



18TH STREET
ADAMS MORGAN
TRANSPORTATION AND
PARKING STUDY

**Final
Recommendations
Report**

March 2006

PREPARED FOR

d.
District Department of Transportation

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ADAMS MORGAN

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STUDY

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The District of Columbia Department of Transportation (DDOT) engaged HNTB District of Columbia, PC (HNTB) to investigate transportation management and streetscape improvements along 18th Street and in the surrounding area of Adams Morgan. The study area extends:

- on the north — Cathedral Avenue, Calvert Street, Adams Mill Road, and Harvard Street, NW
- on the east — 16th Street, NW
- on the south — Florida Avenue, NW
- on the west — Connecticut Avenue, NW

The 18th Street / Adams Morgan Transportation and Parking Study is a multi-modal study addressing issues of pedestrian flows and environment, on-street and off-street parking management, traffic safety, transit, bicycle activity, and general traffic operations and capacity.

Background

This study was launched in response to the concerns expressed by residents regarding

traffic operations in the study area. These concerns include:

- traffic speed, volume, and congestion
- the lack of available parking (both on-street and off-street)
- pedestrian and bicycle access and safety
- improved mass transit.

Study Purpose

The purpose of the study was to investigate existing conditions in the study area and to determine appropriate transportation and streetscape improvements to respond to the concerns above. Particular attention was given to traffic congestion during peak morning and evening travel hours and during weekends, especially Friday, Saturday and Sunday evenings, when the bars and restaurants on 18th Street and Columbia Road are at their busiest; improving access for residents, employees, and visitors to mass transit; and protecting the residential streets from traffic impacts.

Overview of Project

The study comprised numerous tasks — culminating in this report — that form three main elements: public involvement, data collection and analysis, and development of solutions. These elements are fully inter-related.

Public Involvement

This element of the study was designed to engage with the public at large; to learn from the local perspectives; to exchange ideas; to inform them of the problems, possible solutions, and recommendations determined during the study; and to consult with them throughout the process as a means of building a consensus on the direction that any action should take.

A number of methods were employed to exchange information between the study team and the public. These consisted of public meetings held at venues within the study area and open to the general public, a project website — www.18amstudy.com — where meeting announcements, findings

and presentation materials were posted, small-group meetings such as with business owners, an Hispanic outreach program, and Steering Committee meetings.

The Steering Committee consisted of community stakeholders representing the residential and commercial interests, who were invited to attend by DDOT and the Advisory Neighborhood Commissions in Ward 1. The committee was tasked to provide guidance on the direction and progress of the study.

See **Appendix A: Public Participation** for more details.

Field data collection

The study team had five field data collection tasks. These were:

- vehicle speed and classification counts
- generalized origin-destination study
- parking inventory
- physical features inventory
- urban design inventory

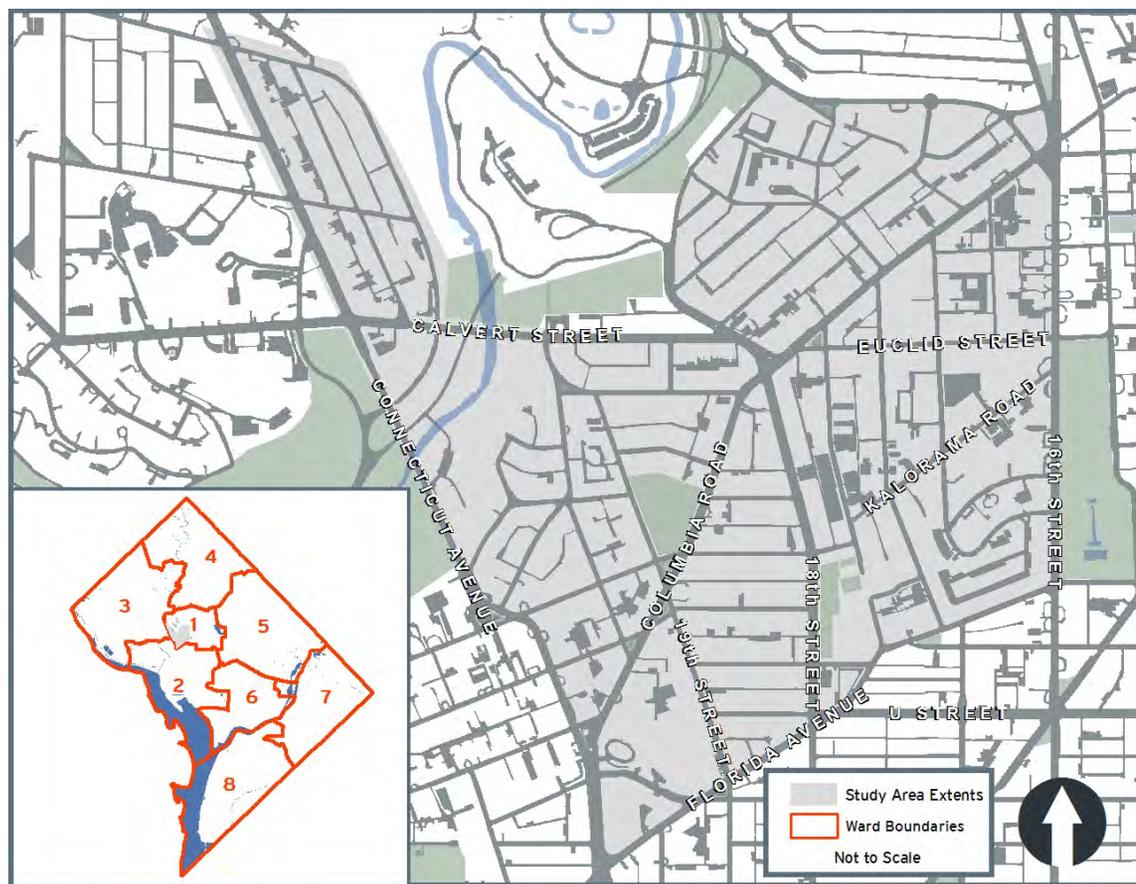
Details of the method of collection and of findings are available in “18th Street Adams Morgan Transportation and Parking Study Technical Memorandum No. 1: Data Collection.”

Development of Solutions

HNTB identified and characterized problems within the study area, based upon analysis of the collected data and feedback from the public. Short-range and long-range solutions were then developed in conjunction with the Steering Committee.

The development of solutions and final recommendations are presented in this report.

Figure 1-1: Study area



Adams Morgan in Context



Photo: Historical Society of Washington D.C.

Historical Background

Adams Morgan is situated just outside of the original planned city of Washington. The area developed as an urban district in the late 19th and early 20th centuries as the city expanded, a process greatly facilitated by the construction of two streetcar lines on Columbia Road and 18th Street.

The area was originally known as Lanier Heights and became a fashionable, middle-class neighborhood. Following a period of decline during and after the Second World War, and racial tensions thereafter, the current name was adopted sometime between the 1950s and 1960s. It was derived by the combination of the names of two area schools, the predominately white-attended John Quincy Adams and the black-attended Thomas P. Morgan.

The area has been a destination for immigrants since the 1960s. In the 1980s a significant influx of people from Central America arrived, and Adams Morgan is now the center for the city's Latino populations and

boasts the second largest Salvadoran population in the United States.

Contemporary Picture

The study area forms part of Ward 1 of the District of Columbia. The ward is geographically central to the District and is both the smallest and most densely populated.

Since the 1970s Adams Morgan has experienced an ongoing renaissance. Population and businesses have continued to increase. There were eight restaurants in the area in 1975; today there are around 80, and the population has more than doubled. This continued growth and prosperity have made Adams Morgan and its commercial strip on 18th Street a vibrant nightspot and a desirable place to live.

Today's Adams Morgan is a unique place. Its density, ethnic diversity, iconic murals above Madam's Organ and Café Toulouse, varied colors and architecture of the different store fronts, and evening bustle make it a special neighborhood. Many residents,

business owners, and visitors would agree its unique character should be preserved.

The Failings of Success

The economic success of Adams Morgan and 18th Street has created numerous concerns for the residents and business owners in the area. A sample of the sort of problems faced follows.

The availability of parking is of primary concern to both business owners and residents. The increase in population has also increased traffic volumes and the number of vehicles in the area. Meanwhile the amount of available parking has failed to increase in proportion, and surface lots in the area have been lost as valuable land is put to higher and better use. The popularity of the restaurants, bars, and nightlife draw numerous visitors from elsewhere in the District and beyond, making a bad situation worse — particularly on Friday and Saturday nights.

A combination of traffic volume, erratic behavior by cars, taxis, and pedestrians, and

parking-related issues bring 18th Street to a near standstill on weekend evenings. This has led to emergency vehicles struggling to traverse 18th Street, a concern to the community at large.

There are also peripheral issues that are a consequence of the problems above. Visitors not being able to park close to, and unable to traverse 18th Street become frustrated often expressed in the form of verbal exchanges with residents and other visitors and horn blasting.

Future Development

The crush of people attracted to both live and relax in Adams Morgan is a sign of the area's success. As the area continues to grow and prosper the challenge will be to improve and adapt the transportation and public realm to the increased pressure without harming that success.



Photo: Historical Society of Washington D.C.

Development of Solutions

Following the processes of data collection, establishing existing conditions, and consultation with previous studies, the Steering Committee, the public, other stakeholders, and DDOT, HNTB developed a number of solutions to address the various issues and concerns of the interested parties.

Part Two is a full discussion of the alternative solutions suggested and considered during the course of the study. These include, but are not limited to, suggestions received in consultation with community stakeholders.

The solutions have been presented in broad families or groups for ease of reference and presentation. Although it is possible to introduce some of these solutions individually it is not intended that they necessarily be enacted in isolation. Indeed in some cases it will be necessary to implement additional measures due to the knock-on effects of some solutions.

The following solutions are not recommendations — which are made in Part Three of this report — but are designed to show the full range of concepts that were considered and to justify their inclusion in or exclusion from the recommendations for the 18th Street / Adams Morgan study area.

Families of Solutions

The solutions are grouped into eight families as follows:

- Gateways
- Core Commercial Streets
- One-Way Street Systems
- Parking and Loading
- Taxis
- Street Hierarchy
- Transit
- Bicycle and Pedestrians

These groups have been adopted to tackle a specific area of interest or concern.

Gateways

Two intersections at either end of 18th Street, at Columbia Road and Florida Avenue, have the potential to become symbolic portals into the heart of Adams Morgan. However, currently the operation, layout, and appearance of these intersections and associated public open spaces have a number of issues and require improvements.

Core Commercial Streets

The core commercial zone in the study area lies along 18th Street and Columbia Road. Changes in cross section are examined to address sidewalk capacity, manage parking, rationalize vehicular traffic, and improve the pedestrian environment.

One-Way Street Systems

The ability to traverse the neighborhood is restricted somewhat in peak times, be it due to rush-hour or weekend activity. In addition, concerns have been raised over the introduction of the Harris Teeter store at 17th Street and Kalorama Road. A number of

suggestions for one-way streets to address these issues have been made.

Parking and Loading

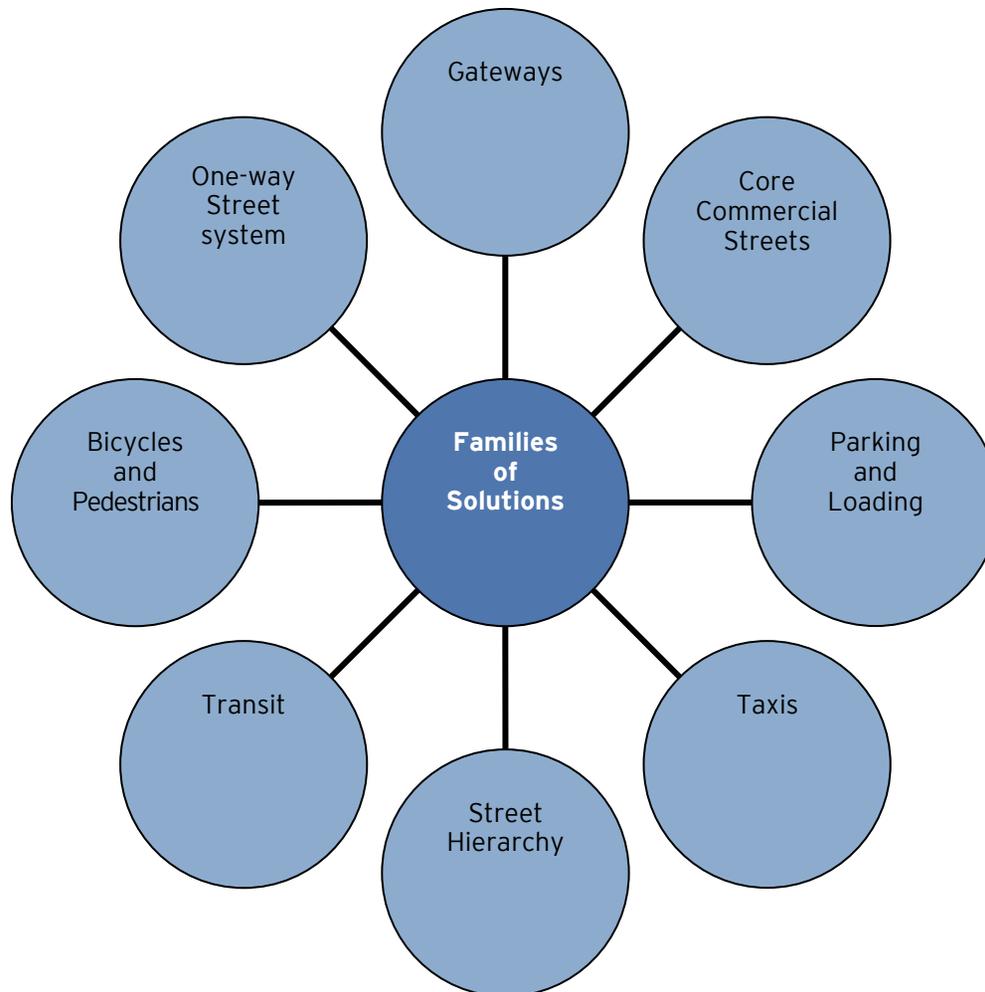
Parking is by far the area of greatest concern; both residents and businesses consider it a major problem. Similar studies have repeatedly concluded that Adams Morgan has a parking problem. Within this topic is the question of loading zones, which compete with parking areas for valuable curb space, but perform a vital function.

Taxis

Previous studies and public comment have suggested a significant problem with the behavior of taxis within Adams Morgan.

Street Hierarchy

Different streets serve different functions. This topic examines adapting the physical form of the street to the intended purpose of the street.



Transit

WMATA provides excellent bus service along 18th Street and Columbia Road, and these services are well used. However, transit is underused on weekend evenings, possibly because the connection to the Woodley Park Metro station is poor.

Bicycles and Pedestrians

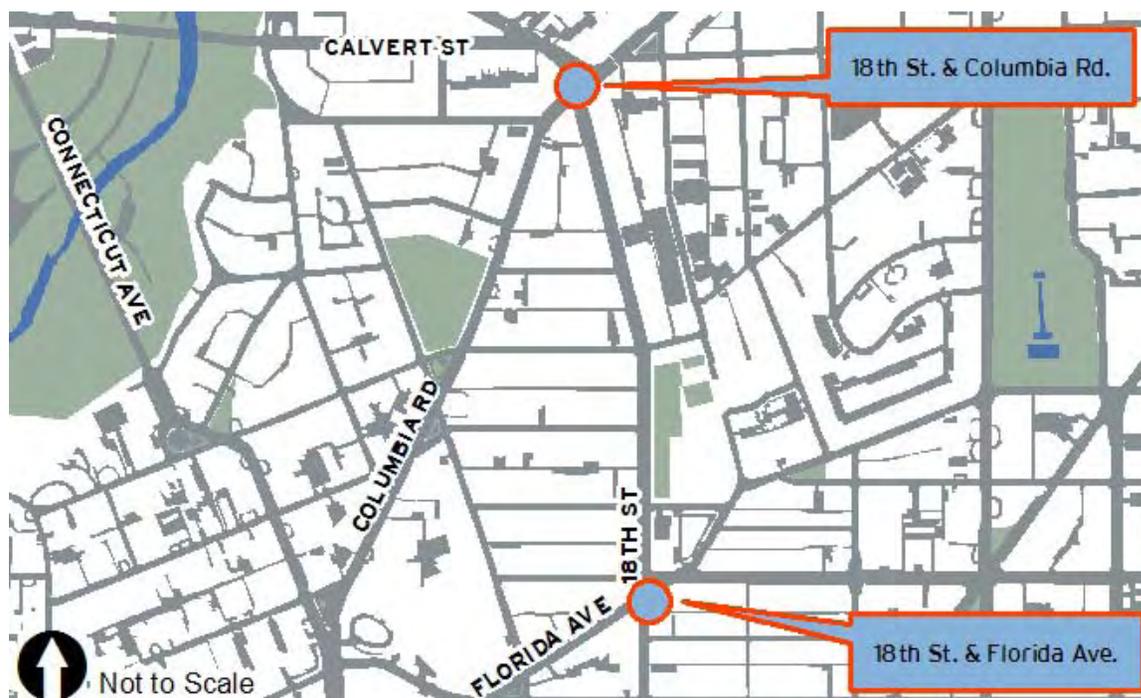
The nature of the businesses on 18th Street and the number of transit users make walking a vital mode of transportation in the study area. Long blocks and narrow sidewalks create an uncomfortable and unsafe environment for pedestrians. Bicycles should be considered a significant mode. Cyclists frequently traverse the area despite the lack of provision for bicycles.

The two intersections that bookend 18th Street are key locations in this study. They are both characterized by heavy peak-time volumes and a comprehensive mix of users, with cars, buses, pedestrians, and cyclists all traversing the intersections.

Although these locations have the potential to be focal points for Adams Morgan they are currently unsatisfactory on a number of

counts. Recommendations to improve operations at these two intersections were developed previously. These recommendations are summarized in the *Walkable Communities Growing Together* report, the Toole Design Group report, and the U Street / Shaw / Howard University Transportation and Parking Study.

Figure 2-1: Gateway locations



18th Street and Columbia Road

The 18th Street and Columbia Road intersection is situated in what many people would consider to be the heart of Adams Morgan and as such is an ideal location for an architectural focal point. The open space in front of the Sun Trust Bank where a farmers' market is held, a small triangular park in front of City Bikes, and the small traffic island with a kiosk do not meet their own potential of becoming the community's symbolic gathering spaces throughout the year.

