th</sup> Street Corridor



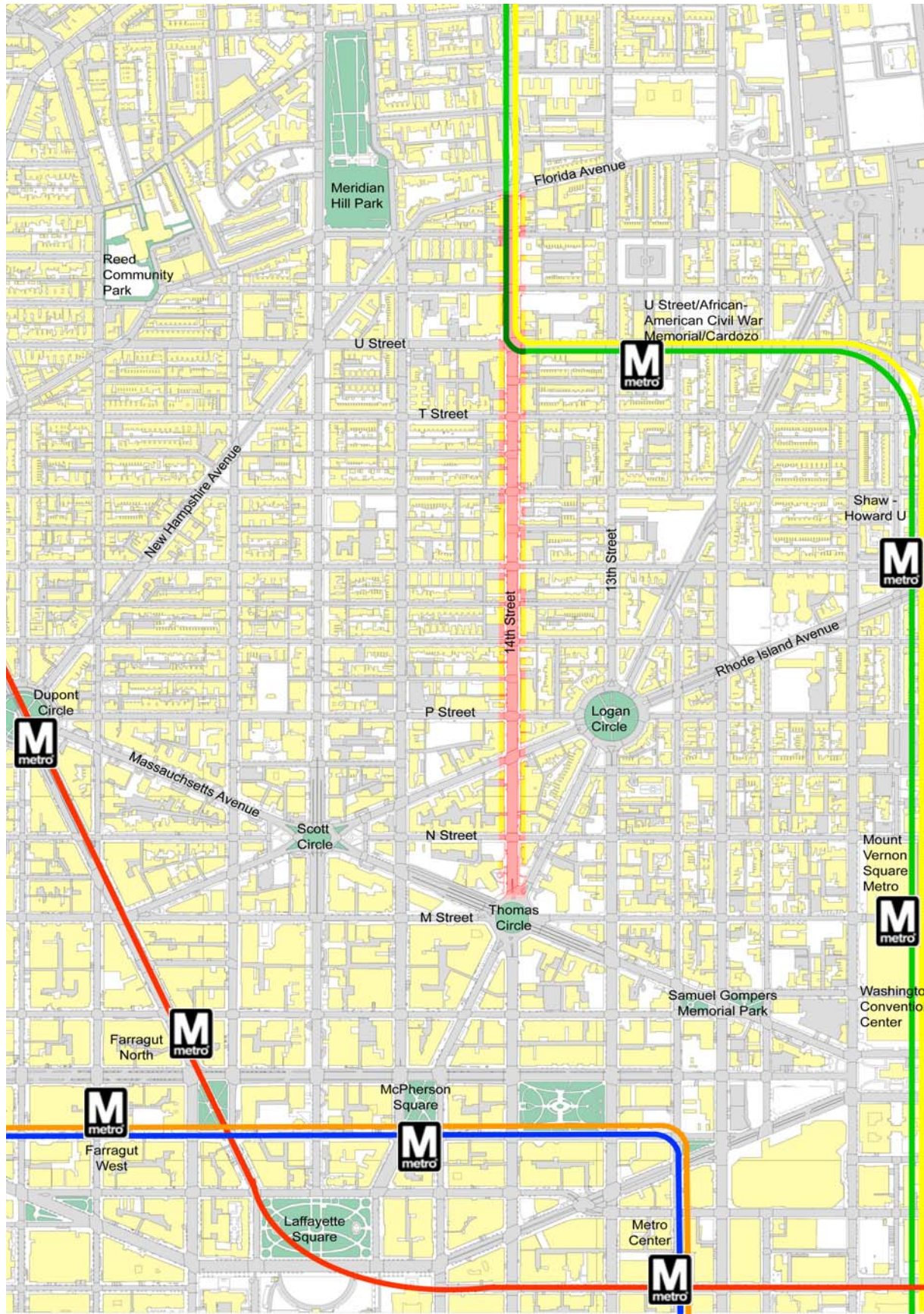


Figure 3.42 - Proximity to Metro Stations



McLean Gardens in the west, and Howard University in the east, Capitol Hill/Eastern Market and the areas east of the Anacostia River in the south. The X3 Metrobus route travels between the Minnesota Avenue Metrorail Station and McLean Gardens in northwest Washington, DC.

Metro Route 98 primarily serves U Street, connecting Florida Avenue in the east and Woodley Park/National Zoo in the west. Metro Route 96 extends in the southeast-northwest direction, from Capitol Heights Metro station to McLean Gardens. It connects the 14th Street corridor with Benning Road station, Stadium-Armory station, D.C. General Hospital, Capitol Hill, Union Station, Adams Morgan, Woodley Park-Zoo/Adams Morgan station, Washington National Cathedral, and McLean Gardens.

Traveling east-west on P Street, Metrobus G2 connects the 14th Street corridor with Howard University, LeDroit Park, Dupont Circle, Georgetown, and Georgetown University.

### Frequency of Service

The 14th Street Metrobus line has an excellent frequency of service, with about 5 minute headways during the peak hours and 10-20 minute headways during the off-peak hours. Weekend service averages 15 minute headways.

Metrobus Line U Street-Garfield (#90, 92, 93) also has very good frequency of service, with less than 10 minute headways during the peak hours and 10 minute headways during the off-peak hours. Weekend service averages 15 minute headways.

East Capital-Cardozo Line (#96) provides less frequent services, having 20 minute headways during the peak

hours and 30 minute headways during the off peak hours. During the weekend, the headways average 35 minutes.

Adam Morgan-U Street Line (#98) offers frequent services during evening and night on weekdays, with headways being about 10 minutes. On Saturday, the service starts at 10 a.m. in the morning and ended at 3 a.m. on Sunday morning, with 10-minute headways.

G2 has good frequency of service during the rush hours, averaging 10 minutes for the morning peak and 15 minutes for the evening peak. The off-peak headways usually are 30 minutes. Weekend headways are about 30 minutes as well.

X3 is a commuter service bus with inbound service during the morning rush hours and outbound service during the evening rush hours. The headways range from 15 to 30 minutes.

### Metro Ridership

The 14th Street Metrobus line (#50,52,53) is one of the busiest in the Metrobus system, carrying approximately 14,000 boardings on an average weekday in 2006. Even during Saturday, its boardings still averaged 8,900 a day. Metrobus Line U Street-Garfield (#90, 92, 93) also shows high demand with 14,000 boardings on a weekday, and 9,800 on Saturday. East Capital-Cardozo Line (#96, #97) has moderate bus ridership with approximately 4,000 boardings on a weekday. Benning Road Line (X1, X3), a commuter bus line, totaled 1,300 boardings a day. The evening service bus #98 has the fewest boardings, averaging less than 200 on a weekday. Overall, the U street corridor Metrobus lines carried approximately 20,000 boardings on an average weekday.

# 3



Figure 3.43 - Bus Shelter on 14<sup>th</sup> Street near P Street



Figure 3.44 - Bus Shelter on 14<sup>th</sup> Street near U Street



### Transit Accessibility

The study area is highly accessible to transit as shown in Figure 3.41/2. The entire study area is within a six-minute walk (a quarter mile radius) of Metrobus stops, with seventeen bus stops on I4th Street, three stops on U Street and five bus stops on P Street in the study area. U Street metro station along the Green and Yellow metro line, located just outside the study area, is within a quarter mile radius of the north section of the study area north of R Street. Except for a small section along P Street and Rhode Island Avenue, the study area is within ten-minute walk (half-mile radius) of six metro stations, including U Street, Shaw-Howard University, Mt Vernon Square, McPherson Square, Farragut North, and Dupont Circle.

### Means of Transportation for Commuting

Transit is a major means of transportation to work for the resident workers in the study area. Based on the 2000 Census data, one-third of commuting workers in the study area used Metrobus or Metrorail for commuting to work (Figure 3.45). In particular, 21 percent chose Metrorail for commuting, while 11 percent rode Metrobus to work. There was greater transit usage in the north part of the study area than in the south, where walking to work was much more popular than in the north.

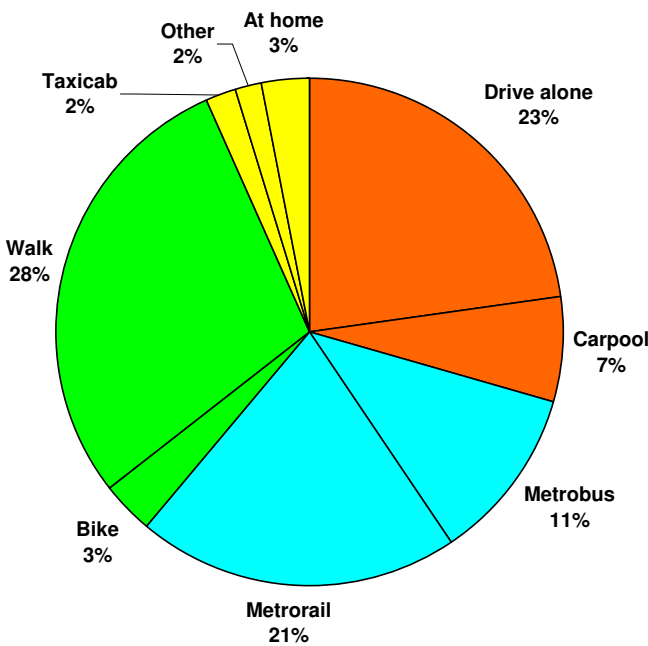


Figure 3.45 - Transit Commuters in the study area (Data Source: Census 2000)

### Bus-Bus Transfers

Significant bus-bus transfers occur between the three major bus corridors within the study area: the I4th Street bus corridor, the U Street corridor, and P Street corridor. Two intersections in particular—U Street/I4th Street and P Street/I4th Street—are critical nodes with significant multi-modal conflicts among pedestrian, buses, and automobiles. The current arrangement is less than adequate and warrants further consideration in order to minimize conflicts and ensure that bus-bus transfers are maximized.

### Bike-Bus Transfers

The study area has a number of bike facilities and significant bicycling activities, and the role of bicycling will continue to rise due to future growth. A lack of connectivity exists between bicycle and bus due to a lack of secure bike parking and storage facilities, as well as the limited bicycle amenities provided on buses under the WMATA’s Bike-‘NRide program. This program allows cyclists to load their bikes on racks attached to the front of Metro buses, with no day or time restrictions.

### Bus Shelters and Stops

Approximately half of the Metrobus stops provide shelters, and in general, these shelters are in good condition (Figure 3.43). However, graffiti and litter were observed in a few locations (Figure 3.44). Conflicts among bus stopping, use of bicycle lanes, and automobile movements were also observed throughout the corridor. For example, the conflict is particularly obvious at P Street, west of I4th Street, where two bus stops are closely located on both sides of the street, often blocking traffic and raising safety concerns.

# Parking

Parking is one of the major transportation issues and concerns on the 14th Street corridor. Individuals that access the 14th Street corridor need to make choices on whether their access will be motorized, non-motorized or by way of public transit. The availability of on-street and off-street parking is an important factor as to how individuals will decide to access 14th Street. Congestion plays an important part in the safe and efficient operations of the corridor, and also determines how individuals will access the corridor. Overly congested streets will dissuade people from driving and looking for a parking spot.

The supply of parking spaces in the study area is in a variety of forms, including on-street parking meters, surface parking lots, residential permit parking, and parking garages. On-street parking meters and residential permit parking programs are two major public parking options in the study area, with approximately 200 parking meters and 1,100 on-street spaces. Surface parking lots and parking garages are mostly private in the study area, with about 2,600 parking spaces. The demand for parking on 14th Street is high, as demonstrated by high parking utilization of public parking spaces.

This section describes the current parking conditions on the corridor, including the amount of parking, utilization, and location. The existing parking conditions provide the baseline for estimating projected parking demand and potential strategies for better managing parking needs. A strategy to develop a parking demand management program would encourage the efficient use of the existing transportation system and provide for the needs of commuters, shoppers, businesses and residents.

## Restrictions

Primary parking regulations in the study area include Residential Parking Permit for Zones 1 and 2, meters, timed parking, no parking zones, loading zones, and taxi stands, as shown in Figure 3.46. On-street parking is generally available along both sides of 14th Street and cross-streets throughout the day. Along the residential side streets, most parking is subject to Residential Parking Permit (RPP) restrictions. The RPP program is designed to ensure that residents have parking and tourists and visitors do not monopolize parking. The RPP parking zones correlate with the District's eight wards and is clearly indicated with red and green signs. The zone system limits parking to two hours between 7:00 a.m. and 8:30 p.m. on weekdays for motorists who do not live in that zone. The District Department of Motor Vehicles issues these permits while the Department of Motor Vehicles and other agencies enforce the zone restrictions. DDOT provides maintenance, signage and policy regulation.

Figure 3.46 also shows the locations of available truck loading zones and their use restrictions. Truck loading zones are designated in seven places along the 14th street corridor. They are generally in effect from 7:00 a.m. to 6:30 p.m., Monday through Friday, and vary in size from one- to four-car lengths. Some loading zones are also in effect on Saturday. Double parking while making deliveries was observed at different locations along the corridor, for example between Wallach Place and U, between W Street and Florida Avenue, between N Street and Church Street, and on U Street east of 14th Street.

**Legend:**

**Primary Regulation**

- █ Residential Zone 1
- █ Residential Zone 1/2
- █ Residential Zone 2
- █ Meters
- █ Mixed
- █ Timed
- █ No Parking
- █ Unregulated
- Taxi Stands

18 On-Street Parking Spaces

★ Loading Zone (7:00 am-6:30 pm, M-F)

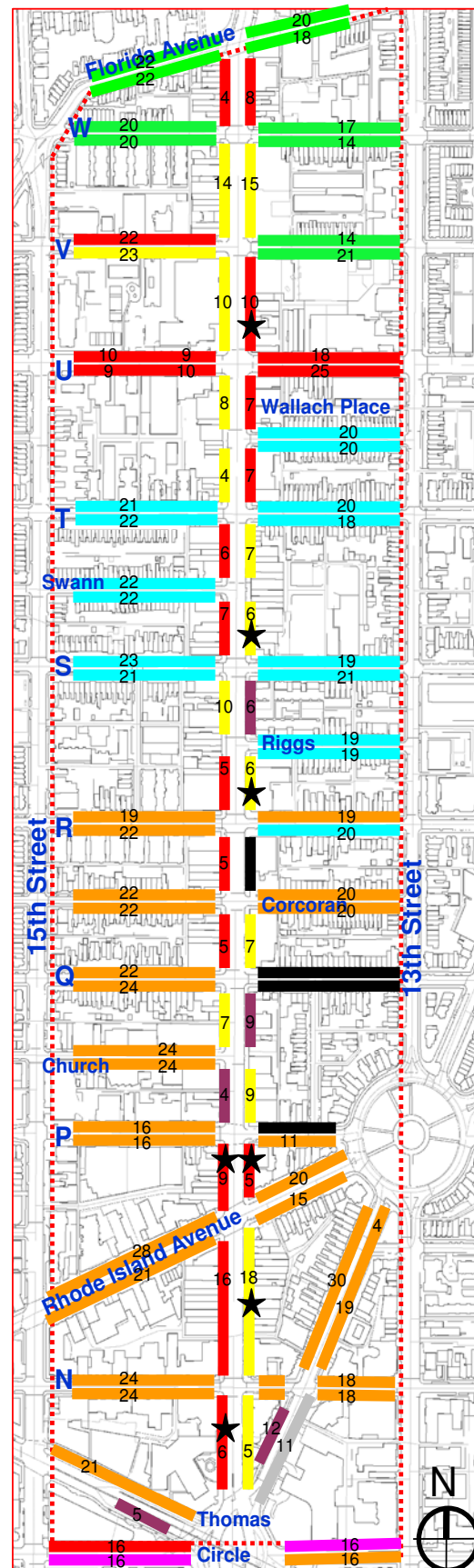
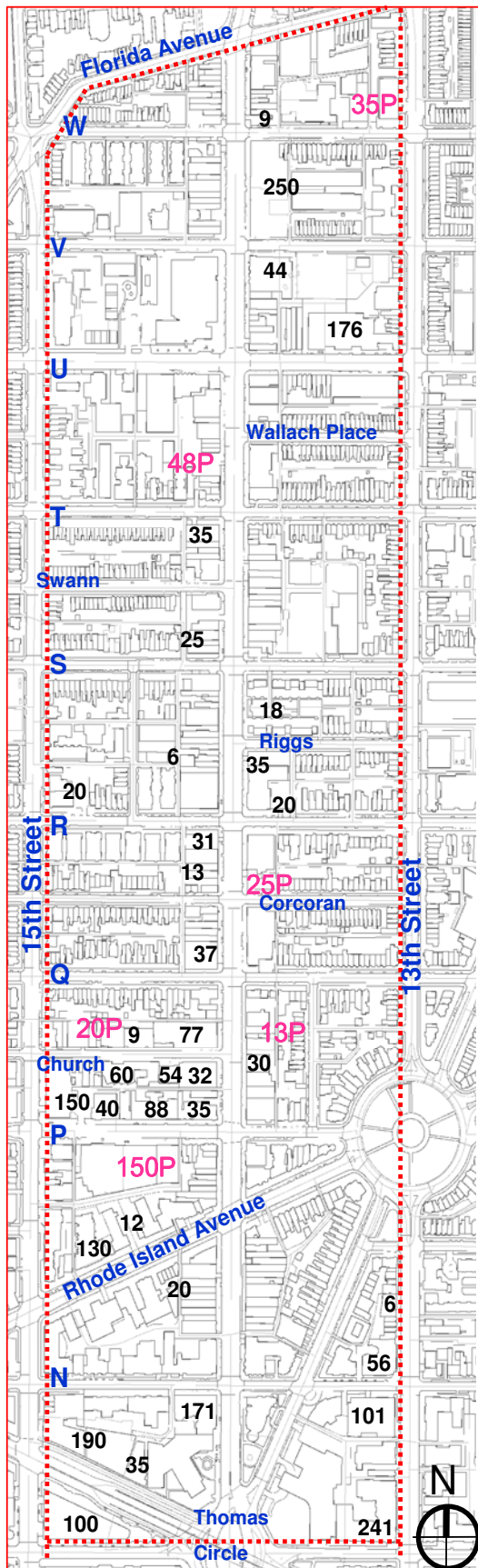


Figure 3.46 - Existing On-Street Parking Regulation within the Corridor



Parking

3



**Legend:**

- 18 Off-Street Parking Spaces
- 48P Public Parking Spaces

Figure 3.47: Off-Street Parking Facilities and Spaces in the Study Area

Over 20 agencies are authorized to write parking tickets on behalf of the District Government, including the U.S. Capitol Police, the U.S. Park Police, Washington Metropolitan Area Transit Authority Police, DC Department of Public Works (DPW), Metropolitan Police Department, and the US Mint. DPW issues citations for parking violations at metered street locations and in residential parking areas. Parking violation charges start at \$17.00 and can be as high as several hundred dollars for parking illegally. Parking violations were observed in the corridor, including parking in no parking zones, bus zones, and no standing zones.

## Inventory

A parking inventory survey was conducted of existing on-street and off-street parking in the study area, including on-street parking meters, off-street surface parking lots, residential permit parking, and off-street parking garages. Figure 3.46 shows on-street parking spaces, including parking meters, residential permit parking, and unregulated parking spaces, while Figure 3.47 shows the location and spaces of off-street parking facilities, including surface parking lots and garages.

## On-Street Parking

On-street parking meters and residential permit parking programs are two major public parking options in the study area. On-street parking on 14th Street is predominantly metered and in effect until 6:30 p.m., Monday through Friday. Parking meters generally take effect starting at 7:00 a.m. After 6:30 p.m., on weekends and holidays, on-street metered parking is free. The meter decals indicate meter rates, time limits, and effective hours. Meter parking rate is generally 50 cents per hour, lower than the city average meter rate of 0.69 cents per hour. Between Corcoran and S Street, parking meter rates are \$1 per hour. Vehicles with DC-issued handicap license plates or placards can park free for twice the indicated meter time along the corridor. The 14th Street corridor from Thomas Circle to Florida Avenue has approximately 200 parking spaces.

## On-Street Parking on Cross-Streets

Most of the on-street parking along the cross-streets, from N Street to Florida Avenue is governed by the Residential Parking Permit program. The study area includes both Residential Parking Permit Zone 1 and Zone 2. Generally, one residential street has about 20 spaces on each side of the street. In total, cross-streets in the study area provide over 1,100 residential parking spaces within one block of 14th Street as shown in Figure 3.46.

## Off-Street Parking

Off-street parking is available in the form of surface parking lots and parking garages in the study area. Approximately 2,600 parking spaces, these facilities are mostly private, only accessible to customers, tenants, and guests. For example, the Whole Foods Market on P Street provides its customers with a parking garage of about 150 parking spaces. Condominiums, lofts, and apartment buildings often built their own parking facilities, such as The Metropole, Lofts 14, and Union Row. Most surface lots are small privately-run lots, which typically close after 8:00 p.m. Public structured parking is non-existent, with metered spaces available in the Reeves Building on U Street only during non-business hours and weekends.

Parking provision requirements in the DC municipal regulations may be used in future assessments of parking requirements in the 14th Street corridor. The DC Municipal Regulations specifying the parking goals for the 14th Street corridor are summarized in Table 3.20.

Table 3.20 DC Municipal Parking Regulations for 14th Street Corridor

Development Type	Parking Allocation
Residential	Average of 2 Spaces per 2.5 Households
Retail	1 Space per 750 Square Feet
New Office Space	1 Space per 1200 Square Feet
Auditorium (or Similar)	1 Space per 10 seats
Hotel	Varies (based on rooms rented/weekday)

## Utilization

### On-Street Parking Occupancy and Turnover

Field surveys were carried out to collect data on parking occupancy, parking violation, and turnover for on-street parking in the study area. These parking surveys were conducted on forty-eight block faces in the study area, in the following four representative periods:

- Weekday mid-day,
- Weekday evening,
- Weekend mid-day, and
- Weekend evening.

Figure 3.48 shows weekday parking occupancy by block faces by time periods, while Figure 3.49 shows weekday parking turnover by block faces and by

time periods. Similarly, weekend parking occupancy and turnover by time periods and by block faces are shown in Figure 3.50 and 3.51, respectively.

As a comparison, average occupancy rates are typically 70% in the City, based on a recent DDOT-sponsored survey. Occupancy rates in a range between 80% and 90% were recommended to be the desired, optimum occupancy rates in the District of Columbia. Any occupancy rate above this range indicates too high demand and an unacceptable level of parking. An occupancy rate below 70% is an indication that the parking facilities are not well utilized.

The survey results indicate the following parking utilization characteristics in the study area:

- Weekday mid-day parking occupancy was found to be high along 14th Street; 18 block faces along 14th Street had high parking occupancy rates (more than 90% parking occupancy) and 13 block faces along 14th Street were in the medium occupancy level (between 70% and 90%). Parking occupancy rates were especially high around U Street and between Rhode Island Avenue and S Street, with parking spaces fully occupied. On the side streets (U Street, P Street, and Rhode Island Avenue), 6 block faces were in the high occupancy category, 7 block faces in the medium occupancy level, and one in the low occupancy level. Three block faces had no parking or were blocked for construction.
- Average parking occupancy was found to be lower along 14th street in a weekday evening period than in a weekday mid-day period. Only 8 block faces along 14th Street had high parking occupancy rates, 20 block faces in the medium parking occupancy, and 3 block faces in the low parking occupancy level (below 70%). Parking occupancy rates are especially high between S and T Street and around P Street. Side streets showed different patterns—5 high occupancy block faces on Rhode Island Avenue, P Street, and U Street east of 14th Street, which reflected evening activities or residential nature of the streets. Five block faces on side streets showed low parking occupancy rates in a weekday evening, more block faces than on a weekday mid-day.
- On a weekday mid-day, 15 block faces along 14th Street had high parking turnover rates (more than 70% parking turnover), 13 block faces in the medium parking turnover category (between 30% and 70% parking turnover), and 3 block faces in the low parking turnover category (less than 30% parking turnover).

Parking turnover rates were especially high on the west side of 14th Street between Q and T Street. On the side streets, 5 block faces were in the high parking turnover category and 9 block faces in the medium turnover level.

- Average parking turnover was found to be lower along 14th Street in a weekday evening period than in a weekday mid-day period. Only 9 block faces along 14th Street had high parking turnover rates, 19 block faces in the medium parking occupancy, and 3 block faces in the low parking turnover level. Parking turnover was especially low in the blocks between S and T streets in the evening, compared with those between R and S streets in the mid-day.
- Weekend mid-day parking occupancy along 14th Street was found to be higher than a weekday mid-day; 21 block faces along 14th Street had high parking occupancy rates and 11 block faces along 14th Street were in the medium occupancy level. Parking occupancy rates were especially high around U Street and between Thomas Circle and Q Street, with parking spaces fully occupied. On the side streets, 10 block faces were in the high occupancy category and 4 block faces in the medium occupancy level.
- Average parking occupancy was found to be even higher along 14th street in a weekend evening period than in a weekend mid-day period; 23 block faces along 14th Street were in the high occupancy category and 9 block faces in the medium parking occupancy level. Like a weekday evening, parking occupancy rates were especially high between S and T Street and around P Street, where evening activities were concentrated. Side streets also showed high parking occupancy rates—12 high occupancy block faces and only two block faces with medium parking occupancy rates in a weekend evening, more than those in a weekday evening.
- Not surprisingly, weekend parking turnover rates were low because of no parking duration limitation on a weekend. Only two block faces were found to be in the high turnover category in a weekend mid-day period, and none was found in a weekend evening. In contrast, 15 block faces along 14th Street and 4 side-street block faces had low parking turnover rates in a weekend mid-day, while 12 block faces along 14th street and 6 side-street block faces were found to be in the low parking turnover category in a weekend evening.



