# Best Practices in Bicycle and Pedestrian Wayfinding in the Washington Region

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**Background**

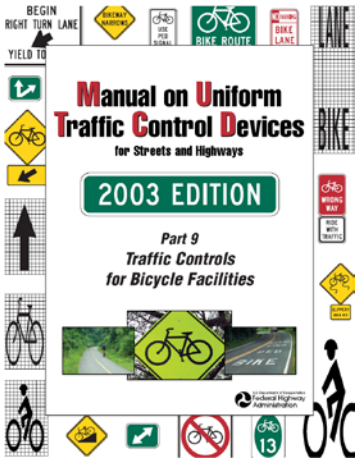
In early 2006 the COG Board Chair Jay Fisette, suggested that the region investigate uniform standards in bicycle and pedestrian wayfinding signage, as part of the Transportation Planning Board (TPB) bicycle and pedestrian work program. The Bicycle and Pedestrian Subcommittee discussed the proposal at its May meeting, and recommended that the TPB create a report on Best Practices in Pedestrian and Bicycle Wayfinding. That recommendation was included in the Bicycle and Pedestrian Plan for the National Capital Region, which was adopted in July 2006. The Plan also directed the Bicycle and Pedestrian Subcommittee to explore the creation of pedestrian and bicycle signage and wayfinding guidelines for the Washington region based on current best practices.

The Bicycle and Pedestrian Subcommittee discussed the TPB directive at its July 2006 meeting and agreed that a best practices report would be desirable. On the issue of standards or guidelines, the Subcommittee noted that the Manual on Uniform Traffic Control Devices (MUTCD) provides standards for bicycle wayfinding. Subcommittee members expressed concern that creating regional standards for pedestrian wayfinding would be complex, and might distract from implementation.

TPB staff gathered examples of national and local best practices, and sent a survey to members of bicycle and pedestrian subcommittee. Preliminary results were presented to the Subcommittee in November, 2006 and final results were presented in March 2007.

## INTRODUCTION

### Bicycle Wayfinding




Roadway signs, markings, and signals in the United States are governed by the Manual on Uniform Traffic Control Devices (MUTCD), a manual that is managed by the Federal Highway Administration.[1] For bicycle wayfinding signs, the region generally follows the MUTCD.

The MUTCD is an evolving document. Bicycle and pedestrian professionals in the Washington region are active in the amendment process through the National Committee on Uniform Traffic Control Devices (NCUTCD). The NCUTCD advises the Federal Highway Administration on the content of the Manual.[2] However, anyone may propose an amendment to the MUTCD.

Signs not in the MUTCD may be used on an experimental basis. All experiments must be filed with the FHWA in advance. FHWA must approve the experiment, and the agency must sign an agreement to return the location to compliance with the MUTCD once the experiment is completed.[3]

### Pedestrian Wayfinding

There is no national standard for pedestrian wayfinding signs. Pedestrian wayfinding signs are usually one of two types: directional or maps. Directional signs are usually simple signs with an arrow indicating direction, a destination name, and sometimes distance to the destination. Maps usually show the pedestrian their location, and the surrounding streets and destinations.

The nature of walking in contrast to driving or bicycling means that the pedestrian can approach the sign more closely, and take as much time as they want to read it. Therefore a pedestrian sign can contain a lot more detail than is possible with a sign directed at motorists or bicyclists. Pedestrian signs and maps often serve an educational as well as a wayfinding purpose.

Since pedestrian trips are usually short and local, a standardized pedestrian wayfinding system similar to the interstate highway system or state routes has not been developed. Instead, pedestrian signs tend to be highly customized to reflect local conditions such as architectural styles, the kind of information to be conveyed, and the audience.