The limitations are mostly due to the intersection configuration. The intersection is expansive. One lane approach roads widen out to multiple lanes at the stop bar greatly increasing the distance pedestrians have to cross. The slip-lane for right-turns from Columbia Road to Adams Mill Road is a further hazard.

The intersection has one of the highest crash rates in the District and has the highest number of crashes of the intersections in the study area.



Recommendations from previous studies have, therefore, focused on improving safety and simplifying the intersection and this report concurs with this general philosophy.

Previous Studies

In the report *Growing Together* published for Adams Morgan Main Street, Walkable Communities proposed two alternatives: a “conventional” four-way signalized intersection alternative that eliminates the slip-lane, and a single-lane roundabout.

In another study, Toole Design Group created two alternatives, both maintaining signalized operation. The alternatives reduced pedestrian crossing lengths. One removed the slip-lane while the other kept it, albeit realigned.

Roundabout

A number of roundabout configurations were examined by the study team. These came in two main categories, two-lane and single-lane roundabouts, where the number of lanes refers to the circulatory roadway.

The nature of the intersection means that it is impossible to fit a two-lane roundabout at the intersection without acquiring additional land. The historic nature of the buildings around the intersection has ruled out land acquisition.

A preliminary analysis of a possible single lane roundabout layout was undertaken and demonstrated that there was potentially adequate capacity. However, it is not believed that this proves the case for a roundabout due to the following considerations.

Limited Information: Currently left turns from 18th Street to Columbia Road are banned at all times, and left turns from Columbia Road to Adams Mill Road are banned at peak-times. A roundabout would permit these movements and there is no information to indicate how sizable they may be. Further, these left turn movements have a disproportionately high impact on roundabout operation because they cross multiple approach arms — even a modest volume could have a significant impact.

Geometric Issues: Physically making a roundabout fit in the intersection proves challenging, even a ‘bare minimum’ approach cannot be made to fit without resorting to less than desirable geometry — particularly at the Sun Trust Plaza corner of the intersection — where the acute angle between Columbia Road and 18th Street is problematic. It should be noted that this also means that there is little flexibility should traffic volumes increase over time.

Transit: Although roundabouts generally pose no significant challenge for buses, the tight nature of the geometry needed in this case could prove problematic. Consideration also needs to be given to future developments. 18th Street is currently being studied by WMATA as a potential on-street rail corridor. Although modifications could be made to a roundabout there is a question as to whether such a system could be accommodated satisfactorily.

Figure 2-2: Two-lane roundabout



Figure 2-3: Single-lane roundabout



Pedestrians and Bicycles: There have been many improvements to the design of roundabouts which have helped to accommodate cyclists and pedestrians. However, they can still pose significant risks. For example, pedestrians crossing the exit lanes of an arm of the intersection are particularly vulnerable

as cars will be accelerating out from the intersection.

Signalized Intersection

The intersection could be made more rational by pulling the stop bars closer together, decreasing the width between curbs and eliminating the slip-lane. These actions would have the additional benefits of increasing the amount of sidewalk space and creating a public space opposite the Sun Trust Plaza.

One- and two- lane approaches were analyzed; two-lane approaches were shown to be far superior. It is also believed that a signalized intersection would better accommodate pedestrians, bicyclists, and existing and future transit, as well as being more flexible to future changes in traffic volume and behavior.

Figure 2-4: Potential 18th Street & Columbia Road intersection configuration



18th Street and Florida Avenue

Although it could serve as the entryway to the dynamic main street of Adams Morgan, the intersection at 18th Street and Florida Avenue has been overlooked in previous studies of Adams Morgan.

The intersection marks the pedestrian connection node between Adams Morgan and Dupont Circle, and the convergence of 18th Street, Florida Avenue, U Street, and (the much minor) Vernon Street. It is not surprising that the intersection is highly complicated and confusing. Many instances of drivers misreading signals or ignoring signals that apply to them have been observed.

The problem of simplifying this intersection is exacerbated by two high volume movements that cross each other, southbound throughs on Florida Avenue and U Street westbound to 18th Street northbound.

Several alternative configurations for 18th Street and Florida Avenue were examined. The alternative with the greatest potential

would be to close Vernon Street and bring the stop bar on 18th Street southbound to Florida Avenue, eliminate the slip-lanes for left turning traffic from 18th Street southbound and for right turning traffic onto 18th Street northbound, and create a T-intersection at Florida Avenue and U Street, with U Street as the minor arm. Curb radii could be decreased to reduce high speed turns through crosswalks. Reducing the curb radii where Champlain Street forms a T-intersection with Florida Avenue would also be desirable.

This configuration greatly simplifies the intersection and reduces the amount of roadway pedestrians have to negotiate.

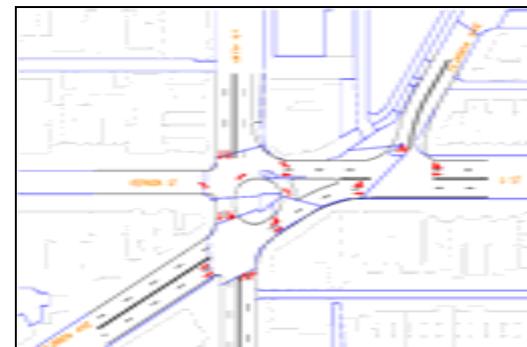
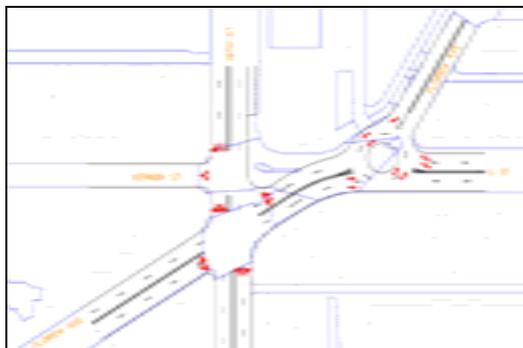


Figure 2-5: Preliminary alternative configurations for 18th Street and Florida Avenue (not to scale)

Figure 2-6: Refined 18th Street and Florida Avenue intersection configuration



Background

The commercial core of the study area lies along 18th Street between Florida Avenue and Columbia Road, and along Columbia Road north of Belmont Road. This area is marked by constant pedestrian activity throughout the day, growing to highly crowded conditions on 18th Street on weekend evenings. Nightlife attractions have been a fundamental aspect of Adams Morgan for decades.

The Problem

The physical condition and configuration of 18th Street are not conducive to supporting the activities of those who work in, live in, or visit the area. Sidewalks are narrow: in

many places two people cannot walk abreast and wheelchairs do not fit. Exacerbating this problem are numerous apparent encroachments and clutter — signs, light poles, uneven pavement, trees, parking meters, and the like. Bus waiting areas are crowded and block pedestrian flow along the sidewalk. Bicycle parking is limited and disorganized.

Long block lengths, as much as 780 feet, result in pedestrians crossing 18th Street at unprotected mid-block locations.

The east side of 18th Street has angled parking, creating the feel of a parking lot rather than a street and blocking the view of pedestrians that are trying to cross the road. Parking spaces are valuable but priced inexpensively, so turnover is low.

Core Commercial Streets



Figure 2-7: Example mid-block crosswalk



Photo: pedbikeimages.org / Dan Burden

Trucks are not prevented from unloading in the travel lanes, where they block access to parking spaces and inhibit traffic flow. Street lights are inadequate in many locations compromising the security and safety.

Courses of Action

The sidewalks along both sides of 18th Street could be widened, with emphasis on the east side sidewalk. To accommodate wider sidewalks a travel lane would need to be re-

moved and, optionally, the east side parking turned from angled to parallel. The reduction of a travel lane would discourage double-parked cars and trucks. Three draft concepts are shown in **Figures 2-8 to 2-10**.

Mid-block crosswalks could be created to provide for safer and better organized pedestrian crossings. Optionally, mid-block crosswalks could be accompanied by bulb-outs, raised tables, special pavement treatment (materials, patterns, colors, or mark-

Figure 2-8: 18th Street draft concept 1

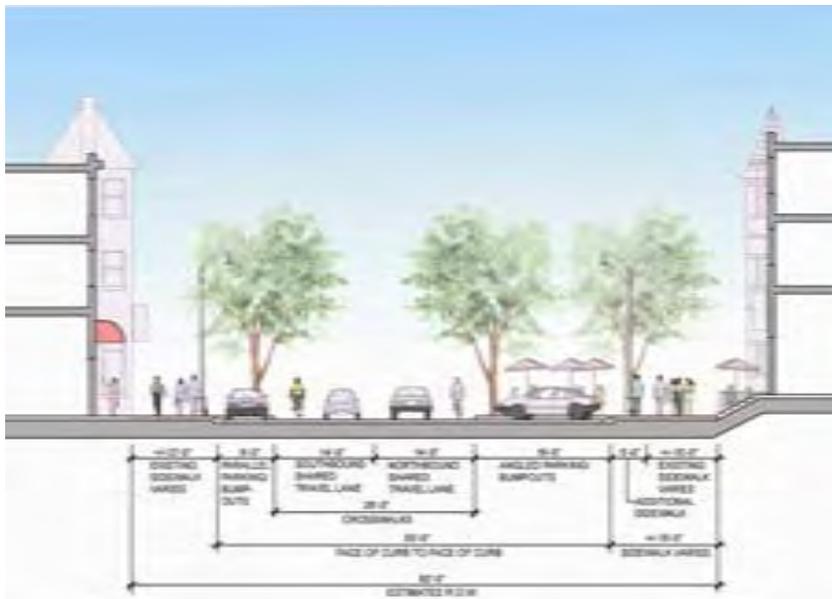


Figure 2-9: 18th Street draft concept 2



ings), or pedestrian-actuated signals.

Bulb-outs could also be installed at appropriate intersections and bus stops. At intersections bulb-outs would reduce pedestrian crossing distances. At bus stops bulb-outs would increase the space available for waiting while keeping the way clear for pedestrian movements along the sidewalk.

Sidewalk clutter could be removed. Individual parking meters could be replaced by master meters — one meter for every 300

feet of curb frontage. Trees could be relocated closer to the new curb line, creating a wider walking path. Bicycle parking could be consolidated to several points along the street, perhaps in bulb-out areas. Street lighting could be improved. New light standards should be appropriate to the character of the area, and lighting level should meet the standard requirement to promote pedestrian security and safety.

Figure 2-10: 18th Street draft concept 3

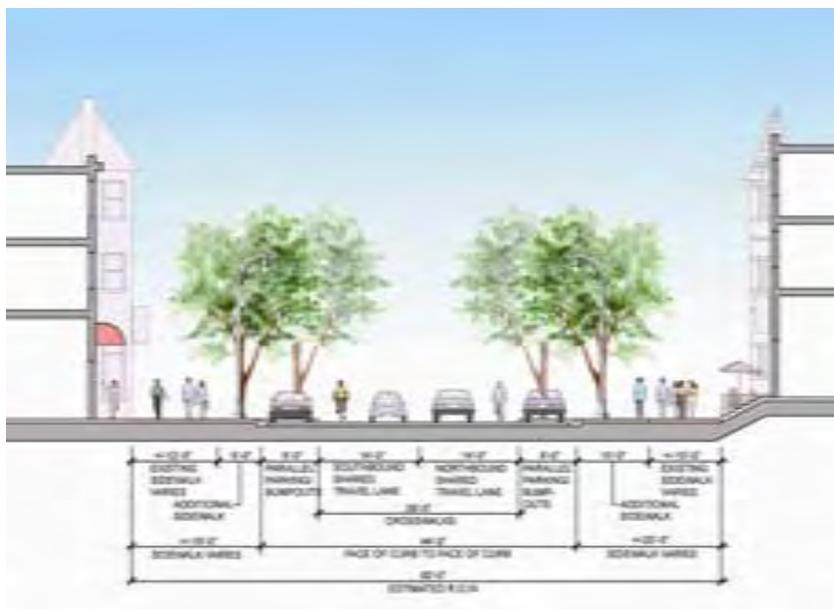


Figure 2-11: Columbia Road draft concept with raised median



More difficult would be to identify and remove encroachments, such as fences and concrete steps, from the public right-of-way. This effort could be enforced through a joint effort between the land owners, business owners, local organizations, and the District Government.

Conditions along Columbia Road within the pedestrian realm seem better than on 18th Street, although respecting pedestrian priority at crosswalks is a concern to be addressed. Chaos in the roadway can be attributed to many factors, including uncontrolled pedestrian crossings and trucks inappropriately parking in the center turn lane.

A few conceptual alternatives were developed for Columbia Road. The center left

turn lane could be eliminated to address the truck parking as well as to create bicycle lanes. Angled parking was considered between Belmont Road and Biltmore Street to slightly increase the parking supply. A tree-lined raised median could be built south of Belmont Road to provide shade, calm traffic, and better reflect the adjacent residential use. Changes to sidewalk widths do not appear warranted, so changes to the roadway should be designed to fit within the existing pavement.



One-Way Street System

Existing One-Way Streets

Many one-way street segments exist in Adams Morgan; most are only one or two blocks long. California Street and Vernon Street, and Crescent Place and Belmont Street are one-way street couplets, located in the southern and eastern parts of the study area respectively.

Several one-way street segments are located on the boundary of the community. These segments function as ingress or egress points for the study area. Other one-way segments within the study are mainly due to narrow right-of-way or for accommodating on-street parking.

Several one-way street concepts have been suggested for the proposed Harris Teeter grocery store to be located on the Citadel site at 17th Street and Kalorama Road and it is likely that 17th Street and Kalorama Road will be made one-way in the vicinity of the store.

Rational One-Way Street Systems

The need to convert two-way streets to one-way streets normally comes from the presence of excessive traffic volume or conflict between traffic or with other modes. One-way street systems are most commonly used in areas where concentrated traffic volumes and closely spaced network grids would produce substantial congestion. In such areas one-way streets can facilitate signal coordination and improve capacity. Additionally, one-way streets are employed where extra capacity is required around specific generators or where available facilities are limited, such as narrow streets.

One-way street systems are generally operated in one of three ways:

- traffic moves in one direction at all times
- one-way in a particular direction but at certain times is operated in the reverse direction to provide additional capacity in the predominant direction of flow

- normally a two-way traffic street but during peak traffic hours is operated as a one-way street (in certain bus transit corridors, buses can be operated two-way on the one-way street).

The advantages and disadvantages of one-way streets can be categorized into four groups:

- effect on capacity
- effect on safety
- effect on operating condition
- effect on economic conditions.

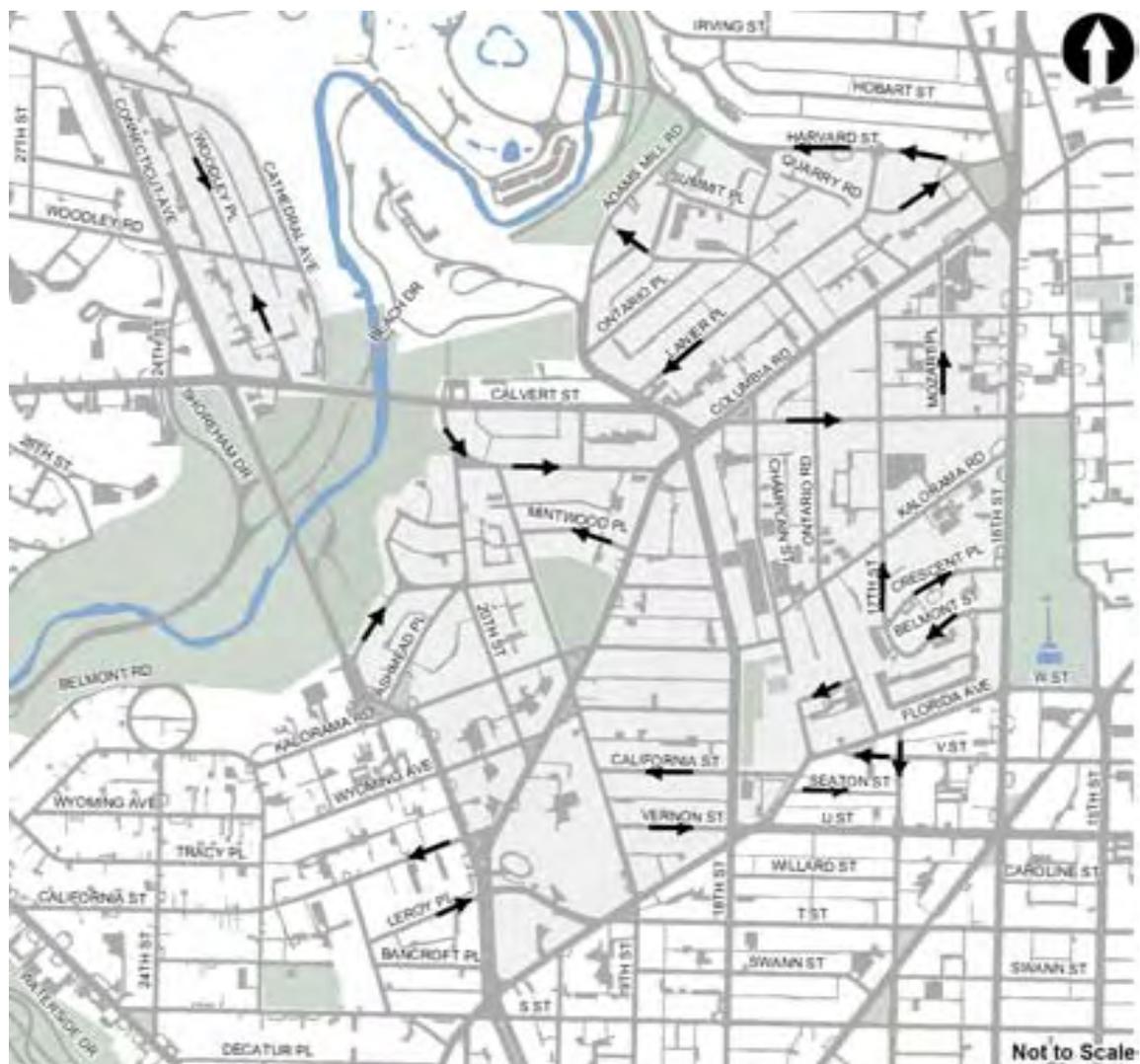
One-way Streets for Adams Morgan

Integrated with creative urban design, a well designed one-way street system might improve quality of life in Adams Morgan. A one-way street system could bring benefits. However, there would also be negative impacts to the community, and these impacts would vary from one place to another.

From the data that is available to the study team there seems to be no overwhelming reason to adopt a system of one way streets.