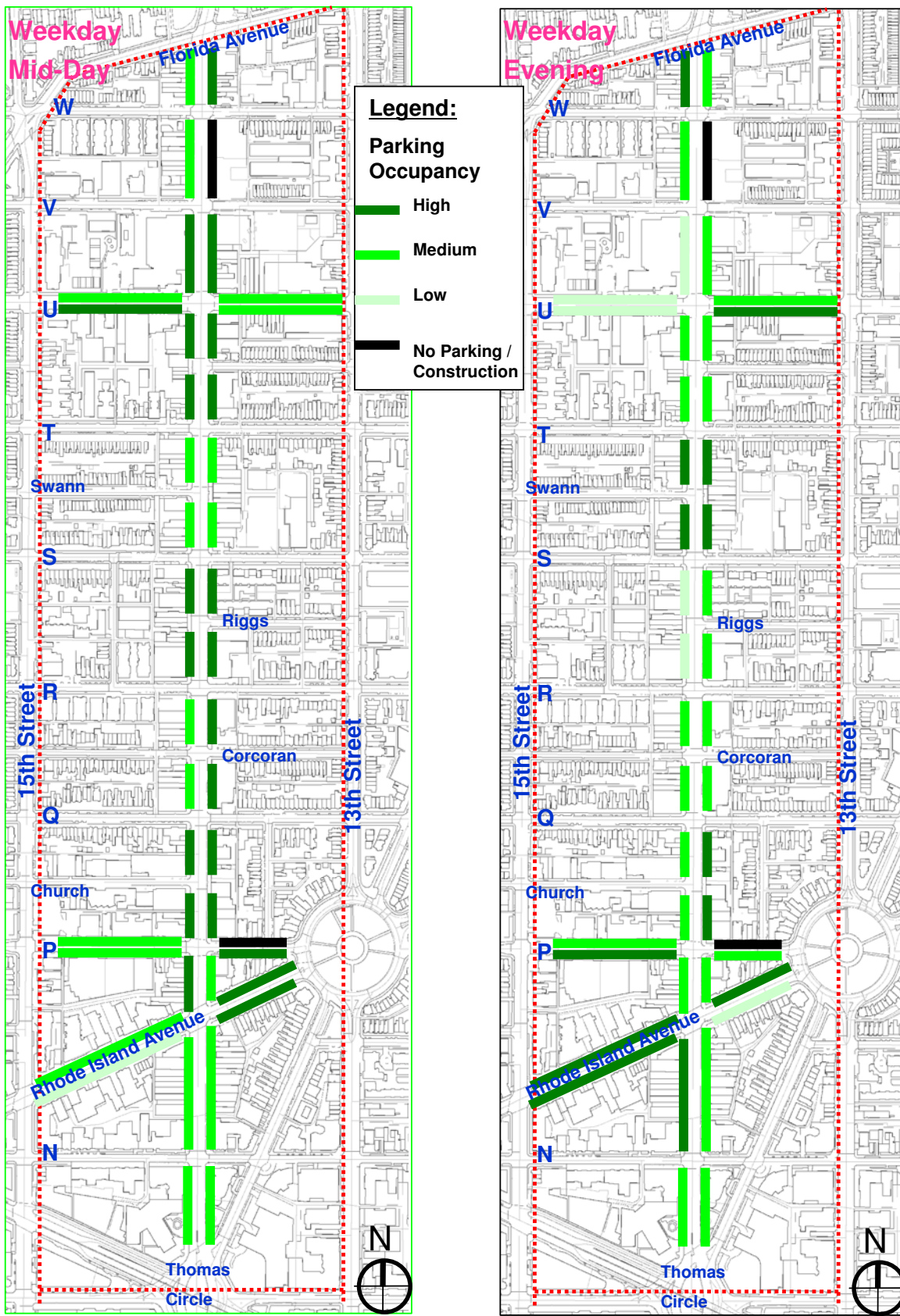


Figure 3.48 - Weekday Parking Occupancy by Block Faces and by Time Periods

Parking

3

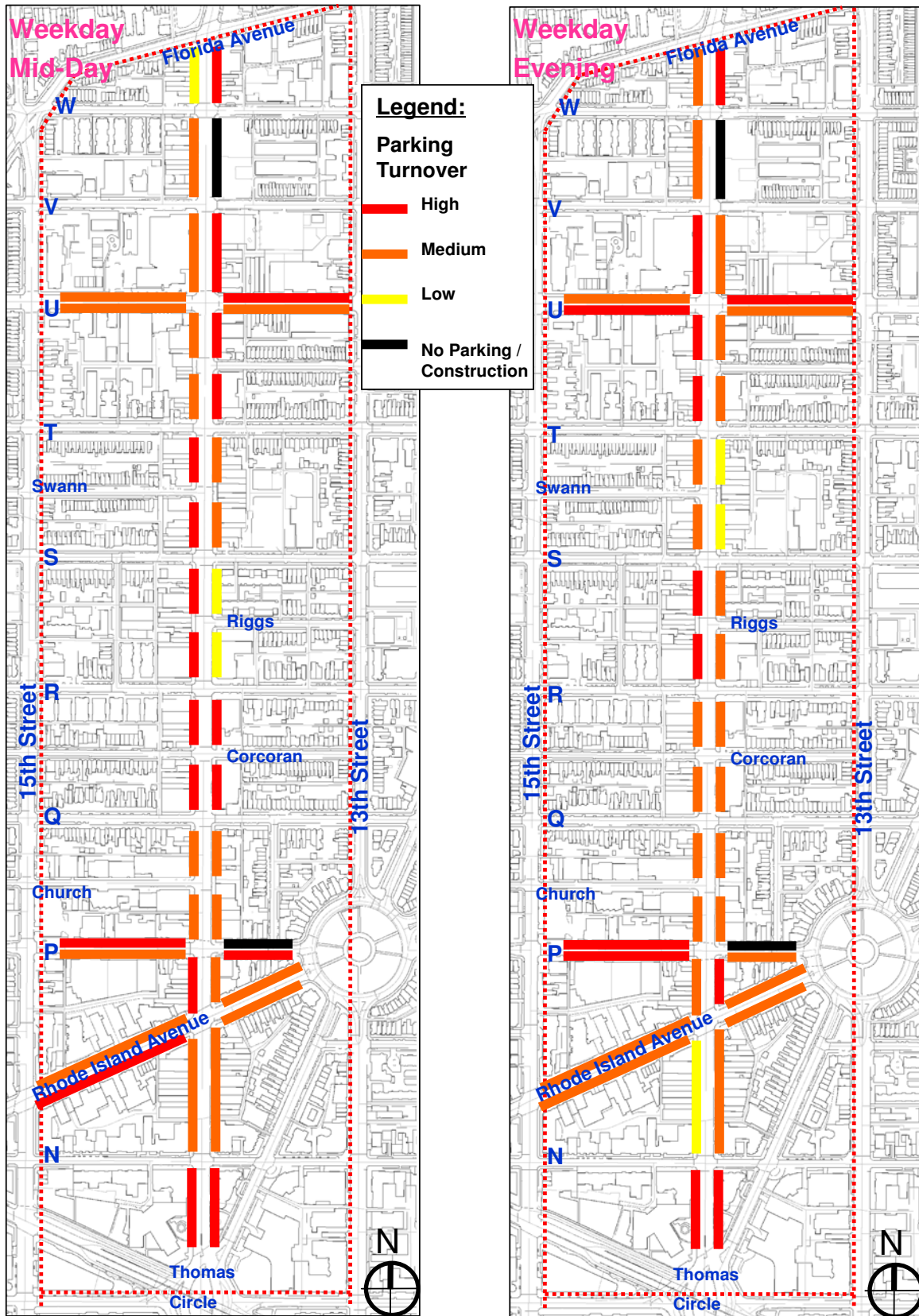


Figure 3.49 - Weekday Parking Turnover by Block Faces and by Time Periods

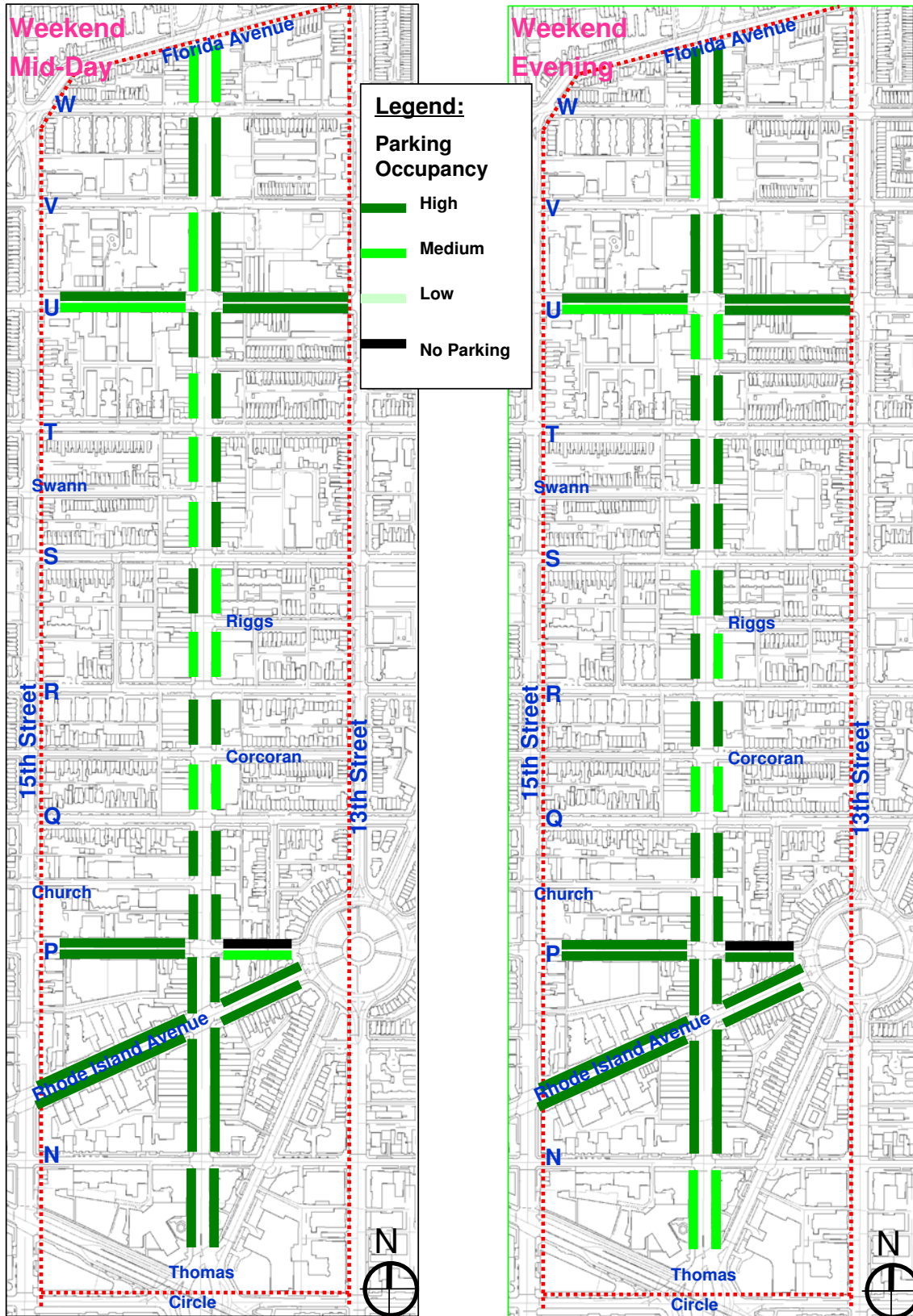


Figure 3.50 - Weekend Parking Occupancy by Block Faces and by Time Periods



Parking

3

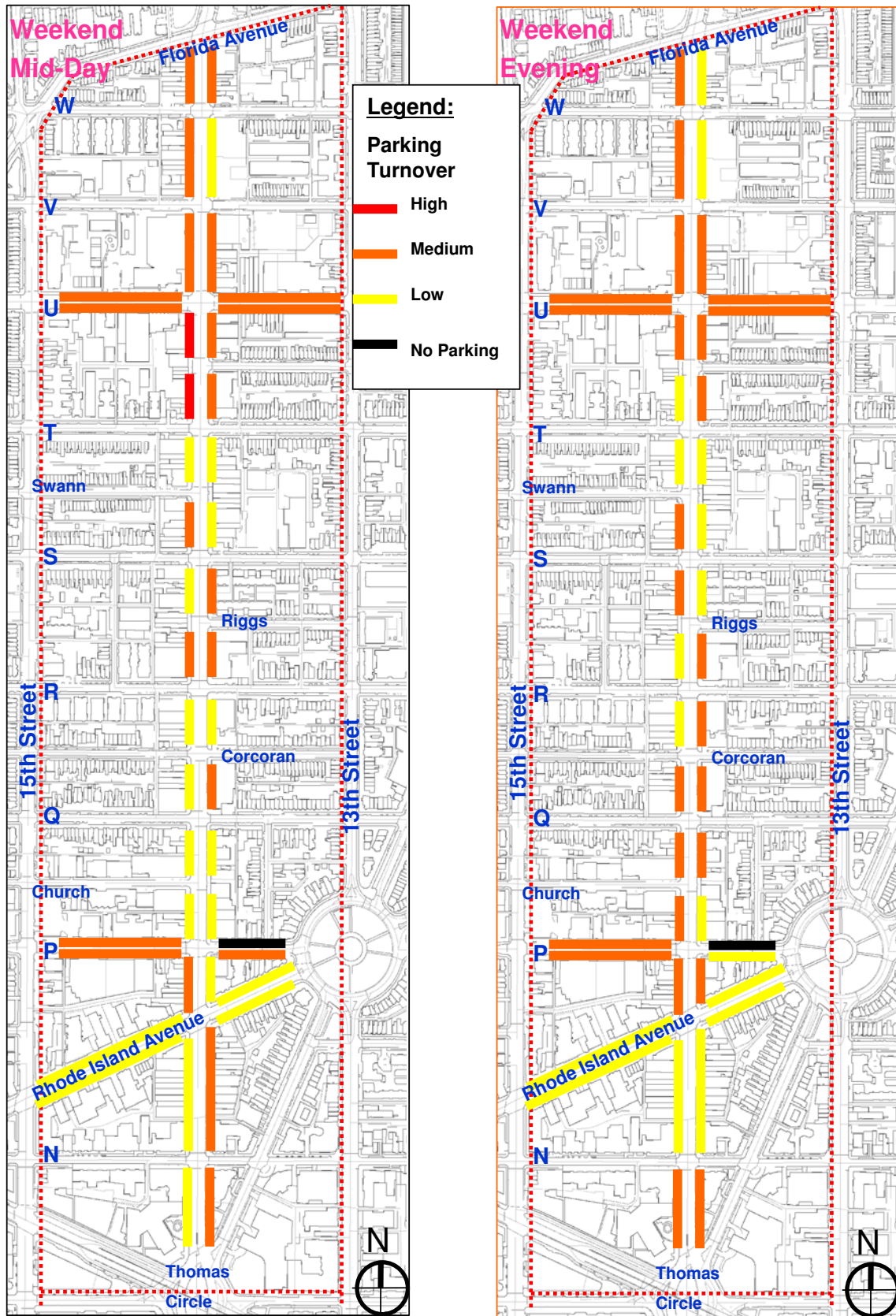


Figure 3.51 - Weekend Parking Turnover by Block Faces and by Time Periods

### Off-Street Parking Utilization

Nine off-street parking locations were sampled along the Corridor to survey the parking utilization in the off-street parking facilities. As summarized in Table 3.21, five of the nine parking lots have their occupancy rates between 70 and 80%, while the other four are below 70%. These occupancy rates indicate some degree of under-utilization at various times of the day.

Surface parking lots generally charge a daily rate less than \$10, for example, \$9 daily flat rate at a surface lot at 1914 14th Street and \$8 a day at another lot at 1617 14th. At the Whole Food parking facility on P Street, non-customers are charged \$10. Compared with the on-street parking meter rate of 50 cents per hour, these daily rates appear to be high. Meter rates do not reflect market rate for parking in the area.

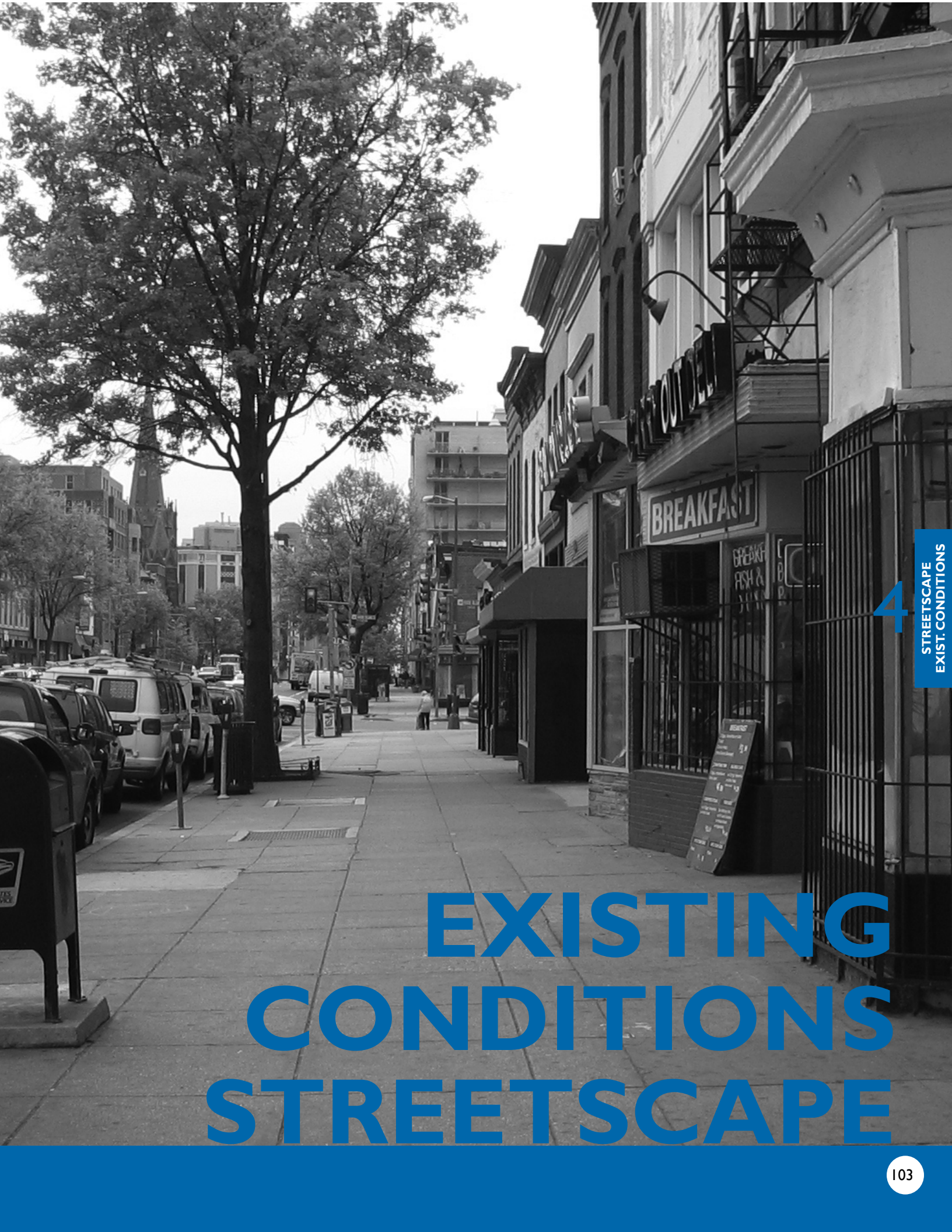
Table 3.21 Off-street Parking Utilization

Location	Spaces	Occupancy
S Street to Swan Street	25	76%
14th Street and T Street	48	52%
14th Street and W Street	9	78%
14th Street and R Street	26	62%
14th Street and Riggs Street	35	71%
14th Street and Corcoran Street	25	48%
14th Street and Church Street	13	46%
14th Street and Corcoran Street	13	77%
14th Street and Rhode Island Ave.	20	70%

4





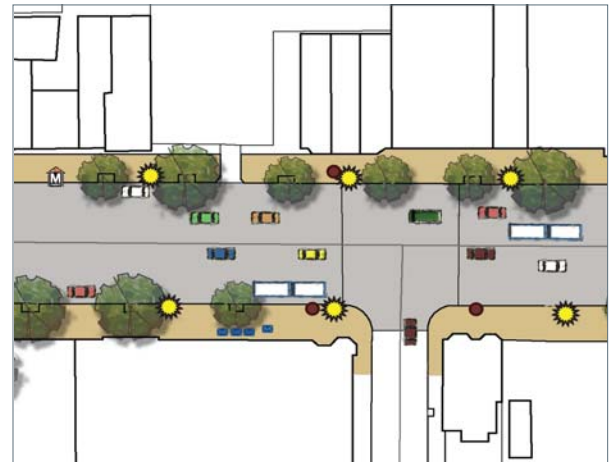


# EXISTING CONDITIONS STREETSCAPE

# The Public Realm

The “public realm” is the publicly owned and controlled space between buildings, including sidewalks, curb, street and the elements that define it. The condition of the public realm will help determine whether the goal of creating a multi-modal, pedestrian-friendly, transit oriented, mixed-use corridor can be realized. As shown in color in Figure 4.1, the public right-of-way, defined by the buildings, consists of two broad streetscape elements — sidewalks and roadways.

Figure 4.1 - Public Realm Area



The term “streetscape” refers to the character of the public realm, including pedestrian, bicycle, vehicular, and transit right-of-ways. Sidewalks, benches, lighting, bicycle racks, bollards/safety posts, bus shelters, and other amenities are all streetscape elements.

## Field Survey

The planning team conducted a series of site visits and walkthroughs to record the existing streetscape elements and conditions along 14<sup>th</sup> Street. Figure 4.2 shows the general public realm study area between Florida Avenue to the north and Thomas Circle to the south.

For context purposes, the predominating land uses on the ground floor level were noted and categorized into ten groups, ranging from residential to cultural uses (see Figure 4.2). These and other results of the field reconnaissance are displayed in Plan A, including photographs of the corridor’s public realm.



Figure 4.2 - Public Realm Area and Adjoining Land Uses (for full corridor view see pp 88-89)



Comments and concerns raised during the public meetings and community walks have been examined and documented through additional field reconnaissance (documented in the following pages) by the study team and contribute to the documentation of the existing conditions of the public realm.

The following chapters include an inventory and analysis of the streetscape components as they relate to both transportation and the public realm within the 14<sup>th</sup> Street study area. The components are organized into the following categories:

1. Sidewalks
2. Street Trees/Landscaping
3. Furnishings
4. Lighting
5. Signage
6. Public Art



Figure 4.3 - Public Realm Study Area



## Sidewalks

### Sidewalk Materials

The majority of the sidewalks along 14th Street are concrete (Figs 4.4 a/b/c) and their condition varies from poor to good. Some portions, such as the sidewalk between Rhode Island Avenue and P Street, in front of the Reeves Center, and the furnishing zone on the east side of 14th Street between R and S Streets are brick (Figs 4.4 d/f). Sidewalk related issues highlighted by residents at public meetings, and observed by the study team include: sidewalks in disrepair; uneven pavements; careless patching with asphalt; cracking or buckling from tree roots and transition zones from one sidewalk material to another now in poor condition.


### Sidewalk Widths

Sidewalk widths along 14th Street vary from approximately five to fifteen feet, except at some intersection corners where sidewalks are much wider. Locations around the Rhode Island and U Street intersections are examples of public spaces that can accommodate larger groups of people.

### Curbs, Gutters, and Ramps

Most curbs along 14th Street are constructed of granite, gutters are made of brick. Field visits and public comments have revealed several curb, gutter, and curb ramp issues, such as curbs in disrepair, sinking and uneven pavements and poor drainage along some cross streets. Several of the intersections along the corridor have substandard single corner curb or ADA ramps, which misdirect users into the intersection instead of safely across the street. Other issues involve street pole lights and newspaper boxes that physically intrude into the curb ramp area, and instances at intersections where curb ramps are missing completely.

**Figure 4.4 - Existing Condition Photos - Sidewalks**

- 
- a Concrete Pavers Detail  
14th St (east) between N St & Rhode Island
  - b Concrete Paving Detail  
Southwest corner P St & 14th
  - c Uneven Sidewalk & Tree Box  
14th St (west) between R St to S St
  - d Brick  
14th St (east) between Rhode Island & P St
  - e Concrete Paving Detail  
14th St (east) between N St & Rhode Island
  - f Paving Transition  
Southeast corner 14th & Rhode Island
  - g ADA Ramp  
14th St (west) S St to T St
  - h Granite Curb & Brick Gutter  
Northwest corner of 14th and P St
  - i Mixed Paving Materials Transition Zone  
Southeast corner of N St & 14th

Predominating Sidewalk Materials



Patchwork of Sidewalk Materials



4

Sidewalks

# Landscaping

## Street Trees

Over 130 trees are planted within the sidewalk streetscape; approximately 60% are mature and display healthy characteristics. The remaining trees are young and as small as 12 feet tall; they have been planted within the past two years to replace dead or damaged trees. The most common tree species are Pin Oak (*Quercus palustris*), Scarlet Oak (*Quercus coccinea*), and Sycamore (*Platanus occidentalis*).

As with many streetscape elements, landscaping and tree box conditions differ by block, and lack consistent materials and designs (Figs 4.5 a-t). Many iron enclosures are donated and maintained by local community organizations; however, a substantial number are in disrepair, have trash and debris, and fail to provide a healthy growth environment. In many cases the existing soil within tree boxes in the corridor is extremely compacted and lacks organic compounds required for a tree to live and flourish.

In response to the poor vegetation conditions some businesses have extended their business upkeep into the public realm and have beautified their immediate surroundings by introducing plantings, decorative stones, and garden artifacts.

# 4

**Figure 4.5 - Existing Condition Photos - Landscaping**

- a** Tree Plantings  
14th St (east) between Thomas Circle & N St
- b** Vegetation  
View down V Street - looking west
- c** Landscaping  
View down S Street - looking west

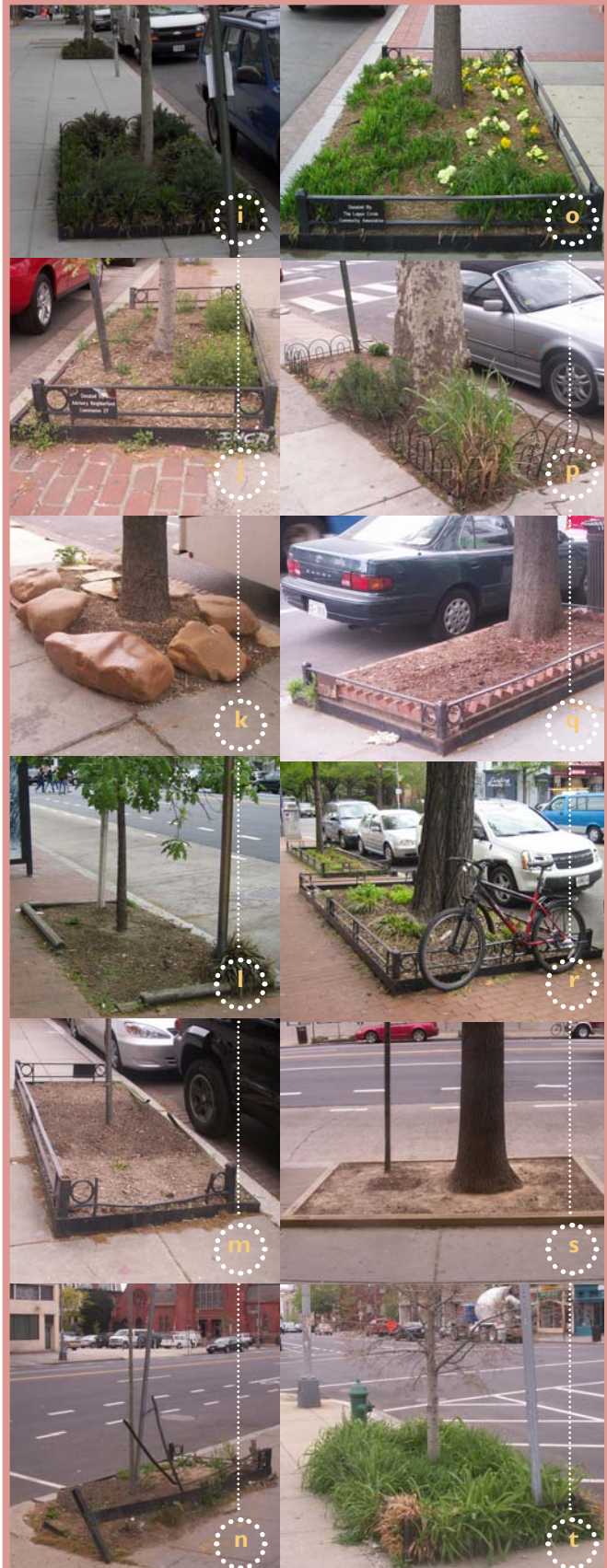
- d** Store Planters  
14th St (east) between P St & Q St
- e** Street Tree  
14th St (east) between U St & V St
- f** Tree Stump  
14th St (west) between Rhode Island & N St
- g** Landscaping  
T Street looking west
- h** Tree Planting  
14th St (east) between P St to Q St
- i** Street Tree & Tree Box  
14th St (west) between P St & Q St
- j** Tree Enclosure & Brick Furnishing Zone  
14th St (east) between R St & S St
- k** Garden District Tree Enclosure  
14th St (east) between S St & T St
- l** Street Tree & Tree Enclosure  
14th St (east) between Rhode Island & P St
- m** Damaged Tree Enclosure  
14th St (east) between P St & Q St
- n** Damaged Tree Box  
14th St (west) between Corcoran St & R St
- o** Tree Enclosure  
14th St (east) between N St & Rhode Island
- p** Damaged Tree Enclosure  
14th St (east) between S St & T St
- q** Brick & Iron Tree Enclosure  
14th St (west) between R St & S St
- r** Bike Chained to Tree Box  
Rhode Island & 14th St - towards Logan Circle
- s** Wooden Tree Enclosure  
14th St (west) between R St & S St
- t** Grass Filled Tree Box  
14th St (east) between Corcoran St & R St



Street Trees and Other Forms of Plantings



Tree Box Designs



## Furnishings/Transit Shelters

### Street Furnishings

14th Street has a wide range of streetscape elements, some that are usable by the general public (e.g. furnishings), and others that support transportation and infrastructure networks (e.g. signal and electrical transformer boxes). While community organizations, business owners, and new residential stakeholders have taken initiatives to beautify and maintain the public realm, many locations appear dilapidated and cluttered by trash cans, parking meters, signs, mailboxes and newspaper boxes.

14<sup>th</sup> Street furnishings, as shown in Figures 4.6 a-q are either non-existent or randomly located, and, with the exception of trash receptacles, much of what exists is in disrepair. Materials for these elements vary from one part of the corridor to the other. With the recent resurfacing and bike lane markings, 14th Street has become a popular bike route but lacks sufficient bike racks. Some are present along the corridor, but only in a few locations. They are the inverted “U” type, painted black. There are no benches along the entire length of the corridor (Fig 4.6 h).

Overall, there is no unified design for the style, materials, color, or location of street furnishings within the public realm.

### Trash Receptacles

Although there appears to be an adequate number of trash receptacles, typically placed next to bus stops/shelters, at street corners, and occasionally mid-block, littering is still present on the sidewalks, in tree boxes, around bus shelters and along curbs and gutters. Trash receptacles are DC standard black wrought iron frames with hinged doors and are generally in satisfactory condition.

### Bus Shelters

Bus shelters are present at some bus stops located within the corridor; however, some are either not clean or not well maintained. The District of Columbia currently has a contract with a private vendor to install new bus shelters throughout the District. In exchange for funding the purchase of the bus shelters, the vendor is permitted to rent advertising space on the side panel of the shelters

**Figure 4.6 - Existing Condition Photos - Furnishings/Transit Amenities**

- a Public Telephone  
14th St (east) between Q St & Corcoran St
- b Mail Boxes  
Corner of Florida and 14th St
- c Newspaper Racks  
Northwest Corner of U St and 14th St
- d Bent Parking Meters  
14th St (west) between Rhode Island & P St
- e Ash Urn  
14th St (west) between U St & V St
- f Trash Bin  
14th St (east) between U St & V St
- g Market Stall  
14th St (west) between U St & V St
- h Lack of Seating  
14th St (west) between U St & V St
- i Bike Rack  
14th St (west) between R St & S St
- j Bike Rack in Plaza  
14th St (west) between U St & V St
- k Bus Stop  
14th St (west) between P St & Q St
- l Bus Shelter  
14th St (west) between N St & Thomas Circle
- m Bus Stop & Furnishing Zone  
14th St (east) between R St & S St
- n Bus Shelter  
14th St (west) between Rhode Island & N St
- o Powell Parking Lot w/ Zip Car Sign  
14th St (west) between Corcoran St & R St

# 4



Miscellaneous Streetscape Elements



Bike Racks



Transit & Car-Sharing Facilitators









## Lighting

### Streetlights

The 14th Street corridor has Cobra-head lighting, staggered from side to side the length of the street. Based on the character of the traffic (local versus long distance) and the degree of land access that the street allows, 14th Street is classified as a principal arterial (DDOT Functional Classification Map 08/2006). The average maintained luminance level for commercial corridors is 1.2 foot-candles per adopted AASHTO guideline. A photometric study found the current lighting output of the 400W Cobra luminaries along 14th Street to be above the required standards published in the DC Streetlight Grand Plan. However, nighttime lighting and safety are major concerns along 14th Street, which is partially attributable to the fact that cobra-head lights are highway-type lights, with an extended arm and head at a mounted height of approximately 25 feet. They are primarily designed to illuminate the roadway, with very little of the light emitted spilling onto the sidewalks. Pedestrian level lighting, typically mounted at 16 feet above ground, does not exist along 14th Street.

There is little “spill-lighting” projecting onto the sidewalk from inside nearby restaurants or businesses. The south end of 14th Street where there is less commercial activity is extremely dark. In addition, several trees conflict with the tall roadway pole lights and further reduce the light illuminating pedestrian areas. Insufficient lighting reinforces both the perception and reality that 14th Street is an unsafe place, which may impact local businesses along the corridor and deter residents from walking the corridor in the evening.

### Figures 4.7 - Existing Condition Photos - Lighting

-  Cobra Light  
14th St (east) between Corcoran St & R St
-  Cobra Light Covered by Tree Canopy  
14th St (east) between Thomas Circle & N St
-  Cobra Light w/ Sign  
14th St (east) between S St & T St
-  Broken Street Light  
14th St (west) between N St & Thomas Circle

Cobra Style Streetlights



4

Lighting

## Signage

### Transportation Signs

A majority of the signs on 14th Street relate to transportation information for parking, roadway restrictions and street information. Many sign poles have multiple signs (Figure 4.8c) and signal poles are frequently used for directional and informational signs (Figure 4.8d). In some locations, transportation signs exhibit a “cluttered” feeling with poor organization. These signs were placed over time, as needed, with little attention to overall aesthetics.

### Wayfinding Signs

The blue wayfinding signs directing visitors towards the area’s attractions and Metro stations are installed at several locations along the 14th Street study area.

### Banners

Temporary banners, some of which are in disrepair, draw attention to the historic U Street/14th Street corridor.

### Specialty Signs

Freestanding signs for “The Greater U Street Heritage Trail” are placed around the vicinity of the 14th and U Street intersection. They are part of the I4 sign series leading visitors on a self-guided tour through the historic neighborhood. Four ZipCar/FlexCar locations along the corridor are identified by orange poles. The District Historic Preservation Office has provided the DC round historic markers for installation along 14th Street and U Street historic districts.

**Figures 4.8 - Existing Condition Photos - Signage**

- a** Street Sign  
14th St (east) between Thomas Circle & N St
- b** Thomas Circle Traffic Sign  
14th St (west) between Thomas Circle & N St
- c** Parking Signs  
14th St (west) between T St & U St
- d** Intersection Street Sign  
14th St (east) between Thomas Circle to N St
- e** Banners  
14th St at U St
- f** Wayfinding Sign  
14th St (east) between R St & S St
- g** ZipCar Sign  
14th St (west) between V St & U St
- h** Wayfinding Sign  
14th St (east) between Thomas Circle & N St
- i** Heritage Trail Sign  
Western corner of U St & 14th St



Traffic & Street Signs



Banners



Wayfinding & Specialty Signs



## Public Art

Built on the area’s rich history and ongoing revitalization, 14<sup>th</sup> Street has a vibrant and eclectic mix of specialty stores, entertainment venues, and restaurants, each adding unique features to the building frontages and lending an artistic feel to the corridor.

While public art is considered a focus of the community, few examples currently exist. The corridor is in the midst of a cultural renaissance with art and theater defining the 14th Street environment. This cultural expansion is in the initial stages of being translated into the public realm. A temporary exhibition of site-specific installations took place within the 14th Street corridor during the course of this study. From June 15 - July 28, 2007, WPA\’C’s SiteProjects DC presented works from 15 local artists between P and V Streets. Each of the artists used 14th Street as their inspiration and medium in order to engage the pedestrian users of the corridor.

**Figures 4.9 - Existing Condition Photos - Public Art**

- a** Art Installation  
Eastern corner of 14th St and V St
- b** Art Installation  
Eastern corner of 14th St and V St
- c** Martin Luther Statue  
14th St (east) at Thomas Circle
- d** Garden District Tree Enclosure  
14th St (east) between S St & T St
- e** Decorative Crosswalk  
14th St at S St
- f** Mural  
14th St (west) between S St & T St
- g** Alley Graffiti  
14th St (west) between P St & Q St
- h** Storefront Signage  
14th St (east) between S St & T St
- i** Garden District Art Installation  
Northeastern corner of 14th St & S St
- j** Art Installation - Photography  
14th St (west) between S St & T St



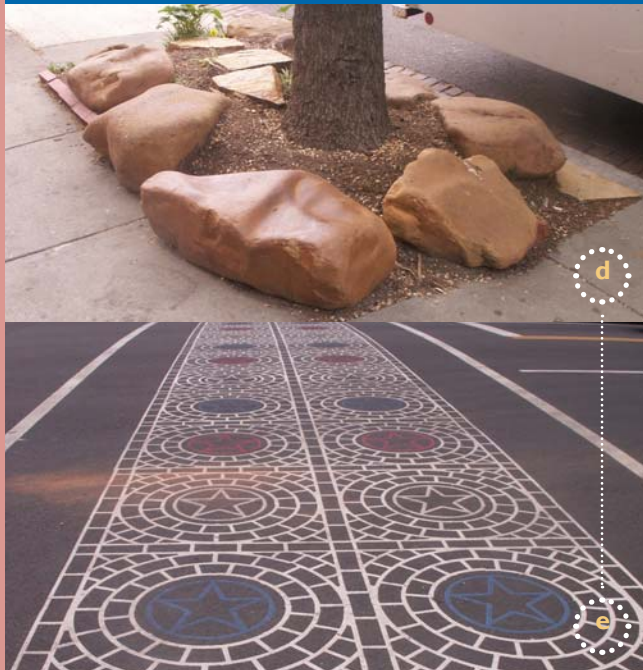
Figure 4.10 - WPA\’C’s SiteProjects DC Invite



Freestanding Art & Statues



Art Incorporated into Streetscape



Murals & Facades



4

Public Art









# TRANSPORTATION RECOMMENDATIONS

# Introduction

Transportation recommendations for the 14th Street corridor and study area serve the goal of fulfilling the public's shared vision for the corridor: integrated multimodal transportation investments and an appealing and sustainable streetscape to promote the corridor as a green, pedestrian-oriented corridor, which focuses on the arts and entertainment. These recommendations build on extensive public input and reinforce the public's desire to carry on the recent renaissance, which has undertaken a tremendous transformation in the past few years on this vibrant corridor.

Central to the study's recommendations is the introduction of curb extensions also known as bulb-outs at intersections. The bulb-outs will improve the safety of pedestrians and bicyclists, provide bus-stop platforms, and minimize conflicts between non-motorized modes of transport and vehicular traffic. Bulb-outs would serve an important function along 14th Street because they would provide pedestrians with greater access to transit modes, increase bus service efficiency, and reduce the crossing distance for pedestrians in a crosswalk. Bulb-outs as they relate to pedestrians, transit users or vehicles are detailed in each section of this chapter.

The transportation recommendations in this chapter are organized around five transportation related areas:

- Pedestrian
- Bicycle
- Transit
- Vehicular Traffic
- Parking and Loading Zones

Recommendations are identified as either short-term or long-term. Short-term recommendations can be implemented within 12-24 months and generally don't require substantial investment or time. The implementation of long-term improvements depends upon availability and allocation of required funding. Assuming approval of grant applications and the District's allocation of funds within two years, engineering activities within one to two years, followed by completion of construction within a two to three year window, the full implementation of the study recommendations can take place within five to seven years. All transportation recommendations are listed in the following sections along with a corresponding icon to identify short-term and long-term action items.