### Issues

The agency must provide signs that are large enough to be read and contain helpful information, without causing visual problems such as sign clutter, or overly large signs, especially in historic districts. The needs of the disabled and of non-English speakers must also be

[1] http://mutcd.fhwa.dot.gov

[2] http://members.cox.net/ncutcdbtc/

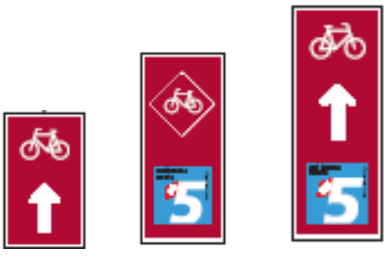
[3] http://mutcd.fhwa.dot.gov/kno-amend.htm

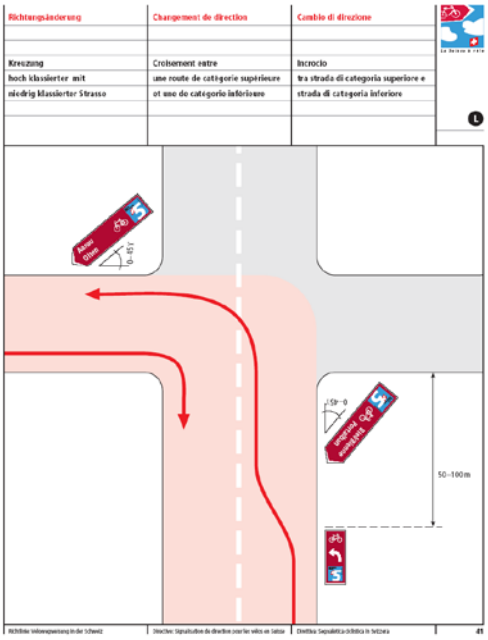
considered.

## Bicycle Wayfinding: International and National Best Practices

### European Best Practices

European bicycle wayfinding signs typically show destination, direction, distance, a small bicycle symbol, and sometimes a route number all on one panel, as in these Swiss examples.[4]



The Swiss place route signs where routes cross or change direction, often angled for visibility. Bicycle route markers with "straight-ahead" arrows are placed periodically on straight stretches.

Dutch, Belgian[5], and Irish signage practices are similar, often showing some combination of a bicycle symbol, destination, direction, and distance on a single panel.[6]


Holland


Belgium

[4] *Signalisation de Direction pour les Velos en Suisse: Directive.* 2006. L'Office Federal des Routes, Switzerland. Page 13.

[5] Photo Credit: Eric Gilliland, Washington Area Bicyclist Association (WABA).

[6] "Bicycle-Specific Direction and Distance Signing", NCUTCD Bicycle Technical Committee. http://members.cox.net/ncutcdbtc/

## US Best Practices

MUTCD governs bicycle wayfinding. However, some practitioners find the MUTCD signage system unwieldy and duplicative, especially where multiple bicycle routes cross.


MUTCD requires both the use of the words "Bike Route" and a bicycle symbol on a bicycle route sign, then another panel showing the destination name, and another for the route number. The City of Chicago has developed an alternate set of bicycle route signs, which combine direction, distance, and destination on one sign, eliminating the words "Bike Route" in favor of a bicycle symbol.[7] Chicago's "Bike Route" signs are placed after every turn, after every major signalized intersection, or every 1/4 mile. The Destination, Direction, Distance panel signs are placed where bike routes intersect.[8]



Chicago

[7] "Chicago Bikeways Signage System: A Model for the Nation" Presentation at Pro Walk/Pro Bike 2006, Grant M. Davis, City of Chicago Department of Transportation. Photo Credit: Grant M. Davis. www.chicagobikes.org

[8] Photo Credit: Eric Gilliland, WABA.

## NCUTCD Bicycle Technical Committee Recommended Chicago Signs Amendments to the MUTCD

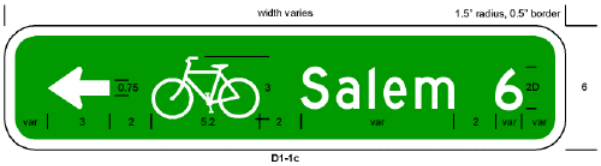
In January 2006 the NCUTCD Bicycle Technical Committee recommended that the Chicago signage be included in the MUTCD. The new signs follow Chicago guidelines, except that each sign may list more than one destination per panel. Chicago-style signage would supplement, not replace, the current bicycle signs in the MUTCD. This recommendation is not yet part of the MUTCD, but as a recommendation of the NCUTCD Bicycle Technical Committee it stands a good chance of eventually being included in the next edition.[9]