There would certainly be a trade-off between increased capacity on the one hand and increased speeds and greater travel distances on the other.

Figure 2-12: Existing one-way streets



Parking and Loading

Parking is the biggest issue in the study area. Residents and business owners have concerns over the availability of parking and associated traffic problems as residents and visitors circulate local streets in search of a place to park. The peak demand for parking in the area occurs on Friday and Saturday nights when the largest influx of visitors arrives to the area to enjoy the nightlife available in Adams Morgan.

Background

Historically parking has been an issue in Adams Morgan. The rapid expansion of the population between the 1970s and 1980s in conjunction with a growth in businesses over the same period resulted in a significant increase in traffic volume and demand for parking. Previous studies have focused on the parking issue, often focusing on insufficient supply.

In June 1991 DESMAN Associates produced a report for the District of Columbia Office of Business and Economic Development

under the *Adams-Morgan Parking, Transit and Traffic Improvement Design Project*. The report looks in detail at the parking provision in Adams Morgan, albeit over a larger area than the current study. Using District of Columbia zoning parking requirements the report concluded that there was a deficiency in the parking supplied.

The report recognized that providing additional parking would be difficult and correctly stated: “Parking needs in Adams-Morgan can be met in two ways — by reducing demand for parking and by increasing supply of parking.”

An Adams Morgan traffic study by Lt. Robert J. Fulton, Sr. of the Metropolitan Police Department made similar conclusions to those in the DESMAN Associates report. The study is more qualitative in nature but refers to the growing residential and business communities and the impact this has had on parking. The report also states that a number of commercial lots have been lost to building development in the area and that

“Research at six sites showed that an average of 30 percent of cars in congested traffic were cruising for parking.”

(Donald Shoup, *The High Cost of Free Parking*, p. 14)

this loss has contributed to a parking problem.

Despite complaints about parking shortages and congestion, Adams Morgan businesses are doing well and population continues to grow. The limited parking supply and associated inconvenience are not discouraging people from visiting, working in, or residing in Adams Morgan.

The Problem

To date, the parking discussion has centered on supply. In a recently published memorandum of recommendations, the Adams Morgan Business and Professional Association (AMBPA) stated, "...additional parking must be provided for Adams Morgan." The private sector, however, has not responded to the supposed demand for parking by constructing it. In fact, land formerly used to store cars has been built upon.

The price of parking does not reflect its value, hence the market demand is skewed. On-street parking during peak business

hours is free: neither parking meters nor residential permit restrictions are in effect.

Demand is being constrained only by supply, but because parking is being offered for free, drivers are willing to circulate through the neighborhood in search of a rare open space. Encouraging transit use, such as through the creation of the low-fare Adams Morgan—U Street Link, may be having a small demand-management effect. Taxis also carry a significant portion of person-trips. It is clear that the prospect of finding free parking attracts many people to drive.

The people spending money in businesses are only those who successfully find parking plus those who get there without a car. It doesn't matter if all the drivers circulating the neighborhood looking for parking stay home rather than pay for parking. They are not in the restaurants. What Adams Morgan offers is desirable enough that people will walk, carpool, take transit, or pay to park to get at it.

Figure 2-13: Marie Reed site



Courses of Action

Four broad courses of action are available, either standing alone or in combination.

First, **supply could be increased**. Public policies that may prevent the market from providing off-street parking could be examined, and those policy obstacles could begin to be removed. Certain public interests, such as historic preservation, high quality design, building height restrictions, and structural integrity, of course need to remain. At the same time, increase in supply should not be mandated through parking minimums and the like. If parking is a valuable use of land, the market should be allowed to provide it. The available land on which to build parking is very small. Increasing parking supply would require removing existing buildings or creating parking on or under current public open space.

As an example, a structured parking component could be allowed as part of the Marie Reed site redevelopment, if such a project

goes forward. Past studies, such as the DESMAN Associates report, have suggested this already. A sloped floor design would require a minimum 300 foot dimension. A 300' x 240' structure could accommodate about 190 spaces per level. A 300' x 180' structure could accommodate about 145 spaces per level. The top of the structure could be at ground level for recreational use by the public, community center, and school. Construction cost for a two-level garage in this size range would be approximately \$8.2 to \$10.7 million.

Second, **demand could be addressed** in a meaningful way. This means parking should have an explicit price to which consumers can respond, not merely a hidden cost.

The times during which parking meters are in effect could be extended at least to cover peak activity hours, if not to 24 hours a day. The meter rates could vary by time of day and by day of week. When activity is low, say midday during the week, meter rates could drop. And as activity rises, meter rates could go up in response.

Varying meter rates by time of day is technically possible by using master meter pay stations, sometimes known as Pay & Display machines. These devices are in use for on-street parking in places such as Georgetown, Houston, Seattle, Miami, and Edinburgh, and for off-street parking at American University and at many airports.

In addition to being able to vary the price, master meters offer other advantages such as increased reliability, flexible payment options, easier enforcement, and reduction of sidewalk clutter. Master meters could be placed one for every 8 to 10 parking spaces or for at most 300 feet of curb frontage.

At the same time, residential parking permit fees could also rise from the current \$15 per year to a price much more in line with the value of the parking space. Presently, DMV records show an estimated 6,400 to 7,900 residential parking permits in Adams Morgan with about 2,550 on-street residential parking permit spaces. The extraordinary oversell of permits points to great competi-

tion solely among residents for on-street parking spaces.

An integral element to raising the price of parking would be to funnel the additional revenues back into the neighborhood where they were collected. These funds could be used for streetscape and alley improvements, landscape maintenance, lighting, and sidewalk cleaning. The price of parking would be borne by both residents and visitors, and both groups would directly benefit.

Third, **conflicts among parking users could be reduced.** Currently there are few metered parking spaces dedicated for commercial use, and so visitors' vehicles spill over onto adjacent residential streets. Visitors are allowed to park for free in residential permit zones — for two hours maximum during the day and indefinitely at night. No on-street parking spaces are reserved strictly for residential use.

Figure 2-14: Master parking meter in Portland, Oregon



Parking price comparison

Residential parking permits cost \$15 per year.

A metered parking space at \$1 per hour, effective Monday through Friday from 7:00 a.m. to 6:30 p.m. has the potential to bring in \$2,990 a year.

Residential parking permits are a bargain, priced well below what they are worth.

Figure 2-15: Existing curb parking allocation

Visitors
Residents
(Overlap)

Of the nearly 3,700 on-street spaces in the study area, visitors have access to all of them, and residents have reasonable access to about 2,600 of them. This overlap in usage can lead to tension and conflict between user groups.

To reduce the conflicts, more curb spaces could be metered, giving visitors more parking options dedicated to them. Residential streets furthest from the commercial core could be made into residential permit only parking areas. In between an overlay zone could be created with metered parking spaces at which residential parking permit holders could park without paying the meter. Visitors no longer would get to park in residential curb spaces for free, with meter revenues returned to the neighborhood.

Employees of Adams Morgan businesses make up a subset of visitors who use on-street parking. It could be possible to create an employee parking permit, similar to a residential parking permit, to address their needs. The permits could be acquired by employers to distribute to employees as the employers see fit. An appropriate range for the permit price would be somewhat less than the parking meter rate (now \$1 per hour), but more than round trip transit fare (as little as \$2.50 per day), and much more than the residential parking permit. The permit could allow parking in an on-street metered or residential parking permit space. Permit revenues could be returned to the neighborhood.

Figure 2-16: Potential curb parking allocation

Residents Visitors
(Overlap)

Land value comparison

A 1,000 square foot Adams Morgan apartment in a six story building could rent for \$1,500 a month. This 1,000 square foot footprint of land, equivalent to about three surface parking spaces could bring in \$9,000 a month or \$108,000 a year in rent. That's \$36,000 a year per surface parking space.

Finally, implicit in the above courses of action is a **change in the regulation of curb space**. Meter times could be extended and the free use of residential curbside parking could be eliminated for visitors. Specific times for freight loading could be set up in the commercial core. During these times, parking would not be permitted and the curb space would be used as a loading zone. Loading activity would no longer be tolerated in the travel lanes. Suggested loading zone times could be between 9:00 a.m. and 11:00 a.m. and then between 2:00 p.m. and 4:00 p.m. These are times during which business activity at restaurants is low. Making the loading zones work would require the cooperation of business owners and a step up in enforcement.

Figure 2-17: Potential curb use



Taxi Operation

Background

Taxis are prevalent much of the day. They are seen picking up morning commuters and discharging restaurant goers. Weekend evenings the volume of taxis becomes quite high, carrying a significant proportion of person-trips.

Taxis are often seen picking up and discharging passengers in travel lanes. Taxis circulate through residential streets and back alleys, sometimes at high speeds. They have been observed violating municipal traffic regulations, such as making illegal turns and U-turns.

The Adams Morgan traffic study by MPD Lt. Fulton documented taxi behavior and estimated that taxis make up 60 to 70 percent of traffic on 18th Street between 10 p.m. and 2 a.m.

The Problem

Circulating taxis increase the traffic volume on Adams Morgan streets. Adding to that,

when taxis block travel lanes to pick up and drop off passengers, they play a significant role in weekend evening congestion. Furthermore, taxi driver behaviors such as cutting through back alleys at high speed are potential threats to pedestrian safety.

On the other hand, taxis vastly reduce the pressure on limited parking resources. They also help reduce the likelihood of drunk driving.

Course of Action

Past examinations of the taxi issue have proposed taxi stands at various sites along or near 18th Street. California Street, the alley behind SunTrust bank, in front of the Marie Reed Center, and Kalorama Road have all been considered.

Ideally one might want taxis in Adams Morgan to operate as they do at large airports. Drop-offs are allowed anywhere, but pick-ups are permitted only at a designated location. Taxis for pick-ups are dispatched from a holding area. In some cases, the airport

may contract with a single taxi company who has sole rights to pick up fares at the airport.

There are significant impediments to making workable modifications to taxi operations in urban areas, such as the preceding airport model. Airports are controlled environments, strictly regulated by police and taxi dispatchers who work for (or on behalf of) the airport. Even if the airport is publicly owned the terminal curb frontage is not a public street. Strict regulation is not possible within a single commercial district. In fact, at large airports departing and arriving passengers use different building entrances and even different roadways. Again, this is unlike Adams Morgan.

Taxi stands would also be difficult to enforce in an uncontrolled environment, not like at a hotel or Metro station. Many restaurant patrons would find it disagreeable to walk to a centralized taxi stand. Cab drivers who pick up fares outside the taxi stand could easily claim being dispatched rather than hailed.

Even with these challenges, implementing a taxi stand may have a positive effect on excessive circulation and traffic blockages. To work best, the taxi stand would need:

- Good Location—Close to the commercial core, so people do not have far to walk to get there. Room to maneuver. Visible and well lighted. The east side of 18th Street immediately south of Kalorama Road may be a good choice.
- Management—Staffed with a dispatcher who makes sure no one parks in the taxi stand and determines the order in which taxis arrive and should receive fares. Staff person should be uniformed or conspicuously dressed. Paid for by a consortium of business owners or by a business improvement district.
- Promotion—Advertised at places of business. Well-marked kiosk at the taxi stand. Signing along 18th Street to point pedestrians to the taxi stand location.

The better located, managed, and promoted a taxi stand is, the more likely it would have the desired positive effect.

Street Hierarchy and Network Alterations

The existing streets in Adams Morgan are generally very similar geometrically. Columbia Road and 18th Street, the core commercial streets, are of a different nature as previously discussed.

The similarity in dimensions, regulations, and appearance of the remaining streets does not reflect or define the function of these roads. A series of street treatments could be developed to address these issues.

The aims of the treatments would be to:

- Change the appearance of the streets to reflect their desired function.
- Provide visual clues to car drivers about how they are expected to behave.
- Improve safety by reducing speeds — or maintaining low speeds through the neighborhoods.
- Reduce (and in some areas eliminate) non-resident traffic.
- Promote pedestrian facilities and pedestrian connections through the study area.
- Enhance the residential environment.

Appropriate treatments could be determined based upon a hierarchy of street types. This hierarchy could be developed based upon the location of the roads in the network and the desired function that they would perform.

A suggested hierarchy would consist of three types of street which are progressively more resident and pedestrian focused.

Table 2-1: Street hierarchy characteristics

Street Hierarchy Type	Street Function	Treatment & Characteristics		
		Speed Limit	Operation	Calming
Community Arterial	Access into the neighborhood from arterial streets in and around the study area	20	Two-way	Lightly Calmed
Residential Connector	Connect to arterials or community arterials and access residential streets	15	Two-way with one way sections	Heavily Calmed
Shared Surface	No (or limited) through volume, streets are designed for residents only	10	Two-way or one-way	Shared Surface

Types of Street

Community Arterial

The community arterials would be the highest order of roads in the proposed street hierarchy. They would be designed as access roads into the neighborhoods, connecting at least at one end to a minor or major city arterial.

The roads would be intended to have a maximum speed limit of 20 mph. Traffic calming would be achieved by the adoption of tabled intersections; this would not only reduce speeds but will also promote pedestrian connections through the neighborhood.

Residential Connector

The residential connectors would be intended to be accessed off of the community arterials and city arterials. They would be designed to serve the residents on those streets and any streets beyond them.

The traffic calming measures employed on the residential connectors would be more rigorous, targeting a speed of 15 mph. Traffic calming measures could include raised intersections, bulb-outs, one-lane sections, speed humps, and horizontal deflections.

Shared Surface

The lowest category of road in the hierarchy is the shared surface, the equivalent of the Dutch woonerf or home zone in the United Kingdom.

These streets would be limited to areas where there is little or no through traffic, and would have parking dedicated to residents without exceptions.

On a shared surface there would be no delineation between pedestrian sidewalk and vehicle roadway, and the street surface would stretch from back of sidewalk to back of sidewalk at a consistent grade, i.e. there would be no curbs. This space would be shared by all modes: pedestrians, cyclists, and cars.

These streets would be intended to have very low speed limits — 10 mph maximum. This is achieved by planting, a mix of angled and parallel parking, and other means of horizontal deflection. However, the main benefit is to alter the perception people (particularly drivers) have of how the street is to be used.

Role of Parking Regulations

Visitors in the area currently park in the residential neighborhoods because they are permitted to do so for free after 8:30 p.m. and on weekends — the peak times for activities on 18th Street. These regulations draw traffic into the residential areas increasing circulating traffic, noise and pollu-

Woonerven and Home Zones

The woonerf concept was pioneered in the Netherlands in the 1970s and has since spread to numerous countries; in the U.K. the term “home zone” was adopted.



The home zone is designed to strike a balance between cars and other users. Alterations to the streets force motorists to drive with greater care and at lower speeds than they otherwise would.



In addition to the safety benefits due to low vehicle speeds the home zone has additional benefits in enhancing the neighborhood and encouraging use of the roadway space for activities other than driving.

Photos:

Left – [pedbikeimages.org/Narrow Residential Street, Germany](http://pedbikeimages.org/Narrow%20Residential%20Street,%20Germany) -Michael Cynecki

Right – [pedbikeimages.org/Woonerf, Holland](http://pedbikeimages.org/Woonerf,%20Holland) - Dan Burden

tion, in addition to denying parking to area residents.

The proposals in the **Parking and Loading** section of this report for alterations to parking regulations could enforce the street hierarchy. The creation of resident only parking and metered parking in the residential areas could reduce the number of spaces available to visitors in these locations. This in turn could reduce circulating traffic and associated problems (listed above) which would promote the objectives of the street hierarchy.

Methods of Traffic Calming

Below are descriptions of several traffic calming methods.

Raised Intersection

The intersection of two or more roads is raised to a consistent level, normally that of the adjacent sidewalk. This treatment would reduce through movement speeds and mid-block speeds, and would enhance pedestrian visibility and safety.

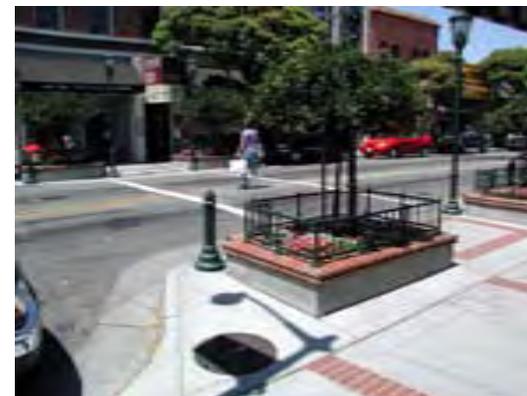
Bulb-Outs

Also known as neck-downs, chokers and pinch points (among others) bulb-outs involve extending curbs to create narrower streets and thus reduce traffic speeds. This could be done at intersections or mid-block and would contribute to an enhanced pedestrian environment by widening the sidewalks. It would also improve safety at intersections because of improved visibility and reduced crossing distance.

One-Lane Sections

One-lane sections, which force oncoming vehicles to yield to one another, are created with bulb-outs as above. In this case the bulb-outs would be larger and prevent two cars from passing side-by-side. The narrowing could occur on both sides or on one side only.

Photos:
 Top right – pedbikeimages.org/Dan Burden
 Middle right – HNTB
 Bottom right - pedbikeimages.org/Michael Cynecki





Speed Humps

Speed humps and the bigger speed tables are raised areas of roadway mid-block. The hump or table forces cars to slow down in order to comfortably traverse the feature. The height of the hump could be varied, and generally the higher the hump the lower the speed required to cross comfortably. The speed table could be raised to the level of the sidewalk and could incorporate a pedestrian crossing.

Horizontal Deflections

Commonly referred to as chicanes, horizontal deflections in a street can be created by combinations of bulb-outs, planting, and angled parking. Sufficient deflection would need to be provided to prevent a straight path through the chicane being taken, thus negating its benefits.

Photos:
Top left - pedbikeimages.org/Dan Burden
Middle left - pedbikeimages.org/Michael King
Bottom left - pedbikeimages.org/Michael King

Network Alterations

Champlain Street

Following the construction of the Marie Reed Learning Center in 1977, Champlain Street was closed for a short section between the two parts of the building which face each other across the street.

The closed section sits under a bridge between the two sections of the building. This area is dirty, dark, and unsafe.

The *Growing Together* report, produced by Walkable Communities, Inc., refers to the area as a “dead zone” and recommends opening the section. The study team agrees with this proposal. Re-opening Champlain Street would achieve the following:

- Improve public safety by encouraging activity along Champlain Street.
- Provide additional connectivity in the area street network.
- Provide an alternative to 18th Street for through traffic, reducing volumes and congestion on 18th Street.

- Potentially enable alternative access off Champlain Street into existing and future garage structures.