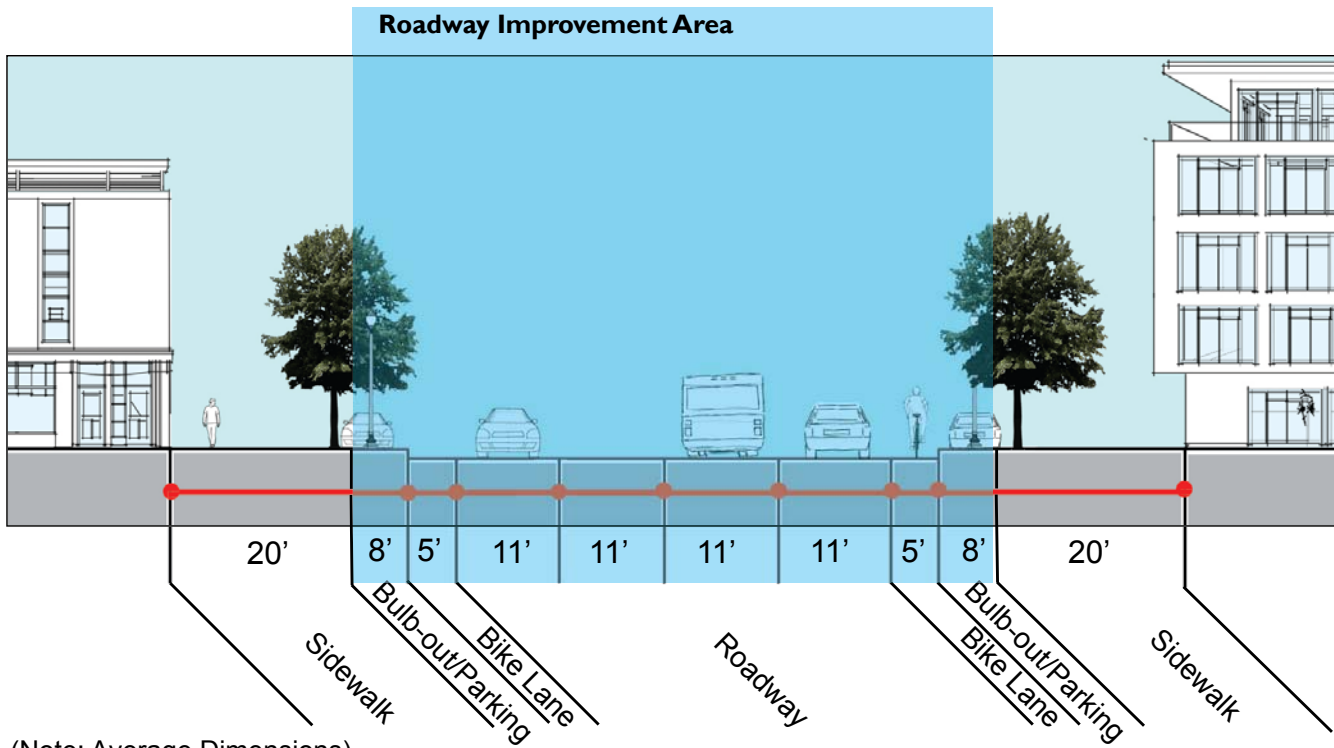


Short-term recommendation.



Long-term recommendation.






(Note: Average Dimensions)


Figure 5.1 - Recommendations - 14th Street NW Section: Roadway Focus

All the recommendations for this chapter are presented visually on the fold-out plan (See Plan B) for the corridor. Recommendations are not broken out into short-term and long-term recommendations on Plan B. Rather, the plan provides the complete picture for the interaction of the motorized and non-motorized users of the corridor from both the transportation and streetscape recommendations. Combining all of the recommendations in one visual provides a holistic view of the future corridor. A general cost estimate of all recommendations is included in Chapter 7.


# Pedestrian


## Recommendations

**S**  Facilitate better pedestrian crossing by implementing a lagging left (i.e. left-turns are allowed after through movements) at major intersections during rush hours.

**L**  Establish bulb-outs at:

- signalized intersections and activity nodes
- T-intersections
- Bus bulb-outs.

**L**  Upgrade all corners to be ADA compliant.

**L**  Develop and implement a construction impact mitigation plan during construction to ensure business vitality and pedestrian safety along the corridor.

## Details

Meeting the pedestrians’ needs in the study area was ranked by public and stakeholder input as the top priority for future transportation considerations. The focus of the transportation recommendations is to minimize the conflicts among competing modes, and to prioritize the conflicts so that pedestrians’ safety and travel needs are met first. This goal is to be accomplished through the introduction of bulb-outs at locations that are important to pedestrian safety and travel.


Bulb-outs will benefit pedestrians in terms of improved safety and comfort crossing the intersections. Figures 5.2 and 5.3 show the typical layout of these bulb-outs. These bulb-outs will increase the visibility of pedestrians to vehicles and bicyclists, allowing pedestrians to see and be seen easily before crossing the street. Additionally, they will shorten pedestrian crossing distances on 14th Street by approximately 23% and reduce speeds along the corridor, decreasing the potential conflicts between pedestrians and vehicular movements. Bulb-outs will also potentially reduce the number and severity of crashes.

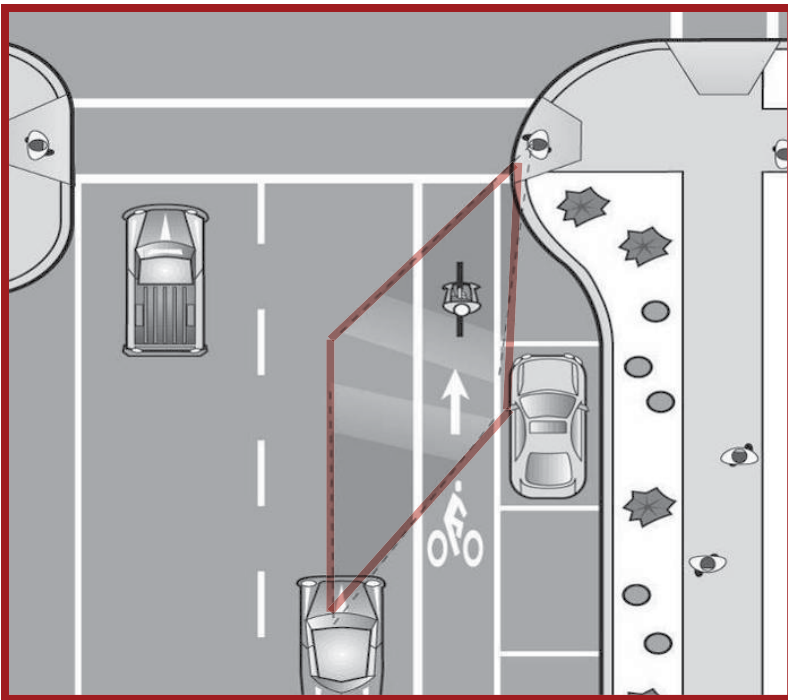
**Icon Key**

Short-term Recommendation

**S** 

Long-term Recommendation

**L** 



Bulb-out Advantages

- Improved sight lines
- Better visibility of pedestrians.
- Better visibility for pedestrians
- Pedestrian crossing distance decreases by 23%
- Slow traffic by creating a narrower street opening.

Figure 5.2 - Bulb-out Advantages (Source: Oregon Pedestrian and Bicycle Plan)

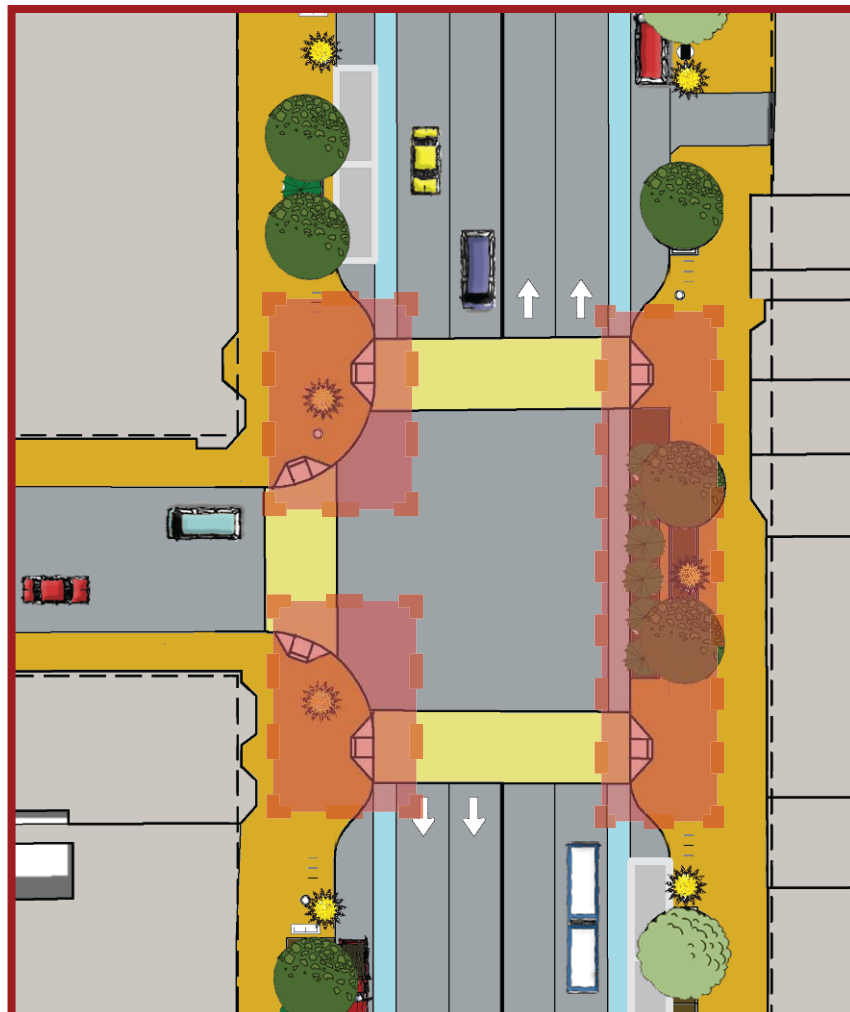


Figure 5.3 - Example of Bulb-outs at a 14th Street NW T-intersection



# Bicycle

## Recommendations



Integrate the bicycle/pedestrian requirements with transit options and land use planning/development process and require bicycle facility elements as part of the land development approval process.



Improve bicyclists' safety through clear markings, drawing attention to conflict zones. Establish bicycle boxes at primary nodes along 14th Street and side streets with designated bike lanes.



Provide bicycle parking throughout the corridor to improve connection between bike and transit, between bike and car-sharing locations, and between various activity centers in the study area.



Establish SmartBike at major locations to serve the primary nodes/activity centers.



Support the District of Columbia Bicycle Master Plan and its proposed bicycle facilities in and around the study area. (See Figure 5.4)

## Details

Throughout the study, participants repeatedly expressed their strong preferences for improving bike facilities along the corridor. Many of the requested improvements focused on minimizing conflicts with vehicular movements, improving bicyclist movements within the corridor, and having safe passage and locations to store or park bicycles. Recommendations in this study serve these purposes and include both corridor-level and site-specific options.

Corridor-level recommendations enhance and expand the connectivity of bike lanes with those in adjacent areas, and improve intermodal connectivity between bicycles and transit. The bicycle recommendations call for a designated bike lane throughout the study corridor. Bicycle parking should also be part of the overall redevelopment approval process, an issue addressed in recent DC Council legislation. In addition to requiring residential and commercial landlords to meet a certain ratio of bike parking and automobile spaces per unit, review of the following is encouraged as part of the development approval process:

### Icon Key

Short-term Recommendation



Long-term Recommendation



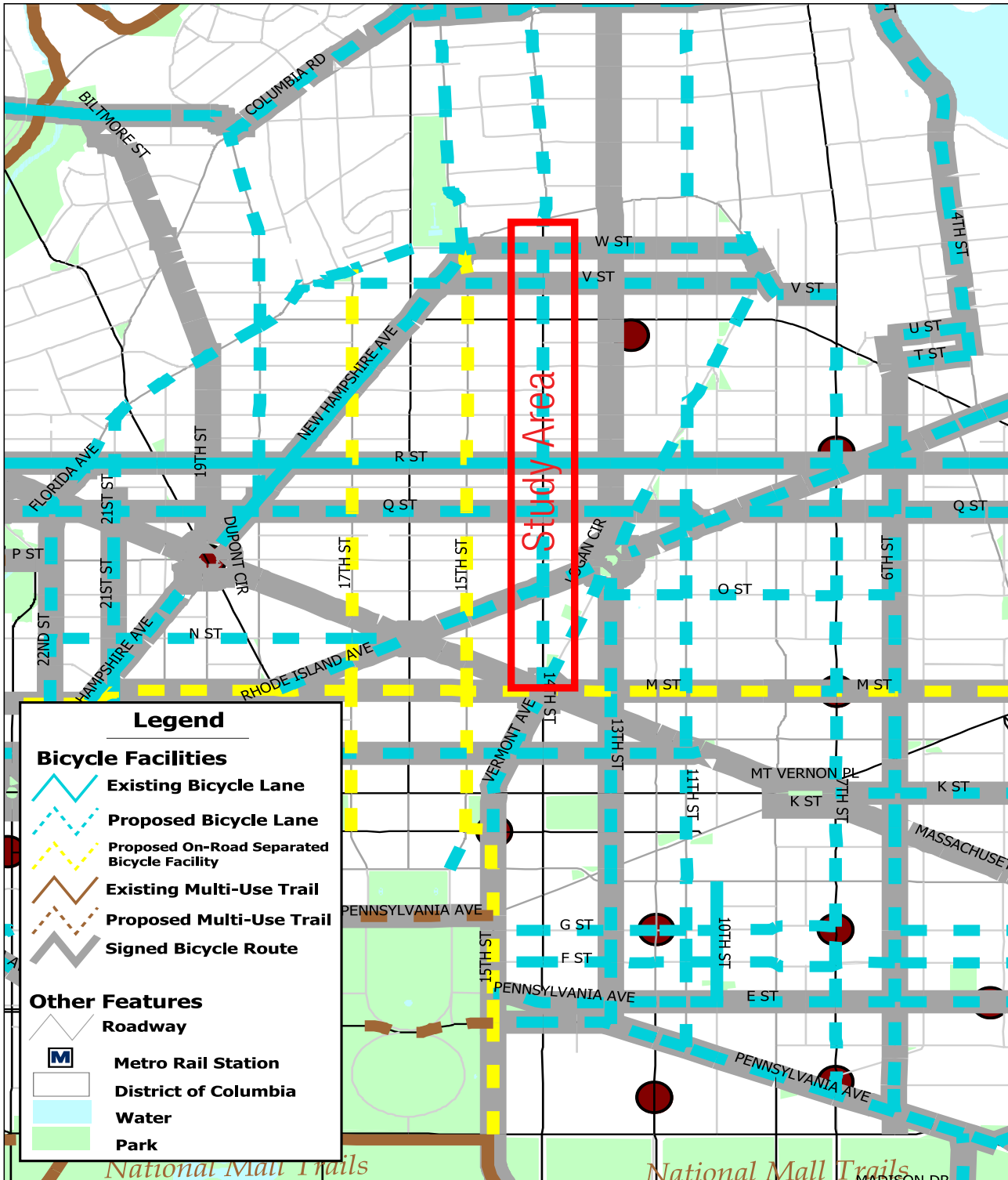


Figure 5.4 - 14th Street within the DC Bicycle Master Plan (Source: DDOT DC Bicycle Master Plan)

- Requirements for on-site bicycle racks.
- Secure bicycle parking in garages and lots (including park-and-ride) by utilizing bicycle lockers and/or racks located near the parking attendant.
- Proper installation to ensure access and usefulness of the racks.

The introduction of the SmartBike program and the installation of rentable bikes at Rhode Island Avenue have also been incorporated into the corridor plan. In addition, recommendations include installing bike racks throughout the corridor and at three major activity centers (See Focus Areas section Chapter 6). An increase in bike facilities will turn 14th Street into a premier bicycle corridor in the District, making people more eager to use bicycles as their primary mode of travel.

Location-specific recommendations are shown in the corridor fold-out plan (Plan B) and can be summarized in the following:

- Extend 5' bike lane from U Street to Florida Avenue and beyond to connect to the bike lanes in the north. (Short-term)
- Extend existing bike lanes on Q Street from 14th Street eastward, on Vermont Avenue from N St, via Logan Circle, to connect with Q Street. (Short-term)
- Establish new bike lanes on V Street, W Street and Rhode Island Avenue. (Long-term)
- Support proposed bike lanes on 15th Street and M Street. (Long-term)
- Establish SmartBike stations at the Reeves Center, Cardoza Metro, between Q Street and R Street, and at Rhode Island Avenue. (Short-term)
- Propose bike racks throughout the corridor. (Short-term)





Figure 5.5 - Example of SmartBike Station

Figure 5.7 - SmartBike Rendering



Figure 5.8 - Paris Precedent: Velib Bike Sharing Program (New York Times Photos)



Figure 5.6 - Example of Recommended Inverted U Shape Bike Rack



Figure 5.9 - Vancouver Precedent: Bike Waiting Area at an Intersection

# Transit

## Recommendations



Currently, DDOT is working with WMATA on the Neighborhood Circulation Study. The Adams Morgan Link will be evaluated and possibly converted to a DC Circulator route to better connect the Adams Morgan/U Street neighborhoods to other surrounding neighborhoods. Support the proposed Circulator connections.



Support DDOT TDM entity to coordinate, promote, and implement TDM strategies among businesses, institutions, and residents.



Consolidate bus stops and create bus bulb-outs for faster and more efficient service. (See Figure 5.10)



Rebrand Metrobus #52/53/54 service in conjunction with a promotional program. This service will connect parking opportunities from south of Thomas Circle to theater/restaurant locations along 14th Street and U Street corridors.



Implement transit signal priority for transit along 14th Street.



Improve intermodal transfers via safe and efficient linkages, and bike parking (Bus-Bus; Bus-Rail; Bike-Bus)

## Details

Transit was ranked just behind pedestrian and bicycle importance for future transportation improvements in the corridor. The transit recommendations were developed to take into account the importance and synergy of these three top modes of travel, and their effects on the streetscape enhancements of the corridor. Recommendations specifically address the issues identified in the existing condition assessment, particularly trying to minimize conflicts among pedestrians, transit patrons, and vehicular movements, maximize bus-bus transfers and bike-bus connectivity, enhance bus shelters and stops, provide real time transit information, and enhance transit service in the study area.

Figure 5.10 shows existing bus stops and shelters in the study area along with those proposed under this study. Plan B, located on p. 141, illustrates the locations of bus stops and

**Icon Key**

Short-term Recommendation



Long-term Recommendation



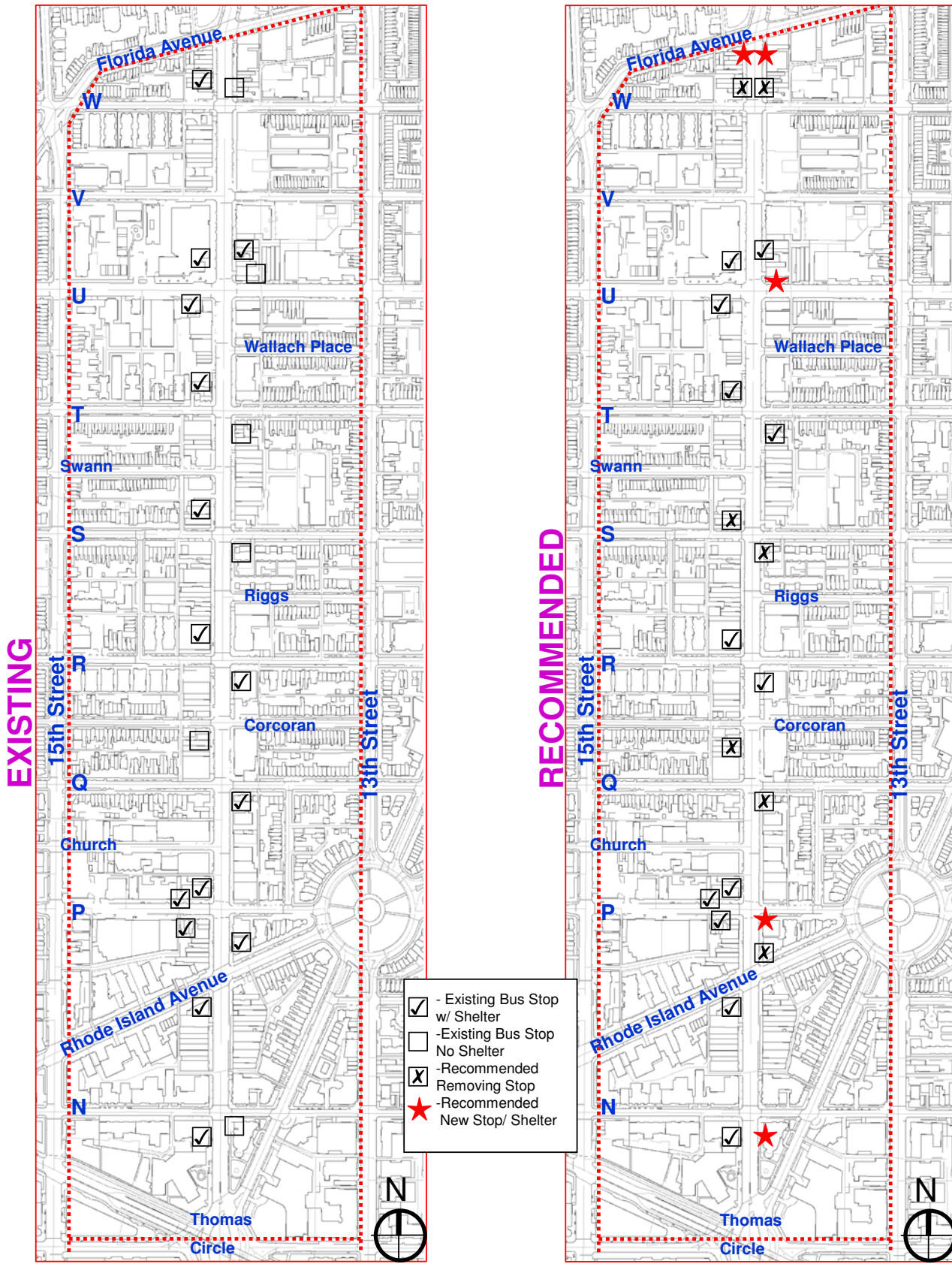


Figure 5.10 - Transit Stops: Existing & Recommended



their relationship with bulb-outs and streetscape elements. All bus stop locations except for U Street Southbound on the corridor are tied to the bulb-out recommendation at each location. Bulb-outs will provide more space at the stops for waiting riders, reduce waiting bus passengers from crowding the sidewalk, decrease complaints from businesses adjacent to the stops regarding riders obstructing store entrances, and provide additional room for bus shelters.

From a design standpoint, the bulb-out stop reduces the amount of curb space needed for the bus. Putting this into perspective related to parking spaces, a bus that had to pull to the curb would need four parking spaces of length to make the stop. Under the bulb-out scenario, the bus only needs two spaces (see Figure 5.14). Prior to construction flexposts (such as those shown in Fig 5.14 in a median) could be used to demarcate the area of roadway that the bulb-out will eventually occupy. This would provide a means for drivers and pedestrians to get used to the new intersection layout prior to full installation of the new bulb-outs.

Bus stops are recommended at the following bulb-out locations and can be implemented in the long term:

- Florida Avenue (far sides Southbound and near side Northbound)
- U Street (far side Northbound)
- T Street (near side)
- R Street (near side)
- P Street (near side, except for far side Westbound on P Street )
- Rhode Island Avenue (far side SB)
- N Street (far sides Southbound and near side Northbound)

The District is in the process of replacing existing bus shelters with new standard bus shelters with ClearChannel. Stops in the corridor will all have the new bus shelters (see Chapter 6, Item S3 for details).

Short-term recommendations include elimination and consolidation of the existing bus stops, to improve bus operational speed in the corridor and minimize conflicts of bus stops with pedestrian/bike and other vehicular movements. The elimination of stops was based on stop spacing, use of the stop, and land uses needs.

Eliminate:

- Q Street (near side Southbound and Northbound).
- S Street (near side)

Relocate:

- W Street (near side Southbound) is moved to far side at Florida Ave.
- W Street (far side Northbound) is moved to near side at Florida Avenue.

- Rhode Island Avenue (far side Northbound) is moved to near side at P Street.

Table 5.1 shows some of the metrics associated with these improvements. The net elimination of two stops in each direction, in conjunction with the introduction of bulb-outs where the buses stop, has a compounding positive effect on the efficiency of the bus system of 14th Street. These effects include reduced time for the stopped bus, the time it takes for the bus to accelerate and decelerate and the time associated with pulling to and from the curb. Taking all effects together, bus run time in the corridor is estimated to be reduced by up to 15%, and accordingly bus speed would improve by up to 15%. For locations where bus stops were eliminated, walk distance to bus stops will increase from one block to one and one half blocks at the maximum. In addition, the bulb-outs will shorten pedestrian crossing distances on 14th Street from approximately 70 feet to 54 feet, a 23% decrease, reducing the potential conflicts between pedestrians and vehicular movements at intersections.

Figure 5.11 - New DC Bus Shelter



Figure 5.12 - Paris Shuttle Precedent: Microbus

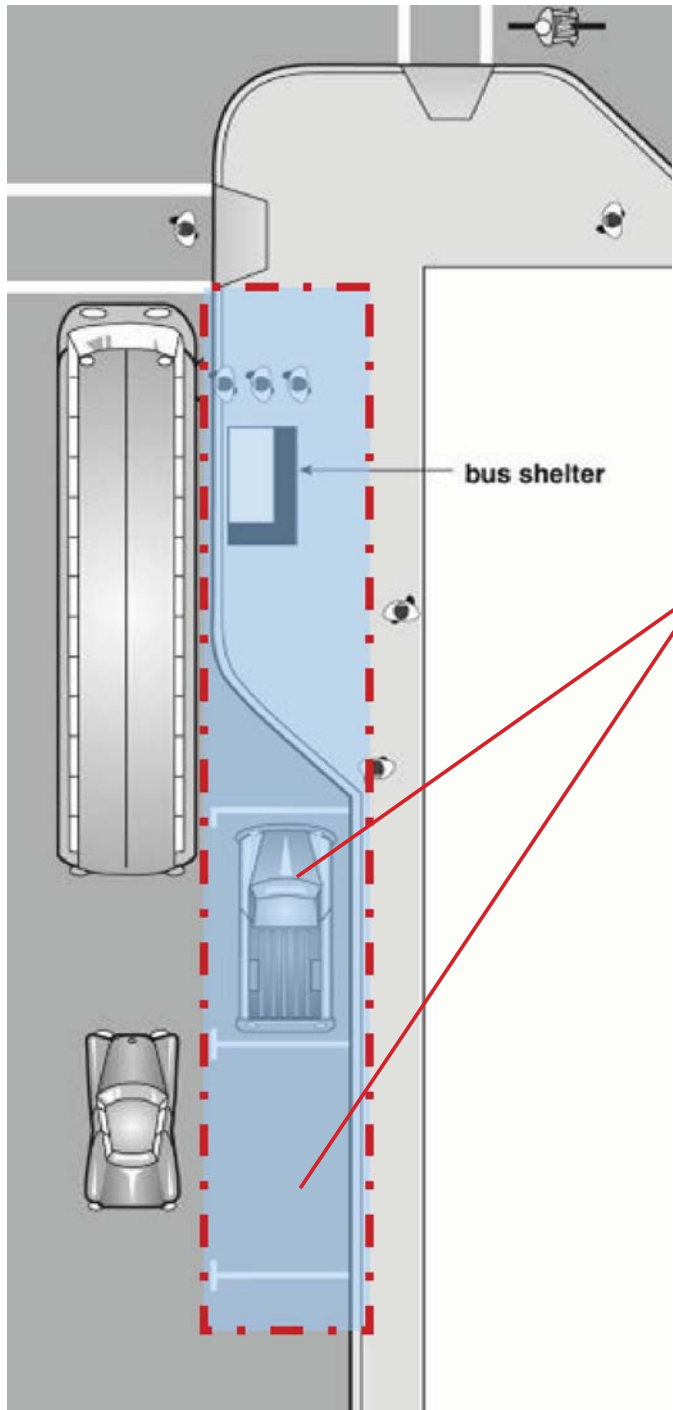


Figure 5.13 - DC Circulator



Table 5.1 - Corridor Transit Performance

Corridor Performance	Travel Time for Buses (min)	Bus Stops	Bus Shelters
Existing	11	21	14
Future w/ Recommendations	9.5	17	17



**Added Parking Spaces**

These spaces would be prohibited if bus would pull up to curb line.

In combination with multi-space parking meters, the number of parking spaces increases by up to 15%.

Bus speed will improve by up to 15%.

Maximum walking distance to bus stop: 1.5 blocks.

Vehicular LOS remains the same.

Figure 5.14 - Correlation between Bulb-outs, Parking Spaces & Bus Service (Source: Oregon Pedestrian and Bicycle Plan)

The business and commercial uses on 14th Street NW are important to supporting the changes to bus stops. Some of the major contributions guiding the short-term transit recommendations include:

- Florida Avenue intersection is a gateway to the corridor. Two bus stops will serve existing residents and future residents at two new developments, which recently broke ground at the NW and NE corner of the intersection.
- U Street is a primary node for this corridor and also serves as a major transfer point between bus routes on 14th Street and those on U Street. Keeping all four stops at the intersections, the recommended changes will enhance pedestrian safety, minimize conflicts, and improve the facilities and amenities at the stops. The proposed mixed use development at the southwest corner of the intersection will further support bus usage at this intersection.
- P Street is a primary node for this corridor and also serves as a major transfer point between bus routes on 14th Street and those on P Street. A relocation of the northbound stop to the P intersection bulb-out location will enhance pedestrian safety and better serve the recent and proposed mixed-use developments in the blocks between P and Q Streets.
- N, R, and T Street intersections are secondary nodes for this corridor, and bus stops at these locations serve local residents, stores, and restaurants, with moderate to high ridership. These bus stops will be maintained and enhanced in conjunction with the bus bulb-outs. They serve recent and proposed developments in the vicinity of the intersections such as the Andover at N Street, the Stella at R Street, and Empire Lofts between R and S Streets.

Recommendations for transit are unified with the introduction of the transit bulb-out. By minimizing the need for buses to pull to the curb to stop, 14th Street will become a new type of transit corridor that safely integrates the activities between pedestrians and transportation system.

Figure 5.15 options A-C show some of the conceptual options for designing bulb-outs at the bus stop locations. Options as shown in Figure 5.15 will require detailed design in order to optimize the safety of pedestrians and bicyclists as they share the bulb-out space with vehicles. Important considerations have to be made

for bicyclists in some of the designs, which may have to stop or go around the buses (which is often the case now.) Options are available that make the bulb-out at-grade with the street. This would allow for a simpler layout for the bicycle lane so that the bicyclist does not feel channeled or constricted in movement.

## Assumptions

Transit bus stop recommendations were based on the following assumptions:

### Elimination of Stops

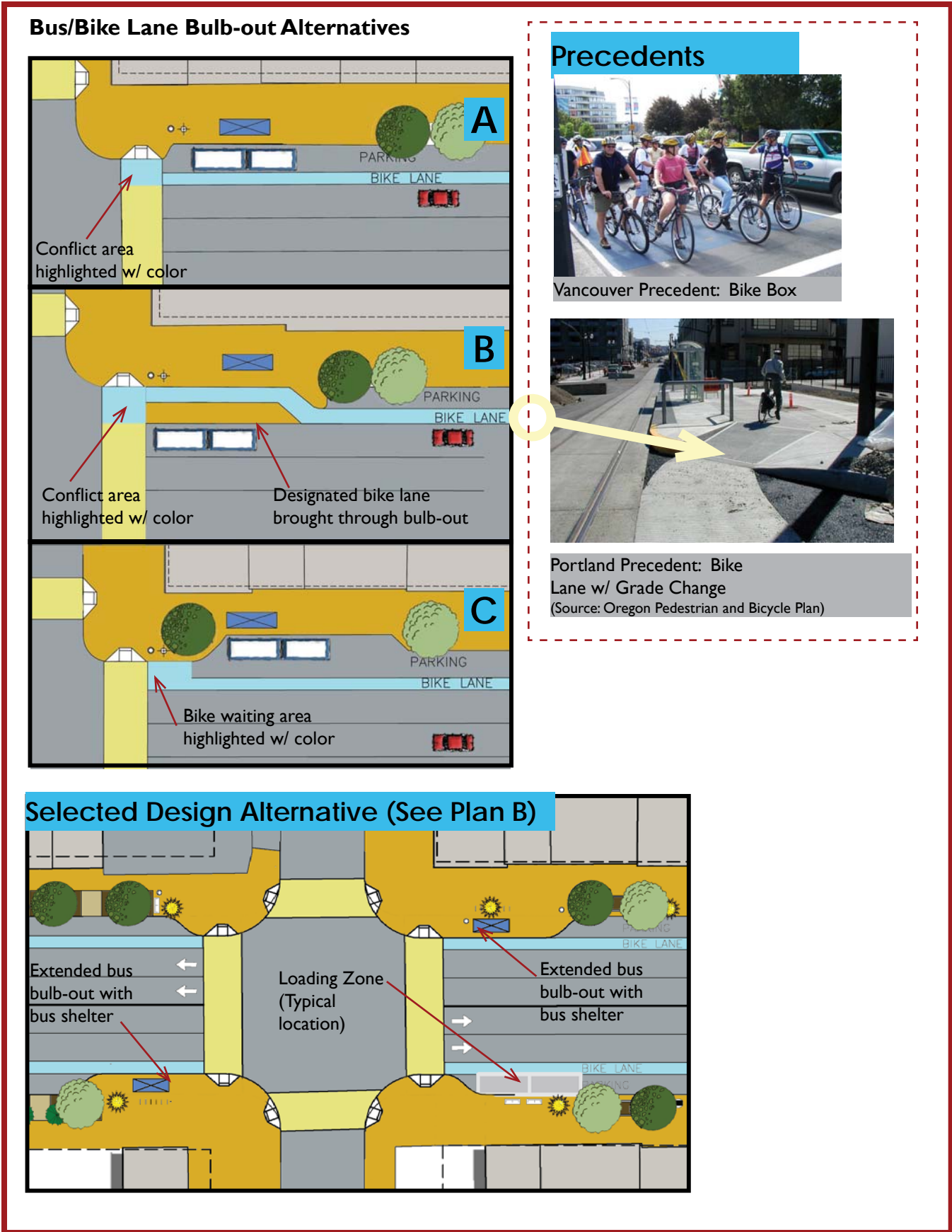
- Q Street (near side Southbound and Northbound). These two stops have daily boardings of 54 for Northbound service and 31 for Southbound service, and 36 alightings for Northbound service and 51 alightings for Southbound service, the lowest boardings/alightings among stops along the corridor. These small trip generators do not attract enough riders to justify a stop, and the existing demand at this location can be accommodated at nearby stops.
- S Street (nearside). With daily boardings of 47 for Southbound service and 71 for Northbound service, these two stops have the second lowest ridership along the corridor. The existing demand can be accommodated at nearby stops.