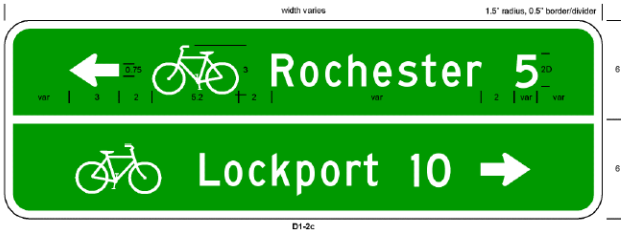
Under the NCUTCD recommendations, bike route signs show a symbol and destination. They are used on straight sections to inform bicyclists that they are on a bicycle route.


D11-1c

Bicycle route guide signs may be provided to inform bicyclists of bicycle route direction changes and to confirm distance, direction, and destination.

[9] "Bicycle-Specific Direction and Distance Signing", NCUTCD Bicycle Technical Committee. http://members.cox.net/ncutcdbtc/




Replace existing Figure 9B-6 with the following:

*Figure 9B-6. Example of Bicycle Guide Signing*

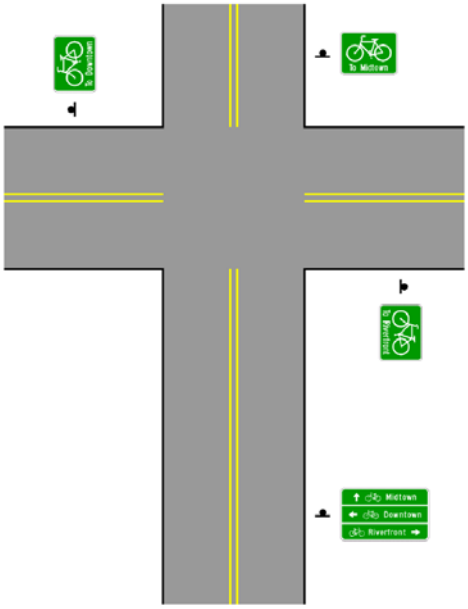



Figure 9B-6 shows how these signs might be employed.

The City of Chicago did a survey of bicyclists, and found that respondents agreed that the signs were the right size, well-placed, and easy to read. However, some cyclists have reported that the signs are hard to read when riding a bicycle at speed. Members of the Washington Bicycle and Pedestrian Subcommittee have expressed concern that the lettering used in the Chicago signs is too small for legibility on wider American roads, for fast cyclists, and for the elderly or those with some visual impairment. Michael Jackson of Maryland State Highway is a member of the Bicycle Technical Committee of the NCUTCD, and will convey the concerns of the Washington region to the NCUTCD.

The recommended signs should lead to less sign clutter, lower costs, and greater clarity at locations where multiple bike routes intersect compared to the current MUTCD.

**Bicycle Wayfinding in the Washington Region**

**Survey of Bicycle Wayfinding Programs**

Members of the Bicycle and Pedestrian Subcommittee were surveyed regarding their bicycle wayfinding and signage programs in Fall 2006, with some changes coming during Winter 2007.

Each agency was asked the following questions:

- **Existence of a Program**
  Does your jurisdiction have any bicycle route or wayfinding signs, existing or planned, on public property?

- **Other agencies**
  Are any other agencies in your jurisdiction involved in putting up bicycle wayfinding signs on public property?

- **Guidelines and Examples**
  What guidelines or examples does your agency use in bicycle route signing?

- **Photos and Drawings**
  Please provide relevant photos & drawings

- **Changed signs/standards**.
  If you are changing the type of signs your agency uses relative to what was used in the past, or the type of information provided, please describe the changes and the reason.

- **Scope**
  How many miles of signed bicycle routes are in place in your jurisdiction?

- **Needs**
  How do you identify locations where signs are needed?

- **Cost of installation**
  How much will the program cost to implement? Total and per sign.

- **Maintenance**
  What provision is being made for maintenance? Do you have an estimated annual cost for maintenance, total and per sign?