Extending Kalorama Park

The study team also sees an opportunity to extend Kalorama Park by closing the short segment of Kalorama Road between 19th Street and Columbia Road. This closure would extend the park back to its original extents encompassing the existing seating area.

Kalorama Road is a known east-west route through the study area; however, a one-way street system put in place around Harris Teeter would break this route. Existing jogs elsewhere on the Kalorama Road alignment similarly disrupt this street as a through route.

Closing Kalorama Road takes 0.02 miles (110 ft) out of the road network. To navigate around this closure, via 19th Street and Columbia Road, adds 0.035 miles (184 ft) to a journey.

Wyoming Avenue

There are two short sections of road at Wyoming Avenue and 20th Street leading from the intersection to Columbia Road. These create two very closely spaced intersections on Columbia Road. The removal of one of these would simplify Columbia Road and could allow the existing green space to be expanded and enhanced.



Transit

Transit is an important part of the transportation system in the study area. The D.C. Transportation Vision Plan, April 2003, states that the proportion of work trips using public transportation are in the range of 27% to 38% in the study area.

With the known problems associated with traffic, taxis, and parking, transit is a critical element of the study area's transportation system.

There are 17 bus routes serving the study area. Of these services about half operate on 18th Street and Adams Mill Road / Calvert Street, but there are also services on Columbia Road, Connecticut Avenue, and 16th Street which serve the study area. Most of these are well used.

Although ridership in the area is excellent, further promotion of bus service is desirable, particularly among visitors.

Although Adams Morgan is not directly served by a Metrorail station there are four peripheral stations. These stations are listed in Table 2-2 along with the approximate

walking time to them from the 18th Street and Columbia Road intersection.

The prospect of Metrorail being extended to Adams Morgan is remote in the extreme; however, improvements can be made to enhance access to Metrorail for Adams Morgan residents and visitors.

Therefore, there are two main issues relating to transit in the study area:

- To promote transit ridership for non-commute trips and among visitors to the area.
- To improve connections to the existing Metrorail infrastructure.

There are many different initiatives that could enhance transit service and, hence, increase ridership.

Basic Enhancement Concepts

The basic enhancements would make modest changes or additions to the existing transit system without substantially altering existing services.

Signing

Currently a number of bus lines service or pass close to the Woodley Park – Zoo / Adams Morgan Metro station. Despite this, the amount of riders using the buses to access Adams Morgan is relatively small. Field observations reveal that a significant number of visitors make the walk from the Metro station to Adams Morgan, suggesting that there are a considerable number of potential bus riders.

Making these potential customers aware of the existing services would be a start in improving ridership. The addition of signs stating explicitly which services travel to Adams Morgan could be placed at the Metro stations around Adams Morgan. An example of the sort of information that the signs could include is shown in **Figure 2-18** — although format and appearance should be determined in consultation with WMATA. Additionally the bus headers could display the words “via Adams Morgan” clearly identifying those services which travel to the study area.

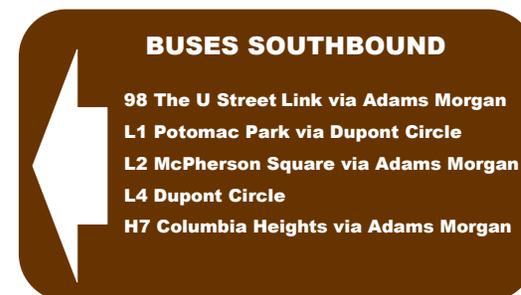
Existing Service Extensions, Diversions, and Schedule

Figures 2-19 and 2-20 show the number of buses operating on 18th Street, both north- and southbound, and the number of those that connect with the Woodley Park – Zoo / Adams Morgan Metro station. Studying these figures reveals two main issues.

Table 2-2: Walking times from Metro stations

Woodley Park - Zoo / Adams Morgan	15 – 20 minutes
Dupont Circle	20 – 25 minutes
Columbia Heights	15 – 20 minutes
U Street / African-American Civil War Memorial / Cardozo	15 – 20 minutes

Figure 2-18: Example sign at Woodley Park Metro



Of the 85 buses that operate along 18th Street between 10:00 p.m. and 2:30 a.m. about half make the connection with Woodley Park – Zoo / Adams Morgan Metro station.

Many of the existing services terminate at the east end of the Duke Ellington Bridge at an existing off-street storage area and turn-around. These lines could be extended to the Metro station (and beyond) assuming that a replacement for the turn-around can be found.

Also the 90 and some 92 buses which do cross the bridge do not directly serve the Metro Station. These routes could be diverted onto 24th Street to increase service between 18th Street and the Metro station.

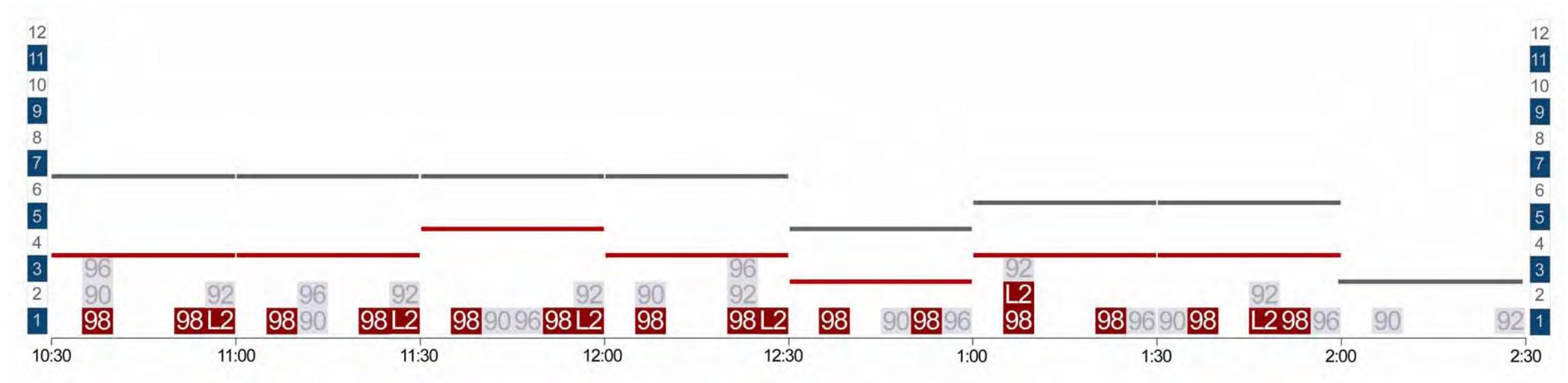
Thirdly, the schedule demonstrates a tendency for clustering. Taking the period 11:00 p.m. to 11:30 p.m. for Northbound Weekend, as an example, we can see that although there are six buses scheduled for the half hour but two-thirds of these are scheduled to arrive in the first third of the time period.

This kind of clustering occurs throughout the evening in both directions. The schedules of these services could be reviewed and wherever possible adjusted so that service is evenly distributed.

Figure 2-19: Scheduled buses serving 18th Street northbound, weekend evening 10:30 p.m. to 2:30 a.m.



Figure 2-20: Scheduled buses serving 18th Street southbound, weekend evening 10:30 p.m. to 2:30 a.m.



Moderate Enhancement Concepts

The following are more substantial alterations to the existing infrastructure and operation.

Stops and Shelters

Firstly, this report would echo the recommendation made in the Columbia Heights / Mount Pleasant Transportation Study, January 2004, to “Expand coverage of bus shelters — prioritize based on boarding data”. A number of stops with significant boarding numbers do not have shelters; field-data shows that there is no correlation between shelter provision and number of boarding passengers.

It is also beneficial to standardize provisions at shelters, with consistent amenities such as mapping and schedules. This will help to enforce the image of a high quality service and offer encouragement to new and occasional riders.

Mapping and scheduling information could be improved, with more clarity, accuracy,

and simplicity being the goals of re-design. If possible bus mapping and information should seek to emulate that of Metrorail.

The level of activity and spacing between stops is variable. Altering the location of stops within the study area could be explored. Consolidating stops can regulate stop spacing and increase the activity at any one stop, reducing the total number of stops in the area while maintaining coverage. Regularly spaced, less frequent stops have two advantages:

- Fewer stops mean faster service as time lost in deceleration, acceleration, and moving in and out of the traffic stream is reduced.
- Significant boarding and alighting is a catalyst for further investment in stop amenities, each stop being more important. Further, more significant infrastructure raises the profile of transit service and, hence, awareness of it.

New consolidated bus stops could include bulb-outs. These would provide space for additional infrastructure and ensure that buses do not have to leave and re-enter the flow of traffic. This would further improve efficiency and reduce delay to bus service.

Existing Service Extensions

Despite the generally excellent bus service in the study area there are three weak links:

The **Adams Morgan—U Street Link** (route 98) serves as a shuttle between Woodley Park–Zoo / Adams Morgan Metro Station and the U Street / African-American Civil War Memorial / Cardozo Metro station. This service operates on Thursday and Friday evenings, and all day Saturday and Sunday with a bus every 15 minutes.

This service, despite serving two Metro stations and two lively entertainment corridors with a low fare (25¢), has very low ridership. Meanwhile there is significant pedestrian traffic crossing the Duke Ellington Bridge. This low usage is probably the result of existing headways and lack of knowledge of

the service. Signing enhancements and possibly audio announcements on Metrorail could address the lack of knowledge.

The existing 15-minute headway on the 98 raises two further issues:

- The headway time is roughly equivalent to the time taken to walk from the Metro station in Woodley Park to 18th Street and Columbia Road. Hence, if a bus is just missed there is no incentive to wait — it is faster to walk.
- Because of the nature of 18th Street (and U Street) on weekend evenings, buses become bogged down in traffic and consequently struggle to maintain even a 15-minute headway.

These problems could be overcome by increasing the frequencies of this service. A five-minute headway is desirable and could be considered. Increasing the fare to help mitigate the cost of expanding the service could be investigated.

Connecticut Avenue between Woodley Park – Zoo / Adams Morgan Metro and the Hilton Hotel has limited service, with the L1 running at 15-minute headway in the peak

direction during peak periods and the L4 running at 30-minute headways off-peak. There is no weekend bus service.

Connecticut Avenue has a number of large apartment buildings on it. Concern has been expressed over the limited local transit between the Hilton Hotel and the Taft Bridge. Low boardings at stops in this stretch could be the result of sparse service. Compared to the nearby segment of Columbia Road, the number of boardings per stop per bus trip is vastly lower on Connecticut than on Columbia, even though adjacent land uses are similar and walking distances to Metro are nearly the same.

Lastly, there is very little direct service between **Columbia Heights Metro station** and the study area. Only H7 and H5, which operate at weekday peak times only, serve both the station and Adams Morgan.

Columbia Heights is the closest Metro station to the north side of the study area and should be an important part of the transportation network in Adams Morgan. Addi-

tional service to and from this station could be considered and incorporated into either a new line or as an extension of existing service.

Further Enhancement Concepts and Consolidation

These ideas consist of the more complex and substantial improvements which would necessarily require larger investment in both time and money to implement.

These solutions would be designed to create a higher quality and higher capacity transit service, echoing Metrorail's identity. The aim of these solutions would be to create a simple, more efficient, consolidated service while still maintaining coverage, taking the best of both Metrorail and Metrobus.



From Shelters to Stations

The consolidation of bus stops could be accompanied by the creation of high quality facilities, with a station-type feel. The new stations could be placed at locations with clear landmarks — much like the Metro stations.

Additionally, the new stations could have an image and presence which compliments their heightened importance and use. Although the details would be determined during design generally the station architecture should be reflective of its location but with common elements communicating continuity of service. The image to the right shows how a possible transit station marker could look, borrowing from the existing Metrorail pylon.

Real Time Information

A further improvement to transit service could be to introduce real time information displays at the new stations. These could show next-bus information similar to the next-train displays in the Metrorail system.

Route Consolidation

Simplification of the number and path of bus routes could help to create a Metrorail-like system. Such consolidation, particularly in conjunction with stop consolidation, could facilitate the creation of a clear identity and enhanced mapping and other information.

Right-of-Way

The most substantial advantage that rail systems, like Metrorail, have over bus services is the use of exclusive rights-of-way. This allows not only faster speeds but also ensures that rail service can maintain headways and schedules more consistently than buses can.

Although on-street space is in high demand, in the future, consideration could be given to the creation of bus only (or bus with bicycle) lanes, particularly in those corridors in which light rail is being considered.

Background

Non-motorized transportation is an essential element to mobility in Adams Morgan. Pedestrians, and to a lesser extent bicycles, make up a large proportion of the movement through the study area.

Bicycles

Currently striped bike lanes are to be found on Calvert Street between Connecticut Avenue and Adams Mill Road. A test segment of striped bike lanes is on Columbia Road north of the study area, and 19th Street is a signed bike route.

Bicycles have an important presence in the study area. For example, a DDOT bicycle count in August 2004 showed 65 bicycles southbound on Columbia Road near 17th Street in the morning peak hour. The count also showed 33 westbound bicycles on the Ellington Bridge in the morning peak hour. The study team observed significant bicycle volumes on Columbia Road through the intersection with 18th Street as well as from

Calvert Street/Adams Mill Road to 18th Street.

Some of the higher-volume bike crash locations in the District lie within Adams Morgan, particularly along 18th Street. See the red circles in **Figure 2-20**.

The District released an update to the bicycle master plan in April 2005. It calls for striped bike lanes within the study area on 18th Street between Columbia Road and Florida Avenue as well as along Florida Avenue from Connecticut Avenue to 16th Street.

Pedestrians

Adams Morgan has high pedestrian volumes. Residents walk to work, walk to transit, and walk to shopping. Car ownership is lower in Adams Morgan than in much of the city. Visitors also walk, whether from a parking space on a neighborhood side street or from a nearby Metro station or bus stop.

Sidewalks are present along all the streets in the study area, and most street crossings have the necessary wheelchair ramps. In some places, however, provisions for the pedestrian are inadequate or undersized

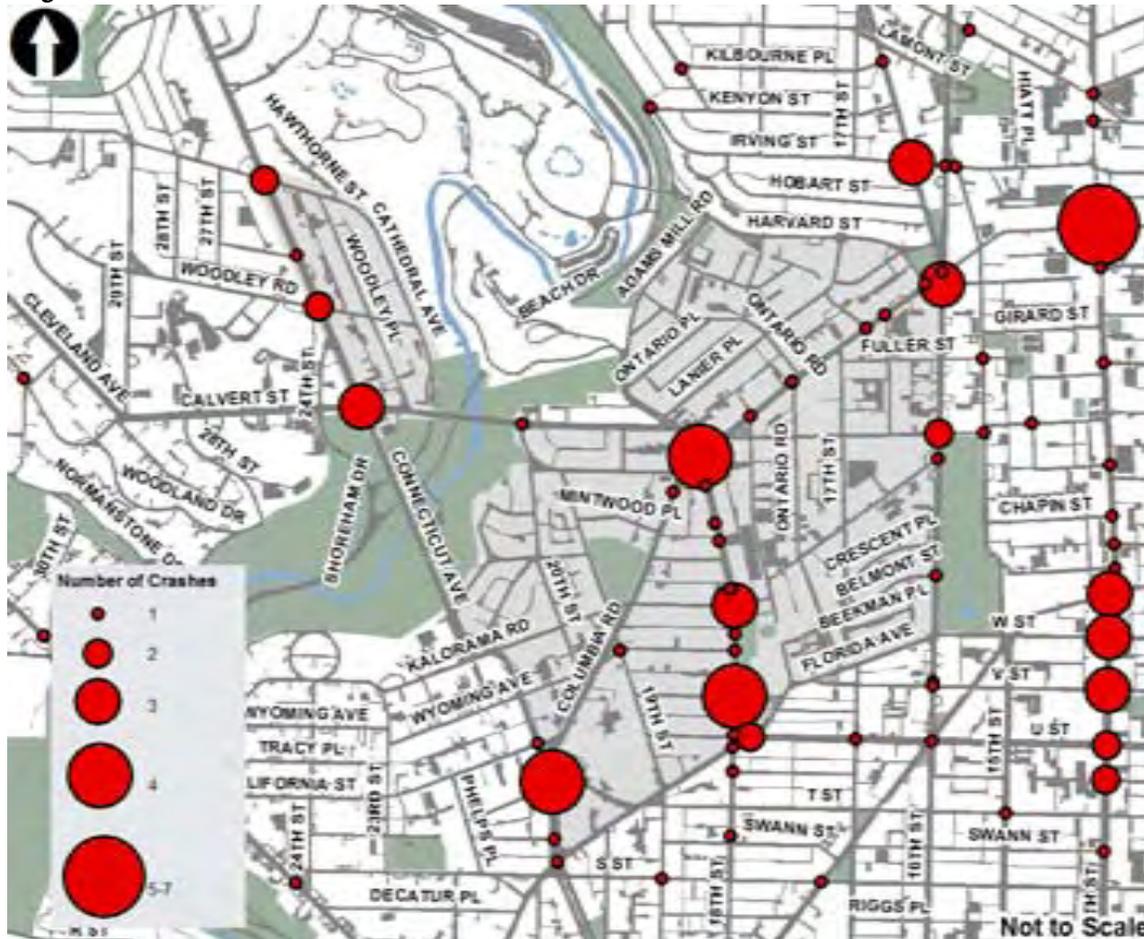
given the volume of foot traffic.

The Problem

Deficiencies in the pedestrian realm are concentrated principally in the commercial core of the study area. Wide intersections and narrow sidewalks impede pedestrian flow. Long block faces encourage uncontrolled mid-block crossings, unexpected for motorists and unsafe for pedestrians. The intersection of Florida Avenue and 18th Street is particularly unsatisfactory, with awkward geometry and signal timing, leading to pedestrian and vehicular conflicts. The intersection of Florida Avenue and Champlain Street is similarly awkward.

Despite high bicycle usage along Columbia Road and 18th Street, no explicit provision for bicycles is made in the roadway. The current bike lane on Calvert Street terminates before reaching 18th Street, leaving a discontinuity. An occasional U-loop bicycle rack can be found on 18th Street and on Columbia Road, but routinely bicycles are

Figure 2-21: Bike crash locations (2000–2002)



chained to trees and parking meters, suggesting insufficient bicycle parking and contributing to clutter along the already narrow sidewalk.