### Land Uses that Support Bus Stops

- Florida Avenue - Solea, at the Northwest side of 14th Street and Florida Avenue, is a 60,700-square-foot mixed-income, mixed-use live/work project. The project will include 52 condominiums. The View 14 Planned Unit Development (PUD) consists of 185 apartment units, ground floor retail, and an underground parking garage.
- U Street - The two bus stops for Route 52/53/54 carry the largest 2007 daily boardings (479 for Southbound service and 978 for Northbound service) and alightings (1065 for Southbound service and 456 for Northbound service).
- P Street - The bus stops for Route 52/53/54 carry the second largest 2007 boardings and alightings along the study corridor, with 372 daily boardings and 248 alightings for Northbound service.





Figure 5.15 - Bulb-out Design Alternatives





# Vehicular

## Recommendations

- 

Improve access management and focus on minimizing curb cuts along 14th Street.
- 

Pavement markings between bicycle lane, maintain 2 travel lanes per direction, double center lines.
- 

Enhance the signage for one-way side streets to prevent wrong turns.
- 

Maintain existing 4-lane configuration and establish bulb-outs at intersections.

## Details

The current 14th Street roadway configuration and cross-sectional design will be maintained for all future recommendations on the corridor. The study has concluded through analysis of existing and future conditions, and the input of the general public, that the preferred recommendation is to maintain the existing roadway layout, with four vehicular travel lanes, a bike lane in each direction for the length of the corridor, and curb parking on both sides of the street. The general layout of the street can be seen in Figure 5.16 with typical widths and spacing shown in Figure 5.17.

Analysis of traffic for the study area shows that 14th Street is anticipated to perform acceptably for traffic flow and delay under future traffic conditions. Table 5.2 shows the performance of key intersections along 14th Street for existing and future traffic conditions. Intersection performance will begin to become a concern for locations at U Street and R Street under 2030 traffic volumes. To optimize the performance of the corridor, signal timing is adjusted to facilitate the most efficient traffic flow. The calculations for the signal-retiming plan were provided to DDOT in a separate technical addendum.

**Icon Key**

Short-term Recommendation



Long-term Recommendation



Figure 5.16 - Recommended Roadway Configuration - Plan

- 4 Vehicle Travel Lanes
- Bike Lane
- Dedicated Parking Lane

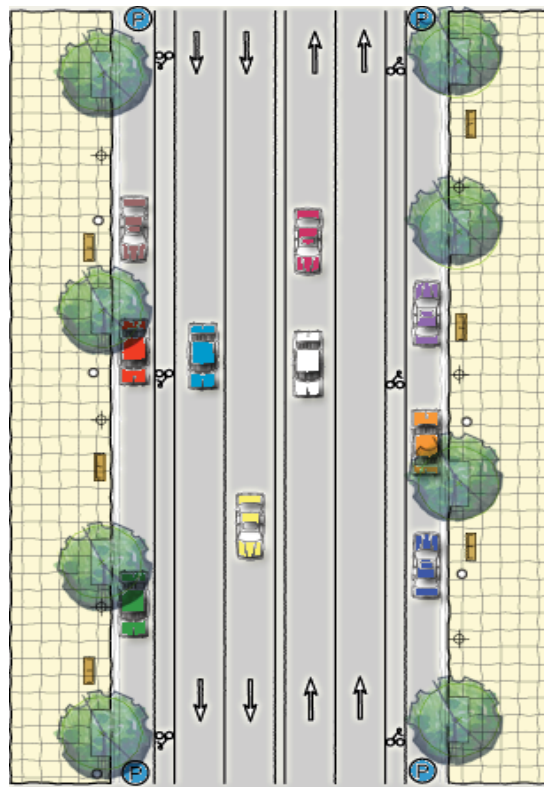
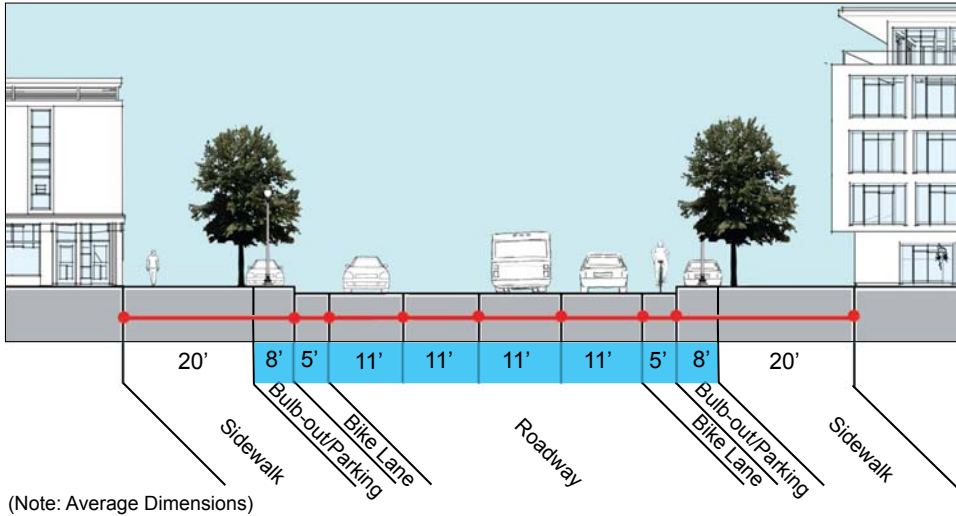


Figure 5.17 - Recommended Roadway Configuration - Section



(Note: Average Dimensions)

Table 5.2 - Intersection Performance

	Florida Avenue	W Street	V Street	U Street	S Street	R Street	Q Street	Rhode Island Avenue	N Street
Existing	B-/C+	B/B	B+/B+	C/C+	B-/B-	C/C+	B-/C+	C+/C	B+/B
Future (2015)	C+/C	B/C+	B/B+	C-/C+	C+/C+	C-/C	B-/C+	C+/C	B/B-
Future (2030)	C+/C	B-/B-	B/B	D+/C	C+/C+	D/C-	C+/C	C/C	B-/B-

A = Best Performance  
 E = Worst Performance  
 B/C = A.M./P.M.  
 +/- = Average Control Delay Range



# Parking/Loading

## Recommendations

- 

Coordinate parking management and promote shared off street parking for existing and new developments
- 

Enhance parking regulation enforcement throughout the corridor.
- 

Maximize remote parking lots, including parking facilities south of Thomas Circle and in the Howard University area.
- 

Establish 15-minute parking zones to meet the needs of customer loading at the blocks with strong short-term parking needs.
- 

Expand partnerships with public/private property owners and establish new ZipCar locations to serve new developments.
- 

Implement a multi-space pay/display parking system and convert all parking on 14th Street to central metered parking.
- 

Establish a variable pricing structure to encourage turnover and manage parking demand.
- 

Delay meter parking starting time from 7AM to 9AM and extend the ending time to 8PM on weekdays and midnight on Fridays and Saturdays.
- 

Improve parking management on residential side streets with multi-space meters for non-residents effective until 8PM on weekdays and midnight on Fridays and Saturdays
- 

Establish weekend metered parking regulations
- 

Improve truck loading zones to meet the needs from existing and expected land uses and establish progressive pricing to encourage turnover.

**Icon Key**

Short-term Recommendation



Long-term Recommendation



## Details

Integral to the success of 14th Street is the balance between pedestrian and vehicular activity. Parking recommendations in this study focus primarily on effectively managing the parking demand and minimizing the conflicts of parking with bicycle, pedestrian, and transit users. Central to implementing the parking recommendations is the installation of a multi-space pay/display parking system that enables use of a variable pricing scheme as an incentive and disincentive to affect travel behavior.

As determined in the existing condition section, parking in the study area is constantly in demand. The recommendations for a multi-space system, bus stops and bulb-outs will increase on-street parking supply by roughly 10% as shown in Table 5.3, taking into account the elimination of bus stops and associated curb requirements.

Table 5.3 - Parking & Loading Corridor Performance

Corridor Performance	Parking Spaces	Side Streets	Loading Zones	ZipCar Locations
Existing	250	1100	7	7
Future w/ Recommendations	270	1210	9	10

Based on the nature of existing and future land uses in the corridor and recent experience in the downtown DC and elsewhere, a 60-foot loading zone is recommended in the corridor, except for locations where a high demand exists or is projected to occur. Field observations and the public input suggest that loading demand is high for locations such as west side of P Street, east side between Rhode Island Avenue and N Street, and west side of U Street. In these locations 80-foot loading zones are proposed. All loading zones are proposed to be effective from 7 am to 6:30 pm Monday through Friday, with 2-hour time limits in place.

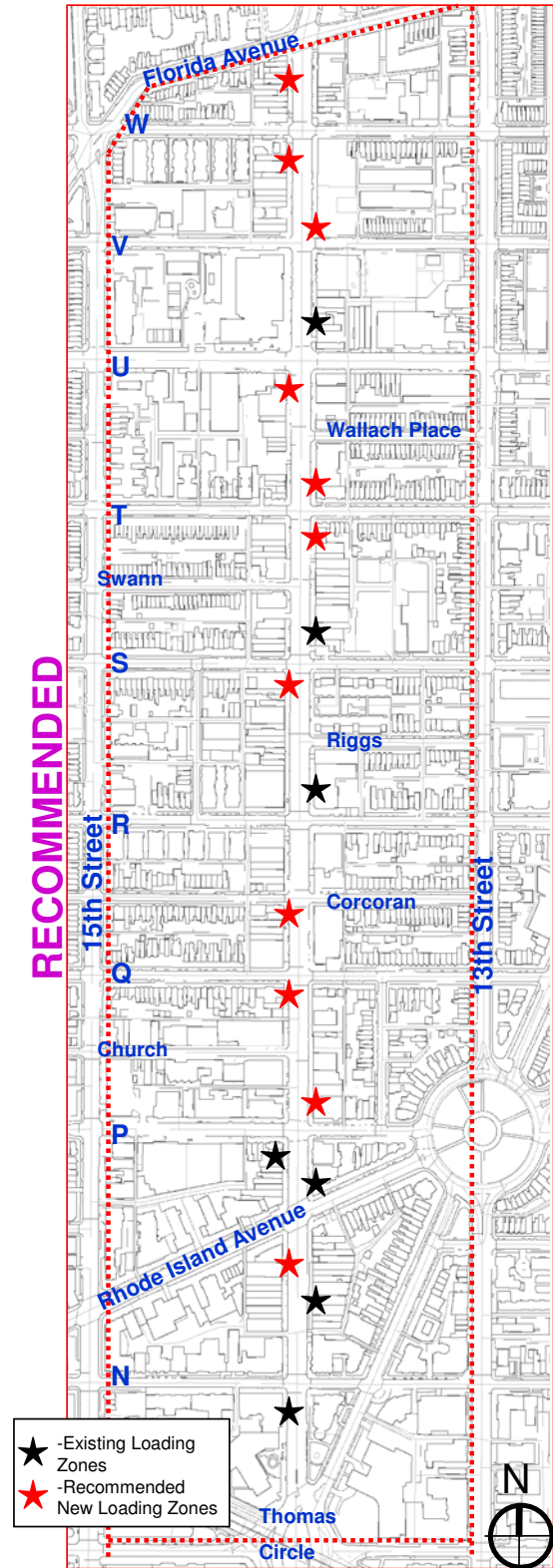


Figure 5.18 - Recommended Loading Zones

Supporting recommendations related to the multi-space system deal with variable pricing and the development of different parking schemes. Multi-space systems are based on paying for parking for a duration of time at a parking kiosk, and then placing the printed ticket on the dashboard of the vehicle. This way, if there are different parking policies, as long as a ticket is displayed, the individual can park based on the designated parking policy in that location. Although this is mechanically a simple process, the adoption of new parking recommendations from this study is dictated by DC law, which prohibits in many cases changing the current parking policies in the District.

As an example of variable pricing, a mid-day parking price can be increased to encourage turnover during lunch time. The actual costs for the different periods of time under the current weekday 2-hour metered parking structure could be:

- 9:00 am – 11:00 am (\$0.25 for 15 minutes)
- 11:00 am – 1:00 pm (\$0.50 for 15 minutes)
- 1:00 pm – 8:00 pm (\$0.25 for 15 minutes)

Another example is to price the parking cost based on the length of parking—the longer a car parks in a space, the more expensive it becomes. For example, the parking cost is 1 dollar for the first hour, 2 dollars for the second hour, and 4 dollars for the third hour. A more effective parking turnover strategy is also needed for weekend days on 14th Street; currently there are no restrictions. This might include establishing a parking meter regulation for 10:00 am – 8:00 pm (\$0.25 for 15 minute) to encourage turnover and bring more people to short-duration visit businesses.

An example of different parking schemes could include allowing visitors to park on designated Residential Permit Parking (RPP) zones after 8:00 pm, if they are willing to pay for the parking. Using the multi-space system, visitors accessing restaurants and entertainment on 14th Street after 8:00pm, would pay for their parking duration (\$0.25 for 15 minute) at the parking kiosk and display the ticket on their dashboard. This strategy will make the parking spaces on cross-streets on both sides of 14th Street available to visitors, benefiting visitors as well as generating revenue, which can be used for the area's streetscape improvements.

Recommendations for parking are linked to the Travel Demand Management (TDM) programs that are being instituted in the District. These programs work to introduce low capital investment solutions for management of the traveling public. Most of the programs work on leveraging options to share common transportation facilities. The TDM options proposed in this study can play a critical role in promoting effective parking management. TDM options for 14th Street include:

- Off-street parking lots could be negotiated to be kept open after 8:00 pm.
- Local business or theaters can make arrangement to use lots for a fee.
- Parking requirements for new developments can be negotiated downward if shared parking is part of the development space.
- A shuttle service to serve the connectivity between remote parking lots and the study area can be established during times of greatest need.
- Promotion of the ZipCar program to include more spaces along 14th Street, or the addition of more vehicles at the ZipCar lots.

Competing with parking and all the other transportation activities on 14th Street, truck and passenger loading often creates bottlenecks along the corridor. Double-parking is the norm for most delivery vehicles, typically blocking bicycle, bus, and vehicular passage. Short-term loading recommendations encourage continued use of alleys for truck loading, and establishment of new loadings zones to accommodate the needs of businesses, patrons and residents. Recommendations for loading zones on the fold-out plan focus on accommodating the locations that have the highest concentrations of businesses, as well as those businesses that have the greatest need for turnover customers. Fifteen-minute parking is recommended for several locations along the corridor to facilitate patrons loading and short-term parking (Figure 5.20).

Figure 5.19 - Existing Carsharing Signage





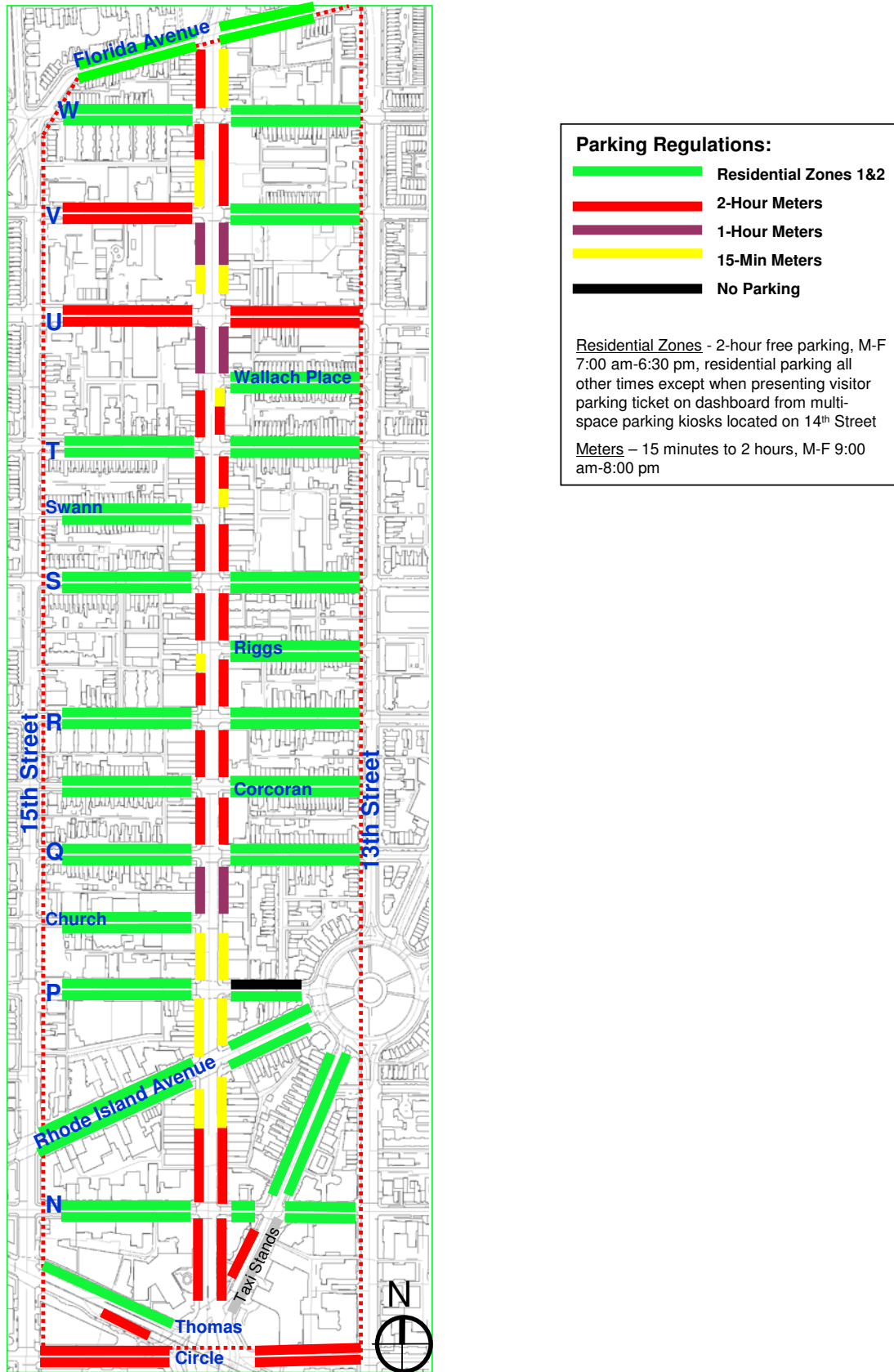


Figure 5.20 - Recommended Parking Regulations







**garden district**

an urban garden center  
spring & summer hours  
m-f 9-8 sat 9-7 sun 10-6  
rain days until 7  
202-797-9005 www.gardendistrict-dc.com

6

STREETSCAPE  
RECOMMENDATIONS

# STREETSCAPE RECOMMENDATIONS



# Introduction

## Overview

Historically 14th Street was known as Auto Row with a large number of auto dealerships located in the area providing a magnet for car shoppers before World War II. The identity of the area has changed since then and 14th Street has experienced an explosion in residential and retail opportunities within the corridor in the last decade. Investment in streetscape and transportation improvements will produce a showcase urban corridor for future generations that offers mobility opportunities for bike, pedestrians, and public transit as well as the automobile and a durable and sustainable streetscape palette to guide the development of the public realm.

## Recommendations

This chapter contains the streetscape recommendations for the public realm study area of 14th Street. The streetscape study sub area covers 14th Street NW between Florida Avenue to the north and Thomas Circle to the south (see Plan B). The streetscape recommendations complement the recommended transportation improvements with the common goal of improving pedestrian safety and traffic flow, promoting multi-modal transportation management and enhancing 14th Street and its public space. The recommendations have been analyzed carefully to ensure practicality, functionality, aesthetic appeal, sustainability, and successful implementation. They are based on community and specialists' input and are derived from an inclusive public participation process.

### Short-term Recommendations

Short-term improvements are listed below. They can be implemented within 12-24 months and don't require substantial investment. Overall, the short-term recommendations involve signage modifications and maintenance and replacement of damaged streetscape elements.

- **SIGNAGE** - Install 14th Street Historic Trail District signage as an extension to the U Street Historic Trail. Remove/consolidate excess signage along the corridor (see Streetscape Elements Library, Element S6).
- **MAINTENANCE** - Maintain all existing public realm elements, including sidewalk, tree boxes, and street trees. Prune and monitor tree health at regular intervals.
- **CURBING** - Replace where broken or damaged. For example, provide missing ADA curb cut ramp at junction of 14th

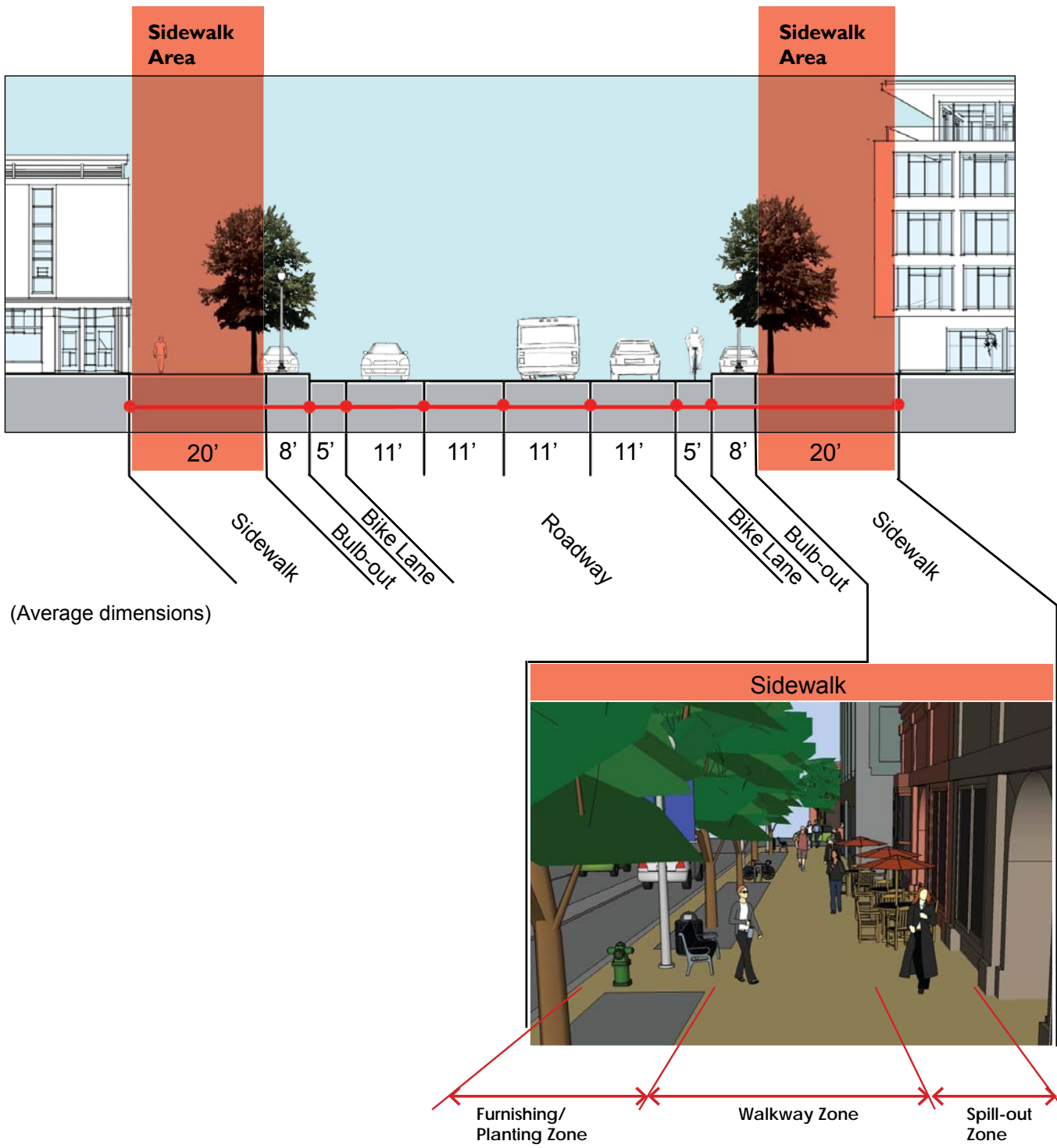


Figure 6.1 - Recommendations - 14th Street NW: Sidewalk Focus

Street and Wallach Place (see Figure 6.2).

- **LIGHTING** - Replace broken bulbs and repair broken/wind damaged banners. Consider replacement of these with aluminum banners to avoid the need for ongoing maintenance.
- **BUS SHELTERS** - In consultation with WMATA, continue the program of bus shelter replacement along the corridor (see Streetscape Elements Library, Element S3).

## Long-term Recommendations

Long-term streetscape recommendations and the overall theme for the 14th Street corridor are identified and discussed in detail in the remaining sections of this chapter. The sections include:

- Sidewalk Layout
- Public Open Space
- History and Art
- Future Development
- Sustainable Design
- Focus Areas: The intersections of Florida Avenue and 14th Street NW, U Street and 14th Street NW, and P Street and 14th Street NW

In addition, the chapter concludes with a Streetscape Elements Library, which provides guidance, a categorical view of streetscape options, and descriptions of each element. The library serves as a resource document to further develop the design recommendations. The implementation of long-term improvements depends upon availability and allocation of required funding. The full implementation of the study recommendations can take place within five to seven years. A long-term recommendation summary is provided below. Refer to Chapter 7 for corresponding cost estimates and implementation details.

- **LIGHTING** - Install new corridor lighting, the recommended vehicular/pedestrian light placing is 60' on center. Where appropriate install new pedestrian level lights or combination lights to provide additional levels of illumination and improve pedestrian safety.
- **INTERSECTION MODIFICATIONS** - In accordance with the transportation/streetscape improvements, provide bulb-outs at all T-intersections and selected cross streets. In consultation with WMATA, eliminate selected bus stops within the study area (see Chapter 5) and move bus stops onto the newly created bulb-outs. All bulb-out corners must be

compatible with truck turning radii. Utilize the newly created sidewalk space for public art installation and/or paving accents.

- **WALKWAYS** - Install Poured-in-Place Concrete as the new sidewalk material along the entire length of the corridor and examine opportunities to incorporate sidewalk accents.
- **ADA RAMPS** - Install/upgrade ADA ramps to meet current DDOT design standards and ADA requirements.
- **FURNISHING/PLANTING ZONE** - Install new curb and gutter and permeable furnishing/planting zone surface treatments (cobblestones or tumble finish concrete pavers). Plant new street trees and utilize healthy existing trees according to the sidewalk layout design guidelines. Relocate and provide additional street furnishings in this zone, including seating, bicycle racks, and trash receptacles.
- **MULTI-SPACE PARKING** - Install multi-space parking meters along the entire length of 14th Street, utilize 100'-150' spacing coordinated with that of light poles and trees (see Chapter 5 for additional parking regulation information).
- **PUBLIC ART/ENTRANCE MARKERS** - Engage in focused public art consultation to evaluate opportunity sites, appropriate installation design(s), and funding streams. Commission work from the selected artists and work with DDOT, the Commission on the Arts & Humanities, and the local businesses to develop an installation and maintenance strategy.
- **LOW IMPACT DEVELOPMENT (LID)** - As part of the sidewalk and street-resurfacing project explore the feasibility of incorporating LID devices into the overall design. Recommended Low Impact Development techniques include bioretention cells within landscaped bulb-outs at T-Intersections, bioretention cells within tree planting beds all along the corridor, permeable pavers within the parking lane, permeable pavers within the Furnishing/Planting Zone, and gutter filters to augment the DC standard granite curb and brick gutter.
- **STREET VENDING** - As part of the DC street vending initiative and in consultation with nearby businesses and residences, implement and enforce locations of street vendors within the 14th Street study area.





### Examples of Short-term Streetscape Recommendations

Clockwise from Top Left:

Figure 6.2 - Install ADA Compliant Ramp on 14th Street near Wallach Place

Figure 6.3 - Repair Uneven Sidewalk between N Street and Rhode Island Ave. - East Side

Figure 6.4 - Maintain or Replace Banners between S Street and T Street - West Side

Figure 6.5 - Repair Damaged Tree Box Railing between P and Q Street - East Side

Figure 6.6 - Repair Street Light between N and Thomas Circle - West Side

# Sidewalk Layout

## Overview

The average sidewalk width of 20 feet within the 14th Street NW corridor creates an opportunity to create a flexible streetscape design in the public realm. An overly repetitious tree planting and street furnishing placement should be avoided. A flexible design scheme will be more responsive to site-specific conditions and respect the eclectic character of the corridor. This will also allow interesting combinations of streetscape elements to be installed at various locations.

The recommended streetscape layout is based on the average sidewalk width and then modified for narrower widths found along the corridor. The sidewalk layout guidelines incorporate additional vegetative space by alternating standard or regular size planting beds with wide planting beds. The additional green space presents Low Impact Development opportunities to reduce stormwater runoff. See the Sustainable Design section for further information. The alternating sized planting beds also add visual interest and rhythm to the streetscape. Furnishings, multi-space parking meters, bike racks, newsracks, and streetlights will be placed in the area between planting beds. The adjacent trees will provide shade for the street furnishings and a comfortable seating environment. A flexible arrangement of furnishings and amenities is encouraged in this area. The size of the area between planting beds will also allow adequate circulation between the parking lane and the sidewalk. Paths should also be installed in the middle of the planting beds to provide additional access from the parking lane. In narrow sidewalk locations the majority of the planting bed can be covered with pavers in order to create additional walking space.

The creation of a distinct Furnishing/Planting Zone will clear the Walkway Zone from unnecessary impediments and establish a clear circulation pattern. The width of the overall Walkway Zone is comfortable to the average pedestrian user and Cafe Spill-out Zones can be established at appropriate locations. The following details are conceptual design guidelines based on sidewalk width and should serve as a foundation for further detailed design work.

Figure 6.7 - Overall Sidewalk Layout Rendering: Sidewalk View



**Furnishing/Planting Zone**  
Dimensions: 6'-10'

**Walkway Zone**  
Dimensions: 6' (if Cafe Spill-out) -10'

**Spill-out Zone**  
Dimensions: 4'-5'



Figure 6.8- Overall Sidewalk Layout Rendering: Street View





## Design Guidelines

### Overall Streetscape Layout

Design guidelines are based on the average sidewalk width of 20 feet. The majority of the 14th Street NW corridor between Thomas Circle and Florida Avenue falls into this category.

- Alternate standard size tree planting bed (6' width, 36' length) with wide tree planting bed (10' width, 48' length).
- The Planter dimensions allow for a Continuous Root Zone.
- 10' wide Walkway Zone, ~6' wide Walkway Zone if Cafe Spill-out Zone is needed.
- Locate furnishings, such as bike racks, benches, and trash cans, in the 18' area between planters.
- Locate streetlights in the 18' area between planters. Follow 60' on-center spacing.
- Cafe Spill-out Zone - Standard size planters allow space for Cafe Spill-out Zone next to tree planters or adjacent to building facade. If a cafe is located near a wide planter, installing Structural Cells will support cafe seating without compacting tree roots. As an alternative, the wide planter can be replaced with a standard size planter to allow adequate space for a cafe.
- If a large cafe area is needed, remove planter and start pattern with next alternating planter size.
- 2' carriageway located alongside standard size planters allow for easy access from designated parking lane.
- Install 8' wide walkways in the middle of wide planters to provide easy access between the parking lane and the Walkway Zone. Install walkway on a 6" granular base to prevent compaction of Continuous Root Zone.
- Healthy existing trees should be incorporated into the streetscape design. In some cases, a 2' carriageway may not be possible.