- **Staff**
  How many FTE's do you estimate are needed to plan the signed bicycle route network? List number of FTE's employed to plan signed routes.

- **Inter-jurisdictional Coordination**
  Does your agency try to make its bicycle routes contiguous with those in adjacent jurisdictions? Do you list destinations outside of your jurisdiction? Is there currently any coordination with any adjacent jurisdiction in terms of the type of sign used, route numbering, etc.?

- **Long-distance routes**
  Does your agency sign any interstate bicycle routes, such as the American Discovery Trail or the East Coast Greenway? If so, please name them, and describe any progress that has been made.

- **Comments**
  Is there anything you would like to add about your agency's bicycle route and wayfinding signage program, or lack of one?

Ten agencies responded, including Alexandria, Arlington, College Park, District of Columbia Department of Transportation (DDOT), Frederick County, Loudoun County, Maryland Department of Transportation (MDOT), Montgomery County, the National Park Service, and Virginia Department of Transportation (VDOT).

**Guidelines Used**

All respondents except Loudoun County have some type of program. All agencies follow the current MUTCD & AASHTO, except Alexandria, which is using the D1 and D11 signs which have been recommended by the NCUTCD Bicycle Technical Committee for inclusion in the MUTCD, and the National Park Service, which has its own sign design guide, the Uniguide Standards Manual.

National Park Service[10]

Alexandria[11]

Alexandria places a bicycle symbol and destination on a single panel.

[10] Photo credit: Michael Farrell, TPB Staff

[11] Photo Credit: Michael Farrell, TPB Staff

District of Columbia

The District of Columbia, Arlington, MDOT and other agencies still use the words "Bike Route" and place the destination on a separate panel.[12]

Arlington

Maryland[13]

[12] Photo credit: Michael Farrell, TPB Staff
[13] Photo credit: Michael Jackson, MDOT

Madison, WI[14]

MDOT uses street signs at the intersection of streets and off-street multi-use paths. This allows bicyclists and pedestrians to know their location if they are not already familiar with the area.

Sligo Creek Trail, Maryland[15]

**Scope – Extent of the Signed Bicycle Route Network**

Based on responses to the survey, Arlington, Alexandria, and the District of Columbia appear to have the most extensive existing networks of signed bicycle routes. Montgomery County has a large planned network, and Fairfax County, while it has no bicycle wayfinding program currently, has hired a bicycle coordinator and will be planning a network soon.

[14] Photo credit: Michael Jackson, MDOT
[15] Photo credit: Michael Jackson, MDOT

The table below shows the mileage of signed bicycle routes reported by the survey respondents.[16]

| Agency | Existing mileage of Signed Bicycle Routes |
|---|---|
| Alexandria | 69 |
| Arlington | 53 |
| College Park | 4 |
| District of Columbia | 60 |
| Frederick County | 1 |
| Loudoun County | 0 |
| VDOT-NOVA[17] | 53 |

**Needs Determination**

The MUTCD calls for signs at decision points, and where routes change. Locations for signs and signed routes may be identified in a Bicycle Master Plan. Some jurisdictions provide signs with bike lanes automatically, others not. A bike lane in the District of Columbia may or may not be part of a signed route.

Urban areas typically need more signs per mile of bike route than rural areas because urban areas usually have more route intersections and more decision points per mile.

**Costs & Staffing**

Most agencies do not budget separately for bicycle signs, but the estimated cost per bicycle wayfinding sign, including installation, ranges from $70-$200. VDOT calculates sign cost at $25/square foot, or $125 per green directional sign.

None of the respondents track maintenance costs separately for bicycle signs, but perceived maintenance cost is low.

DDOT estimates it takes ¼ of a Full Time Equivalent (FTE) staff position to plan its signed bicycle route network.