Courses of Action

Bicycles

The proposed on-street bicycle facilities in the bicycle master plan could be implemented, specifically the extension of the Calvert bike lanes along Adams Mill Road to 18th Street and the installation of bike lanes on 18th Street, Florida Avenue, and Columbia Road north of 18th Street. The following modifications to the master plan, however, could be made:

- Bike lanes could be extended along Columbia Road between 18th Street and California Street.
- The proposed bike lanes on 18th Street could be shared-use lanes to better fit with the Core Commercial Streets concepts and calm traffic. The bicycle icon

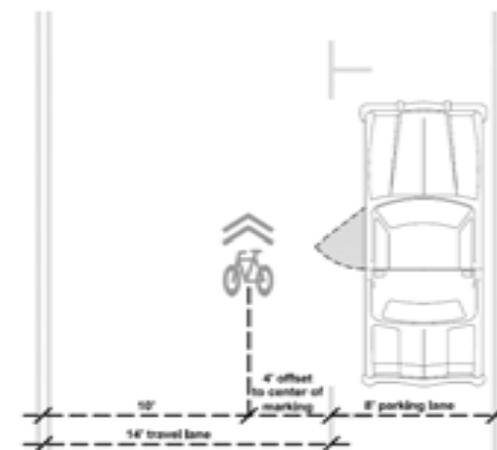
pavement marking could be used to signal to motorists and bicyclists that biking is welcome and encouraged.

- The proposed bike lanes on Florida Avenue east of 18th Street could also be shared-use lanes on account of the current roadway width. The 8-foot parking lane on the north side of the street could be retained, and two 14-foot shared-use travel lanes with bicycle icon pavement markings could be furnished.

Figure 2-22 U-loop bicycle racks

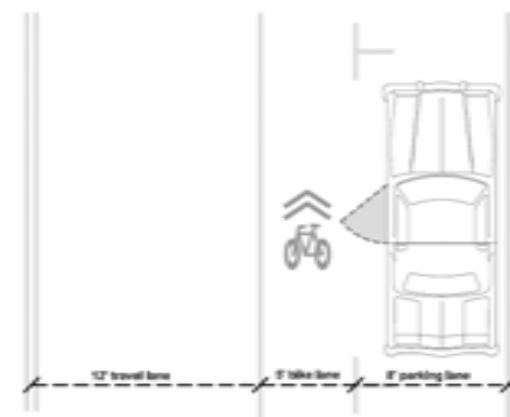


Figure 2-23: Shared bicycle lane



(not to scale)

Figure 2-24: Dedicated bicycle lane



(not to scale)

Figure 2-25: Unimproved alley in Adams Morgan



Figure 2-26: Alley with pedestrian improvements



Figure 2-27: East-west pedestrian desire lines



As a component to the Core Commercial Streets concept, additional U-loop bicycle racks could be placed on 18th Street and on Columbia Road in the commercial core. These could be placed in bulb-out areas to keep them out of the pedestrian path.

Pedestrians

As part of the Core Commercial Streets concept, sidewalks could be widened along 18th Street, particularly the east side between Kalorama Road and Columbia Road. Intersections could be narrowed with curb bulb-outs, and mid-block crossings could be placed approximately every 300 feet. Alleys could be improved to serve as pedestrian connections. Improvements could include removal of encroachments, masking of dumpsters and trash cans, better lighting, and perhaps special paving.

In the longer term, should the Marie Reed site be redeveloped, east-west pedestrian access across the site could be improved, roughly aligning with Wyoming Avenue.

Following is the study team’s coordinated plan of recommendations for transportation, parking, and urban design improvements to Adams Morgan. Recommendations are arranged first geographically—the various elements that apply to the 18th Street Plan and to the Columbia Road Plan are described. Next come recommendations that apply to the whole study area related to the Parking Plan and the Transit Plan.

The recommendations represent what we believe is the best approach to address issues of concern in Adams Morgan. In some cases we have suggested “fall-back” positions should it not be possible to implement the full recommendation. While the recommendations coordinate multiple elements into a coherent plan, it is possible that individual elements could be altered or removed.

18th Street

Gateway Intersections

The two intersections at either end of 18th Street are treated as gateways to the core of

Adams Morgan. We recommend taking advantage of opportunities to rationalize these intersections from a traffic perspective, simplifying wayfinding, and making it easier and safer for pedestrians to cross. Space is gained for public realm improvements.

Figure 3-1: Recommended 18th Street & Columbia Road intersection configuration



Figure 3-2: “Blank out” sign



Figure 3-3: Illustration of “bike box”



Figure 3-4: Example gateway treatment



18th Street and Columbia Road

At 18th Street and Columbia Road we recommend two-lane approaches and the elimination of the right turn slip lane between Columbia Road and Calvert Street. The right-hand approach lane northbound on both Columbia Road and 18th Street would be used principally as a bus stop, with right turns permitted. On the far side of the intersection from these bus stops would be a lane to “catch” the bus and allow it to merge into the traffic stream. The southbound approach on Calvert Street would have a dedicated left turn lane and a shared through plus right turn lane. We suggest the two lanes on the Columbia Road southbound approach have a lane assignment that varies by time of day. During commuting peaks there would be an exclusive right turn lane, and during late night peaks there would be an exclusive left turn lane. The lane assignment could be accomplished with LED or fiber-optic “blank-out” signs. (Figure 3-2)

We recommend the creation of a public plaza in the northeast quadrant of the inter-

section. Special pavement treatment is an option throughout the intersection.

Marked, shared bike lanes on intersection approaches should be considered on the 18th Street, Calvert Street, and southbound Columbia Road approaches, with “bike boxes” in front of the vehicular stop bar. (Figure 3-3)

18th Street and Florida Avenue

At 18th Street and Florida Avenue we recommend the elimination of the right turn slip lane between U Street and 18th Street. A dedicated right turn lane from southbound Florida Avenue onto northbound 18th Street northbound and a dedicated left turn lane on southbound 18th Street onto northbound Florida Avenue should be provided. The other two approaches have one travel lane plus a parking lane that could be used for right turns.

U Street should form a signalized T-intersection with Florida Avenue.

Planned bicycle lanes on Florida Avenue and 18th Street should be accommodated all

the way to the intersection, most likely as marked, shared lanes.

We recommend the creation of a public plaza in the northeast quadrant of the intersection. Special pavement treatment is an option throughout the intersection.

As part of the intersection simplification we recommend closing the east end of Vernon Street, maintaining a mountable emergency vehicle access, and reconstructing Vernon Street as a shared surface to heavily calm traffic and permit vehicles to turn around. See **Figure 3-23** on page 3-21. As a fall-back position, Vernon Street could remain one-way eastbound, stop-controlled at 18th Street, and right-out only.

Traffic Elements / Options

Between the gateway intersections along 18th Street we recommend significant changes to the roadway cross section. The sidewalks are severely undersized; in places they fail to meet the most basic of standards. The recommendations for 18th Street are predicated on addressing this most obvious

deficiency: 18th Street is a gathering place for people and the space given to this purpose is today wholly inadequate.

Figure 3-5: Recommended 18th Street & Florida Avenue intersection configuration

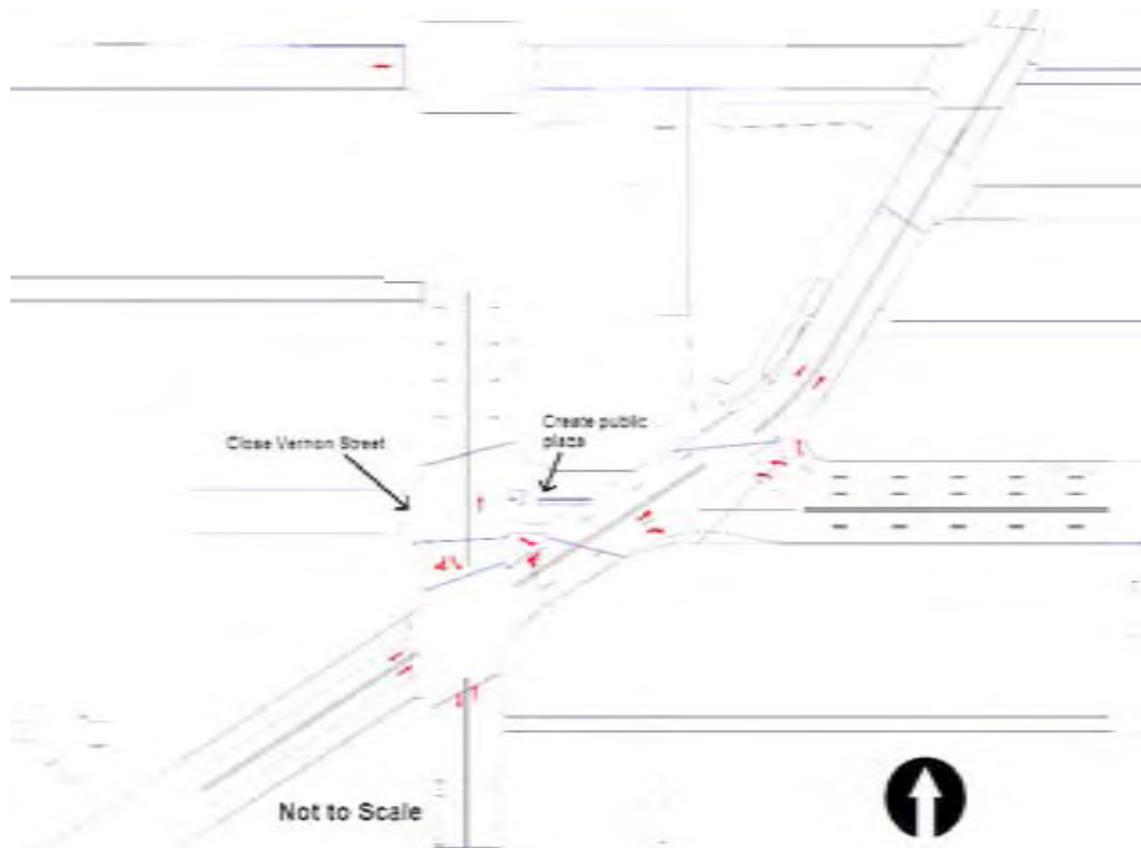
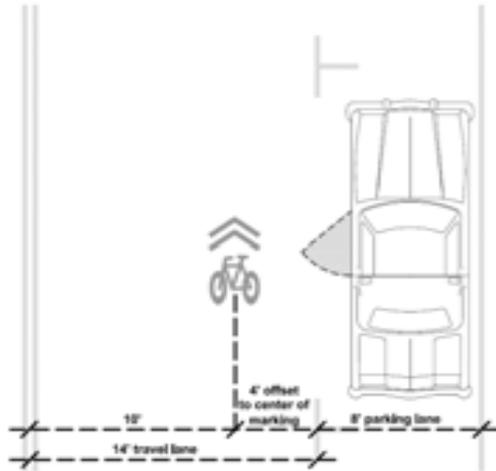


Figure 3-6: Bicycle pavement marking placement



(not to scale)

Sidewalks

The proposed 18th Street cross section creates 16 feet of additional space that can be used for sidewalks. We recommend that ten feet be added to the east side of 18th Street and six feet to the west side. Because the west side of the street has heavier pedestrian use and currently has narrower sidewalks, a larger increase on that side is warranted.

Widening sidewalks may tempt some businesses to expand their outdoor dining areas into the public sidewalk space. Maintaining the public right-of-way should be enforced. In some instances it would be appropriate to allow businesses to expand into the public right-of-way where there is plenty of room to allow for expansion. However, this should only be done with close coordination with the District and would need to be approved. A clear sidewalk space of at least 10 feet should be maintained in all instances.

Travel Lanes

One 14-foot travel lane in each direction is recommended. These lanes should be

shared between cars and bicycles, with bicycle pavement marking as shown in **Figure 3-6**. Shared lanes reflect the special nature of this street, where all modes are welcome and accommodated. They combine with other elements such as midblock crosswalks and bulb-outs to calm traffic.

The two-lane section has other advantages. Double parking is discouraged, as motorists know that if they double park they block the travel way in that direction. Emergency vehicle access is also improved over the existing condition. With three occupied 10-foot lanes (30-foot total width) cars moving over to allow an emergency vehicle to pass would take up as much as 24 feet of width — the remaining six feet is inadequate for the emergency vehicle. On the other hand, with two occupied 14-foot lanes (28-foot total width) cars moving over to allow an emergency vehicle to pass would take up 16 feet of width, leaving 12 feet for the emergency vehicle.

Curbside Parking

Metered parallel parking should be provided on both sides of the street. Multi-space meters should be used — see the discussion under the Parking Plan below. Parallel parking is very similar to back-in angled parking in terms of traffic impacts. Parallel parking allows maximization of the sidewalk width.

Curbside Loading

Some parking spaces should be set aside as loading zones at certain times of the day. The precise location, length, and time period for the loading zones should be coordinated with business owners during the design and implementation phase. Field observation suggests that 45 minutes is a typical truck dwell time. With 45-minute average truck dwell times and half the curb spaces along 18th Street dedicated to loading, an estimated 14 trucks per hour could be accommodated. If the truck arrival rate is greater than that, the dwell times would need to be reduced through management or alternative loading areas, such as the alleys, would need

to be used. For more details see **Appendix B: Calculations and Estimations.**

Crosswalks

Long blocks along 18th Street combine with heavy pedestrian volumes to create pedestrian spillover into the streets and unpredictable pedestrian crossings. At peak periods the street itself is heavily used by pedestrians. The number and visibility of pedestrian crossing locations along 18th Street needs to be increased.

We recommend a new midblock crosswalk be installed approximately half way between Belmont Road and Columbia Road. This crosswalk should be broad, with a width up to 25 feet. The crossing should also be raised to reinforce its use as a pedestrian zone over that of a vehicular zone.

Figure 3-7: Examples of Building Facades



An additional crosswalk should also be installed across 18th Street just north of the entrance to the parking garage. This crossing would address the desire line for people entering and exiting the parking garage by foot.

Bulb-outs

Bulb-outs should be constructed at pedestrian crossings and bus stops to narrow the crossing distance to 28 feet, to create larger pedestrian areas, to make crossing pedestrians more visible to approaching drivers, and to provide more space for tree plantings. Bulb-outs, however, should not be installed at the bus stops just south of Columbia Road because of the need for an increased number of lanes at this location; the street width should be 44 to 50 feet. Using a different type of paving in bulb-out areas could denote these areas as being different spaces from the rest of the 18th Street sidewalks.

Champlain Street

To improve street connectivity and relieve some traffic pressures on 18th Street, Cham-

plain Street should be opened through the Marie Reed site. Currently the closed portion of the street is an underutilized “dead space” that is uncomfortable for pedestrian use. Through traffic would put eyes on the street for the entire length of Champlain Street and thus create a safer environment.

It is possible to open the street initially only at times when children are not present, for example outside of school hours. Ultimately, the street would be open at all times. We recommend the design of the street have significant traffic calming elements. As traffic volumes increase on Champlain Street, the intersection at Columbia Road should be redesigned so that Champlain Street intersects at a 90-degree angle, as opposed to the current skew. The block of Euclid Street between Columbia Road and Champlain Street should also be closed to facilitate this realignment.

Streetscape and Landscape Elements / Options

Paving Materials

It is our recommendation that the sidewalk paving material along 18th Street be brick. This is currently used for the sidewalks along 18th Street south of Florida Avenue, extending the same treatment north would create cohesiveness along the corridor.

Bulb-out areas should be paved differently with stone, concrete pavers, or differing patterns of brick. This would draw attention to these areas as spaces distinct from the rest of the sidewalk. Although this treatment is not used further south on 18th Street, it would draw attention to this segment of the corridor as being different and unique, but not separate.

All of the crosswalks between Columbia Road and Florida Avenue should use some type of special paving to draw attention to their use as a pedestrian environment. The crossings should be wide, 15 to 25 feet, to further emphasize pedestrian safety.

Street Trees

The conventional street tree placement on a given corridor generally strives for uniformity, that is, using all the same tree species spaced at consistent intervals. This is not necessarily appropriate for 18th Street in Adams Morgan, or what would be best for the streetscape.

The concept plan for 18th Street shows trees spaced at various distances. Trees are clustered at bulb-outs where there is more room for planting and where more people might gather. These areas could be viewed as oases along the street, where there is a greater amount of shade and a larger pedestrian zone. Elsewhere, trees are spaced much further apart to allow for views of the notable architecture along the street, and in some instances of iconic artwork on the buildings, such as at Madam’s Organ and Café Toulouse.

Figure 3-8: *Ginkgo biloba* tree



Figure 3-9: Kentucky Coffee tree (*Gymnocladus dioica*)



Figure 3-10: Tear drop light fixture



We recommend that most tree pits employ tree grates around the trees. This would allow for a larger pedestrian accessible zone while at the same time allowing for a soil zone around the tree. It is important that the type of tree grate that is used allows for removal of portions of the grate as the tree trunk expands. It is also important that a maintenance plan is set up to provide for such issues.

In bulb-out areas larger amounts of sidewalk would be available and tree grates would not be necessary. For these areas it is recommended that low fences be used around the tree pits to protect the trees and the soil from pedestrians. These fences could be designed to act as low seating areas as well.

We recommend continuing to use Ginkgo trees (*Ginkgo biloba*) on this portion of 18th Street. This species of tree fits well with the character of Adams Morgan — they look different and have a “funky” appearance. It is important that only males of the species are used as the females produce fruit that is messy and has a very unpleasant smell. In

the bulb-out areas a different species of tree could be used to once again denote these areas as being a different space and to create a different quality of shade. A possible tree for these areas would be the Kentucky Coffee tree (*Gymnocladus dioica*). This tree also has an interesting form with few branches and casts a very nice shade. With this species also, only the male should be used to avoid the seed pods of the female trees.

Lighting

The existing street lights on 18th Street in Adams Morgan are high level cobra heads. Although we do not recommend the continued use of the cobra heads, we do recommend that high level lights with a large amount of space between the lights be used. The example shown in **Figure 3-10** is a teardrop style. This is a street where too much decoration should be avoided. High level lights would be unobtrusive. They will provide light, but not detract from the architecture and lights of the adjacent businesses. Low level lights would require more poles

which would clutter the sidewalk, they would cause glare at eye level, and they would distract from the rest of the streetscape. The high level lights should be more attractive than those currently used.

Street Furniture

Currently 18th Street has little to no furniture along it in Adams Morgan. The renovation of the street should include provisions for furniture. This would include benches, bike racks, trash receptacles, bus shelters, and even artwork. A more contemporary style of furniture would be more appropriate to Adams Morgan than the traditional type used elsewhere in the city. Some elements could even be created through the process of a design competition. This would be especially appropriate for the bus stops, which would be major new elements along the corridor and could act as landmark features. Using furniture exclusive to Adams Morgan would continue its unique character.