- between parking lane and Walkway Zone. Install walkway on a 6" granular base to prevent compaction of Continuous Root Zone.
- 8' wide Walkway Zone.

### 15' Sidewalk Width

- Replace wide planters with standard size planters. Dimension: 6' width, 48' length.
- Locate furnishings, such as bike racks, benches, and trash cans, in the 12' area between planters.
- Install 2' carriageway alongside regular sized planters to provide easy access from parking lane to Walkway Zone.
- 7' Walkway Zone
- Difficult for Cafe Spill Out Zone unless planter is eliminated.

### 13' Sidewalk Width

- Eliminate wide planters.
- All planters are 6' wide.
- Break up standard size 48' long planter into two 18' long planters.
- A new walkway area is created between the 18' long planters. Furniture can be placed in this space. The new walkway area also prevents the Walkway Zone from feeling too constricting and eases circulation patterns.
- 7' Walkway Zone
- No carriageway.
- Alternate two 18' long planters and one 36' long planter. This will provide access from the parking lane to the Walkway Zone.
- Creation of the 36' long planter (reduction from 48' in length) creates a 24' space for furnishings even though sidewalk is narrow.
- Spacing between streetlights remain the same.

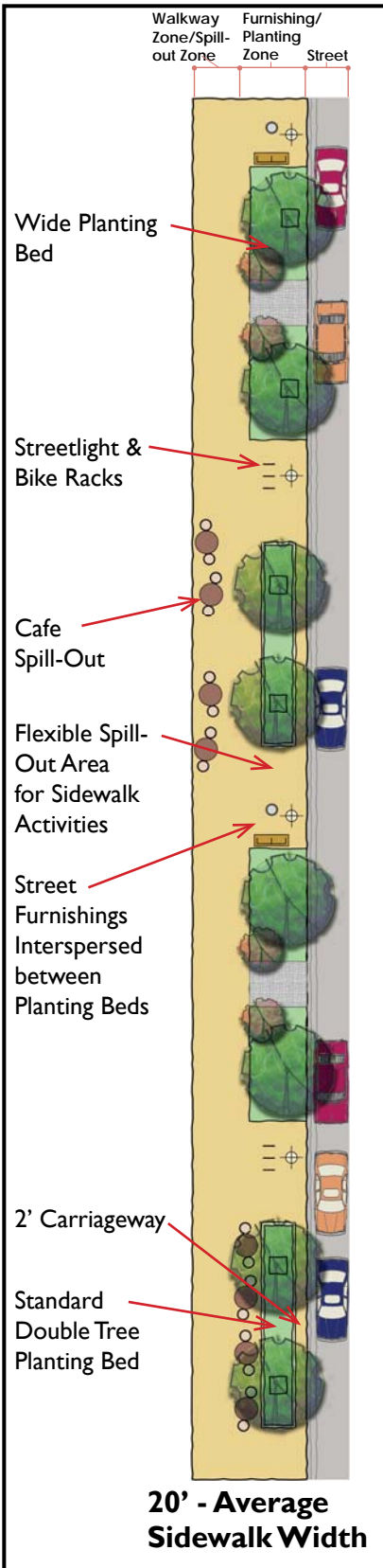
## Modifications

### 18'- 19' Sidewalk Width

- Eliminate carriageway.
- Wide planter size remains 10'.
- Change Standard size planter dimension to: 6' width, 48' length. Planters are now aligned with back of curb.
- Locate furnishings, such as bike racks, benches, and trash cans, in the 12' area between planters.
- Install 8' wide walkways in the middle of wide and standard size planters for easy access

Figure 6.9 - Typical Sidewalk Layout Plans

**Overall Streetscape Plan**



**Modifications**

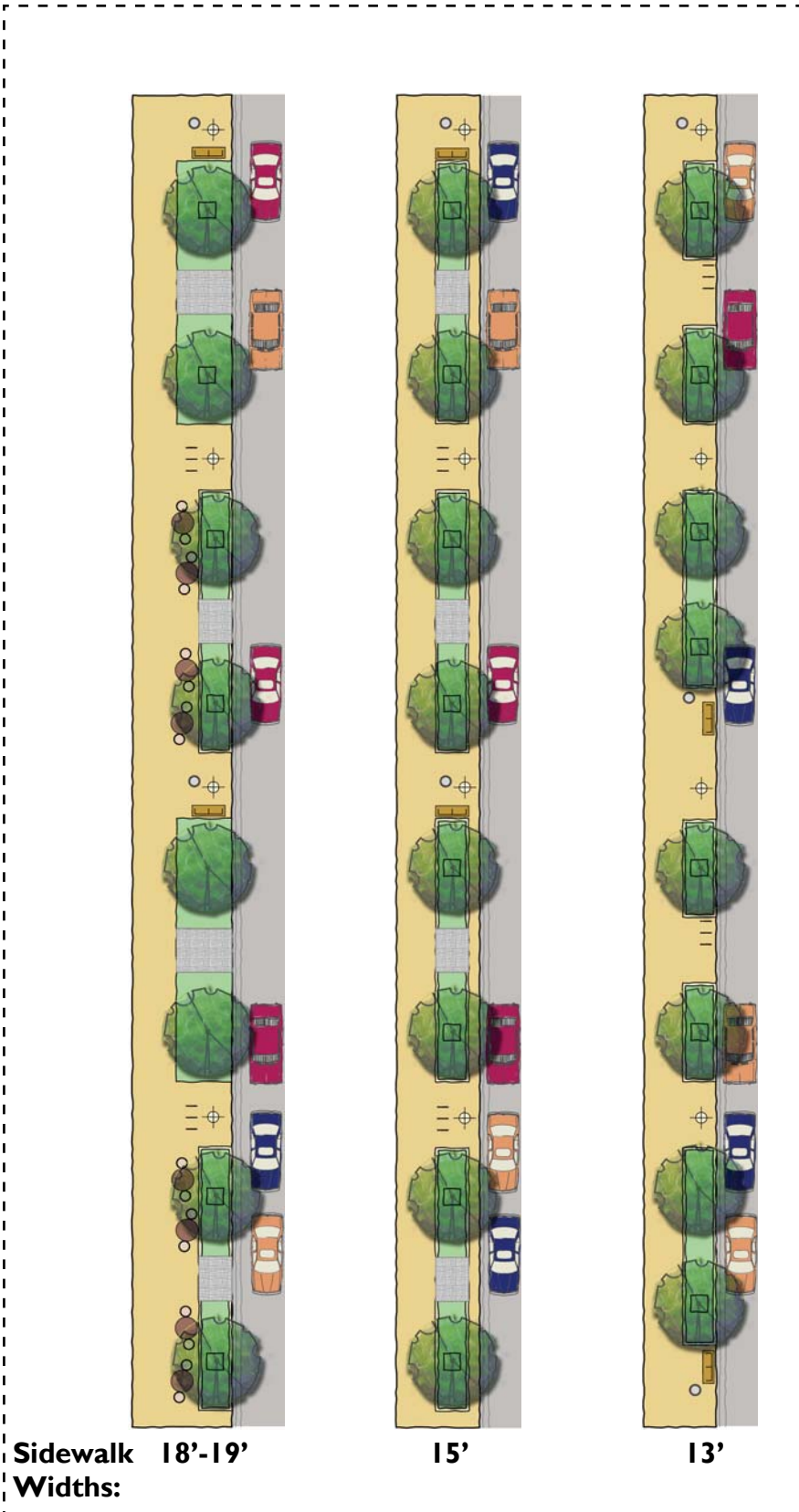
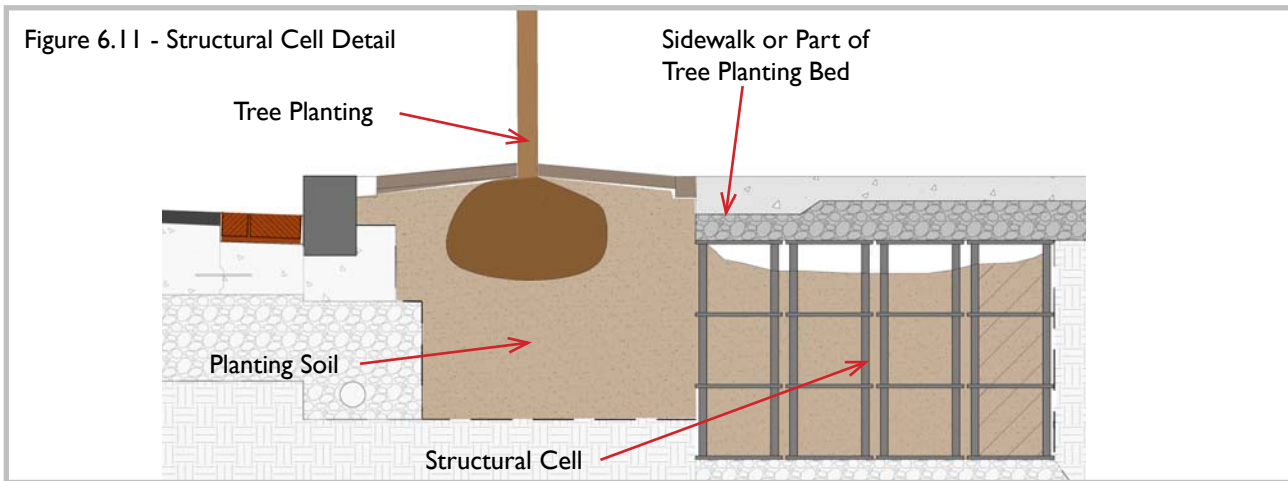
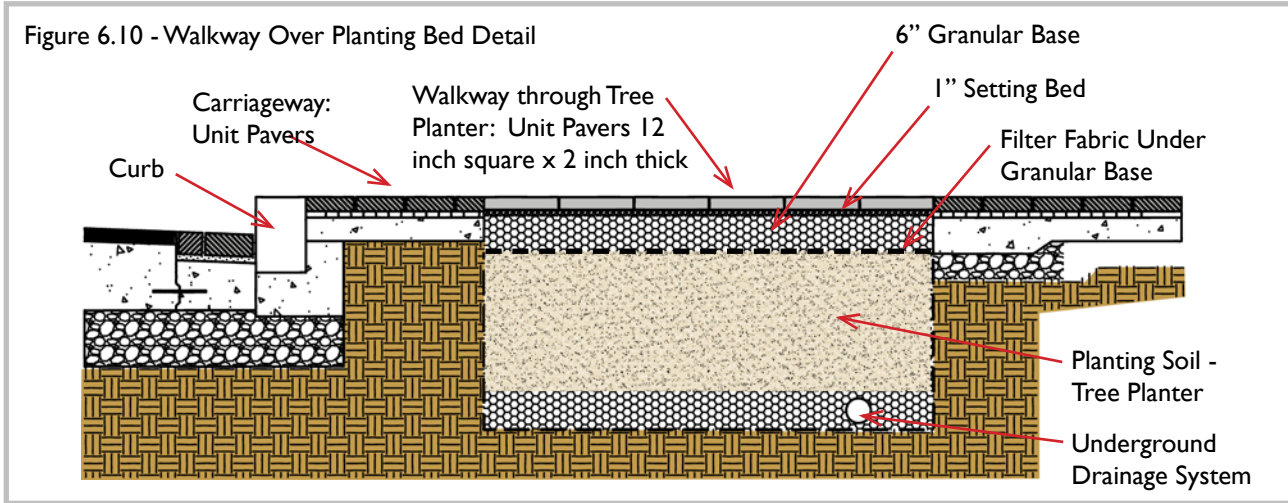


Table 6.1 - 14th Street NW Sidewalk Widths

14th Street NW Location	West Side Sidewalk Width	East Side Sidewalk Width	Considerations
W Street to Florida	19'	20'	Little building intrusion on ROW
V Street to W Street	20'	20'	Little building intrusion on ROW
U Street to V Street	30'	20'	West Side - Reeves Plaza 51' East to West, 63' from entryway to corner of corner, 43' North to South. Property line impedes into the ROW by an average of 8'.
T Street to U Street	18'	20'	West Side- street width varies. Northern 1/4 approx. 17' due to building intrusion on ROW. Next 1/4 approx. 20'. Southern half is approx. 16' due to building intrusion on ROW. East Side - Bisected by Wallach Place
S Street to T Street	20'	20'	West Side - Bisected by Swann Street. A small amount of building intrusion on ROW mid-block
R Street to S Street	18'	15' to 20'	West Side - Some variability in the amount of building intrusion on ROW. East Side - Bisected by Riggs Street. Northern end is approx. 15' . Southern end is approx. 20'.
Corcoran Street to R Street	20'	20'	Little building intrusion on ROW
Q Street to Corcoran Street	20'	20'	East Side - Slightly narrower on northern end by 1-2'
P Street to Q Street	20'	19'	West Side - Bisected by Church Street. Sidewalk varies between 18' - 21' East Side - Sidewalk narrows at northern end to 15' although Property line is set back an additional 3'-4'.
Rhode Island Avenue to P Street	19'	19'	East Side - Sidewalk width varies slightly from 18'-20' due to building intrusion on ROW. Rhode Island Avenue North Side @ 14th Street - potential public "plaza" - West side- 2500 sq.ft. of space in front of coffee shop spill out area. If there was a turnover of businesses the space would equal 117 ft.x 36 ft. East side - 24 ft. x 53 ft. or 1400 sq.ft. of space.
N Street to Rhode Island Avenue	19'	20'	West Side - Sidewalk width varies 17' at southern end to 20' at northern end. Rhode Island Avenue South Side @ 14th Street - potential public "plaza" -
Thomas Circle to N Street	18'	13'	West Side - Sidewalk width is narrower (16' ) at the northern end. Southern end is 19'-21'.
NOTE: Average Sidewalk Widths - measurements taken at northern end, mid-block, and southern end to determine average widths. Additional measurements taken on specific blocks where a high level of variation exists.			



Details of walkways within planters and subsurface treatments for Cafe Spill-out Zones mentioned in the design guidelines are shown in Figure 6.10 and 6.11.



\* Note final selection of sub grade and other materials may vary based on installation requirements

## Assumptions

Sidewalk layout design guidelines and conceptual graphics are based on the following assumptions.

- Dimensions are based on GIS data downloaded from the official website of the Government of the District of Columbia. A survey is needed to determine overall feasibility of the conceptual design recommendations and move toward the next detailed design phase.
- Planting beds are placed to save the maximum number of existing mature trees and to provide a general 60' spacing of streetlights. Mature trees are defined as providing a tall and healthy canopy at the time of the site visit (Spring 2007). New trees planted within the past five years are expected to be transplanted to new locations that follow the sidewalk/planting bed layout.
- Dimensions and locations of planting beds for existing trees may vary.
- Locations of furnishings, including benches, trash receptacles, and bike racks are for representative purposes only. Actual placement must be evaluated during the design phase, and coordinated with right-of-way treatments of private developments, i.e. recent/new condominium projects.
- Spill-out Zone terminology often implies café use but it can also apply to other commercial and public uses.
- Consolidation of newspaper boxes or newsracks is recommended; however it should be noted that regulation of newspaper distribution must be done in conjunction with the City Attorney's Office. This will ensure that the City's rules do not infringe on the constitutional rights of the newspaper publishers. All appropriate parties should review and approve the placement guidelines and application procedures in order to adhere to the legal issues surrounding the constitutional protections on free speech.
- If a sidewalk cellar exists where a street tree planting bed is recommended, eliminate the street tree in this location and utilize extra space for appropriate furnishings.
- Street tree damage can occur from the loading and unloading of vehicles around loading zones. During the final design phase tree locations in these areas should allow for increased pedestrian/vehicular activity.

## Photometric Analysis

As part of the study, a photometric lighting analysis was performed to determine compliance with the District's Recommended Lighting Chart. Results showed that the existing street lighting, cobra-head fixtures with 400W HPS lamps, does not meet the District's standard for acceptable lighting requirements along the corridor.

The replacement of the existing lighting with the DC standard lighting fixture, the DC Teardrop fixture with 150W HPS Lamps, would bring 75% of the corridor within the uniformity range requirements. Additional light poles or adjustments between R and S Streets and Rhode Island Avenue and Thomas Circle would bring the entire corridor into compliance.

It is important to note that even though the existing lighting has a higher than required average foot-candle level, the streetlights are mounted approximately 30 feet above ground and directed towards the street, resulting in insufficient illumination of certain sidewalk areas. The proposed lighting design addresses the deficiency and meets all applicable requirements. However, since pedestrians have become accustomed to the higher light levels and tolerant of the contrast between light and dark spots, the proposed design may be viewed as "not as bright" and generate some opposition.

This analysis does not take into account potential relocation opportunities of street lighting, as developed in the corridor plan for this study. Further analysis should be completed in order to integrate the sidewalk layout design guidelines with acceptable lighting requirements. Consideration should also be given to pedestrian level and/or combination lighting needs (e.g. Twin 20) with public safety being a significant concern throughout the corridor. According to the sidewalk layout design guidelines, the recommended street lighting placement is 60 feet on center. As this study is translated into detailed design schemes, the appropriate quantity and placement of DC Teardrop and Twin 20 fixtures can be determined. For example, the next design phase should explore the feasibility of placing DC Teardrop fixtures at intersections and mid-block locations while Twin 20 fixtures could be located in the remaining areas of the block.

Figure 6.13 - DC Teardrop Fixture



Figure 6.12 - Upright Pole Twin 20 Fixture





# Public Open Space Recommendations

The 14th Street study area does not contain a significant amount of green open space. Only the adjacent neighborhoods of Logan Circle and Thomas Circle at the southern end have some public open space. The proposed double tree planting beds recommended for the corridor will increase the amount of visible landscape features along the corridor. The design recommendations identify focus areas (see Focus Area section) within the corridor which will aid in defining and enhancing key activity hubs. The enhancement of the sidewalk at these intersections is important to identify and fully utilize what little public open space exists. For example, the potential of Reeves Center Plaza at U Street is not fully realized. Special design consideration should be given to spaces where the public right-of-way is slightly wider than the average 20 feet. For example, the intersection of Rhode Island Avenue and 14th Street NW offers additional sidewalk space for additional tree plantings, LID devices, SmartBike, furnishings, and public art installations. Multiple uses are encouraged and functions can differ between day and night. For example, light installations may only be featured during evening hours which will increase visual interest and lend a unique character to the location. Artificial light has the potential to change how the actual space is viewed and perceived. The proposed bulb-outs should also be used as an opportunity to enhance the public realm along the corridor. They create additional sidewalk space for paving accents and other public art features, potential vending opportunities, and overall streetscape amenities. For details of streetscape elements please refer to the Streetscape Elements Library on page 180.

Figure 6.14 - Existing Conditions - Southwest Corner of Rhode Island Avenue and 14th Street NW





Figure 6.15 - Daytime Rendering - Southwest Corner of Rhode Island Avenue and 14th Street NW



Figure 6.16 - Nighttime Renderings - Southwest Corner of Rhode Island Avenue and 14th Street NW

(Light statues based off of *Reprojected*, a Munich LED light installation on display from November 2006 to April 2007. The LED “columns” are a digital platform for temporary art projects in the public domain. Artists are invited to create a piece of work for display on the LED screens of varying heights.)



# History & Art

## History

As explained in Chapter 2, the 14th Street NW corridor contains a notable history as a rising commercial corridor after the Civil War. The corridor is also known for its history as a well utilized commuter route, automobile showrooms, an epicenter for Washington’s African-American city life, and an area effected by the 1968 riots. Today, the study area straddles the Greater U Street Historic District and the Greater 14th Street & Logan Circle Historic District. According to the DC Historic Preservation Office, the historic district designation does not prescribe the use of specific streetscape materials, such as brick, in this area. However, the overall design should respect the corridor’s past, unique architectural features, and the current evolution of cultural establishments in the area. This study recommends the overall application of traditional style street furnishings and lighting. These features will blend well with the historic architectural features found along the corridor. The recommendation of Poured-in-Place Concrete as the sidewalk material, the installation of environmentally sustainable LID devices, and the integration of various forms of public art will create a “modern” overlay to the corridor. The blending of both traditional style elements with modern touches will create a streetscape design in keeping with the current eclectic character of 14th Street NW. Specific streetscape features, such as a proposed “14th Street Heritage Trail,” can provide a direct reference and bring awareness to the corridor’s past. In addition, the rich history of the corridor should be treated as inspiration for future public art pieces and installations. This will generate an added dimension to the public realm. The following section focuses on art in the public realm and elaborates on recommended techniques.



## Art

The 14<sup>th</sup> Street NW corridor from Thomas Circle to Florida Avenue contains a dynamic mix of art venues, theaters, community facilities, retail and entertainment locations. The interconnected mix of cultural assets combined with the Uptown Arts Overlay District designation provides the 14<sup>th</sup> Street NW corridor with the ideal backdrop for public art installations. An emphasis on public art will enhance the unique character of 14th Street, highlight the Arts & Entertainment activities, and will engage visitors and residents with their surroundings. In addition, public art can act as a vehicle to create meaningful connections between the users of the corridor and the place itself. By accomplishing this, community life is reinforced and visual characteristics of the corridor are strengthened. Integrating public art with landscape and streetscape elements in the public right-of-way also allows for creative outcomes and collaborations. The underlying eclectic character of the corridor should be retained and all public art programs and features should improve upon this environment rather than detract from it. Therefore, a ‘heavy handed’ public art implementation plan should be avoided while authentic and creative placemaking ideas should be supported. Community consultation and involvement in the implementation process is encouraged. The 14<sup>th</sup> Street Transportation and Streetscape Study recommendations for public art focus on the following concepts:

### 1) Light Installations

Light installations are recommended corridor-wide and the community, businesses, and artists should identify ideal placement locations. The form of the light installations should vary and respond to location specific features along the corridor. Flexibility is encouraged. For example, the installations can be freestanding pieces or mounted on facades. Streetscape elements can be highlighted at night to add a new dimension to the corridor amenities. The goal is to add interest and sidewalk illumination for evening activities. The interplay between light and shadow has the potential to add a theatrical backdrop to the corridor at night. Legibility of the surroundings is increased and an efficient use of light does not hinder the quality of the urban night sky. Additional light on the corridor can also improve the feeling of safety which is often a concern for local residents. Capitalizing on synergies between public art and sustainable energy technologies, installations should incorporate solar power and LED features wherever possible. If the appropriate locations are identified, permanent installations with flexible content can be incorporated along the corridor. For example, the installations may project images, announcements for theaters or art venues onto the sidewalk.



Figure 6.17 - Light Panels used for Venue Advertisement - Studio Theatre Rendering



Figure 6.18 - Animate Blank Facades with Light Installations - 14th Street NW Verizon Building Rendering

## 2) Sidewalk Accents

Poured-in-Place Concrete is the recommended sidewalk treatment along the 14<sup>th</sup> Street corridor between Thomas Circle and Florida Avenue. Accents, such as mosaics, imprints, and plates can be incorporated into single pavers. The accents can be arranged along the sidewalk to ‘tell a story’ or lead toward a certain destination on the corridor. All accents within the pavers must meet ADA requirements. A series of accented pavers can be installed at specific intersections to draw attention to focus areas within the corridor. An accent series can also draw attention to unique locations and have a strong placemaking impact without being too imposing. Similar to the light installations, implementation should be coordinated with community stakeholders. For instance, business owners could invest and take ownership in a single paver or a series of pavers and display art that represents his/her organization. Content approval and coordination could be spearheaded by the local business association.

## 3) Bulb-outs

The principal reason for proposing bulb-outs along the corridor is pedestrian and bicycle safety along with enhanced bus service. The 14<sup>th</sup> Street Transportation and Streetscape Study proposes three types of bulb-outs: a) nearside ‘bus platforms’ b) far side platforms generally not used for bus stops thus creating space for pedestrians, green space and/or art, c) non-bus ‘conventional’ bulb-outs serving pedestrians and d) bulb-outs at T-intersections, serving pedestrians only. All bulb-outs could also be highlighted by sidewalk accents. For example, different colors can draw attention to the space, different materials can define the bulb-out sidewalk area, and textures or imprints can further define the new road layout and create a recognizable pattern along the corridor.

## 4) Gateway at Florida Avenue

The intersection of Florida Avenue and 14<sup>th</sup> Street NW serves as a natural gateway from Columbia Heights to the area of the 14<sup>th</sup> Street corridor containing arts and entertainment venues. Located at the bottom of an incline, the noticeable change in slope at the intersection helps delineate the change in neighborhoods. There is potential to mark the gateway with a permanent public art structure that marks the transition to the arts and entertainment area of 14<sup>th</sup> Street NW. The appropriate feature can help define the corridor’s character and set the tone for the temporary public art installations that will be rotated through the corridor. Overall, the gateway feature should be part of the infrastructure, something subtle that can be discovered and potentially grow and change over time with input from the community. The topography already provides a dramatic entry, this could be enhanced by an arch or tower shapes placed at the SW and SE corners. Small enhancements at the gateway using public art can also serve

the same purpose. In aggregate the features can create an appealing, interesting, and inspiring theme. Community stakeholders should collaborate with local artists to identify the appropriate art piece or pieces, scale, and placement of the gateway structure. See Focus Area: Florida Avenue and 14<sup>th</sup> Street NW for additional information.

## Implementation

Implementation of the public art concepts discussed above will involve DDOT collaboration with community stakeholders and various DC agencies and non-profit organizations. The District of Columbia Commission on the Arts and Humanities (DCCAH) is a valuable resource that should be involved when moving the conceptual design ideas contained in this study towards the implementation phase. In an effort to help bring the art concept to fruition, the following section outlines relevant DCCAH programs and funding opportunities. It provides interested parties with the information necessary to take the next step in the planning process.



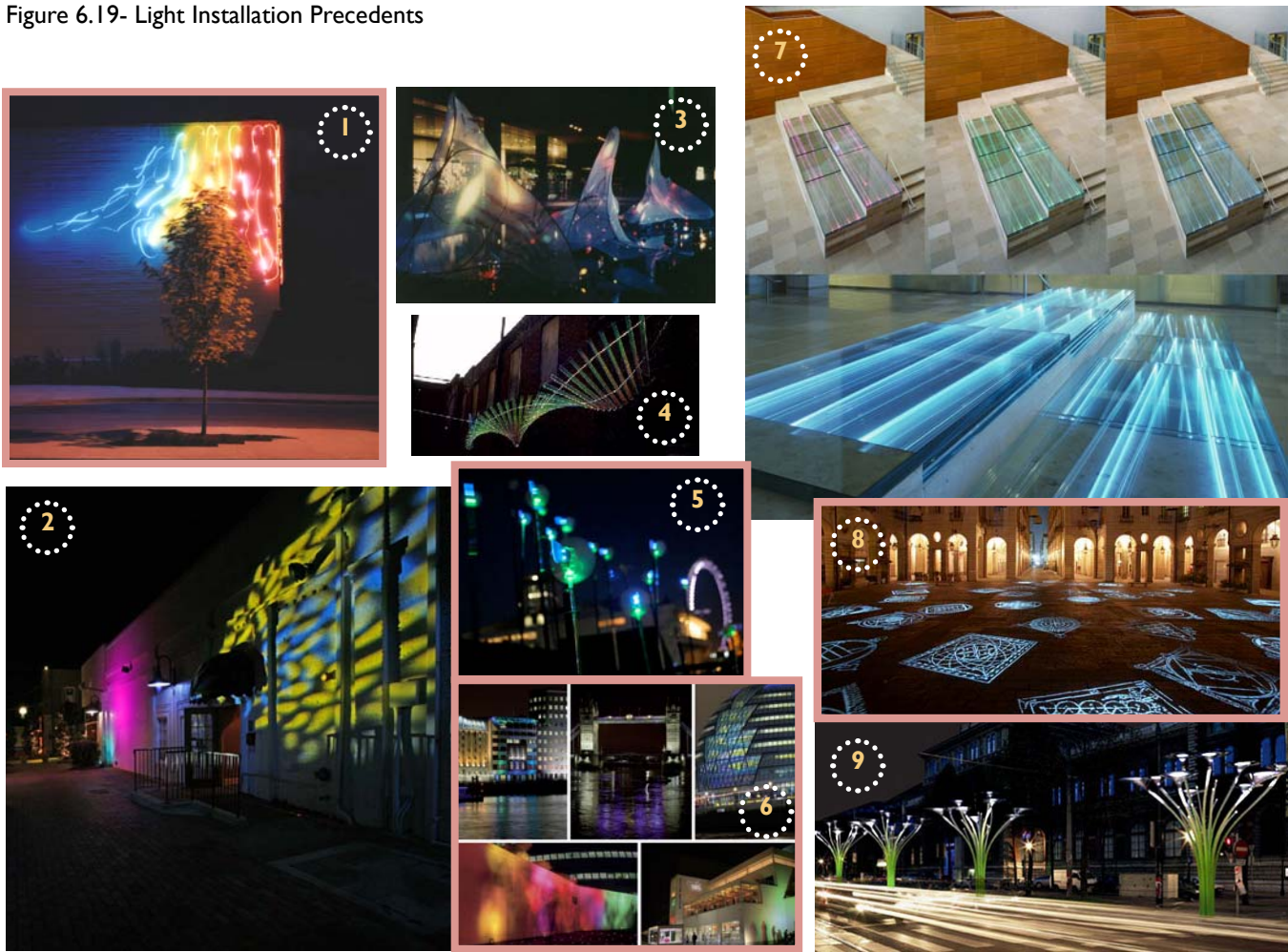
### DC COMMISSION ON THE ARTS & HUMANITIES

Since 1968, DCCAH has developed and promoted local artists, organizations, and activities. The Mission of the DCCAH is to provide grants, programs and education activities that encourage diverse artistic expressions and learning opportunities so that all District of Columbia residents and visitors can experience the rich culture of our city. In partnership with the community, DCCAH promotes excellence in the arts by initiating and supporting programs, activities, and policies that inspire, nurture, and reflect the multi-ethnic character and cultural diversity of the District. DCCAH is governed by volunteers who are appointed by the Mayor and approved by the City Council. DCCAH provides financial support and conducts programming in three primary areas: DC Creates Public Art, Arts Learning and Outreach and Arts Building Communities (Grants and Programs).

**DC Creates Public Art** provides funding for the commission or purchase of works of high quality art located in public places throughout the District, including District government buildings, schools, libraries, parks, hospitals and any other sites under direct jurisdiction and stewardship of the District. Works of art include paintings, sculpture, mosaics, mobiles, murals, mixed media works, and all other forms of visual art that can be used to enhance the visual environment in which citizens live and work. Call for entries for this program are distributed under separate cover from the Guide to Grants. Please refer to the Commission website (<http://dcarts.dc.gov>) for



Figure 6.19- Light Installation Precedents



Credits: 1) Swon Leikin Light Installation, 2) Event Lighting Conyers, Georgia, 3) Adams, *Lightscape V Mountain at Night*, 4) Ray King, *Chroma Helix*, 5) Jason Bruges Studio, *Wind to Light*, Site-specific installation consisting of 500 miniature wind turbines directly generating the power to illuminate hundreds of integrally mounted LEDs, 6) *Switched on London*, 2008 lighting festival that aims to highlight the importance of sustainable lighting design in the night-time urban environment., 7) Mikiyoung Kim, light feature integrated w/ architecture, 8) *Cosmometrie*, 42 projections of drawings by Giordano Bruno, by Mario Airo, Piazza Palazzo di Citta, Turin 9) Ross Lovegrove, Solar Trees in Vienna, Austria

Figure 6.20 - Sidewalk Accent Precedents



Credits: 1) Jack Mackie, *Dancers' Series: Steps*, Seattle, 2) *Lost Streams*, Vancouver, 3) Nancy Blum, *City Light, City Bright*, 4) *Ulysses Bronze Sidewalk Plaques*, Dublin, Ireland, 5) *Our Community Story*, Vancouver, 6) Alec Peever & Alyson Hallett, *poetical pavement*, Milsom Street, Bath, UK



current public art opportunities or call (202) 724-5613. **Art Bank** under this program, the Commission purchases work from local visual artists, providing them with financial and professional benefits. The artwork is documented, framed and loaned to other District government agencies for display in public areas of their offices. Currently, over 2000 works are on display in nearly 145 District government offices.

**Neighborhood Projects** provides for the placement of major public art projects in the District's neighborhoods. These works are the culmination of intensive public realm plan development processes in partnership with neighborhood advisory groups, Main Street programs, other District Government agencies and private developers. Installation of these projects is integrated with the construction phases of other public and private development projects.

**Community Initiatives** provides for the placement of major public art projects that address community interest in commemorating notable citizens and local history, creating a stronger neighborhood identity, or creating an artistic enhancement to a site. This initiative allows District Government agencies and interested community organization to nominate sites for potential placement of public art projects and be involved in the selection process.

**Cultural Facilities Program** offers capital funds to help defray costs related to the improvement, expansion and rehabilitation of existing buildings owned or leased by nonprofit cultural institutions. Matching funds are required for organizations applying for funding in this category.

**Public Art Building Communities** offer capitol funds for the creation and installation of permanent public art projects with a life span of at least five years. Matching funds are required for organizations applying for funding in this category.

## Overview of Other Grant Programs

**Arts Learning & Outreach:** Arts Education Projects grants fund programs that provide training and in-depth exploration of artistic disciplines to students from pre-K through 12th grades. Matching funds are required for organizations receiving funding in this category.