**Interjurisdictional Coordination/Long Distance Routes**

All jurisdictions with signed bicycle route programs attempt to align their routes with routes in adjacent jurisdictions. Arlington lists destinations outside its boundaries. DC has changed on-road routes to line up with routes in adjoining jurisdictions, with the highest priority given to aligning off-road routes

Washington area agencies cooperate with organizations promoting long-distance routes. The District of Columbia Department of Transportation has signed portions of the East Coast Greenway (ECG), a long-distance bicycling and walking route from Maine to Florida, and Alexandria and the National Park Service have agreements pending with the East Coast Greenway Alliance. MDOT has allowed its roads to be signed for the ECG.[18]

VDOT has developed a statewide signed bicycle route network, and Maryland State Highway Administration (MDSHA) is developing one. MDSHA also sits on a national committee to develop interstate bike routes, using the State routes as a base.

[16] These numbers should be treated as approximate.
[17] US Bicycle Route 1.
[18] http://www.greenway.org/

**Conclusions**

The MUTCD provides the standards for bicycle wayfinding signage, and the region is engaged in the MUTCD amendment process.

Interjurisdictional coordination of bicycle routes between adjacent jurisdictions is good, and agencies with pedestrian route programs are also engaged with organizations promoting long-distance routes. The States are creating their own signed State routes, and national routes are being created based on the State routes.

Major issues include a lack of bicycle wayfinding or route signing programs in many jurisdictions, and insufficient or inadequate signage on some of the State routes.

## Pedestrian Wayfinding in the Washington Region

### Best Practices

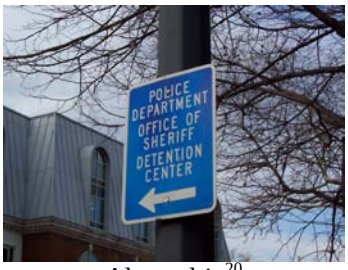
There is no national standard for pedestrian wayfinding comparable to MUTCD. Pedestrian signs tend to be either directional, or maps, or some hybrid of the two. They can be simple or elaborate.



District of Columbia[19]

Pedestrian wayfinding signs are usually intended to direct pedestrians over short distances, often ½ mile or less.

Multiple agencies may be involved in placing pedestrian signs on public property in any jurisdiction, including but not limited to the municipal department of public works, the state department of transportation, business improvement districts and community development corporations, tourism & cultural heritage bureaus, parks departments, transit agencies, and assorted other agencies that may want to place a sign on public property. Each agency has its own standards, its own purposes, and its intended audience.




Alexandria[20]

Pedestrians move more slowly than motor vehicles or bicycles, and can stop more easily to read, so agencies have the flexibility to add detailed information to a pedestrian sign if they wish. Thus signs often serve educational as well as wayfinding functions, giving pedestrians information about the natural or man-made landscape.


U Street Corridor Historic District[21]

[19] Photo Credit: Michael Farrell, TPB Staff

[20] Photo Credit: Michael Farrell, TPB Staff
[21] Photo Credit: Michael Farrell, TPB Staff

Maps can be used to guide tourists on walking tours.

Belfast[22]

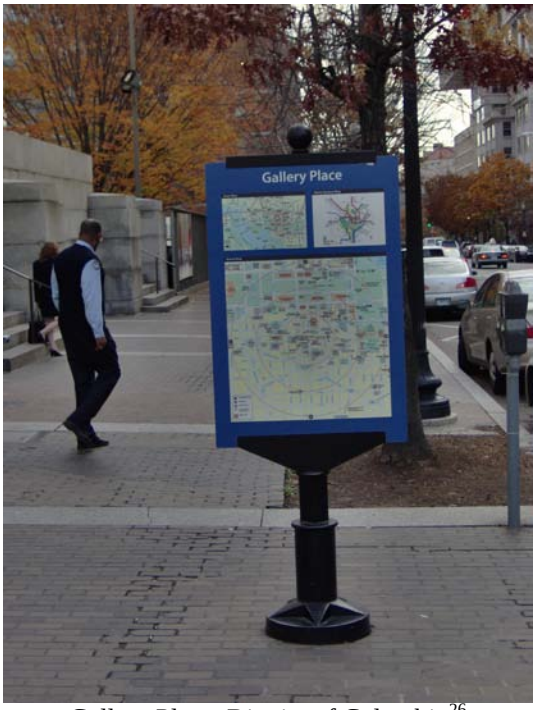
Philadelphia[23]

Philadelphia uses a system of color-coded maps and directional signs in the Center City area.