Figure 3-11: Contemporary Street Furniture



Figure 3-12: Existing Street Furniture



Figure 3-13: Clustered bike racks



Figure 3-14: Example wayfinding elements



Elements of artwork are most appropriate at the intersections of Columbia Road and Florida Avenue, but could be included elsewhere along the corridor as well.

Bike racks and benches would be best placed at the bulb-out areas or other areas where there is sufficient room for them without interfering with pedestrian traffic. Neither of these items should conflict with the opening of doors for parallel parked cars. Larger numbers of bike racks and benches could be placed at the expanded plaza areas at major street intersections.

Wayfinding

Signage for wayfinding should be included at all the bus stops and also at the 18th Street intersections with Columbia Road, Kalamazoo Road, and Florida Avenue. The wayfinding signs should include a map of the area, major attractions, metro stops, and bus stops. Maps of bus routes should be included at bus stops as discussed in the Transit Plan below. By making navigation in the Adams Morgan area clearer, bus ridership

could increase and the overall experience for a visitor should be improved.

Ideas dropped

The study team issues no recommendation with regard to taxi stands. As discussed above, enforcement of the taxi stand would be highly challenging. Selecting a location without arousing the opposition of neighboring businesses may also be difficult. Nevertheless, if an agreeable location can be found near the commercial core (for example, along the Marie Reed frontage), dedicated management can be funded, and thorough advertising is implemented, then a taxi stand may make a small improvement to traffic operations on 18th Street.

Figure 3-15: Concept plan for 18th Street north of Kalorama Road

18TH ST. NORTH CONCEPT PLAN



Columbia Road

Commercial and Non-commercial

Columbia Road has segments that are strongly commercial in character and others that have more residential orientation. Within the study area, south of Belmont Road is residential in character, while north of Belmont Road is commercial. The recommendations for Columbia Road, therefore, respect the current predominant uses.

Traffic Elements / Options

We recommend maintaining the existing 50-foot roadway width and existing sidewalk width along Columbia Road throughout the study area. In the commercial zone essentially northeast of 18th Street, we recommend reconfiguring the street for metered parallel parking on each side, one 5-foot segregated (striped) bike lane each way, and one 12-foot travel lane each way. Some parking spaces should be set aside as loading zones at certain times of the day. The precise location, length, and time period for the

loading zones should be coordinated with business owners during the design and implementation phase. See **Appendix B: Calculations and Estimations** for more information.

In the non-commercial zone essentially southwest of 18th Street, we recommend parallel parking on each side, one 12-foot travel lane each way, and a 10-foot landscaped, raised median. Bicycle lanes have not been recommended on this section, as they do not appear in the latest bicycle master plan for the District.

Multi-space meters should be used for metered parking. See the discussion under the Parking Plan below.

Figure 3-17: Historic map of Kalorama Park site



Figure 3-18: Extension of Kalorama Park



Figure 3-19: Reconfiguration of Champlain Street and Euclid Street



Figure 3-20: Columbia Road at 16th Street



We recommend some minor changes to a few streets intersecting Columbia Road. Kalorama Road should be closed to vehicular traffic between 19th Street and Columbia Road. Pedestrian connections along the Kalorama Road alignment should be maintained. This closure will permit the extension of Kalorama Park to the historical limits of the J. Little property and act to moderately discourage cut-through traffic on Kalorama Road.

Euclid Street should be closed between Columbia Road and Champlain Street, and the intersection of Champlain Street at Columbia Road should be realigned. This change is intended to address the likely increase in traffic volumes on Champlain Street with the re-opening of this street at the Marie Reed site. (If Champlain Street is not reopened at Marie Reed, the reconfiguration of Champlain at Columbia becomes unnecessary.) The closure of Euclid Street enables the expansion of the triangular open space into a pocket park.

Finally, the little used segment of Harvard Street between Columbia Road and 16th Street in front of the Scottish Rite Temple should be closed. The large barren concrete island can then be landscaped. At the same time, the raised concrete island along the entire eastern border of Rabout Park should be expanded to create an enhanced transit station. See the Transit Plan below.

Bicycle parking should be distributed at intervals along Columbia Road. With the consolidation of parking meters, sidewalk space becomes available for bicycle racks.

Streetscape and Landscape Elements

Crosswalks

Most crosswalks along Columbia Road should remain at their current locations. However, where changes to intersections are recommended the placement of crosswalks will need to be addressed. It is our recommendation that all crosswalks crossing Columbia Road should be 15 to 20 feet wide and painted in the International-style (large white bars). Crosswalks on side streets

could be a smaller dimension. This will increase visibility and promote a safer pedestrian environment.

The intersection of 18th Street and Columbia Road and the section of Columbia Road between Ontario Road and 17th Street are exceptions to the above recommendations. We recommend these crosswalks be paved similarly to those on 18th Street with special paving such as brick. The entire segment of Columbia Road between Ontario Road and 17th Street could be surfaced with special paving to help distinguish this zone as a transition area, as described under bulb-outs.

Median and Street Trees

For the section of Columbia Road between Belmont Road and Connecticut Avenue we are recommending the introduction of a median. There is currently a large amount of road surface on this portion of the street that serves little function. In the commercial part of the corridor the center of the road often serves as a loading zone. In the resi-

dential portion it is a turning lane. The amount of traffic, however, does not necessitate a turning lane. This extra space in the center would be very well used as a planted median.

The median should be 8 to 10 feet wide so that it can accommodate large trees. A recommended species of tree to plant is American Elm (*Ulmus Americana*). This species has a vase-like form which would create an attractive canopy for the street.

Including a tree-planted median will help calm traffic, reduce the amount of impervious surface, shorten crossing distances, and provide more space for trees for which the benefits are numerous and well known.

With a 10-foot median and 8-foot parallel parking lanes, travel lanes would be 12 feet wide. These would have no specific provision for bicyclists. We do not foresee this as being a problem because of the low volumes of traffic and the slower traveling speeds. Alternatively the median could be 8 feet wide and parallel parking could be 7 feet

wide, leaving 14 feet for shared use travel lanes similar to those on 18th Street.

New street trees should be planted along the road where old ones have died or where there are empty gaps. If Elms are used for new plantings along the street, eventually two double arch corridors would be formed along Columbia Road.

Bulb-outs

Bulb-outs are not a major recommendation for Columbia Road. However, there are three potential locations where they could be included. The segment of Columbia Road between Ontario Road and 17th Street is one of these. By widening the pedestrian zone and narrowing the roadway a sense of moving from one space to another can be created. A larger pedestrian zone will accommodate people more comfortably and provide more planting space for street trees.

Another potential location for bulb-outs is at the northeast corner of the 18th Street and Columbia Road intersection. Bulb-outs here would only be recommended if parallel parking is included as a component of the street on Columbia Road and Calvert Street at this location. Including bulb-outs at this corner would provide short tree lined corridors leading to the proposed kiosk location along both Columbia Road and Calvert Street.

The last potential location for bulb-outs is the proposed bus stop location adjacent to Kalorama Park, as discussed in the Transit Plan below. Bulb-outs would be included at this point to provide an expanded zone for the bus shelter and waiting area and to provide direct access for buses.

Sidewalks

The recommendation for the sidewalks along Columbia Road is to maintain the existing sidewalks and to repair and replace them as necessary. In some locations new

sidewalk would be necessary during installation of new features.

At the intersection of 18th Street and Columbia Road and the portion of Columbia Road between Ontario Road and 17th Street, a different type of paving can be used to distinguish these as distinctive locations.

- LEGEND**
- Sidewalk improvement, as necessary
 - Street tree
 - Lane demarcation
 - Roadway divider
 - Crosswalk
 - Bus station



Bus Station

- Introduce Metro identity to promote and market transit
- Facilitate and promote transfers
- Consolidate bus stops
- Iconic architecture



Columbia Promenade

- Increase public space
- Shorten pedestrian crossing distance
- Calm traffic
- Reinforce pedestrian priority
- Increase linear planting area



Green Space

- Close Harvard Street slip lane
- Provide plantings

Master Meter

- Increase payment options
- Reduce sidewalk clutter
- Variable rates
- Cheaper installation and maintenance



Site Furnishings

- Furnishings to reflect character of Columbia Road



Loading Zone

- 2-3 hour periods
- Parking at other times
- More spaces, less time
- Specific locations to be determined

Separate Bicycle Lane

- Remove center lane
- Provide continuous bicycle lanes

Pocket Park

- Close Euclid Street
- Expand public space
- Create adjacent promenade



d.

HNTB

September 2005

Figure 3-21: Concept plan for Columbia Road north of 18th Street

LEGEND
 Sidewalk improvement, as necessary
 Street tree
 Lane demarcation
 Roadway divider
 1st Crosswalk
 Bus station



- Loading Zones**
- 9-3 hour periods
 - Parking at other times
 - More spaces, less time
 - Specific locations to be determined

- Master Meter**
- Increase payment options
 - Reduce sidewalk clutter
 - Variable rates
 - Cheaper installation and maintenance

- Bulb Outs**
- Increase public space
 - Shorten pedestrian crossing distance
 - Calm traffic
 - Reinforce pedestrian priority
 - Increase planting area

- Bus Station**
- Introduce Metro identity to provide and shared transit
 - Facilitate and provide transfers
 - Consolidate bus stops
 - Iconic architecture

- Site Furnishings**
- Furnishings to reflect character of Columbia Road

- Kalorama Park Expansion**
- Close Kalorama Road
 - Expand park green space
 - Incorporate focal point element as lawn for park and corridor

Parking in Adams Morgan

Parking has long been a contentious issue in Adams Morgan, and the process of developing recommended solutions has further exposed some of that controversy. The recommendation undoubtedly challenges business-as-usual, but it has the ability to change behavior dramatically and reduce conflicts among parkers.

Recommendation – On-Street

We recommend the study area be divided into three general zones of parking regulation as described below. One possible arrangement of these zones is shown in **Figure 3-23**.

The **first zone** consists of metered parking along commercial streets, using multi-space meters. Most of these frontages already have metered parking. The metered-only parking zone would expand modestly.

Two basic types of multi-space, or master, meters are currently in use: pay-and-display and pay-by-space. With pay-and-display,

the users pay the meter for the duration of parking they want and receive receipts which they adhere to the inside of the curbside window of their vehicles. The receipt shows the expiration date and time of the parking period paid for. This type of meter is currently used in the District in Georgetown and near Union Station. With pay-by-space, users enter a parking space number and pay the meter for the duration of parking they want. No receipt is printed. This type of meter is used in the District in a parking lot at American University and for motorcycle parking along McPherson Square. **Table 3-1** compares and contrasts the two types of meters.

Meter revenues should be used to fund the Business Improvement District, offsetting the assessments to the individual businesses or increasing revenues to fund more improvements.

Table 3-1: Comparison of multi-space parking meters

Pay-and-Display	Pay-by-Space
Enforcement by inspecting receipt at vehicle	Enforcement by inspecting meter
Parking stalls do not need to be striped	Parking stalls must be striped and parking space numbers must be kept legible
Requires returning to vehicle after paying meter	Once meter is paid user can proceed to destination
	Better suited for pay by cell phone
Prices can vary by time of day and day of week to meet varying demand.	
Can be solar powered and communicate wirelessly	
Transmits real-time data to central computer for ease of management, usage analysis, and setting prices	
Supports multiple payment types	
Multiple meters can manage the same set of spaces, in case one meter breaks	

Figure 3-23: Potential curb allocation



The prices charged should be varied by time of day and day of week. The goal is drive down parking demand to achieve an 85 percent to 90 percent occupancy rate. This means that at least one in ten parking spaces is vacant, making it much easier to find a space and virtually eliminating “cruising” for parking.

In the **second** zone multi-space parking meters are placed in the Residential Parking Permit (RPP) zones nearest the commercial core, receiving the brunt of the spillover visitor parking. The distance this overlay zone extends from the commercial core may not be constant. Spillover may be worse in the blocks surrounding 18th Street than around the northern reaches of Columbia Road, for example.

The operation would be simple. Those with residential parking permits would not pay meter; those without permits would pay. This set-up would lend itself more toward the pay-and-display type master meter, as enforcement would entail inspecting the

vehicle. Enforcement officers would check for an RPP and check for a meter receipt; finding neither they would know to write a ticket.

The residential guest permit system via MPD would remain in place, despite its need for improvement. Improvements could come in the form of:

- Selling a set number guest permits with each RPP, as is done in Chicago and many other cities.
- Training MPD staff on guest permit issuance procedures and monitoring for consistent application of the procedures.
- Issuing guest permits online, much like printing an airline boarding pass from home, as is being piloted in the Judiciary Square area.

As with purely metered blocks, the prices charged should be varied by time of day and day of week until an 85 percent to 90 percent occupancy rate is achieved, making it much easier to find a space and virtually eliminating “cruising” for parking.

Some studies have suggested that vehicle occupancy rates are higher as parking fees rise. Therefore, the number of people served by parking may not fall with the drop in number of vehicles parked. A study in popular Westwood Village in Los Angeles revealed 1.3 people per car parked at the curb compared to 1.7 people per car parked in higher priced off-street spaces. For every 100 spaces at 1.3 people per car, only 77 spaces would be needed at 1.7 people per car to achieve the same number of customers served.

(See Donald Shoup, *The High Cost of Free Parking*, Chapter 14.)

Potential meter revenues are substantial. The study area could generate upwards of \$4 million a year in meter revenue with an 85% occupancy rate and \$5 an hour meter rate during evening peak periods. See the **Calculations and Estimations Appendix** for details.

Table 3-2: Estimated number of parking spaces by proposed allocation

Metered	570
Residential Permit Only	1,210
Residential + Metered Overlay	1,740
Total	3,520

If the meter rate continues to be raised without achieving this target occupancy, the Taking It Further section below offers potential solutions. At a high enough meter price, it is likely that all visitor parking has been driven off and the competition for parking spaces is totally among residents.

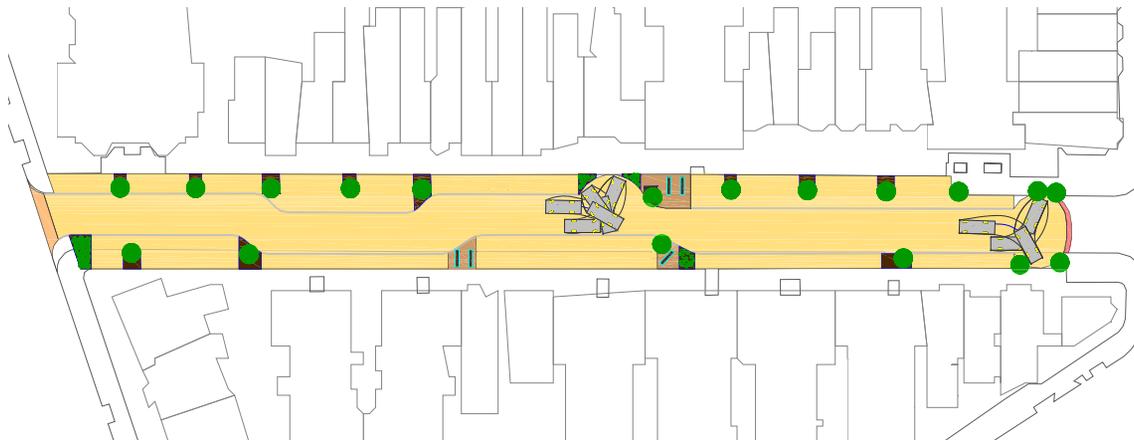
A critical element of this plan, particularly to develop a political constituency in favor of it, is to direct meter revenues to fund street improvements, maintenance, and security within the overlay zone. A “parking benefit district” would be created with a board made up neighborhood leaders to manage the me-

ter revenues and improvement expenditures.

The **third zone** surrounds the overlay zone with RPP-only parking at all times. This zone is needed to contain the spillover from the overlay zone and try to keep it from leaving the study area. Visitors driving to Adams Morgan would need to use paid parking, or else park far away from the commercial core.

Within the RPP-only zone, some streets are suited for redesign as woonerven or “home zones.” These are streets that carry little or no through traffic abutting exclusively residential use. Streets would be reconstructed at a single grade within the public right-of-way, and the whole width would be shared by pedestrians and vehicles. Parking could be arranged in varied combinations of parallel, perpendicular, or angled spaces, potentially increasing the number of spaces.

Figure 3-24: Vernon Street shared surface example layout (not to scale)



Recommendation – Off-Street

We recommend that underground parking be allowed as part of any redevelopment of the Marie Reed site, provided that public open space be maintained as part of the redevelopment program. We have estimated the construction cost of a two-level underground garage on that site to be in the \$8.2 million to \$10.7 million range, depending on size, considering it to be on a relatively constrained site in an urban area with higher labor rates. The estimate does not take into account the cost of land, engineering and financing costs, or escalation. See the **Calculations and Estimations Appendix** for more details.

We recommend that this parking be constructed and operated privately and that market rates be charged. It should be noted that free or inexpensive on-street parking depresses the market rate for off-street parking. Charging more for on-street parking makes off-street parking more financially feasible.

Fall-Back

The public has had a mixed reaction to the on-street parking recommendation, with some strongly in favor and others vocally opposed. A fall-back position exists that we suggest would make a palatable interim step to see if parking conditions improve. An advantage of the interim step is that it could be implemented quite rapidly, while the full recommendations would require procurement of new parking meters and, ideally, the reconstruction of 18th Street.

First, the existing parking meters should be made effective 24 hours a day, every day, using current rates. The current metering times simply do not address the peak parking demand periods, which stretch late into the night on weekends. At the same time, to help contain spillover, the residential permit parking zones nearest the commercial core should be made effective 24 hours a day, with 3 hour visitor parking permitted.

Off-street parking space rentals advertised on washingtondc.craigslist.org were surveyed for the third week of September 2005. The median asking price for a parking space in Adams Morgan was \$200 a month.

The cost of owning and operating underground parking on the Marie Reed site was estimated at \$280 per month per space, *exclusive of land costs*.

The current value of off-street parking does not support the construction of new off-street spaces.

The disadvantages of this approach are:

- Without pricing, parking demand reduction would be minimal. Demand reduction would be contingent on the threat of fines.
- Enforcement in the RPP areas would be made more difficult than with metered parking. Permits would need to be checked, vehicles without permits would need to have their tires chalked, and a follow-up check would need to be made three hours later.

Nevertheless, if the interim approach addresses parking concerns to the community's satisfaction it could be made permanent. If not, the full recommendation should be implemented.

No Action

The existing parking system works, albeit chaotically and with much inconvenience to both residents and visitors. Taking no action is an acceptable course. Enforcement should be stepped up on existing parking

regulations, especially with regard to double parking.