**Arts Learning & Outreach:** Teacher Mini-Grant Program grants encourage creative arts education projects in D.C. Public Schools (DCPS) and Public Charter Schools and support the development and implementation of innovative teaching strategies aligned with DCPS Arts Content Standards. Deadlines for this program are ongoing during the school year. Contact

the Arts Commission for further information.

**Arts Learning & Outreach:** Artist Roster Program enables artists to apply for acceptance on the DCCAH Arts Learning & Outreach Artist Roster, making them eligible for participation in Arts Commission-funded school residency programs. Acceptance on the Artist Roster means that artists have the qualification to conduct school residencies, i.e., produce high quality artistic work, and have the skills and competencies needed to work with teachers and students in designing and implementing arts programs. All artists accepted onto the Artist Roster Program will be placed on the roster for two years, assuming a satisfactory evaluation at the end of year one. The Artist Roster will be distributed to all DC Public and Charter Schools, and posted on the DCCAH website. Please note that inclusion on the Artist Roster does not guarantee participation in the teacher mini-grant residencies. Participating schools will submit requests to work with artists they select from the roster.

**Artist Fellowship Program** grants provide support for individual artists who make a significant contribution to the arts and who promote the arts in the District of Columbia through artistic excellence.

**City Arts Projects** offer funds for programs that encourage the growth of quality arts activities throughout the city, support local artists, and make arts experiences accessible to District residents. Matching funds are required for organizations applying for funding in this category.

**DC UPSTART Program** seeks to provide Washington, DC neighborhood and community-based arts organizations with funding, intensive leadership education and training to assist with core arts management and arts administration functions that include marketing, information systems, organizational development, human resources and accounting/finance. Matching funds are required for organizations applying for funding in this category.

**Elders Learning through the Arts** offers small grants to artists and arts organizations that provide training and in-depth exploration of artistic disciplines to seniors.

**Festivals DC** offers funds for arts festivals or festivals with significant arts components that: encourage growth and promote awareness of quality arts activities throughout the city, support local artists, stimulate economic benefits to the community, promote a sense of community identity, and make arts experiences accessible to District residents and visitors.

**Folk & Traditional Arts Mini-Grant Program** offers small grants to artists and arts organizations practicing or supporting folk traditions.

**Grants-in-Aid** provides general operating support and financial assistance to arts organizations in the District of Columbia. Matching funds are required for this program.

**Hip Hop Community Arts Initiative** offers funds for programs that encourage the growth of quality Hip Hop arts activities throughout the city, making Hip Hop arts experiences accessible to District residents. Matching funds are required for organizations applying for funding in this category.

**Small Projects Program** offers grants to individual artists and arts organizations for small-scale arts projects with budgets under \$3,000.

**Young Artist Program** offers funds to emerging artists between the ages of 18 and 30. Funds are granted in two categories: Young Emerging Artist Grant Program and Young Artist Community Service Program

Figure 6.21 - Gateway Precedents



Credits: 1) Indianapolis Fountain Square Gateway, 2) Barbara Grygutis, *Lifelines*, Philadelphia, PA, 3) Bernie Miller & Alan Tregebov, *Street Light*, Vancouver, Bronze I-beam towers each hold up an image from the area's history cut into a metal plate which casts the shadow of the image onto the street, 4) Tullyr Solar Clock

# Future Development

## Construction Activity: “A Changing Neighborhood”

The table on the following page highlights current and future development activity within the study area, and provides an indication of a corridor that is developing at a fast pace, with several larger scale developments planned or that have recently completed construction within or directly adjacent to the study area. This provides a snapshot and reflects trends of development activity within many areas of the wider District of Columbia. The development both occurring and planned provides the opportunity for 14th Street to reframe its identity and retain the traditional urban form and characteristics of a diverse local neighborhood. The recommended sidewalk layout and design should be conveyed to developers, establishing guidelines for their respective contributions to and modifications of the public realm. It will help tie both the new developments and traditional forms into an integrated whole. As a result, the sidewalk space will provide a transition space between the old and the new.

The increased vehicle trip generation that will occur from the changing residential profile of the area will need to be carefully evaluated (See Chapter 5 for transportation recommendations). Though local trips can often be accomplished via public transport such as Metro and Metrobus, or the use of personal bikes and SmartBike facilities, residents still need vehicles for larger, longer or more specialized trips. The increased proliferation of ZipCar amenities could provide an option for some residents, allowing them access to a car when needed and reducing the overheads and hassle of having a car in urban neighborhoods.



Table 6.2 - Current and Planned Development Activity

Project Name	Address	Total Units	Parking	Status	Timing
Union Row	2101 14th St, NW	240	250	Under Construction	6/1/2007
View 14	2303-2315 14th St, NW	170	N/A	Under Construction	6/1/2009
The Solea	2350 14th St, NW	52	37	Under Construction	9/1/2009
1314-1320 14th Street	1318 14th St, NW	28	N/A	Under Construction	12/1/2009
2400 14th Street Residential	2400 14th St, NW	225	158	Planned	7/1/2009
1525 14th Street, NW	1525 14th St, NW	34	30	Planned	12/1/2010
Stella, The	1638 14th St, NW	32	31	Planned	12/1/2010
T Street Flats	1840 14th St, NW	43	35	Planned	12/1/2010
14th & W	1325 W St, NW	200	N/A	Conceptual	6/1/2010
Central Union Mission Residential	1625 14th St, NW	36	N/A	Conceptual	1/1/2011
14th and U Development,	1400-1418 U Street & 1912-1944 14th Street, NW	250	140	Conceptual	TBC



Figure 6.22 - The Solea Development

Figure 6.23 - Union Row Development



# Sustainable Design

## Sustainability and Low Impact Development (LID) Overview

Presently, stormwater falls on a largely impervious sidewalk and pavement of 14th Street and is conveyed directly via storm drains to an underground conveyance system. This water eventually arrives by way of this underground infrastructure directly into the Potomac, the Anacostia Rivers or the WASA Blue Plains Treatment Facility. Responsible stormwater management on the 14th Street corridor can be achieved through Low Impact Development (LID) solutions that can be integrated into this busy and functional streetscape as part of the design and character of the corridor. Localized LID solutions on 14th Street can provide an impact on the District of Columbia that contributes to:

- Reduced overall volumes of stormwater runoff carrying debris and pollutants.
- Decreased impervious surfaces that prevent infiltration and replenishment of the local groundwater supply.
- Greater localized transference of water through evapotranspiration that contributes to a reduction in urban heat island effect.

### LID Strategies within the Corridor

#### Plantings and Conservation

A detailed and up to date tree condition assessment in conjunction with Urban Forestry should be conducted for the 14th Street corridor to accurately locate and remove any trees that are diseased/dying or in need of pruning and further monitoring. Retaining as many of the existing trees as is feasible preserves the existing canopy which is valuable for not just aesthetics but also the stormwater interception and urban cooling effects mature trees provide.

#### Permeable Unit Pavers

Permeable paver blocks essentially function as an infiltration and retention area that can accommodate pedestrians, vehicular parking. Permeable unit paver systems are concrete or cobblestone blocks with spaces or gaps between them allowing stormwater to flow through and into an underground storage area or a tree planting area. The permeable pavers can be used to treat roadway or sidewalk runoff. The paver system allows stormwater infiltration into the subsurface gravel base and encourages infiltration into sub-soils that filter and trap pollutants improving the quality of runoff and the receiving waterway.

The parking lane of 14th Street occupies approximately one

third of the pavement surface within the corridor. If this is constructed using permeable pavers, instead of conventional impervious asphalt, greater stormwater infiltration can occur and may provide significant underground stormwater storage if sufficient gravel sub-base depth is provided. On site suitability of permeable pavers would need to be evaluated prior to installation. The feasibility of other permeable pavement options including permeable asphalt and permeable concrete should also be explored.

### Continuous Root Zones

When combined with permeable pavers a continuous root zone can help to promote a healthy tree growth environment. The zone allows space for the tree to expand and grow and helps alleviate some of the issues often associated with street trees namely sidewalk heave and cracking. The root zone also provides a further medium

for stormwater infiltration within the sidewalk area. For high pedestrian traffic areas the root zone is recommended to include a modular structural cell system. This can support weight loads while preventing soil compaction which could adversely affect the health of the street tree. Healthy street trees are important in controlling stormwater because they increase the likelihood of evaporation and plant transpiration. Evaporation rate is increased because large canopies have full leaf coverage, which can hold substantial stormwater on its surface and therefore transpire more water into the atmosphere.

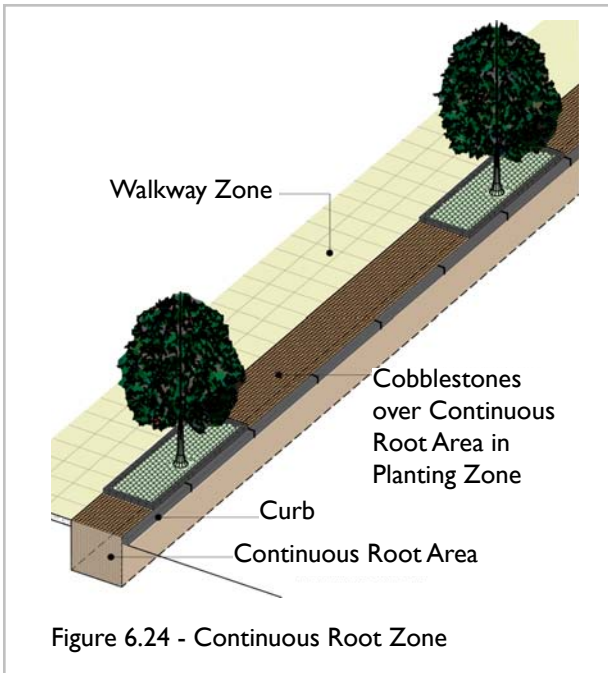


Figure 6.24 - Continuous Root Zone

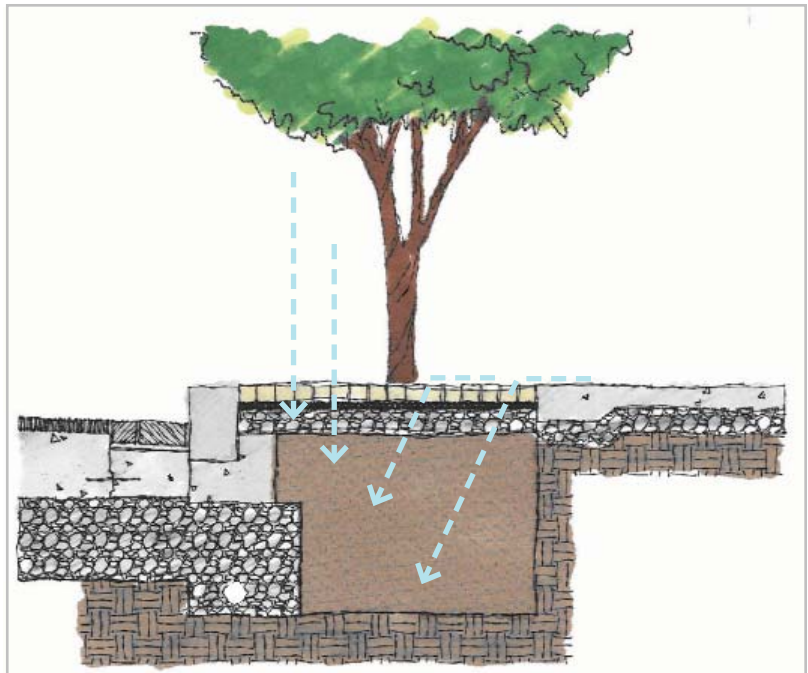


Figure 6.25 - Permeable Unit Pavers in the Furnishing/Planting Zone

Waterflow from the sidewalk or direct rainfall on the Furnishing/planting zone will infiltrate through the permeable pavers into the planting soil. A drainage pipe will prevent over saturation.



## Gutter Filters

Gutter filters can be easily installed along 14th Street to provide water quality benefits to stormwater runoff produced in the corridor and, consequently, the receiving waterways. Gutter filters are precast concrete or metal gutter vaults containing gravel, finer (typically sand) filter media and an underdrain. The gutter filters capture trash and other debris capable of passing through the surface grate and remove suspended solids and other pollutants. Gutter filters are designed to cope with large stormwater volumes. However, the velocity of flow needs to be tempered, otherwise the gravel and sand will mix and may damage the system.

## Bioretention Cells within Bulb-outs at T-Intersections

Incorporating landscaping and green space elements in the space created between crosswalks at T-intersections is recommended to provide a localized bioretention area for stormwater infiltration and collection. This can be used to nourish suitable plant species chosen for the spaces and provide aesthetic interest along the corridor. A design similar to the one in figure 6.26 is able to cope with the small-medium volume rainfall events in the District and is equipped with an overflow system to cope with large volume extreme rainstorm events. Refer to the Streetscape Elements Library for a summary explanation of the LID elements listed above and an icon which highlights some of the strategies on the Plan B foldout.

## Sourcing Materials and Content

During the construction and detailed design specifications for the 14th Street streetscape upgrade, options should be explored to incorporate recycled (post-consumer or pre-consumer) content into materials such as asphalt base, brick or pavers. Recycled content could come in the form of fly ash (brick/cement), crumb rubber from scrap tires (asphalt) or other appropriate materials. The use of such materials could be highlighted as part of a simple environmental signage installation to increase public awareness of such initiatives within the District of Columbia. Sustainable and cost effective strategies could also be explored to source construction materials locally and implement a scheme whereby local 14th Street businesses would be able to contribute in appropriate ways as part of public outreach or community arts efforts in the area.

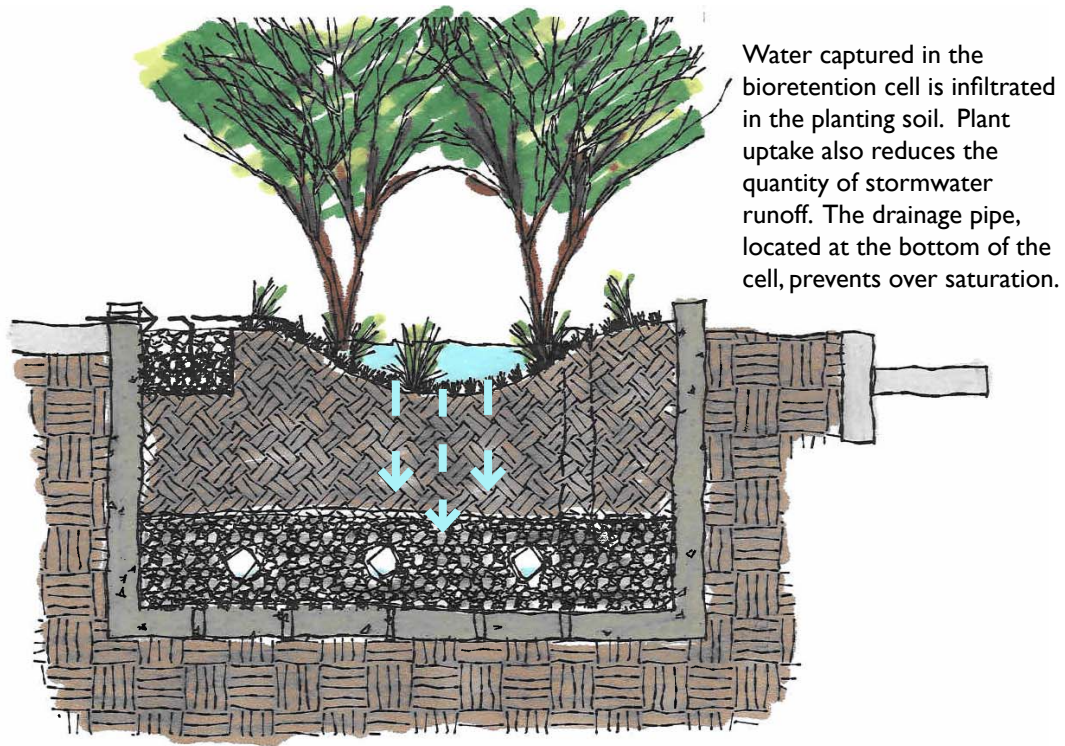
## Sustainable Streetscape Elements

### Light Emitting Diodes (LED) Technology

The use of LED light fixtures within the corridor would provide a high efficiency, lighting option that would drastically reduce the amount of maintenance required and improve the lighting efficiency of fixtures within the corridor. LEDs are not the most efficient form of lighting in terms of lumens per watt, but have an extremely long life making them more economical to operate over their span of operation because they need to be changed so infrequently. However, LED is still a developing technology and presently the increased excess heat generated and electrical current needed to achieve the required illumination make its use on 14th Street a lighting technology that would need to be carefully evaluated. Current development efforts are close to meeting the District lighting design standards. As LED technology is refined such methods to ameliorate these drawbacks will be better able to be put into practice making it a more viable alternative when construction and ongoing maintenance is performed within the 14th Street corridor.

### Solar/Alternative Power Sources

Options for the integration of public art and/or street furniture that utilize solar power, instead of, or in addition to conventional sources could be explored in test locations within the corridor. The size of panel to electrical output is reducing as solar technology develops making micro-solar installations more effective and reducing the need for large scale panels which are cumbersome and attract vandalism. Solar multi-space parking meters or sidewalk/roadway light fixtures could, in the future, prove to be viable alternatives to conventional power sources and allow them to be integrated into such streetscape elements. The public art section of this report highlights solar art installations that have been incorporated into the public realm of some cities and may provide a precedent to possible eco-themed art and functional streetscape installations.



Water captured in the bioretention cell is infiltrated in the planting soil. Plant uptake also reduces the quantity of stormwater runoff. The drainage pipe, located at the bottom of the cell, prevents over saturation.

URBAN BIORETENTION CELL SECTION

Figure 6.26 - Urban Bioretention Cell Section

Figure 6.27 - Siskiyou Street Portland, Oregon - Landscaped Stormwater Curb Extension (ASLA Photo)



Figure 6.28 - SW 12th Ave., Portland, Oregon - Landscaped Stormwater Planters (ASLA Photo)



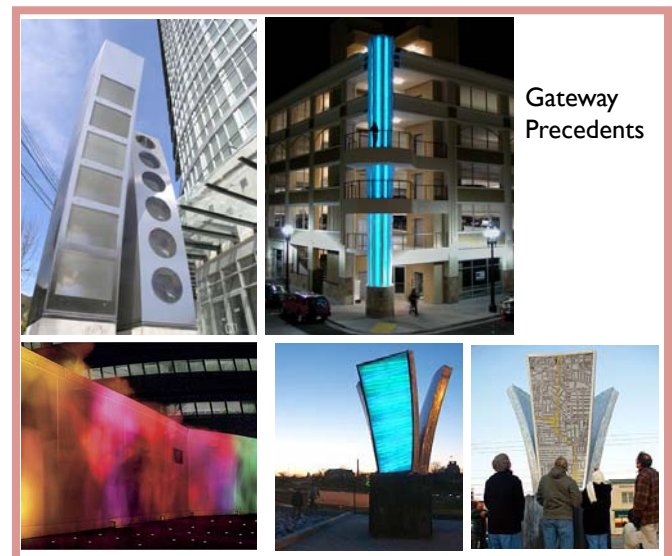
# Focus Areas

## Florida Avenue & I4th Street NW

### Conceptual Design Intent

Florida Avenue lies at the northernmost edge of the study area and much like Rhode Island Avenue, it intersects with I4th Street on a diagonal axis. Two residential developments (View 14 and The Solea) are under construction on the northern boundary of the intersection and will add a more defined urban façade to the public realm in the area when complete. This intersection also marks the point where the grade begins to change and rise as I4th Street continues on towards Columbia Heights. The existing slope in combination with the change in I4th Street's alignment as the road moves uphill characterizes the intersection as a gateway node to the neighborhood. One possible public art installation, in the form of a gateway arch or entrance marker, could capitalize upon this and signify entry to the neighborhood. The potential marker would also characterize this area as a special intersection. A vacant plot of land that used to be a car sales lot currently exists on the eastern side of I4th Street south of Florida Avenue. Should it be redeveloped in the future, consideration could be given to extending the public realm possibly through direct acquisition or a public private partnership. Possible land uses that could complement the intersection include a small pocket park, hardscape plaza, or SmartBike location, possibly in combination with a ZipCar facility.

Figure 6.29 - Gateway Precedents (see History and Art section for more information)



Gateway Precedents

Focus Area :  
Florida Avenue

6



Figure 6.30 - Conceptual Florida Avenue & 14th Street Rendering

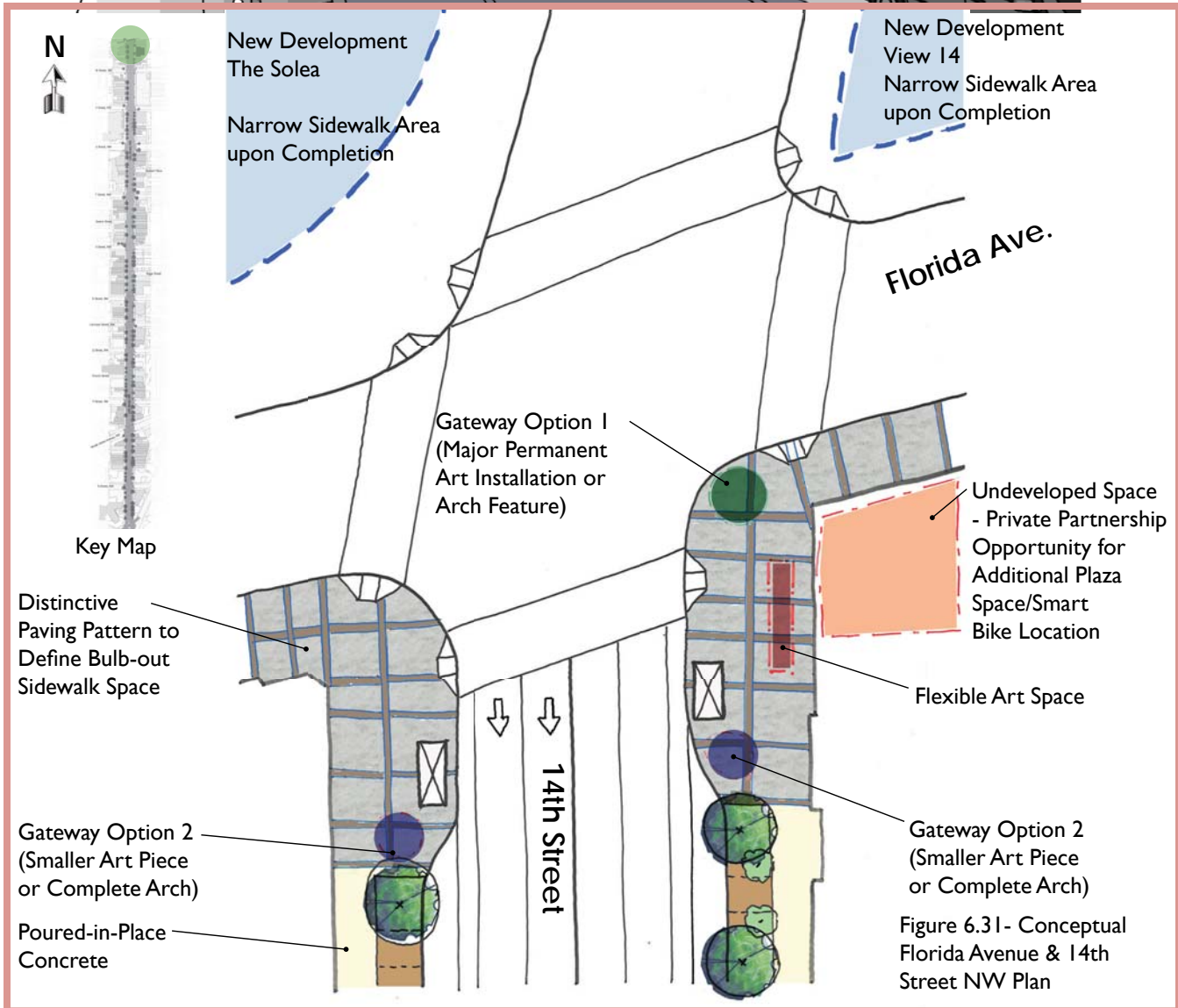
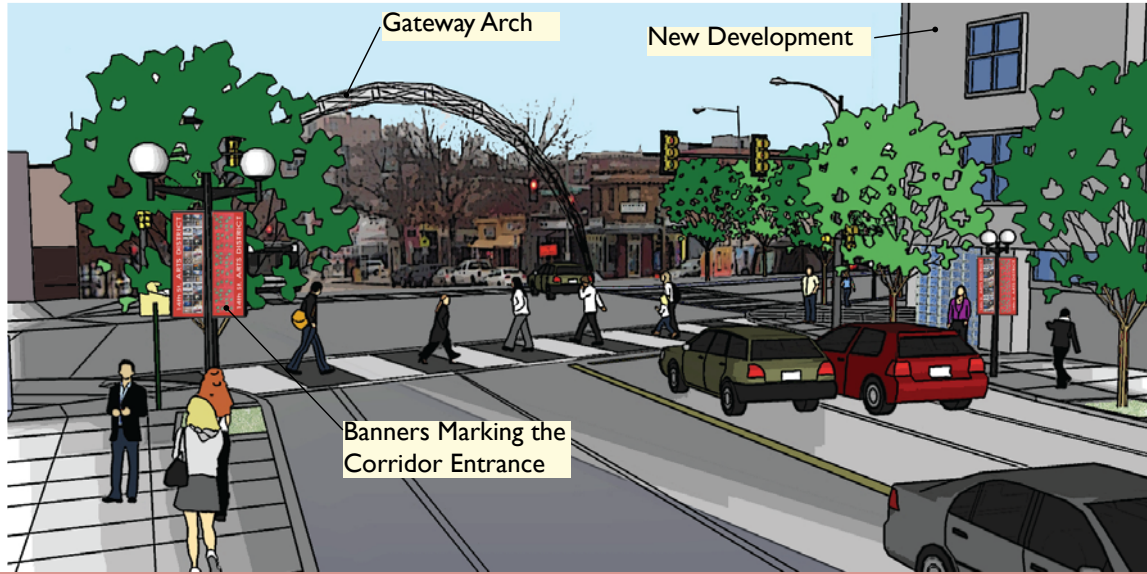


Figure 6.31 - Conceptual Florida Avenue & 14th Street NW Plan

## U Street & 14th Street NW

### Conceptual Design Intent

U Street is one of the most well known entertainment streets within the District of Columbia, a major bus interchange, and a link to the WMATA Metro system Green and Yellow Lines at the U Street/African-American Civil War Memorial/Cardozo Station. The transit interchange role combined with its entertainment and nightlife options creates an active public space in the evening and beyond. Presently the Reeves Plaza lacks identity and does little to characterize the space as a public plaza where people would want to spend time either waiting for transit or as a meeting place.

The conceptual design for the space incorporates street trees to define the entrance to the Reeves Center. Structural cells may be required to withstand the high pedestrian traffic that is present in the area. This would also enable the plaza to continue to function as a space for public events such as the existing Farmers Market. Where possible, the new tree planting feature should incorporate permeable pavers in order to allow the space to function as an LID device. A seating art feature is also proposed. The seating design would integrate the tree line with a continuous paving accent line that winds itself through the plaza. In addition, the paving accent could incorporate lighting insets that would allow the plaza space to complement the night time activity that characterizes the area. Solar-powered LED lights are recommended for this purpose due to their efficiency and independence from the electric grid. The seating design could be designed so that it is both attractive and prevents excessive loitering, an issue that has been highlighted at public meetings for this project. If combined with the planned redevelopment of the Reeves Center façade and made to feel more like an extension of the building the space would help to deter this through design. Elements of the Reeves Center plaza design should be mirrored on the three remaining intersection corners. The proposed bulb-out extensions will provide sufficient room for seating and paving accent installation. The design elements will help define the importance of the activity hub and visually integrate the public realm features.



Figure 6.32 - Reeves Plaza Existing Conditions

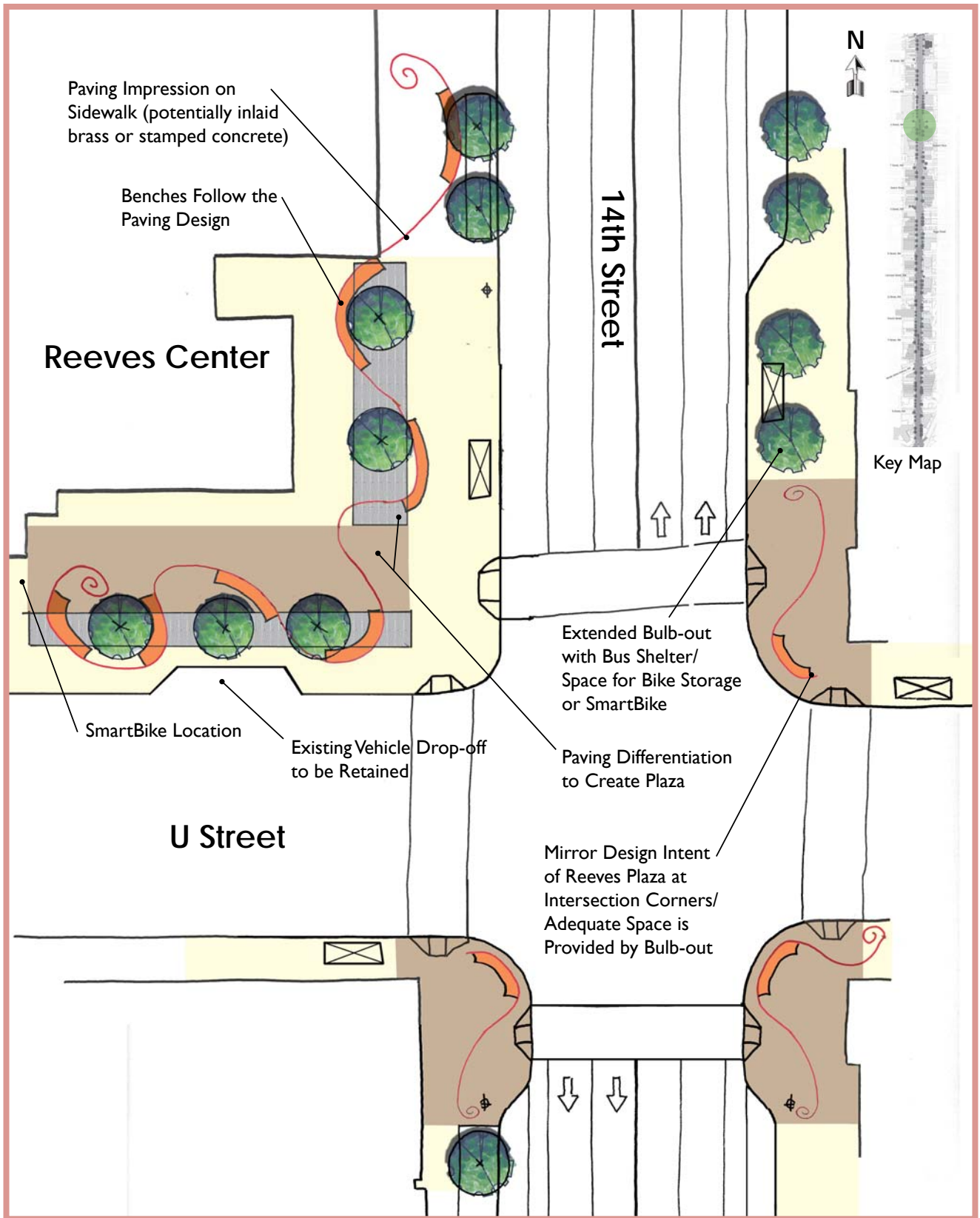


Figure 6.33 - Conceptual U Street & 14th Street NW Plan



## P Street & 14th Street NW

### Conceptual Design Intent

The P Street intersection is among the busier areas within the corridor for pedestrian traffic. A large grocery store is located close by and serves much of the surrounding community. In addition to the foot traffic this generates, the grocery store also has a parking garage for vehicular traffic. The grocery store location, combined with the close proximity of new condominium developments, restaurants, and retail, allows the intersection to function as a neighborhood hub.

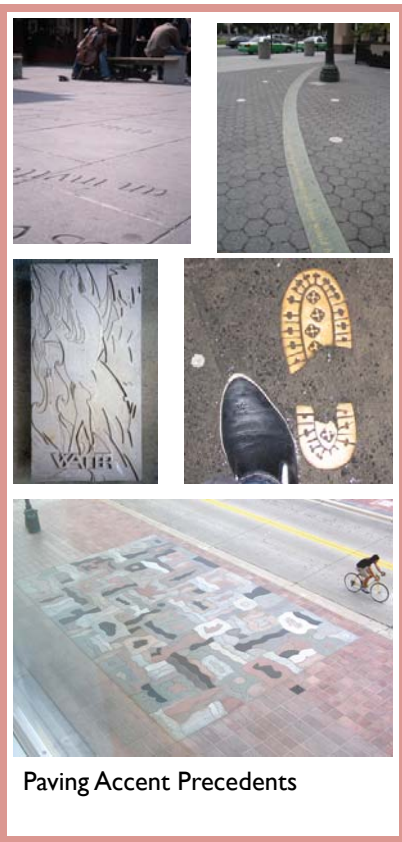
One option that could be explored on P Street or one of the other cross streets of 14th Street is the creation of a pedestrian friendly *woonerf* style street. A *woonerf* in the Netherlands is a street where cyclists and pedestrians have a legal priority over vehicles. The speed limit is restricted to a walking pace. Typically these have a flush curb with no grade difference between the roadway and sidewalk. It becomes less obvious where the pedestrian realm ends and the vehicular realm begins, giving drivers the signal to slow down and proceed with more caution than they would typically. As a result, the entire street functions as a recreation area or shared space. Vehicular speeds may also be reduced with traffic calming measures

such as chokers, wide bulb-outs mid block, or a chicane. The goal is to create a public realm where vehicular and pedestrian traffic can be more integrated and visually aware of each other and better able to coexist on more equal terms. It could also provide a good location for temporary public events such as farmers markets, local art fairs, or other such community events planned within the wider 14th Street and U Street neighborhoods. The *Woonerf* concept can be altered in order to adhere to District of Columbia standards. For example, perhaps the *Woonerf* functionality is not employed on a daily basis but on a temporary basis for neighborhood special events.