Philadelphia[24]

Philadelphia[25]

[22] Photo Credit: Michael Jackson, MDOT
[23] Photo Credit: Michael Farrell, TPB Staff
[24] Photo Credit: Michael Farrell, TPB Staff
[25] Photo Credit: Michael Farrell, TPB Staff



Gallery Place, District of Columbia[26]

City of Alexandria, VA[27]

Others are more general-purpose, but feature transit assets prominently. The District of Columbia provides three maps on its signs: a detailed pedestrian map, a less detailed map showing a larger area, and a metrorail system map. The area and the detail maps both show metrorail station locations.

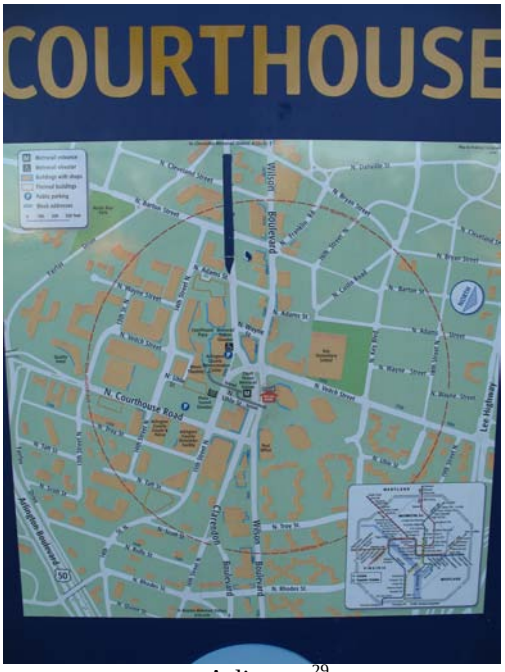
A good pedestrian wayfinding map should be readable, and show the right level of detail. It usually shows the area within a reasonable walking distance, often a half-mile or one-mile radius. Maps showing larger areas than that, such as the Philadelphia map, usually feature less detail.

The City of Alexandria's waterfront maps have been criticized for providing too little detail for too large an area, and also for being placed too high off the ground for pedestrians to notice or read.

Arlington[28]

[26] Photo Credit: DDOT

[27] Photo Credit: Michael Farrell, TPB Staff
[28] Photo Credit: Michael Farrell, TPB Staff



Arlington[29]

Arlington's signs have a detailed pedestrian map and a metrorail system map. Both DC and Arlington maps feature circles showing distance from the sign.

Detroit, Michigan[30]

Wayfinding maps often show important buildings, streets, parks, and transit facilities. Building outlines, labels, illustrations of prominent landmarks, street names, arrows pointing to off-map attractions, a legend, an index of attractions, a numbered list of attractions, and a map key are sometimes used as well, as in the downtown Detroit maps below.

Wayfinding maps are popular and well-used; the only exceptions mentioned have been maps that provided too little detail for too large an area. Many wayfinding maps also include directional arrows to major landmarks.

Detroit, Michigan[31]

Pedestrian wayfinding signs are also used for long-distance hiking trails in both the United States and abroad, but long-distance hiking accounts for a minute share of total pedestrian activity,

[29] Photo Credit: Michael Farrell, TPB Staff
[30] Photo Credit: Michael Farrell, TPB Staff
[31] Photo Credit: Michael Farrell, TPB Staff

and could be classified as a recreational rather than a transportation activity.

Long-distance multi-use paths in the Washington region are mostly under the control of the National Park Service, and follow its sign standards.

National Mall, Washington, DC[32]

Multi-use paths must be accessible to the disabled. Information particularly relevant for wheelchair users is sometimes added to trail signs.

Montgomery County[33]

[32] Photo Credit: Michael Farrell, TPB Staff

**Survey of Pedestrian Wayfinding Programs**

Along with the survey on bicycle wayfinding, member of the Bicycle and Pedestrian Subcommittee were sent a similar survey on Pedestrian Wayfinding

Of the ten responding agencies, only five had pedestrian wayfinding programs: Alexandria, Arlington, College Park, District of Columbia, and Montgomery County.