Taking It Further

If high prices charged to visitors do not create vacant on-street spaces, then residential use of on-street parking could be addressed. The number of vehicles permitted to park on the street would need to be decreased. This can be done by raising permit prices, constraining the number of permits sold, or both.

Raising permit prices can be done in a number of ways. Three basic decisions would need to be made.

1. Is the price raised for the whole city, just RPP Zone 1, or a subset of RPP Zone 1?
2. Is the price raised on all vehicles or just on the second (and third, etc.) vehicle per household?
3. How much should be permit price be raised, and should the change be incremental or more sudden?

At the current \$15 a year permit fee, it costs 4 cents a day for what amounts to a parking space hunting license, extraordinarily inexpensive for vehicle storage, while raising unrealistic expectations about the ability to park conveniently. It constitutes a vanishingly small proportion of the \$6,900 a year it costs on average to own and operate a vehicle¹. Because residential parking permits are so inexpensive, a large change in price would likely be needed to change behavior.

Setting limits on the number of permits is more problematic. Capping the number of permits sold at or near the number of spaces available (regardless of price) would initially create a huge waiting list for permits. Some residents, particularly those with off-street parking, would be enticed not to bother pursuing permits; others would get rid of their cars. It is quite possible an unofficial market for permits would arise. People for whom

parking is highly valued could offer to pay high prices to the few who are able to get permits. It is arguable that the public should be the beneficiary of such sales, not individual permit holders, suggesting an auction as an approach to distributing permits. In any case, the market value of on-street parking would be exposed.

If the number of residential parking permits is to be addressed, we suggest the following initial approach:

1. Cap the number of permits sold to each household to two, or at most three.
2. Set the price of the second (and third) permit much higher than the first. Some experimentation will be necessary to find a price that changes the total number of permits sold and thereby reduces the parking conflicts on the street.
3. Implement these changes first in Adams Morgan, as this area has the highest residential densities in the city. As the system is refined it can be applied city-wide.

Other cities' parking permit policies may suggest approaches for Washington as well. In **Miami** permit prices vary by neighborhood from \$16 to \$85 per month. **San Francisco** sets a maximum of four permits per address, while **Charleston**, West Virginia, caps them at two per residence. **Alexandria**, Virginia, charges \$15 for the first vehicle, \$20 for the second, and \$50 for each additional vehicle. **Chicago** sells booklets of 15 guest parking passes for \$5. In **Philadelphia** parking permits exempt residents from paying parking meters on their block.

¹ American Automobile Association. *Your Driving Cost*, March 8, 2005.

Ideas Dropped

We make no recommendations regarding creating a class of on-street parking permits for employees. While it attempted to address the inconvenience of employee parking, residents were skeptical of the idea, and DDOT was concerned about creating an incentive to drive for work trips.

The street hierarchy concept of redesigning streets with progressively more intensive traffic calming was scaled back to include only those blocks suitable for woonerven or “home zones.”

We make no recommendations for the construction of off-street parking beyond the Marie Reed site. Parking in current open space, such as Kalorama Park, would be highly disruptive and potentially attract additional vehicle trips into the heart of the area. Almost no other land is available for constructing parking, without removing existing buildings. Currently the economics are not favorable for the private sector to construct off-street parking: the market rate for off-street parking cannot offset the land acquisition and construction costs, while the market rate for other uses can.

Transit in Adams Morgan

The transit system plays an important role in the study area, but there are opportunities to further expand its use. A more attractive and efficient system is beneficial to all users. While better marketing and information will help attract new riders.

Preferred Recommended Measures

The recommendations are classified as short-term and long-term to reflect the relative ease and cost of implementation.

Short Term

We recommend that new signing making reference to those bus lines which currently serve Adams Morgan (defined as services which pass through the 18th Street and Columbia Road intersection) be installed at the locations shown in **Table 3-3**, listed in priority order. The precise appearance, content, number, and location of the signs would be determined in conjunction with WMATA. Signing may need to direct pas-

sengers to cross streets from the Metro station exit to catch the bus.

We recommend that the existing electronic display bus headers be adjusted on the appropriate routes to read “via Adams-Morgan”. We suggest beginning with the 42 bus, as it offers the greatest frequency of service to Adams Morgan. Wherever possible the existing speaking-bus technologies should be used to trigger the introduction of the above message at an appropriate point along the route for those services which have extents well beyond Adams Morgan. For example, we suggest a pilot program on the 90 bus, starting westbound at the New York Avenue Metro station and eastbound at the Woodley Park Metro station.

Existing routes operating along 18th Street should be altered to increase bus service between Adams Morgan and the Woodley Park metro station. The necessary alterations fall into two categories: diversion and extension.

Table 3-3: New bus route signing

STATION	ROUTES
Woodley Park - Zoo / Adams Morgan	90, 92, 93, 98, L2, H7, X3
U Street / African-American Civil War Memorial / Cardozo	90, 92, 93, 96, 98, X3
Columbia Heights	H1, H5
Dupont Circle	H1 (south entrance), 42 (north entrance), L2 (south entrance)

Figure 3-25: Bus route diversions to serve Woodley Park Metro

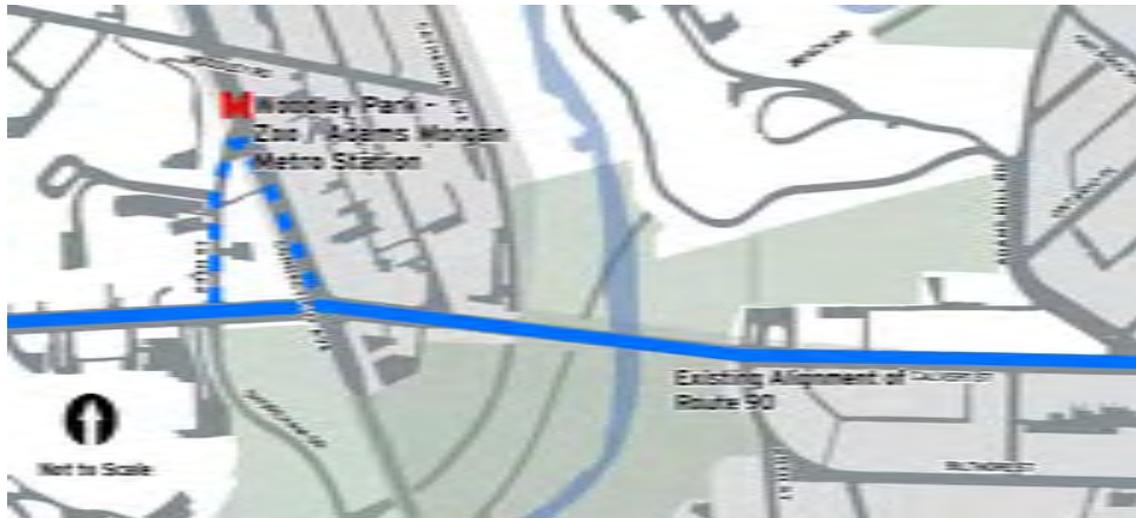


Figure 3-26: Bus route extensions to serve Woodley Park Metro



The diversions would take those routes which currently cross the Duke Ellington Bridge, namely the L2, 90, and some 92 and 93 buses, and pass them by the Metro station via 24th Street and Connecticut Avenue. This should occur in both directions.

Extension of those services which terminate at the west end of the Duke Ellington Bridge at least as far as the Metro station should be implemented if feasible. The length of the routes which currently stop short of the bridge is such that a stop area allowing drivers to rest is necessary. Whether such provision can be provided on 24th Street should be explored. If it is found to be impractical or infeasible then service should be extended further to an appropriate location.

Long Term

We recommend that existing bus stops in the area be consolidated to improve the efficiency of bus service through the study area, to improve the visibility of bus services in the area, and create station-like environ-

ments. However, we would include the following caveats:

- The exact number and location of the new stations is to be determined by WMATA in consultation with the local community and following updated counts of the use and ridership at the existing bus stops.
- Consolidation of the stops should be followed shortly, if not immediately, by the construction of enhanced facilities sized to accommodate the expected higher activity at the new stations.

Figure 3-28 on page 3-31 shows potential areas to locate consolidated bus stops. We also suggest the following guidelines be implemented:

- Amenities should be created with a significant architectural presence appropriate to the area and the importance of the enhanced transit system. Metrorail-style imagery and accents should also be introduced.

- For the full benefit of the process of consolidation the above measures should be extended beyond the boundaries of the study area.
- Station spacing should be regular and at a minimum of 1,000 feet to one-quarter mile unless there is a compelling reason to be otherwise. However, stop spacing should be distant enough to ensure that the efficiency of service, the significance of the stations, and the level and quality of amenities be undiminished.
- Bulb-outs should be built to accommodate passenger waiting areas without interrupting pedestrian movements on sidewalks. Exceptions to this would be at intersections with high turning volumes requiring auxiliary lanes.

Figure 3-27: Example transit shelter designs



Figure 3-28: Real-time bus arrival display



As the transit stations are created we recommend that real-time bus arrival technology be introduced. It would be prudent even if the cost of immediate, full installation is deemed prohibitive that provision is made in new infrastructure for its future inclusion, thus minimizing the potential cost and disruption at that later time.

Fall Back

The consolidation of bus stops is a sensitive issue. Clear opposition arose to proposals on Columbia Road in particular. At the same time there was definitive support for consolidation particularly among regular transit riders.

If the proposed consolidation proves too contentious to pursue, in its entirety or in specific locales, consideration should be given to the creation of an overlay transit service.

This overlay service would have all of the features described above but the existing services would remain in place. It is suggested that the two systems not stop in coin-

cident locations other than those of clear merit, such as Metro stations, key institutions, and significant generators. This will ensure that the overlay system can be marketed differently and with a clear identity.

Taking It Further

Further improvements should continue to make bus service as Metrorail-like as possible; a high quality service which is accessible, efficient, simple to use and easy to comprehend. We recommend the following:

- Route consolidation — Reducing the number of routes in the system substantially and having them operate along clearly defined routes: the main streets and avenues of the District.
- Increased frequency of operation. Rather than rely on a schedule, buses should operate on known headways,



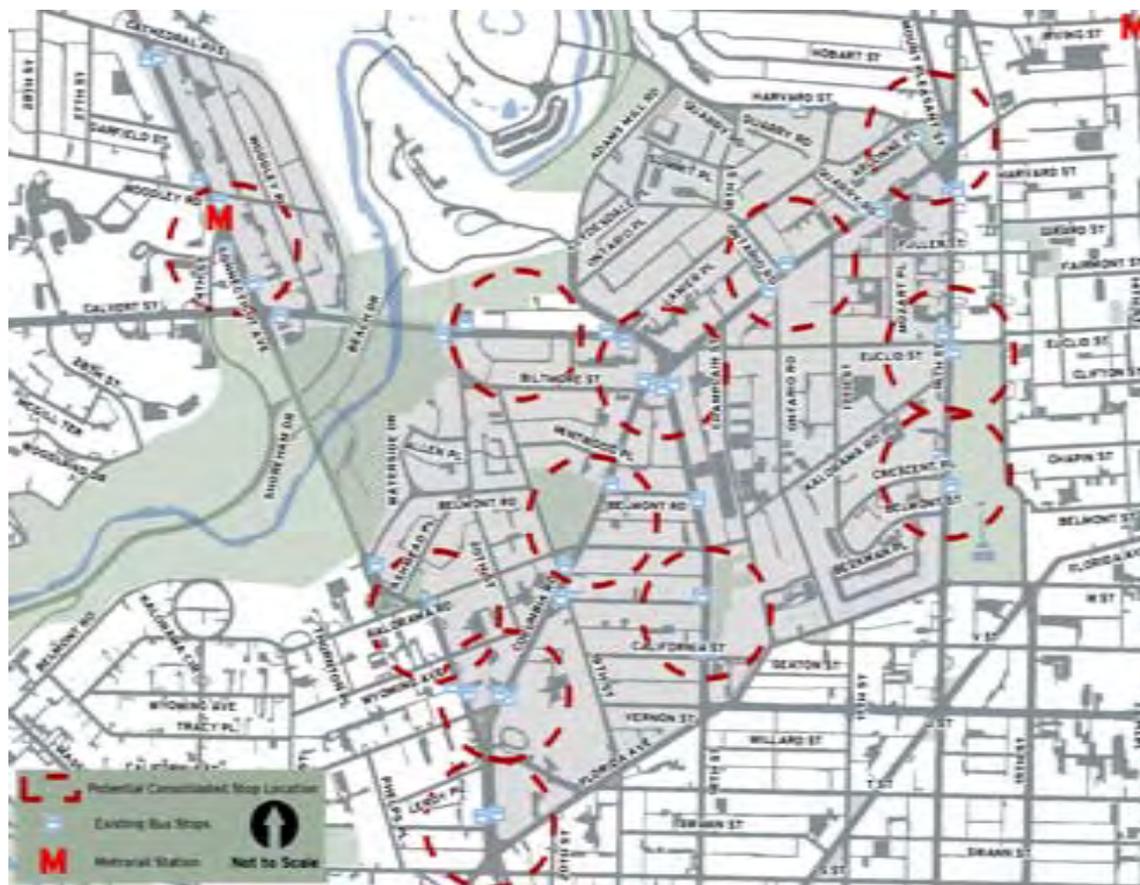
short enough to meet passenger wait time expectations. We would suggest no greater than 15 minute headways.

- Improved and simplified mapping and information, made possible by the recommendations above.

Again, the consolidation of routes is likely to have some level of opposition among the public. We would suggest the same overlay principle could be applied in this case.

Additionally, whenever possible, surface transit on dedicated right-of-way should be introduced. Dedicated right-of-way would mean fewer delays for transit passengers and decreased headways, thereby increasing capacity. Dedicated right-of-way also tends to yield increased private reinvestment along the line, although this does not appear to be needed in Adams Morgan.

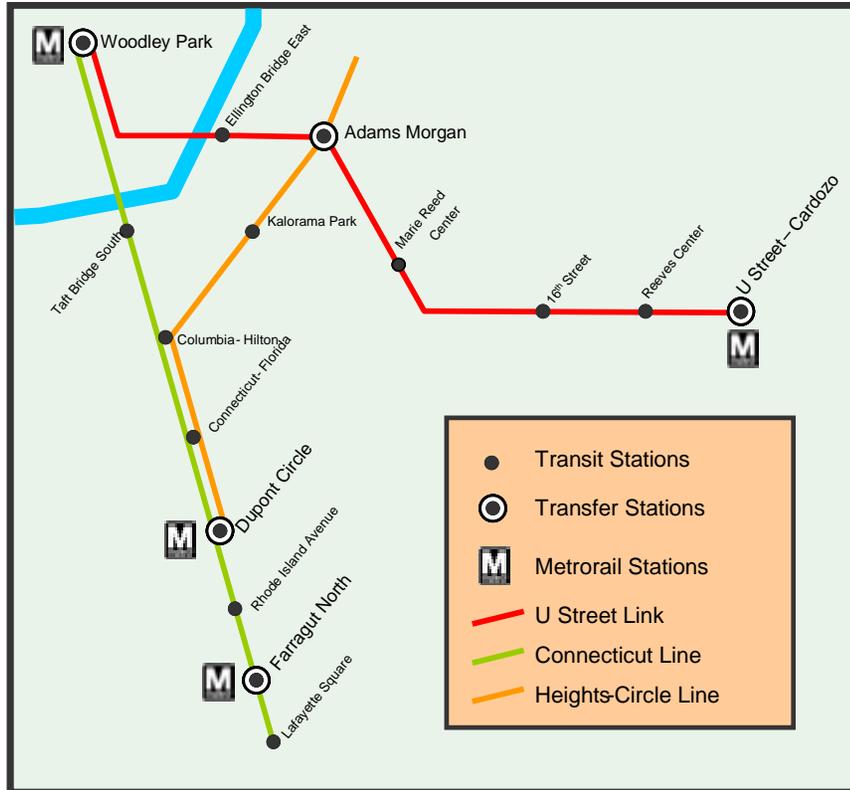
Figure 3-29: Potential areas for bus stop consolidation



Status Quo

The above package of recommendations is intended to make improvements to the oftentimes chaotic transportation and parking situation in Adams Morgan by changing the way these systems operate. Many feel that Adams Morgan is not as good as it could be.

Figure 3-30: Metrorail like bus service through Adams Morgan



Nevertheless, the recommendations are not likely to encounter universal acceptance: many suggested changes may go farther than some people are willing to abide.

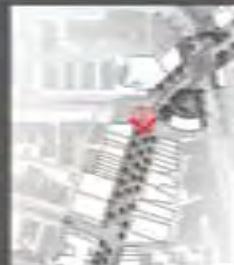
Despite the chaos, Adams Morgan is a place that works. Businesses are popular and highly successful. Residential demand has raised property values and generated the impetus

for new residential infill development. The area is clearly a place where people want to be. Empty parking spaces are difficult to find but can be found. Transit service is frequent and well-used, supporting a density of development beyond the capacity of the automobile to sustain. The mix of land uses allows residents to meet most daily needs within walking distance.

Changes are not needed to give a failing area an increased chance to flourish. Implementing the recommendations will bring improvements, but they are not critical to Adams Morgan’s survival.

Vision

The following pages show artist renderings of 18th Street and Columbia Road in the future incorporating the recommendations detailed above.



Columbia Road - view southwest
from Biltmore Street



18th Street - view north toward intersection with Kalorama Road





18th Street - view north toward intersection with Belmont Road



Intersection of 18th Street,
Calvert Street, and Columbia Road





Intersection of 18th Street
and Florida Avenue





Columbia Road at Ontario Road





PART FOUR Next Steps

Once the recommendations of this study have been issued, a series of follow-on steps will take place for the various elements to be implemented.

First, the District Department of Transportation (DDOT) will review and evaluate the recommendations, selecting which they are able and are interested in pursuing. This selection process would be greatly assisted by public input in order to establish priorities. DDOT will place selected projects into their budget so they can proceed with engineering. At the same time, short-range solutions which require no capital budget can be implemented through maintenance action.

Next DDOT (or other responsible agencies) will complete detailed design of the projects that move forward. If construction funding is available, plans could be built right away. In general, however, funding is not immediately available. Improvement projects in Adams Morgan compete with those for other parts of the city for funding. Again, active community participation would be helpful in garnering political support.

Finally, construction can proceed. Many recommended changes can be built with limited disruption. However, the reconstruction of 18th Street would have construction-related impacts that will require close coordination with both the residential and business interests in Adams Morgan.