In addition, a unique paving accent design should be installed on the four corners of the intersection. Like the U Street and 14th Street NW intersection, employing a design that is both subtle but identifiable will help define the neighborhood hub. The additional sidewalk space created by the proposed bulb-outs are ideal locations for paving accents and the overall design scheme can be determined by a local design competition.

Figure 6.34 - Conceptual P Street & 14th Street NW Bulb-out with Paving Accents Rendering





Paving Accent Precedents

Figure 6.35 - Paving Accent Precedents (see History and Art section for more information)

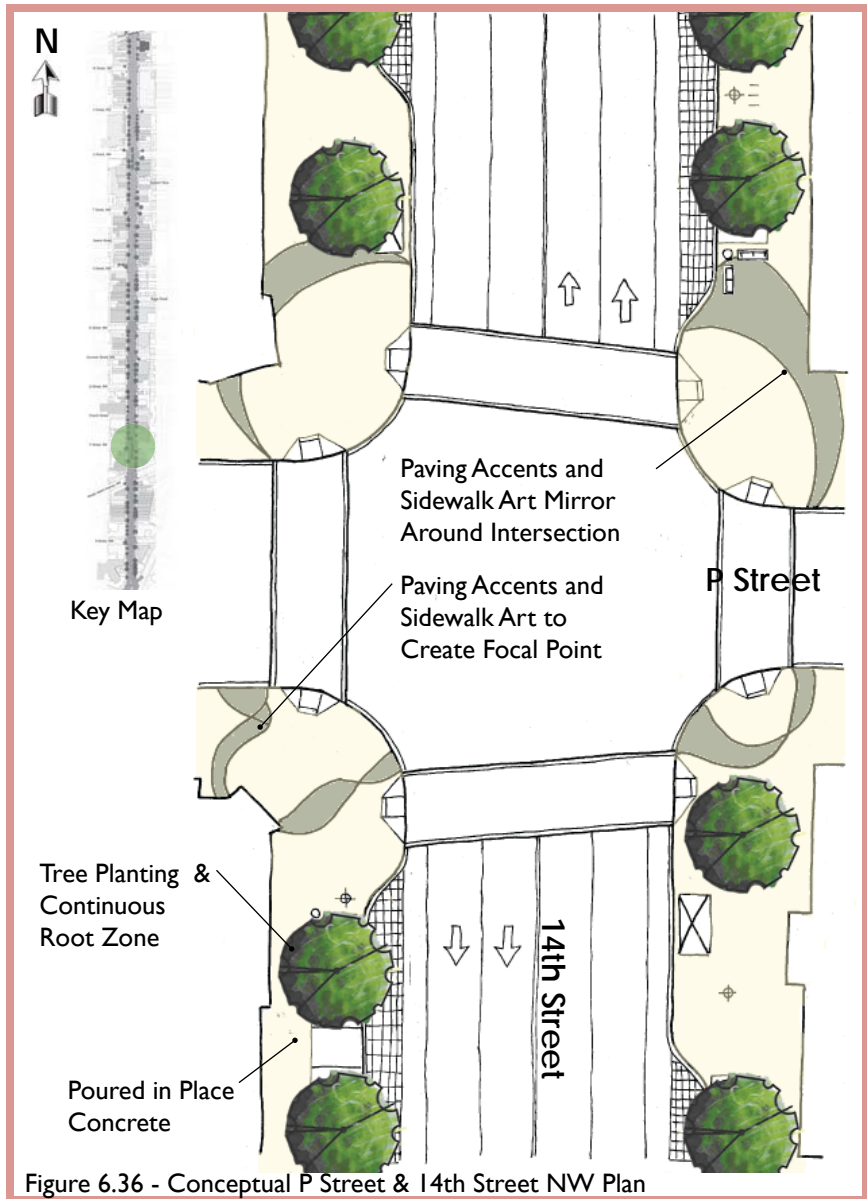
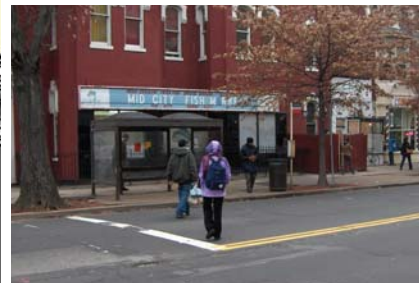


Figure 6.36 - Conceptual P Street & 14th Street NW Plan

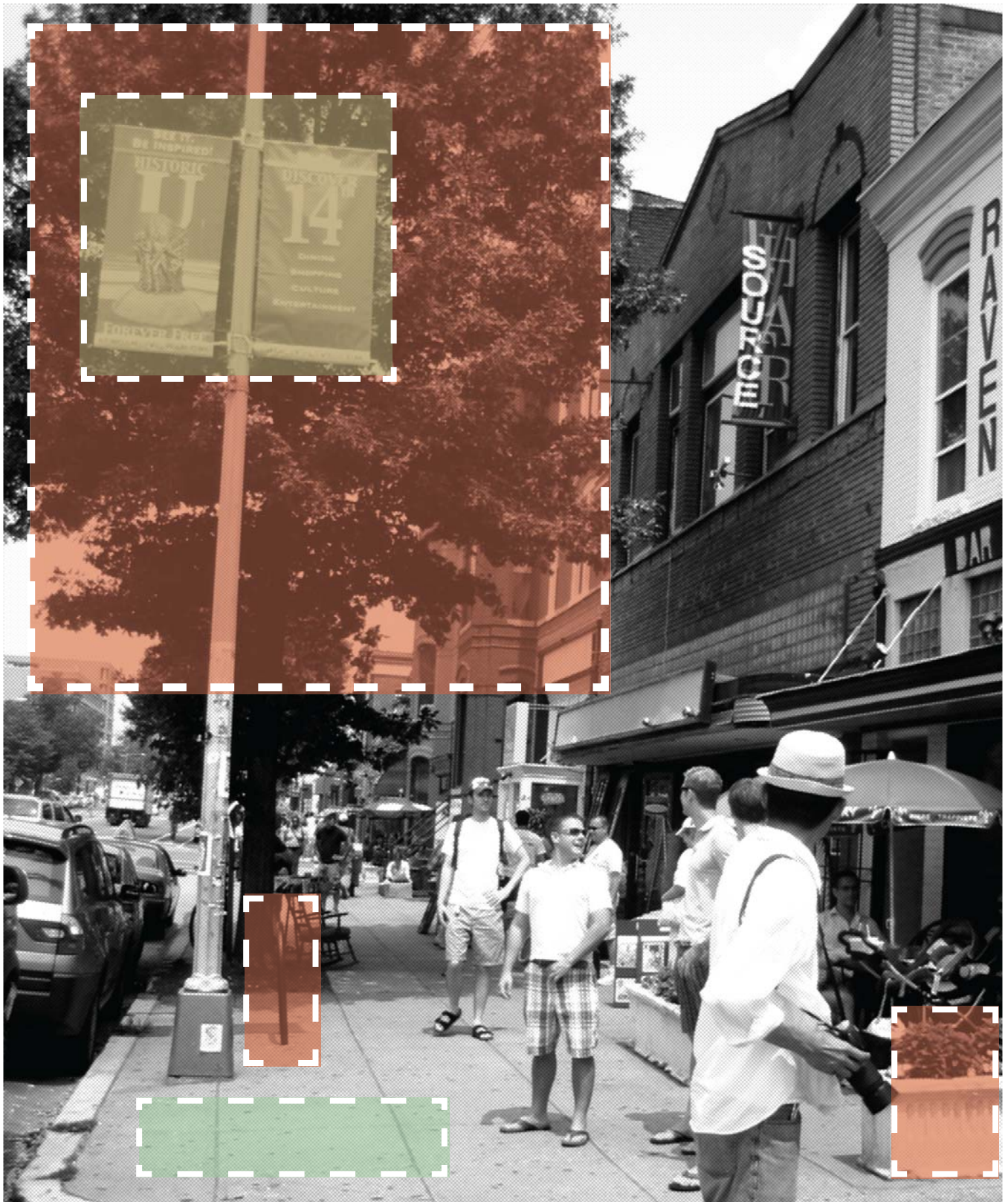


Figure 6.37 - Conceptual P Street Woonerf/Street Fair Rendering

Figure 6.38 - P Street Existing Condition Photo







6

# Streetscape Elements Library



## Library Instructions

The right selection of streetscape elements can ensure that individual buildings and their surrounding spaces reinforce and enhance the community’s character. As a result, streetscape elements as a whole can create an environment that responds to the eclectic character of the 14th Street NW corridor. An attractive and unique public realm benefits users, visitors, developers, and local government alike:



1) The increased satisfaction of patrons and employees directly benefits businesses. A well-designed public realm can also attract additional visitors to 14th Street and foster a positive economic impact for commercial entities. An added prestige of an attractive corridor identifies 14th Street as a unique location within the District of Columbia.

2) Access to a better quality environment and an enhanced range of public amenities benefits everyday users and residents.






























3) Implementing Low Impact Development strategies along the corridor will raise awareness for environmentally sustainable initiatives.

4) State, local and regional authorities benefit through the creation of an economically and socially viable environment which can act as a catalyst for adjoining areas and neighborhoods.

This section serves as the reference to the recommended streetscape elements identified in Plan B. It also enables the reader to find concise technical information about elements mentioned throughout the report.

Each icon (e.g. ) represents a group of streetscape elements that includes either an approved DDOT standard or two recommended options. The first section lists approved DDOT standards that should be implemented corridor-wide. The remaining sections focus on various streetscape elements categorized by function. Two options are listed for each element in order to provide flexibility for future design decisions and advocate for progressive design elements. The second option is either a design alternative or a possible upgrade from the first option. For example, one of the options may promote an environmentally sustainable design feature that should be considered if the appropriate approvals and budget are determined. These options are marked with a  symbol.

The streetscape elements are as follows:

	<b>Parking Meter</b>		<b>Street Trees</b>
	<b>Bike Rental</b>		<b>Additional Plantings</b>
	<b>Bus Shelter</b>		<b>Tree Box</b>
	<b>Historic District Signage</b>		<b>Planting Space</b>
	<b>Wayfinding Signage</b>		<b>Green Space in Bulb-outs</b>
	<b>Heritage Trail Signage</b>		<b>Bike Rack</b>
	<b>ADA Ramp</b>		<b>Bench</b>
	<b>DC Teardrop</b>		<b>Trash Receptacle</b>
	<b>Road Surface</b>		<b>Banners</b>
	<b>Sidewalk</b>		<b>Vehicular/ Pedestrian Light</b>
	<b>Planting Zone</b>		<b>Pedestrian Light or Combination</b>
	<b>Bike Lane Marking</b>		<b>Permanent Public Art</b>
	<b>Curb &amp; Gutter</b>		<b>Functional Art</b>
	<b>Crosswalk</b>		<b>Temporary Installations</b>
	<b>Bulb-out</b>		

Example:  
You found this icon as one of the streetscape elements on Plan B. Now locate the detailed description of the recommended bulb-out on the following pages.

Letter/number combination identify the streetscape element.

Illustration & icon color indicate the element’s category.

## DDOT Approved Standards - Corridor-wide Streetscape Elements

### Element Description

### DDOT Standard



#### Parking Meter

Multi-space parking meters provide an easy and efficient way for motorists to locate a parking space. They are user-friendly and accept any combination of coins, bank notes, smartcards and/or credit cards. On average, multi-space meters increase the parking capacity by 15%.

Parking meters should be installed 100 to 150 feet apart, thus reducing the clutter of the existing conventional parking meters.



Multi-Space Parking Meter



#### Bike Rental

SmartBike is an automated bicycle rental/sharing system that enables participants to release bikes at the kiosk, use throughout the city, and return to any of the SmartBike kiosk located in the greater downtown area.

The system has proven successful in many European cities; it is developed by Clear Channel Adshel and is introduced to DC as part of the bus shelter advertising contract (see S3). Three potential locations have been identified within the study area.



SmartBike Station



#### Bus Shelter

Pursuant to a 20-year agreement with the District of Columbia, Clear Channel provides and maintains bus shelters throughout the city. All bus shelters along 14th Street will eventually be replaced with this new design, including new bus maps and real-time bus arrival information. The revenue generated and paid to the District from the sale of advertising on the bus shelters finances the Great Streets program and provides for the maintenance of the Heritage Trail and Directional Sign programs of Cultural Tourism DC (see S6).



DC Standard Bus Shelter

## Element Description

## DDOT Standard

### **d.** S4 **Historic District Signage**

Specialty signs create a positive image, enhance the neighborhood identity and add to the vibrancy of the public right-of-way.

The District Historic Preservation Office has provided the DC round historic markers for installation along 14th Street to designate the 14th Street and U Street Historic Districts. DDOT is responsible for the installation and maintenance.



Historic District Identifier

### **d.** S5 **Wayfinding Signage**

Wayfinding signage is installed along the public right-of-way to provide interesting and memorable experiences, heighten general awareness, and orientate visitors. Several signs are already placed along the 14th Street corridor; they may be updated and/or expanded to reflect changes within the neighborhood.

Signage specifications and content is developed per the DDOT Wayfinding Signage Program in consultation with DDOT, DCAH, CFA and NCPC.



DC Wayfinding Signage

### **d.** S6 **Heritage Trail Signage**

Freestanding signs for the “Greater U Street Heritage Trail” are placed in the proximity of the 14th and U Streets intersection. They are part of a 14-sign series leading visitors on a self-guided tour through the historic neighborhood.

Proposals for a “14th Street Heritage Trail” or similar programs may be submitted to the managing nonprofit coalition, Cultural Tourism DC.



Heritage Trail Sign



**Element Description**

**DDOT Standard**

**d. ADA Ramp**  
S7

Accessible curb ramps provide persons with disabilities and other pedestrians with push carts, strollers, etc. a safe means of access to crosswalks. A tactile warning strip assists visually impaired persons.

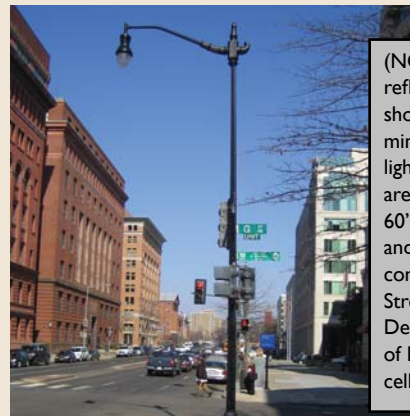
All ramps along 14th Street shall be brought up to code to comply with the latest laws and regulations of the Americans with Disabilities Act. They should be poured-in-place concrete and located at the corner center of a sidewalk. Pre-approval by the Traffic Safety Division is required.



ADA Ramp

**d. DC Teardrop**  
S8

The DC Teardrop pendant provides lighting at intersections for pedestrian and vehicular safety. Orientation of the lamp arm should be perpendicular to the curb. It may be placed mid-block and/or alternating with pedestrian level or combination lighting (See L11, L12).



(NOTE: Technology that reflects light downward should be employed to minimize sky glow and light spill toward off-site areas. Spacing is usually 60' O.C. All lighting and installations shall comply with the District Streetlight Policy and Design Guidelines. use of LED and photovoltaic cells is encouraged.)

DC Teardrop

**d. Twin 20**  
S9

Upright Pole Twin 20 light fixtures are recommended to provide illumination for pedestrian/vehicular safety. The Washington Globe unifies the lighting with historic DC



(NOTE: Technology that reflects light downward should be employed to minimize sky glow and light spill toward off-site areas. Spacing is usually 60' O.C. All lighting and installations shall comply with the District Streetlight Policy and Design Guidelines. use of LED and photovoltaic cells is encouraged.)

Twin 20

# Hardscape

Element Description	Option 1	Option 2
<p><b>H1</b></p> <h2>Road Surface</h2> <p><b>Option 1:</b> Asphalt is recommended as the baseline roadway material. Its flexibility, greater friction, low installation costs, resistance to ice formation, and capability to buffer noise make asphalt preferable over concrete.</p> <p><b>Option 2:</b> Permeable concrete, permeable asphalt or permeable unit paver systems may be used for parking lanes. They allow stormwater infiltration, filter and trap pollutants, and recharge groundwater. Regular maintenance is required for maximum performance.</p>	 <p>Asphalt</p>	 <p>Permeable Pavement - Parking</p>
<p><b>H2</b></p> <h2>Sidewalk</h2> <p><b>Option 1:</b> Poured-in-place concrete is a more cost effective alternative for pedestrian walkway zones. Panel size and other treatments are at the discretion of the designer and the relevant DDOT authorities.</p> <p><b>Option 2:</b> Pressed concrete pavers (24"x36") commonly known as London Pavers are recommended for all sidewalks. They will visually integrate 14th Street, NW with the downtown District and provide opportunities for sidewalk accents.</p>	 <p>Poured in Place Concrete</p>	 <p>London Pavers</p>
<p><b>H3</b></p> <h2>Planting Zone</h2> <p><b>Option 1:</b> Permeable unit pavers or cobblestones set over the continuous root zone of the recommended planter layout will maximize the planting soil area allowing for better root growth and healthier trees. They promote stormwater percolation and add visual appeal to the sidewalk.</p> <p><b>Option 2:</b> Tumble Finish Concrete Pavers (6"x6") present an alternative with similar environmental benefits. They are less expensive than cobblestone and ADA preferred, but may not be as aesthetically pleasing.</p>	 <p>Permeable Unit Pavers/Cobblestone</p>	 <p>Tumble Finish Concrete Pavers</p>

**Element Description**



**Bike Lane Marking**

**Option 1:**

At a minimum, bike lanes should be marked by white lines and a bicyclist printed graphic on the pavement. All dimensions, striping, and graphics in pavements shall meet the requirements in the District of Columbia Bicycle Master Plan and the DDOT Bicycle Facility Design Guide.

**Option 2:**

Colorized epoxy coating is recommended for conflict areas and for bicycle waiting zones at intersections, given that right turns are prohibited on red signal. DDOT approval for colorized surface is required.

**Option 1**



Bike Lane Marking

**Option 2**



Epoxy Coating - Conflict Zones



**Curb & Gutter**

**Option 1:**

Curbs define the transition between the roadway and sidewalk. Gutters convey stormwater to drainage inlets. Consistent with the usage of materials in the District, 14th Street, NW should be edged with 7" granite curbs and 1' wide brick gutters.

**Option 2:**

Gutters may be modified to accommodate gutter filters. They are pre-cast concrete gutter vaults containing gravel, finer filter media, and an underdrain to capture trash and debris, remove suspended solids and other pollutants. They can be designed as aesthetic streetscape components.



Granite Curb/Brick Gutter



Gutter Filter



**Crosswalk**

**Option 1:**

The "piano" crosswalk is the conventional, highly visible marking recommended for locations where substantial numbers of pedestrians cross without other traffic control devices.

**Option 2:**

Poured in place concrete crosswalks add texture and potentially color to the streetscape and are recommended for major intersections with bulb-outs and at T - intersections.

All dimensions shall meet the requirements in the Manual of Uniform Traffic Control Devices (MUTCD) and DDOT guidelines.



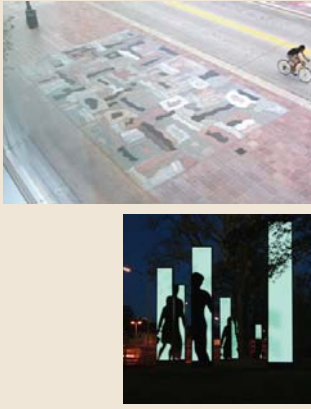


Piano Striped Crosswalk



Concrete Crosswalk



Element Description	Option 1	Option 2
 <p><b>Bulb-out</b></p> <p><b>Options 1 &amp; 2:</b></p> <p>Curb extensions in the form of bulbs perceptually narrow vehicular paths and discourage fast turns. Bulb-outs prevent vehicles from passing other vehicles that are turning or illegally parking near intersections, and increase pedestrian safety by shortening the crossing distance. They define curbside parking bays and provide space for amenities, public art, and landscaping. At identified intersections, bulb-outs are recommended to provide the added benefit of serving as bus station plateaus. Material should be consistent with the adjoining sidewalk; however, the use of permeable surfaces and sidewalk accents is encouraged. Dimensions must comply with DDOT Guidelines for Traffic Calming Measures.</p>	 <p>Standard Sidewalk Material</p>	 <p>Incorporate Public Art</p>

# Landscape

# 6

Element Description	Option 1	Option 2
<p> <b>Street Trees</b></p> <p><b>Option 1:</b> Street trees provide beauty, shade, and wildlife habitat, reduce stormwater runoff, buffer city noise, and strengthen the line of sight. Species should be non-invasive, disease resistant, tolerate urban conditions, and require minimum maintenance. Diversification of species is encouraged.</p> <p><b>Option 2:</b> Ornamental trees create a ceremonial experience with visual seasonal interest and fragrance. They are recommended for select special intersections only. Tree selection and placement must comply with the DDOT Design &amp; Engineering Manual and the Urban Forestry Administration Guidelines. A Tree Protection Plan for the construction phase is required.</p>	 <p data-bbox="857 856 1166 898">General Tree Species</p>	 <p data-bbox="1187 856 1507 898">Ornamental Trees</p>
<p> <b>Additional Plantings</b></p> <p><b>Option 1:</b> Understory plantings such as flowers and ornamental grasses add aesthetic value to the streetscape, reduce stormwater runoff, provide visual and physical barriers for pedestrians and motorists, and can help create a neighborhood identity.</p> <p><b>Option 2:</b> Planter boxes can provide a unique appeal reflecting a business' identity as evident in some sections of the corridor.</p> <p>Supply and maintenance is the responsibility of the property owner, community or business organizations. Design and placement must be reviewed by the DDOT (Open Space Administration) and ADA compliant. A maintenance plan is required.</p>	<p data-bbox="857 930 1170 972">Extra - Supply &amp; Maintenance by Property Owners/Organizations</p>  <p data-bbox="857 1346 1170 1392">Flowers in Tree Boxes</p>	<p data-bbox="1187 930 1507 972">Extra - Supply &amp; Maintenance by Property Owners/Organizations</p>  <p data-bbox="1187 1346 1507 1392">Planters</p>
<p> <b>Tree Box</b></p> <p><b>Option 1:</b> Metal tree guards hold the soil, mulch, and plants in place and prevent soil compaction while directing pedestrian travel paths and defining a space. Designs should allow water to enter from the sidewalk. Where there is no carriage way, an enclosure on the street side is not recommended.</p> <p><b>Option 2:</b> Bioretention cells are small-scale soil and plant-based devices that receive runoff from sidewalks and roadways, remove pollutants, and control runoff volume and peak rates through a variety of treatment processes. Installation is recommended for all T-intersection bulb-outs.</p>	 <p data-bbox="857 1839 1170 1885">Tree Box</p>	  <p data-bbox="1187 1839 1507 1885">Bioretention Cell</p>

**Element Description**



**Planting Space**

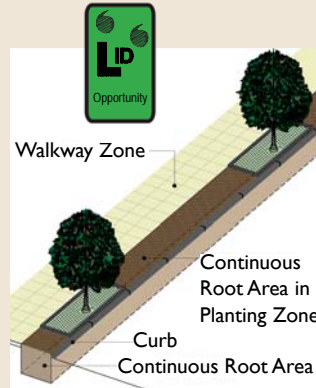
**Option 1:**

The life span of urban trees is decreased due to environmental stress such as air pollution, lack of fertile soils, poor drainage and vandalism. A 4'-6' wide continuous underground root area can counteract this as it allows water drainage, maximizes the volume of soil, and encourages the uninterrupted growth of tree roots.

**Option 2:**

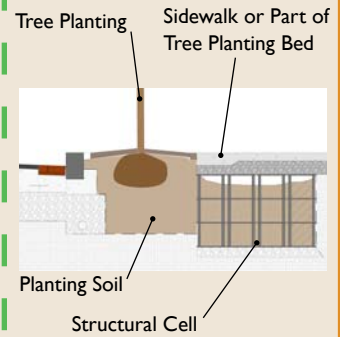
A modular structural cells system is recommended for areas with frequent foot traffic (i.e. Reeves Plaza). It supports traffic loads while providing uncompacted soil volumes, on-site stormwater management, and unlimited access to healthy soil, a critical component of tree growth in urban environments.

**Option 1**



Continuous Root Area

**Option 2**



Structural Cell



**Green Space in Bulb-outs**

**Option 1:**

Bulb-outs (see H7) create usable public open space. Once sufficient ADA compliant walkways, streetlights, and other amenities are accommodated, the remaining space should be allocated to landscaping. Plantings should not interfere with the line of sight and be approved by the Urban Forestry Administration. A maintenance plan should be established in cooperation with DDOT, possibly including property owners and/or business organizations.

**Option 2:**

Creative and sustainable solutions may include a combination of LID devices and furnishings, such as seating opportunities.



Flexible Green Space



Docklands, Melbourne

Bioretention Cell



## Furnishings

### Element Description



#### Bike Rack

##### Option 1:

Frequent and consistent placement of high security bike racks that accommodate most bike locks and a minimum of two bikes encourages bike trips. Where space permits, multiple bike racks shall be provided 30" apart from each other, and placed diagonally (at least 2' from the curb) to save space along the pedestrian walkway. The location should be visible and prominent, preferably adjacent to building entrances

##### Option 2:

The X-type rack is a high security bike rack that also provides protection for street trees on three sides. It is recommended on a case-by-case basis in lieu of tree guards. It accommodates a variety of locks.

### Option 1



Inverted U Shape Bike Rack

### Option 2



Bike Rack / Tree Rail Combo



#### Bench

##### Option 1:

Fixed traditional style benches with center arms shall be installed along the public right-of-way to provide a resting place for pedestrians, especially focusing on highly visible and utilized public spaces such as transit stops, plazas, and critical intersections. Placement should ensure a min. distance of 2' from curb and sufficient, ADA compliant walkway clearance.

##### Option 2:

This seating option includes the incorporation of public art and/or creative solutions to combining shaded seating and tree protection. On a case-by-case basis, artist may collaborate with area stakeholders to develop a design that captures 14th Street's distinct character; DDOT approval is required.



Traditional Style Bench



Integrate Seating w/ Public Art



#### Trash Receptacle

##### Option 1:

Traditional 36 gallon trash receptacles shall be placed in regular intervals along the corridor, especially at highly visible and utilized locations. Installation is per District Standards (Downtown Streetscape Regulation); lockable latches are optional. Recycling bins are strongly encouraged.

##### Option 2:

Custom steel plaques in various sizes and pressure sensitive vinyl outdoor decals affixed to plaques are an option for local businesses/community organizations to "brand" the corridor, tell anecdotes, advertise businesses or announce events. DDOT approval required.



Traditional Trash Receptacle



Custom Decal Addition

# Signage and Lighting

## Element Description



### Banners

#### Option 1:

Temporary banners increase the positive image, enhance identity and add vibrancy to the public right-of-way. In addition, temporary banners may also advertise events, upon DDOT approval. Funding, installation, and maintenance for the banners shall be the sole responsibility of the local community/business organization. A maintenance plan is required.

#### Option 2:

Aluminium banners present a long-term alternative that require DDOT approval and careful coordination with other street signs, lighting, and neighborhood markers to avoid signage clutter.

## Option 1



Temporary Banners

## Option 2



Permanent Aluminum Banners



### Vehicular/Pedestrian Light

#### Option 1:

DC Teardrop light fixtures are recommended to provide illumination for pedestrian/vehicular safety. The Washington Globe will unify the lighting with historic DC.

#### Option 2:

Contemporary light fixtures using reflective surfaces for targeted and more efficient illumination should be considered.

See Element LI2 below for additional lighting design and placement information.



Teardrop



Contemporary

Photos display concept; a particular design has not been selected.



### Pedestrian Light or Combination

#### Option 1:

Upright Pole #16 light fixtures are an option for additional illumination of the sidewalk between intersections. The Washington Globe will unify the lighting with historic DC.

#### Option 2:

Combination fixtures with pendant street and pedestrian level lights are an alternative that may be placed at and between intersections.

Technology that reflects light downward or towards an intended surface should be employed to minimize sky glow and light spill toward off-site areas. Spacing is usually 60' O.C. All lighting and installations shall comply with the District Streetlight Policy and Design Guidelines. Use of LED and photovoltaic cells is strongly encouraged.



Upright Pole #16



Vehicular / Pedestrian Combo

Photo displays concept; a particular design has not been selected.



## Public Art

### Element Description



#### Permanent Public Art

Lighting installations, preferably utilizing solar power and LED, are recommended as gateway art pieces at the Florida Avenue intersection (SW and/or SE corners,) and potentially at locations with wide a public a right-of-way, e.g. Reeves Plaza. They can be freestanding or mounted on facades; variations are encouraged. The goal is to draw attention, add interest, and sidewalk illumination for evening activities. Permanent installations can have 'flexible content', e.g. colors or projected images may change.

Funding, content, implementation, and maintenance should be coordinated with community stakeholders, the DC Commission on the Arts and Humanities, and DDOT.

### Precedents



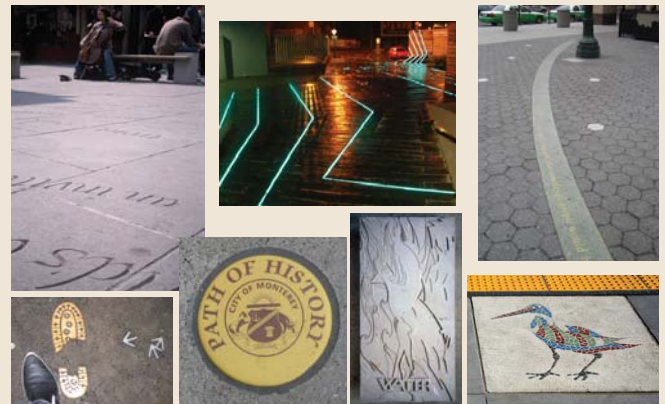
Gateway & Plaza Art



#### Functional Art

In addition to lighting installations, sidewalk accents such as mosaics, imprints, solar lights, and plates are the recommended public art form for the 14th Street corridor. They can be incorporated into the London Pavers and arranged along the sidewalk to 'tell a story' or lead toward a certain destination. For instance, business owners could invest and take ownership in a paver (or a series of pavers) to display graphics representing his/her organization.

Funding, content, implementation, and maintenance should be coordinated with community stakeholders, the DC Commission on the Arts and Humanities, and DDOT. All pavement treatments must meet ADA requirements.



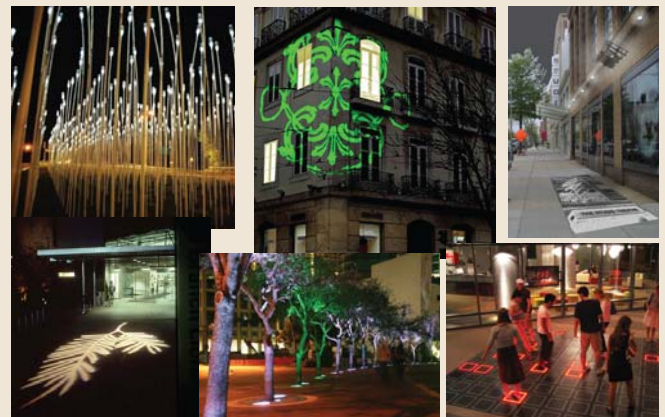
Paving Impressions



#### Temporary Installations

To continue both recommended art themes, lighting and sidewalk accents, temporary lighting installations are proposed as an ongoing art program for the 14th Street community. Possibilities are abundant and can be explored through stakeholder driven artist competitions and/or programs initiated by business owners and community organizations. Assistance and a variety of grants are available through the DC Commission on the Arts and Humanities.

Funding, content, implementation, and maintenance should be coordinated with community stakeholders, the DC Commission on the Arts and Humanities, and DDOT.



Light Installations



This page is intentionally left blank.







# IMPLEMENTATION

7

Implementation



## Implementation Strategy

This study has identified two categories of improvements with regards to the implementation schedule: short- and long-term improvements. They are discussed in more detail below and listed in table 7.1 for both the transportation and streetscape related improvements.

### Short-Term Improvements

These activities, which include such things as sidewalk maintenance, some resurfacing, installation of ADA ramps and multi-space parking meters, loading zone designations, upgrading signage and traffic signal timing, are performed as part of DDOT's maintenance efforts. Due to the limited scope of work associated with these efforts, they can be completed in the near-term timetable.

As shown in the opposite table, the short-term transportation and some of the streetscape improvements have relatively low costs associated with them and are expected to be completed within twenty four months of final approval by the District.