There are no signed pedestrian routes in the region other than multi-use paths such as the Mount Vernon Trail, and walking tour routes. Arlington does not designate walking routes per se, since every street is intended to be walkable.

**Guidelines Used**

Since no general standards or guidelines are used, a tremendous variety of pedestrian wayfinding signs can be found, even within one jurisdiction. Alexandria has numerous signs, but nothing coordinated for off-street routes Arlington does not have pedestrian wayfinding standards or guidelines. The National Park Service has its own guidelines.

**Changes in Signs/Standards**

Alexandria is planning a comprehensive wayfinding signage system to replace the existing signs. It will include both maps and directional signs, which will match city's identity and historic character.

[33] Photo Credit: Montgomery County DPWT

Arlington will change the way its signs are constructed to make it easier to add new information without replacing the whole sign, improve durability, and reflect a more current design aesthetic.

The District of Columbia Department of Transportation is considering new pedestrian wayfinding sign placement guidelines that would specify that no more than three destinations be listed per directional sign.

The District of Columbia is also creating a comprehensive pedestrian plan, but does not expect to adopt comprehensive pedestrian wayfinding design guidelines as part of that process. There are numerous autonomous agencies that are able or interested in placing pedestrian signs on public property in the District of Columbia, including but by not limited to the National Park Service, the District Department of Transportation, and the Downtown DC BID. Obtaining agreement among all these parties, especially those not answerable to the DC government, was judged difficult and a low priority.

**Needs Determination: Picking Locations**

The City of Alexandria currently places signs near rail stations, and in tourist areas. A more systematic way of picking locations is under consideration Sign type used (map/directional) will vary depending on the purpose

Arlington DPW places signs near transit stations or major attractors such as shopping centers. Arlington may soon develop a more systematic and comprehensive approach to pedestrian sign placement.

The District of Columbia places pedestrian wayfinding signs based on:

- Community requests
- Level of Pedestrian Activity
- Significance of the Destination
- Absence of existing pedestrian signs
- List of priority neighborhoods
- Numerical scoring criteria for ranking destinations. High rank means:
    - More signs directing pedestrians to it
    - Signs farther away from the destination

**Costs & Staffing**

DC costs for signs range from $3,100 to $6,500 per sign, including installation. Heritage Trail signs cost between $4,000 and $7,000. The contractor must provide spare parts equal to 5% of deliverables.

Arlington estimates staff time needed to plan a more comprehensive set of pedestrian signs at about 1/8 of an FTE.

**Interjurisdictional Coordination**

Interjurisdictional coordination is for pedestrian routes or wayfinding signage is limited. The only long-distance routes are multi-use paths, which also serve bicyclists. There is no coordination on types of signage used.

Arlington and DC will sometimes list a destination outside their borders on a pedestrian sign, if it is close to the border.

## Conclusions

There is little coordination of pedestrian routes or wayfinding signage in the Washington region, but also little need for such coordination. Pedestrian trips are mostly short and local, and each agency and jurisdiction has its own priorities, purposes, and intended audience.

Wayfinding maps have proven useful in areas of intense pedestrian activities, such as around transit stops and in central business districts, and they are increasingly used in combination with directional signs. Wayfinding maps usually show streets, street names, landmarks, building outlines, parks, and transit facilities within walking distance of the sign, or about a one half to one mile radius. The location of the sign is clearly marked on the map.

Some of the inner jurisdictions of the Washington region are facing similar challenges, and wish to develop their own systematic guidelines for designing and placing pedestrian wayfinding signs. Arlington and Alexandria plan to re-design their pedestrian wayfinding signs and develop a more systematic approach to their placement. There may be opportunities to allow these efforts to inform each other.

## Recommendation: Pedestrian and Bicycle Wayfinding Summit

Continued information-sharing, preferably on a peer to peer basis, between agencies and jurisdictions with active pedestrian wayfinding programs could offer benefits. The Bicycle and Pedestrian Subcommittee holds periodic summits/training events. The Bicycle and Pedestrian Subcommittee has endorsed the idea of summit on Pedestrian and Bicycle Wayfinding in the Washington Region.