Implementation Timeframes

Here the various recommended elements are organized into three groups, roughly corresponding to the timeframe in which they could be implemented.

The first group — projects for short-range implementation — can be put into place by DDOT or other agencies for little money under existing operating budgets.

The second group — long-range implementation — consists of projects that require engineering or other design and inclusion in the District's capital budget.

The third group — institutional action — includes those projects requiring policy changes, institutional action, or additional community consensus-building, regardless of how quickly they could otherwise be implemented.

An attribution of the applicable implementing agency or agencies is given in parentheses.

Short-Range Implementation

The following are lower-cost projects that can be implemented directly by DDOT or a responsible agency.

- Time-of-day loading zones on 18th Street and Columbia Road. (DDOT-TSA)
- Midblock crosswalks on 18th Street — interim installation that may have only a striped crosswalk and pedestrian crossing signs (MUTCD W11-2) or a temporary raised crossing. (DDOT-TSA)
- Restriping Columbia Road between 18th Street and 16th Street with bicycle lanes. (DDOT-TSA)
- Improved signing at Metrorail stations for connections to Adams Morgan-bound buses. (WMATA)
- Bus headers on routes 42, H1, 90, 92, 93, 96, 98, and L2 indicating “via Adams Morgan.” (WMATA)
- Reconstruction of the 18th Street and Columbia Road intersection. This project is proceeding with funding from the Federal Highway Administration, set to begin construction in 2006. (DDOT-IPMA, FHWA EFLHD)

KEY TO AGENCY ACRONYMS			
DDOT	District of Columbia Department of Transportation	WMATA	Washington Metropolitan Area Transit Authority
TSA	Traffic Services Administration	FHWA	Federal Highway Administration
IPMA	Infrastructure Project Management Administration	EFLHD	Eastern Federal Lands Highway Division
TPPA	Transportation Policy and Planning Administration	NPS	National Park Service
DPR	Department of Parks and Recreation	OP	Office of Planning
DCPS	District of Columbia Public Schools	DMV	Department of Motor Vehicles

- Diversion of route 90 to the Woodley Park Metro station. (WMATA)
- Extension of route 92, 93, and 96 service from Ellington Bridge to the Woodley Park Metro station. (WMATA)

Long-Range Implementation

These projects require design and inclusion in the capital budget. These projects are competing with others in the District for funding; therefore, community support is essential to bring in the political support to make things happen.

- Construction of the plaza on the northeast corner of 18th Street and Columbia Road.
- Reconstruction of the 18th Street and Florida Avenue intersection. (DDOT-IPMA)
- Reconstruction of 18th Street between Florida Avenue and Columbia Road. (DDOT-IPMA, DDOT-TSA) A placeholder in DDOT's FY 2006 capital budget will allow for the design of this

street to proceed, in conjunction with work on 18th Street between Florida Avenue and Massachusetts Avenue. Sub-elements include:

- Replacing existing parking meters with multi-space meters
 - Sidewalk widening
 - Substantial streetscape improvements with paving, street furniture, lighting, and landscaping
 - Bulb-outs at intersections and bus stops
 - Marked, shared bike lanes
 - Raised pedestrian crossings, including the final configuration of the midblock crosswalks
- Consolidation of bus stops with enhanced architectural treatment, improved information, and Metro-style branding. (WMATA, DDOT-TPPA)

- Bulb-outs at consolidated bus stops on Columbia Road such as at Ontario Road and at Kalorama Park. (DDOT-IPMA)
- Opening Champlain Street at Marie Reed, paired with the reconfiguration of Champlain Street and Columbia Road and the closure of Euclid Street between Columbia Road and Champlain Street. (DDOT-IPMA)
- Extension of Kalorama Park and closing Kalorama Road to vehicles between 19th Street and Columbia Road. (DDOT-IPMA, DPR)
- Improvements at Columbia Road and 16th Street, including the closure of the Harvard Street slip lane and enhancement of the transit stop on the east side of Rabaut Park. (DDOT-IPMA, DPR, NPS)
- Construction of an underground parking structure as part of the redevelopment of the Marie Reed site. (OP, DCPS)

Institutional Action

These recommendations require institutional action to alter policies to allow their implementation.

- Metered parking overlaid onto residential parking permit streets. (DDOT-TSA)
- Creation of residential parking permit only streets. (DDOT-TSA)
- Varying parking meter rates by time of day and day of week to match demand. (DDOT-TSA)
- Setting up “parking benefit districts” to return meter revenues to the neighborhood for public space improvements.
- Increasing the price of residential parking permits. (DMV)
- Modifying the Sun Trust Bank plaza.
- Reconstructing some residential streets as woonerven. (DDOT-IPMA)



PART FIVE Appendices

Appendix A: Public Participation

The 18th Street/Adams Morgan Transportation Study incorporated a variety of techniques to ensure broad and diverse input from Adams Morgan residents, business owners, and other stakeholders, including people using various modes of transportation in the study area. A Steering Committee composed of community leaders met four times during the study; these meetings were open to the public. Community members also had the opportunity to attend four public meetings during the course of the study. Two focus groups — one for local business owners, one for local Spanish speakers, were also held.

During the study, community members were also encouraged to share comments via email, phone, or the project Website (www.18amstudy.com), where they could also access study information and documents in both English and Spanish. A summary of the public participation process and outcomes is provided in this section.

Steering Committee

A Steering Committee of local stakeholders was assembled by Bordercross Communications, the study outreach coordinator, in conjunction with DDOT. Of the 26 people invited, 17 agreed to participate.

As evidenced by the minutes from the meetings, the Committee represented diverse backgrounds and interests. It included both long-term residents and more recent residents; small business owners; leaders of local civic, non-profit, business, and school associations/organizations; ANC Commissioners; leaders of local places of worship; and local users/advocates of different types of transportation (pedestrians, car owners, bicyclists, bus riders, etc.). It also included people residing in various parts of the study area, people from different racial and ethnic backgrounds, and residents with a long-time interest and involvement in transportation issues, including people who belonged to local transportation/urban design committees.

The Steering Committee met four times during the course of the study. A separately published **Addendum** contains minutes from these meetings). These meetings were open to the public.

Steering Committee Meetings

Meeting 1: March 3, 2005. At this first meeting of the Steering Committee, the study team gave an overview of the study, timeline and scope of work, including the key tasks of involving the community, collecting and consolidating existing studies, and developing and refining short- and long-term recommendations. Members shared questions and suggestions, and discussed ideas and concerns.

Meeting 2: May 28, 2005. After the study team gave a presentation of existing transportation and urban design conditions, the committee discussed potential solutions to these conditions.

Meeting 3: July 21, 2005. The study team gave an update on the status on the project and shared preliminary transportation and

urban design recommendations, which the committee discussed.

Meeting 4: September 28, 2005. The committee discussed next steps and ideas for implementing study short-term, long-term, and policy-related recommendations.

Public Meetings

Four public meetings were held during the course of the study. Spanish interpretation and Spanish versions of key study documents were provided at each meeting.

Public Meeting #1: Tuesday, March 29, 6–8 p.m.

The Patricia M. Sitar Center for the Arts, 1700 Kalorama Road, NW

Topic: Presented goals of study and asked public for their opinion of Adams Morgan street and streetscape challenges and solutions.

46 people attended

79 comments were recorded during break-out/small group sessions

7 comment cards were submitted

5 additional comment cards were submitted after the meeting during street surveys

Public Meeting #2: Tuesday, May 17, 6–8 p.m.

Marie Reed Community Learning Center, 2200 Champlain St. NW

Topic: Discussion of latest findings and potential solutions.

36 people attended

63 comments were recorded from break-out discussions and comments posted on maps/information boards

5 questions and 3 comments shared during Q&A session

5 comment cards were submitted

Public Meeting #3: Thursday, September 8, 6–8 p.m.

Church of Christ Scientist, 1770 Euclid St. NW

Topic: Discussion of proposed short- and long-term transportation and parking rec-

ommendations based on findings and community feedback.

49 people attended

18 flip chart comments were recorded

4 comment cards were submitted

Public Meeting #4: Tuesday, October 25, 6–8 p.m.

Church of Christ Scientist, 1770 Euclid St. NW

Topic: Final steps of the study and discussion of how recommendations could be implemented.

Focus Groups

In addition to the public meetings, two focus groups were held during the course of the study: one for local business owners and one for the Latino community. The focus group for business owners took place on May 10, 2005, and was a success, with 24 people attending: 19 business owners, 2 local commercial property owners, the president and vice president of the local business association, the chair of the board of Adams Mor-

gan Main Street, and (now former) ANC Commissioner Josh Gibson, currently the interim director of the Adams Morgan BID. Business owners represented a variety of types of businesses along 18th Street and Columbia Road. See the separately published **Addendum** for the minutes of this focus group.

Unfortunately, the second focus group — for the Latino community — was less successful in terms of turnout. Per the recommendation of the Council of Latino Agencies and the DC Office of Latino Affairs, individuals were invited to the focus group representing various stakeholders in the Latino community — leaders of local Latino civic, social, and business organizations, mothers with children attending local schools, a vendor with a stand along Columbia Road, and small business owners along 18th Street and Columbia Road. Personalized letters in Spanish were hand-delivered to each invitee, along with background information (in Spanish) on the study. Each invitee was called and reminded about the

focus group session, but only one person showed up. Bordercross Communications decided it was more fruitful to discuss the study one-on-one with residents in the Latino community in order to obtain general feedback, ideas and concerns.

Outreach Efforts and Techniques

A variety of methods were used for community outreach in order to build participation at the meetings.

Flyers in English and Spanish: Flyers (both English and Spanish versions) were posted and dropped off at local gathering places in and near the study area including cafes, delis, community centers, CD stores, community bulletin boards, Marie Reed school and community center, houses of worship, and local Advisory Neighborhood Commission 1C meetings. Flyers were also passed out directly to pedestrians on 18th Street and Columbia Road.

Announcements: Bordercross Communications announced the public meetings at ANC meetings and meetings of other civic

associations, and also shared the public meeting information with leaders of other civic and business associations and houses of worship so they could make announcements to their membership. Bordercross also visited nearly every retail business on 18th Street and parts of Columbia Road to tell the owner or manager about the study, the first public meeting, and the study Web site.

Advertisements: Advertisements for the public meetings were posted in the *Northwest Current* and *Dupont Current* newspapers. Advertisements in Spanish were placed in *El Tiempo Latino*.

Listservs/Websites: Announcements for the public meeting were also posted on the Adams Morgan neighborhood listserv, and forwarded to the moderators of other local listservs and email lists (such as the Reed-Cooke neighborhood Association and the Council of Latino Agencies) and to the webmaster for the ANC Web site. Public meeting dates and information were also posted in English and Spanish on the study's website, www.18amstudy.com.

Email: Bordercross Communications sent out email announcements to every person who posted a comment at the study website (www.18amstudy.com) and had asked to receive such announcements. Announcements were sent two times prior to meetings.

Other: Announcements were sent to the calendar sections of local newspapers. Bordercross Communications called Steering Committee members prior to every Steering Committee meeting. Bordercross also conducted informal surveys of pedestrians and people waiting for the bus along 18th Street and Columbia Road, including native Spanish speakers, and also discussed the study with Spanish speakers in order to get their input.

Study Website

The website for the study, www.18amstudy.com, featured information about the study, photos of the study area, and downloadable project documents. The Web site was available in both English and Spanish. Key sections include:

Study Overview: Describes the summary and goals of the study and links to the study schedule.

Study Area: Lists the boundaries of the study and links to a map of the study area.

Participate: Describes how to get involved in the study by sharing comments online, signing up for email announcements, and attending public meetings. Also includes links to Spanish language documents. The page also lists the dates and times of Steering Committee and Public Meetings, along with project documents including slide presentations, project sketches and maps, meeting flyers, reports, public comments, and other documents.

Contact Us: Features an online form where people can submit comments and sign up for email reminders.

Comments Received Via Website & Email

A total of 69 questions and comments were submitted via the website, and the HNTB Project Manager responded specifically to 14

of the questions. Comments were also sent via email directly to HNTB, who responded to each of these letters. Comments and responses are contained in a separately published **Addendum**. Of the respondents who shared comments online:

97% [67] regularly walk in the study area

52% [36] regularly ride a bike in the study area

67% [46] regularly ride a bus in the study area

68% [47] park a car in the study area

74% [51] regularly drive in the study area

4% [3] did not state if they walk, ride, park or drive in the study area

Appendix B: Calculations and Estimations

Marie Reed garage cost estimates

The following is a conceptual estimate of construction costs and operating costs for a below-grade parking structure on the Marie

Reed site. The construction cost estimate takes into account the constrained site and higher labor costs in this region. It does not,

however, take into account land acquisition costs.

	CASE 1			CASE 2		
	190	spaces/level		145	spaces/level	
	2	levels		2	levels	
Construction Cost						
level 1	\$ 22,500	per space	\$ 4,275,000	\$ 22,500	per space	\$ 3,262,500
level 2	\$ 33,750	per space	\$ 6,412,500	\$ 33,750	per space	\$ 4,893,750
Total			\$ 10,700,000			\$ 8,200,000
Project Cost						
Construction + 15%			\$ 12,300,000			\$ 9,400,000
Annual Cost to Own						
20 yr, 5%			\$ 986,983.82			\$ 754,280.32
per space			\$ 2,600			\$ 2,600
Operating Cost per space			\$ 365			\$ 365
Revenue Collection per space			\$ 300			\$ 300
Security per space			\$ 150			\$ 150
Total Annual Cost to Own per space			\$ 3,415			\$ 3,415
Break-even monthly revenue per space			\$ 280			\$ 280
Monthly subsidy, if no price is charged per space			\$ 260			\$ 260
Total Cost to Own & Operate per year			\$ 2,600,000			\$ 2,000,000

Meter revenue estimates

The following analysis gives a sense of the range of parking meter revenues that could be generated under the recommended parking plan. We advocate these revenues be returned to the community to fund the

Business Improvement District and to pay for improvements on residential streets that have meters. These estimates assume the target 85 percent occupancy rate is achieved and that \$5 an hour can be charged during

peak periods. They also assume that ten percent of parked vehicles on RPP streets are visitors during peak periods, a conservative assumption.

Entire Study Area									
	Number of spaces	Occupancy rate	Occupied	Price /hr	Hours/day	Day/wk	Wk/year	Calculated Revenue	Basis
Metered, evenings	572	85%	486	\$5	6	3	52	\$2,274,480	6 p.m. to midnight on Thursdays, Fridays, Saturdays
Metered, daytime	572	85%	486	\$1	8	7	52	\$1,415,232	10 a.m. to 6 p.m. every day
RPP overlay	1743	8.5%	148	\$5	6	3	52	\$692,640	85% of spaces occupied, 10% by visitors, 6 p.m. to midnight Th Fr Sa
								\$4,382,352	

Excluding Woodley Park									
	Number of spaces	Occupancy rate	Occupied	Price /hr	Hours/day	Day/wk	Wk/year	Calculated Revenue	Basis
Metered, evenings	433	85%	368	\$5	6	3	52	\$1,722,240	6 p.m. to midnight on Thursdays, Fridays, Saturdays
Metered, daytime	433	85%	368	\$1	8	7	52	\$1,071,616	10 a.m. to 6 p.m. every day
RPP overlay	1651	8.5%	140	\$5	6	3	52	\$655,200	85% of spaces occupied, 10% by visitors, 6 p.m. to midnight Th Fr Sa
								\$3,449,056	

Excluding Woodley Park and area north of Calvert and Euclid									
	Number of spaces	Occupancy rate	Occupied	Price /hr	Hours/day	Day/wk	Wk/year	Calculated Revenue	Basis
Metered, evenings	361	85%	307	\$5	6	3	52	\$1,436,760	6 p.m. to midnight on Thursdays, Fridays, Saturdays
Metered, daytime	361	85%	307	\$1	8	7	52	\$893,984	10 a.m. to 6 p.m. every day
RPP overlay	1269	8.5%	108	\$5	6	3	52	\$505,440	85% of spaces occupied, 10% visitors, 6 p.m. to midnight Th Fr Sa
								\$2,836,184	

Truck loading space requirements

Some parking spaces could be set aside as loading zones at certain times of the day. The precise location, length, and time period for the loading zones should be coordinated with business owners during the design and implementation phase. From field observations of truck loading operations around the intersection of 18th Street and Columbia Road, we suspect that the number of truck loading spaces required could be determined by applying queuing theory. Using an M/M/s queuing model, the table on the next page shows the number of loading spaces required given an assumed rate of truck ar-

rivals and an average truck dwell time. The loading space requirements shown would result in a 15% probability that a truck will have to wait for an open loading space, an expected wait time for an open loading space of less than 5 minutes, and an expected queue length of less than 1 truck.

Further research on truck loading operations should be performed in the implementation phase. Such research would focus on the appropriateness of applying queuing theory, specifically, using an M/M/s queuing

model.² The research should also collect a sufficient sample of truck loading observations to determine an average truck dwell time and an hourly truck arrival rate.

² An M/M/s queuing model for truck loadings assumes that the rate of truck arrivals and the loading/unloading times of trucks follow a Poisson process. See, for example, Institute of Transportation Engineers, *Transportation Planning Handbook* (1992), pp. 210-211.

Truck loading space requirements using an M/M/s queuing model

Average Truck Dwell Time (min.)	Trucks per hour											
	1	2	3	4	5	6	7	8	9	10	11	12
10	1	2	2	3	3	3	3	4	4	4	4	5
15	2	2	3	3	4	4	4	5	5	5	6	6
20	2	3	3	4	4	5	5	6	6	6	7	7
25	2	3	4	4	5	5	6	6	7	8	8	9
30	2	3	4	5	5	6	7	7	8	9	9	10
35	2	3	4	5	6	7	8	8	9	10	11	11
40	3	4	5	6	6	7	8	9	10	11	12	12
45	3	4	5	6	7	8	9	10	11	12	13	14

Intersection capacity calculations

The following analyses were conducted using Trafficware® Synchro 6 traffic signal

software for the intersection at 18th Street and Columbia Road, and PTV AG VISSIM

4.10 microsimulation software for the intersection at 18th Street and Florida Avenue.

	Period	Average Delay (seconds per vehicle)	LOS
18th Street and Columbia Road			
Existing	AM	23.2	C
	PM	31.7	C
One-Lane Approaches	AM	25.9	C
	PM	42.8	D
Two-Lane Approaches	AM	23.5	C
	PM	25.2	C
18th Street and Florida Avenue			
Existing	AM	43.3	D
	PM	61.5	E
Proposed Configuration	AM	53.3	D
	PM	48.3	D

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