### Long-Term Improvements

The implementation of long-term improvements depends upon the availability and allocation of required funding. Assuming approval of grant applications and the District's allocation of funds within two years, engineering design activities within one to two years, followed by the completion of construction within a two to three year window, the full implementation of the study recommendations can take place within five to seven years.

The next step with the completion of this study is the initiation of the design engineering work.

Table 7.1 Cost Estimates

<b>SHORT-TERM Improvements Transportation</b>				
	Units	Unit Cost	Quantity	Total
Pavement Markings 4"	LF	\$1.40	29,304	\$41,026
Pavement Markings 12"	LF	\$6.50	11,077	\$72,001
Smart Bike (cost & quantity to be confirmed with DDOT)	EA	\$2,000	3	\$6,000
<b>SUBTOTAL</b>				<b>\$119,027</b>
<b>SHORT-TERM Improvements Streetscape</b>				
Removal of Existing Redundant Signage	EA		TBC	\$1,000
Add Benches	EA	\$1,500	10	\$15,000
Add Bike Racks	EA	\$400	38	\$30,400
Lighting - Repair Existing Lights	EA	\$500	10	\$5,000
Hardscape - Patching and Minor Pavement Improvements	SF	\$7	2,000	\$14,000
Hardscape -Curb Repair	LF	\$15	1,000	\$15,000
Landscape - Trimming and Pruning Existing	EA	\$500	20	\$10,000
<b>SUBTOTAL</b>				<b>\$90,400</b>
<b>TOTAL SHORT-TERM (TRANSPORTATION + STREETScape)</b>				<b>\$209,427</b>
<b>LONG-TERM Improvements Transportation</b>				
	Units	Unit Cost	Quantity	Total
Physical Bulb-outs	L.F of C&G	\$160	3,266	\$522,560
Transit Priority - Traffic Signal Upgrades	EA	\$25,000	9	\$225,000
Install Location Transponders on Buses	EA	\$1,000	16	\$16,000
Multi-space Parking System Kiosk/Unit	EA	\$3,200	100	\$320,000
Pavement Parking Re-Striping	LF	\$1.40	13,024	\$18,234
<b>SUBTOTAL</b>				<b>\$1,101,794</b>
<b>LONG-TERM Improvements Streetscape</b>				
Planting Beds (new trees including mulch, tree boxes/railings, soil)	EA	\$1,500	160	\$240,000
Lighting Twin 20 (assumes fixture, utility work, & other standard site related construction)	EA	\$6,000	136	\$816,000
Banners (assumes 2 aluminum banners per light on 1/2 of lights)	EA	\$2,000	68	\$136,000
New Trash Cans (2 per block)	EA	\$1,200	66	\$79,200
New Benches (2 per block)	EA	\$1,500	66	\$99,000
Public Art - Streetscape (in order to have an impact on the overall streetscape design \$500,000+ is recommended to initiate public art program on 14th Street)	N/A	\$500,000	1	\$500,000
*Hardscape Sidewalk: Concrete (in lieu of London Pavers; does not include bulb-out or planting beds and is based on 20' average sidewalk width)	SF	\$6	150,280	\$901,680
Hardscape Planting Zone (assumes cobblestones covering all planting beds except T-intersection plantings; tree planting bed sizes based on standard sidewalk layout recommendations; soil - 3 feet depth)	SF	\$30	32,160	\$964,800
<b>SUBTOTAL</b>				<b>\$3,736,680</b>
<b>TOTAL LONG-TERM (TRANSPORTATION + STREETScape)</b>				<b>\$4,838,474</b>
<b>TOTAL CORRIDOR SHORT-TERM + LONG-TERM (TRANSPORTATION + STREETScape)</b>				<b>\$5,047,901</b> <b>*(\$5,447,901)</b>
<b>OPTION 2 SIDEWALK ALTERNATIVE:</b>				
	Units	Unit Cost	Quantity	Total
Hardscape Sidewalk: London Pavers (does not include Bulb-out or planting beds and is based on 20' average sidewalk width )	SF	\$25	150,280	\$3,757,000
<b>TOTAL CORRIDOR SHORT-TERM + LONG-TERM (TRANSPORTATION + STREETScape)</b>				<b>\$7,903,221</b> <b>*(\$8,303,221)</b>

Cost estimates include items (e.g. materials & furnishings) and installation. Quantities are an estimate based on field observations; unit costs are subject to change. \*Costs in parenthesis are estimates including relocation of catch basins and subject to change in the next design phase.



merican

FLOWERS ON FOURTEENTH

NACA.com

teleflora

C973

ADDENDUM

8





# ADDENDUM

8

ADDENDUM

## List of Figures

Figure 1.1 Caroline Mayorga, New Arrivals, The Garden District	8
Figure 2.1 - 14th Street's Location within the District of Columbia	13
Figure 2.2 - 14th Street Transportation and Streetscape Study Area	14
Figure 2.3 - City of Washington Historic Map - B.H. Warner & Co., Library of Congress	16
Figure 2.4/2.5 - (top to bottom) 14th Street Commercial Advertisement; Horse-drawn Streetcar Line on 14th St. near Florida Ave, 1889	16
Figure 2.6/2.7/2.8 - (top to bottom) Early 14th Street Commercial Corridor; 14th Street Electric Streetcar and Automobiles; First Automobile Showroom at 1711 14th Street, 1904	17
Figure 2.9 Recent Developments (Source: The Washington Post, December 20, 2004)	18
Figure 2.10/ 2.11/ 2.12 - (top to bottom) Thomas Circle, 1943, Library of Congress photo; Map of Washington DC Streetcar System at the end of the Horsecar era, 1888; Greater U Street and Greater 14th Street and Logan Circle Historic Districts	19
Figure 2.13 - District of Columbia Zoning Map	20
Figure 2.14- DC Comprehensive Plan - Future Land Use	21
Figure 2.15 - Dog Days Community Event	22
Figure 2.16 - Project Website Screenshots	22
Figure 2.17 - Source Theatre 14th Street	24
Figure 2.18/2.19/2.20 - Public Meeting 1 Photos	24
Figure 2.21 - Public Meeting 1 - Transportation Break-out Session	25
Figure 2.22 - PMI - Comment Card	26
Figure 2.23 - PMI - Photomontage	29
Figure 2.24 - PMI - Comment Card	30
Figure 2.25/2.26/2.27/2.28/2.29 - Community Event Midcity's Dog Days	33
Figure 2.30 - PM2 - Survey	34
Figure 2.31 - PM2 - Coordination between Display Boards and Survey	34
Figure 2.32 - Photos of Public Meeting 2 Participation	36
Figure 2.33 - Example of PM2 Presentation Boards	37
Figure 2.34/2.35 - Flyer & Photos of Public Meeting 3 Participation	38
Figure 2.36 - Public Meeting 4 at the Reeves Center	39
Figure 3.1 - 14th Street Existing Lane Configuration from Thomas Circle to Wallach Place	43
Figure 3.1A - 14th Street Existing Lane Configuration from Wallach Place to Florida Avenue; U Street	43
Figure 3.1B - Typical Lane Configuration - R Street & Q Street West Side	43
Figure 3.1C - Typical Lane Configuration - P Street, S Street, Rhode Island Avenue, Florida Avenue	44
Figure 3.1D - Typical Lane Configuration - Q, T, V, W Streets and Corcoran St., Swann St., Church St., Riggs St., and Wallach Place	44
Figure 3.2 - 2007 Existing AM Peak Hour Traffic Volumes	45
Figure 3.3 - 2007 Existing PM Peak Hour Traffic Volumes	46
Figure 3.4 - Existing On-Street Loading Zones	50
Figure 3.5 -AM Truck Volumes	51
Figure 3.6 -PM Truck Volumes	52
Figure 3.7 - Destination Origin Data	53
Figure 3.8 - Vehicle to Non-Vehicle Type Collisions	56
Figure 3.9 - AM Peak Overall and Approach Existing Levels of Service (LOS)	61
Figure 3.10 - PM Peak Overall and Approach Existing Levels of Service (LOS)	62
Figure 3.11-3.20 - Aerial views of 14th Street intersections Source: Windows Live Local Imagery	65
Figure 3.21 - 14 <sup>th</sup> and U Streets, looking southeast	68
Figure 3.22 - 14 <sup>th</sup> and N Streets, looking south	69
Figure 3.23 (below) - 14 <sup>th</sup> Street between Riggs and S Streets	70
Figure 3.24 (right) - 14 <sup>th</sup> and R Streets, looking south	70
Figure 3.25 - AM/PM Peak Pedestrian Movement at the Intersections along 14 <sup>th</sup> Street NW	71
Figures 3.26/3.27/3.28/3.29 (Top to Bottom) - Bike Lane at 14 <sup>th</sup> and P Streets, looking south/ 14 <sup>th</sup> and R Streets, looking east/ 14 <sup>th</sup> and P Streets/ 14 <sup>th</sup> and R Streets, looking west	72

Figure 3.30 - 14th Street within the DC Bicycle Master Plan	73
Figure 3.31 - AM Peak Period Bicycle Movements at the Intersections along 14th Street NW	74
Figure 3.32 - PM Peak Period Bicycle Movements at the Intersections along 14 <sup>th</sup> Street NW	75
Figure 3.33 - Top, Capitol Hill neighborhood	77
Figure 3.34 - Example of Pedestrian Friendly Environment	77
Figure 3.35/36/37 (top to bottom) - Bike Rack between R and S Street, Tree Box Used as Bike Rack on 14th Street, Current End of 14th Street Bike Lane at Wallach Place	78
Figure 3.38 - Pedestrian Accidents along 14th Corridor (2000-2006)	79
Figure 3.39 - Bicycle Accidents along 14th Corridor (2002-2004)	80
Figure 3.40 - Bike-Bus Transfer as Part of WMATA's Bike-n-Ride Program (WMATA)	81
Figure 3.41 - Transit Routes along 14 <sup>th</sup> Street Corridor	84
Figure 3.42 - Proximity to Metro Stations	85
Figure 3.43 - Bus Shelter on 14 <sup>th</sup> Street near P Street	86
Figure 3.44 - Bus Shelter on 14 <sup>th</sup> Street near U Street	86
Figure 3.45 - Transit Commuters in the study area	87
Figure 3.46 - Existing On-Street Parking Regulation within the Corridor	89
Figure 3.47: Off-Street Parking Facilities and Spaces in the Study Area	90
Figure 3.48 - Weekday Parking Occupancy by Block Faces and by Time Periods	93
Figure 3.49 - Weekday Parking Turnover by Block Faces and by Time Periods	94
Figure 3.50 - Weekend Parking Occupancy by Block Faces and by Time Periods	95
Figure 3.51 - Weekend Parking Turnover by Block Faces and by Time Periods	96
PLAN A - Existing Conditions Assessment & Design Considerations	99
Figure 4.1 - Public Realm Area	104
Figure 4.2 - Public Realm Area and Adjoining Land Uses	105
Figure 4.3 - Public Realm Study Area	105
Figure 4.4 - Existing Condition Photos - Sidewalks	106
Figure 4.5 - Existing Condition Photos - Landscaping	108
Figure 4.6 - Existing Condition Photos - Furnishings/Transit Amenities	110
Figures 4.7 - Existing Condition Photos - Lighting	112
Figures 4.8 - Existing Condition Photos - Signage	114
Figures 4.9 - Existing Condition Photos - Public Art	116
Figure 4.10 - WPA\IC's SiteProjects DC Invite	116
Figure 5.1 - Recommendations - 14th Street NW Section: Roadway Focus	121
Figure 5.2 - Bulb-out Advantages (Source: Oregon Pedestrian and Bicycle Plan)	123
Figure 5.3 - Example of Bulb-outs at a 14th Street NW T-intersection	123
Figure 5.4 - 14th Street within the DC Bicycle Master Plan (Source: DDOT DC Bicycle Master Plan)	125
Figure 5.5 - Example of SmartBike Station	127
Figure 5.6 - Example of Recommended Inverted U Shape Bike Rack	127
Figure 5.7 - SmartBike Rendering	127
Figure 5.8 - Paris Precedent: Velib Bike Sharing Program (New York Times Photos)	127
Figure 5.9 - Vancouver Precedent: Bike Waiting Area at an Intersection	127
Figure 5.10 - Transit Stops: Existing & Recommended	129
Figure 5.11 - New DC Bus Shelter	130
Figure 5.12 - Paris Shuttle Precedent: Microbus	130
Figure 5.13 - DC Circulator	130
Figure 5.14 - Correlation between Bulb-outs, Parking Spaces & Bus Service (Source: Oregon Pedestrian and Bicycle Plan)	131
Figure 5.15 - Bulb-out Design Alternatives	133
Figure 5.16 - Recommended Roadway Configuration - Plan	135
Figure 5.17 - Recommended Roadway Configuration - Section	135
Figure 5.18 - Recommended Loading Zones	137
Figure 5.19 - Existing Carsharing Signage	138
Figure 5.20 - Recommended Parking Regulations	139
PLAN B - Transportation & Streetscape Recommendations	141
Figure 6.1 - Recommendations - 14th Street NW: Sidewalk Focus	149



Figure 6.2 - Install ADA Compliant Ramp on 14th Street near Wallach Place	151
Figure 6.3 - Repair Uneven Sidewalk between N Street and Rhode Island Ave. - East Side	151
Figure 6.4 - Maintain or Replace Banners between S Street and T Street - West Side	151
Figure 6.5 - Repair Damaged Tree Box Railing between P and Q Street - East Side	151
Figure 6.6 - Repair Street Light between N and Thomas Circle - West Side	151
Figure 6.7 - Overall Sidewalk Layout Rendering: Sidewalk View	153
Figure 6.8- Overall Sidewalk Layout Rendering: Street View	153
Figure 6.9 - Typical Sidewalk Layout Plans	155
Figure 6.10 - Walkway Over Planting Bed Detail	157
Figure 6.11 - Structural Cell Detail	157
Figure 6.12 - Upright Pole Twin 20 Fixture	159
Figure 6.13 - DC Teardrop Fixture	159
Figure 6.14 - Existing Conditions - Southwest Corner of Rhode Island Avenue and 14th Street NW	160
Figure 6.15 - Daytime Rendering - Southwest Corner of Rhode Island Avenue and 14th Street NW	161
Figure 6.16 - Nighttime Renderings - Southwest Corner of Rhode Island Avenue and 14th Street NW	161
Figure 6.17 - Light Panels used for Venue Advertisement - Studio Theatre Rendering	163
Figure 6.18 - Animate Blank Facades with Light Installations - 14th Street NW Verizon Building Rendering	163
Figure 6.19- Light Installation Precedents	165
Figure 6.20 - Sidewalk Accent Precedents	165
Figure 6.21 - Gateway Precedents	167
Figure 6.22 - The Solea Development	169
Figure 6.23 - Union Row Development	169
Figure 6.24 - Continuous Root Zone	171
Figure 6.25 - Permeable Unit Pavers in the Furnishing/Planting Zone	171
Figure 6.26 - Urban Bioretention Cell Section	173
Figure 6.27 - Siskiyou Street Portland, Oregon - Landscaped Stormwater Curb Extension (ASLA Photo)	173
Figure 6.28 - SW 12th Ave., Portland, Oregon - Landscaped Stormwater Planters (ASLA Photo)	173
Figure 6.29 - Gateway Precedents (see History and Art section for more information)	174
Figure 6.30 - Conceptual Florida Avenue & 14th Street Rendering	175
Figure 6.31- Conceptual Florida Avenue & 14th Street NW Plan	175
Figure 6.32 - Reeves Plaza Existing Conditions	176
Figure 6.33 - Conceptual U Street & 14th Street NW Plan	177
Figure 6.34 - Conceptual P Street & 14th Street NW Bulb-out with Paving Accents Rendering	178
Figure 6.35 - Paving Accent Precedents (see History and Art section for more information)	179
Figure 6.36 - Conceptual P Street & 14th Street NW Plan	179
Figure 6.37 - Conceptual P Street Woonerf/Street Fair Rendering	179
Figure 6.38 - P Street Existing Condition Photo	179

## List of Tables

Table 1.1 - Cost Estimates for Short-term & Long-term Improvements	6
Table 1.2 - Cost Estimates for Short-term & Long-term Improvements Combined	6
Table 1.3 - Key Streetscape Recommendations	6
Table 1.4 - Key Transportation Recommendations	7
Table 2.1 - Steering Committee	23
Table 2.2 - Transportation - Location Specific Comments	25
Table 2.3 - Vision Priorities	26
Table 2.4 - Public Meeting I: Vision Priority Categories	28
Table 2.5 - Themes Derived from Public Comments - Word Count	28
Table 2.6 - Challenges	30
Table 2.7 - Public Meeting I: Summary of 14th Street Challenges	32
Table 3.1 - Traffic Count Locations	44
Table 3.2 - Peak Hour Speed on 14th Street	54
Table 3.3 - Accident Summary for all Collision Types	55
Table 3.4 - Vehicle to Vehicle type Collision Summary	55
Table 3.5 - Crashes at Intersections along 14th Street by Year	57
Table 3.6 Level of Service Definitions: Source: 2000 Highway Capacity Manual.	59
Table 3.7 - Analysis of Arterial Operations	60
Table 3.8 - Intersection Operations	65
Table 3.9 - N Street Intersection Performance	66
Table 3.10 - Rhode Island Avenue Intersection Performance	66
Table 3.11 - Q Street Intersection Performance	66
Table 3.12 - R Street Intersection Performance	66
Table 3.13 - S Street Intersection Performance	66
Table 3.14 - U Street Intersection Performance	67
Table 3.15 - V Street Intersection Performance	67
Table 3.16 - W Street Intersection Performance	67
Table 3.17 - Florida Avenue Intersection Performance	67
Table 3.18 - Pedestrian Counts/Movements at Intersections (AM Peak Period 0630-0930, PM Peak Period 1530-1830)	70
Table 3.19 - Bicycle Counts/Movements at Intersections (AM Peak Period 0630-0930, PM Peak Period 1530-1830)	70
Table 3.20 DC Municipal Parking Regulations for 14th Street Corridor	91
Table 3.21 Off-street Parking Utilization	97
Table 5.1 - Corridor Transit Performance	131
Table 5.2 - Intersection Performance	135
Table 5.3 - Parking & Loading Corridor Performance	137
Table 6.1 - 14th Street NW Sidewalk Widths	156
Table 6.2 - Current and Planned Development Activity	169
Table 7.1 Cost Estimates	197

## Second Public Meeting Survey Results

14th Street  
Transportation &  
Streetscape Study  
- Public Meeting  
#2 Questionnaire  
Responses

### SUMMARY

#### General Questions (front of questionnaire)

<u>Questions</u>	<u>TOTAL</u>		
<b><i>I experience 14th Street primarily as a:</i></b>			
Pedestrian (non-resident)	8		24%
Business employee or owner	3		9%
Vehicular driver	1		3%
<b><i>Rate the importance (1-4) of environmentally friendly applications in:</i></b>			
	<b>AVERAGE RATING</b>	<b># of 1st Preference Responses</b>	<b>% of 1st Preference Responses</b>
Energy	1.94	13	36%
Recycle/Using Recycled Content	3.28	2	6%
Stormwater Management	2.50	8	22%

#### PM2 Questionnaire - Streetscape Responses

<u>Streetscape Categories/Questions</u>	<u>AVERAGE RATING</u>	<u># of 1st Preference Responses</u>	<u>% of 1st Preference Responses</u>
<b>Hardscape</b>			
<b><i>Walking Zone: rank your priorities (1-4):</i></b>			
London Pavers	1.50	20	57%
Brick	2.09	9	26%
Exposed Aggregate Concrete	3.07	2	6%



<b>Streetscape Categories/Questions</b>	<b>AVERAGE RATING</b>	<b># of 1st Preference Responses</b>	<b>% of 1st Preference Responses</b>
<b><i>Planting/Furnishing Zone: rank your priorities (1-2):</i></b>			
Pavers	43	13	46%
<b>Lighting</b>			
<b><i>Street Lighting: rank your priorities (1-4):</i></b>			
Twin 20	2.18	12	32%
Modern	3.40	2	5%
Vehicular & Pedestrian Combo	2.03	14	37%
<b><i>Pedestrian Lighting: rank your priorities (1-2):</i></b>			
Modern	57	13	37%
<b>Signage</b>			
<b><i>Knowing that the Historic District signs will be installed at each 14th St intersection, please rank your priorities (1-5) for additional signage:</i></b>			
Banners	2.41	11	29%
Wayfinding Signs	2.31	11	29%
Information Kiosk	3.73	3	8%
Transportation/Parking	3.09	6	16%
<b><i>In regards to signage, do you feel 14th St. is:</i></b>			
Cluttered	21		68%
Organized	10		32%
<b>Furnishings</b>			
<b><i>What style of street furnishings do you prefer:</i></b>			
Traditional	23		66%
<b><i>Rank your priorities (1-4) for bike racks:</i></b>			
Bike Rack/Tree Rail Combination	2.00	9	26%
Circle Shape	2.15	8	23%
Other	3.00	1	3%

Streetscape Categories/Questions	AVERAGE RATING	# of 1st Preference Responses	% of 1st Preference Responses
<b>Public Art</b>			
<i>Would you like to see: (check all that apply)</i>			
Functional Art in Streetscape	30		34%
Temporary Installations	28		32%
<b>Rank your priorities (1-4) for public art locations:</b>			
Activity Hubs (U Street, P Street, Rhode Island Ave)	1.66	15	45%
Distributed Along the Corridor	1.90	13	39%
Other	3.60	0	0%
<b>Landscaping</b>			
<b>Rank your priorities (1-4) for street trees:</b>			
Ornamental Trees	3.03	3	8%
Wide Canopy	1.91	18	46%
Mix of Trees	2.19	12	31%
<b>Rank your priorities (1-4) for tree boxes:</b>			
Seating	1.94	14	40%
Railing	2.24	14	40%
Flush Cobblestone	2.63	6	17%
<b>If any, rank your priorities (1-3) for additional plantings:</b>			
Planters Attached to Light Pole	2.26	7	19%
Flowers in Tree Boxes	1.58	21	58%
<b>Sidewalk Layout</b>			
B) Wide Planting Beds	2.63	7	24%
C) Double Tree Planting Beds w/ Grouped Furnishings	2.28	6	21%
D) Single & Double Planting Beds	2.38	8	28%

**PM2 Questionnaire -  
Transportation Responses**

<u>Transportation Categories/Questions</u>	<b>AVERAGE RATING</b>	<b># of 1st Preference Responses</b>	<b>% of 1st Preference Responses</b>
<b>Road Layout</b>			
B	3.18	0	0%
C	3.73	2	13%
D	3.69	2	13%
E	1.86	9	56%
<b>Vehicular/Roadway</b>			
<b>Rank the importance (1-8) for future improvements:</b>			
Pedestrian/bicycle conflicts	3.79	6	20%
Need for turning lanes	4.29	4	13%
Truck/bus congestion	2.73	11	37%
Traffic signage	4.62	0	0%
Lane markings	4.76	1	3%
Double parking	4.60	3	10%
Signal timing	4.82	3	10%
<b>Parking</b>			
<b>Rank the importance (1-3) of:</b>			
24 hr	15		
non-peak only	8		
Off-street Parking	2.21	3	9%
Structured Lots	2.04	10	31%
<b>What are preferred meter restrictions on 14th street:</b>			
30 minutes	2.93	3	9%
2 hours	1.25	19	59%
60 minutes	1.80	6	19%
4 hours	2.69	4	13%

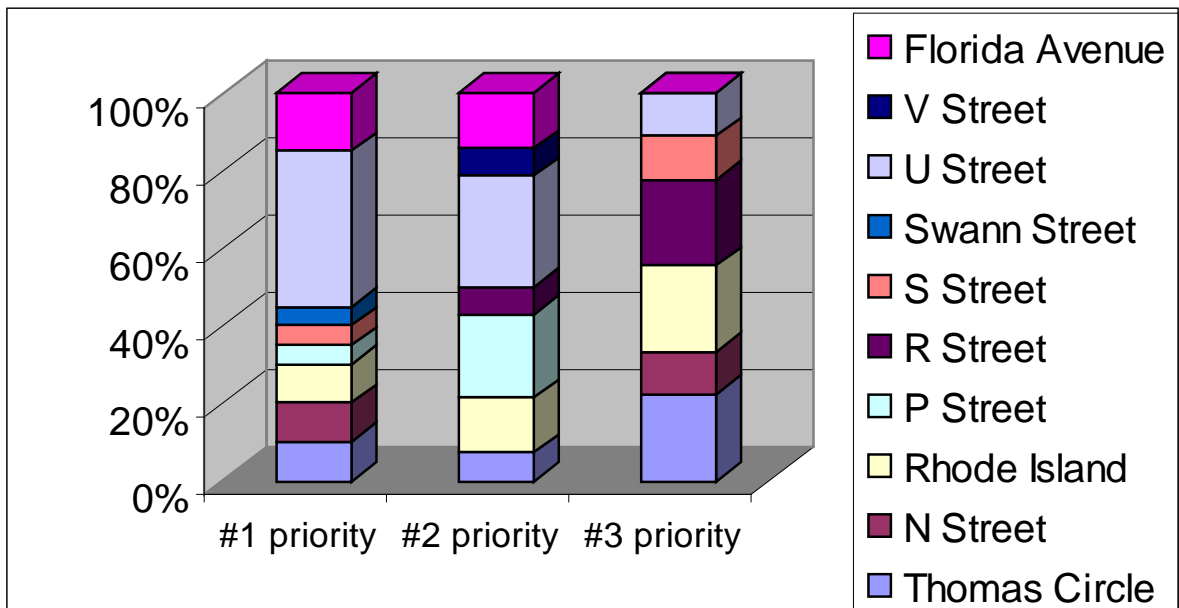
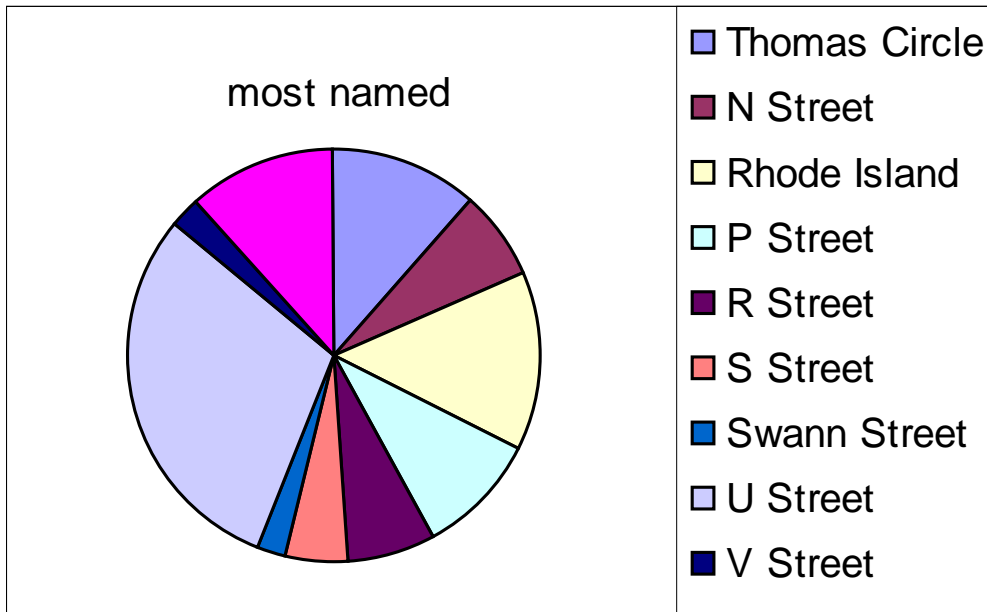


<b>Transportation Categories/Questions</b>	<b>AVERAGE RATING</b>	<b># of 1st Preference Responses</b>	<b>% of 1st Preference Responses</b>
<b><i>Do you support parking meters being active into the evening hours:</i></b>			
No	19		56%
<b><i>Do you favor truck delivery zones?</i></b>			
No	7		22%
<b><i>Should there be more Zipcar/Flexcar?</i></b>			
No	14		42%
<b><i>Would you be willing to pay more to park on 14th St. if there were more available parking spaces?</i></b>			
No	14		45%
<b><i>Would you support visitors parking in RPP zones if they had to pay?</i></b>			
Yes	20		61%
No	13		39%
<b>Modal Priorities</b>			
<b><i>Rank your priorities (1-5) for future transportation improvements:</i></b>			
Transit	2.47	7	20%
Pedestrian	2.35	15	43%
Parking	3.10	3	9%
Vehicular	3.93	3	9%
<b>Transit</b>			
<b><i>Rank your service priority (1-3) of:</i></b>			
Metrorail	1.67	17	50%
Circulator	2.26	7	21%
<b><i>Rank the importance (1-3) of your transfer needs:</i></b>			
Bus-Rail	1.22	21	72%
Bike-Bus	2.48	3	10%

<b>Transportation Categories/Questions</b>	<b>AVERAGE RATING</b>	<b># of 1st Preference Responses</b>	<b>% of 1st Preference Responses</b>
<b><i>Are there bus service or accessibility needs on 14th?</i></b>			
No	15		58%
<b>Pedestrian/Bicycle</b>			
<b><i>In which location on 14th St should safety be improved?</i></b>			
<b><i>Rank the importance (1-3) of your bike needs?</i></b>			
Bike lanes	1.25	19	73%
Bike racks/storage	2.13	3	12%
<b><i>Would you like to see extended bike lanes on 14th St. as well as bike system connections?</i></b>			
Yes	20		74%
No	7		26%
<b><i>Are sidewalks adequate on 14th St.?</i></b>			
Yes	26		84%
No	5		16%
<b><i>Are crosswalks adequate on 14th St.?</i></b>			
Yes	21		70%
No	9		30%
<b><i>Are crossing signals adequate on 14th St.?</i></b>			
Yes	21		75%
No	7		25%

Transportation (write-in)

Name 3 intersections as your priorities for future improvements:





## References

Unless noted otherwise within the text and alongside graphics, the content of this report -including photographs, maps, drawings, and renderings- was produced by Michael Baker Jr., Inc. Community stakeholders and staff from various District agencies provided input and resources throughout the study.

### *Literature sources include:*

Accident Data, District Department of Transportation, 2003-2005

Bicycle Master Plan, District of Columbia, DDOT, April, 2005

D.C. Department of Transportation, Design and Engineering Manual.

Development Activity Report January 2006 - December 2007, Draft, DC Office of Planning, 2008

Highway Capacity Manual, Transportation Research Board, 2000

Neighborhood Profiles 2007, Washington, DC Economic Partnership

Planning and Urban Design Standards, American Planning Association, Emina Sendich, 2006

The Art of Placemaking, Interpreting Community through Public Art and Urban Design, Ronald Lee Fleming, 2007

The Comprehensive Plan for the National Capital, Adopted by the Council of the District of Columbia, December 19, 2006

Traffic Data Collection Summaries - Fourteenth Street, Northwest, Corridor Study, Washington D.C., O.R. George & Associates, Inc., June/July 2007

Transportation Research Board, Transit Capacity and Quality of Service Manual, 2nd Edition, TCRP Report 100, 2003.

### *Internet sources include:*

4 Culture Artist Registry Volume V, [www.4culture.org/publicart/registry/](http://www.4culture.org/publicart/registry/)

Arts at MPL, George Morrison, [www.mpls.lib.mn.us/artsmpl\\_morrison.asp](http://www.mpls.lib.mn.us/artsmpl_morrison.asp)

Core 77 Design Blog, Luzboa Art Biennale, [www.core77.com/blog/archive/200607.asp](http://www.core77.com/blog/archive/200607.asp)

Government of the District of Columbia, [www.dc.gov](http://www.dc.gov)

Inhabitat, [www.inhabitat.com](http://www.inhabitat.com)

Interactive Architecture, Jason Bruges Studio, [www.interactivearchitecture.org/category/visual](http://www.interactivearchitecture.org/category/visual)

LED Light Ray, [www.ledlightray.com/tag/osram/](http://www.ledlightray.com/tag/osram/)

Public Art Online, [www.publicartonline.org.uk/](http://www.publicartonline.org.uk/)

Signal Timing Plans, Department of Public Works, Washington D.C.

Pedestrian accident data 2000-2006, [http://tooledesign.com/projects/dc/downloads/CrashMapSmall3\\_9\\_07.pdf](http://tooledesign.com/projects/dc/downloads/CrashMapSmall3_9_07.pdf)

The Library of Congress, [www.loc.gov](http://www.loc.gov)  
Seattle.gov - Office of Arts and Cultural Affairs, [www.seattle.gov/arts/publicart](http://www.seattle.gov/arts/publicart)

The Stone Library, Alyson Hallett, [www.thestonelibrary.com/public\\_art\\_stone.html](http://www.thestonelibrary.com/public_art_stone.html)

The Studio Theatre, History, [www.studioTheater.org/Theater/history.php](http://www.studioTheater.org/Theater/history.php)

Switched on London, [www.switchedonlondon.co.uk](http://www.switchedonlondon.co.uk)

Woolly Mammoth Theatre Company, History, [www.woollymammoth.net/about/history.php](http://www.woollymammoth.net/about/history.php)



District Department of Transportation  
(DDOT)

2000 14th Street, NW  
Washington, DC 20009

**Baker**

Michael Baker Jr., Inc.

3601 Eisenhower Avenue, Suite 600  
Alexandria, VA 22304

1304 Concourse Drive, Suite 200  
Linthicum, MD 21090