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1. Balance Multimodal Capacity

The number of streets in Washington, DC is effectively fixed. This means the existing street network must accommodate existing and future transportation demand from all users.

**Policy 1.1:** Every non-local street will prioritize walking, accommodate driving and local deliveries, and support one of: protected bicycle facilities (cycle track or side path); dedicated high-capacity transit lane(s); designated freight route; or several modes in simpler accommodation.

What This Means for DC

While pedestrians are the highest priority on all streets other than limited access freeways, and vehicle/delivery access should be available to every address, streets will also need to accommodate in protected lanes bicycles or pedestrians or freight along designated routes. Streets without dedicated lanes or designated freight routes may accommodate multiple modes all in shared space.

*moveDC* goals supported by this policy:

- **Sustainability and Health:** achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility:** maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity:** support neighborhood vitality and economic development
- **Safety and Security:** achieve zero fatalities and serious injuries on District transportation network

**Examples**

This policy expands on the above recommendation for pedestrian priority and follows Portland’s approach to prioritizing travel modes, especially with regard to streets. Other cities, such as New York and Philadelphia, have introduced bicycle priority streets that carry major bicycle routes between key parts of their cities. However, in none of these streets is automobile traffic removed entirely, and even in New York’s repurposing of right-of-way for public spaces, limited local vehicle traffic is retained to allow critical deliveries and other service trips.

**Policy 1.2:** Prioritize trips that start and/or end in the District over trips that use DC as a through route (while maintaining the role of interstate facilities).

What This Means for DC

The District needs to preserve existing capacity to ensure a balanced system that offers modal choice for residents and visitors within the district. This should guide priority over any trips that use DC as a through route.

The District’s Interstate highways, although designed primarily to offer access to and from central Washington, nonetheless carry traffic through the district and serve and important regional function. This
function should be maintained and the Interstate highway system in the District should be kept in good maintenance.

moveDC goals supported by this policy:

- **Sustainability and Health**: achieve 75% of all District trips by non-auto modes
- **Neighborhood Accessibility and Connectivity**: support neighborhood vitality and economic development

Examples

Many communities have adopted policies to this effect. Many are large cities that are peers of DC with similar regional commuting patterns, such as San Francisco, but even cities with a more traditionally automobile-focused transportation system, such as the Atlanta suburb of Sandy Springs, have taken a direction of prioritizing the components of the transportation system that serve local travel and have moved away from past mandates to move traffic through the community.

**Policy 1.3: Plan for routes and modes that lead to a District boundary to connect to the network across that boundary.**

*What This Means for DC*

DDOT should work internally and with its regional partners to prioritize projects that connect across the District boundary so that investments in the transportation system in larger parts of the region align with the capacity and functionality of the District of Columbia’s local transportation system. This applies to roadway improvement projects that help the District to meet local transportation goals and objectives, but also to active transportation projects not on roadways (such as regional trails and paths).

Coordination among these project opportunities can be facilitated through the Metropolitan Washington Council of Governments.

moveDC goals supported by this policy:

- **Sustainability and Health**: achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility**: maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity**: support neighborhood vitality and economic development
- **Safety and Security**: achieve zero fatalities and serious injuries on District transportation network

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2 Sandy Springs Transportation Master Plan, Recommended Transportation Improvement Strategies. ([http://www.sandyspringsga.gov/SandySprings/media/Documents/Public%20Works/Transportation%20Master%20Plan/TranPlan_05-Strategies.pdf](http://www.sandyspringsga.gov/SandySprings/media/Documents/Public%20Works/Transportation%20Master%20Plan/TranPlan_05-Strategies.pdf)).
Examples

The Nashville Area Metropolitan Planning Organization has established “Encourage Regional Coordination, Cooperation, & Decision-Making” as a regional goal. The intention is to help the entire region improve both its planning and the cost effectiveness of implementing projects by creating transportation networks that make it as simple as possible to travel anywhere throughout the region.

Policy 1.4: Allow flexible use of rights of way during non-peak periods.

What This Means for DC

Vehicle traffic through the District is highest during weekday commute times. During weekends, volumes are much lower and many streets have capacity that can be repurposed for other uses, including pedestrians, bicycles, and recreational space. In addition to the many special events that use the District’s roads on a yearly basis, the District should work with citizen groups to identify locations and time periods where rights of way can be used for purposes other than travel. These efforts are ideally suited to pilot projects that test transportation conditions while rights of way are used for other purposes and conversion back should the result not meet neighborhood expectations or time-limited events that allow different uses of the street.

Weekend closures of Beach Drive in Rock Creek Park are already an example of this type of flexible use, as are the many neighborhood festivals in the District.

moveDC goals supported by this policy:

- **Sustainability and Health:** achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility:** maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity:** support neighborhood vitality and economic development
- **Public Space:** reinforce Washington DC’s historic landscapes and quality of neighborhood

Examples

Through its Cyclovia Tucson program, Tucson, AZ closes all or portions of streets to vehicle traffic on designated days and dedicates it for use by pedestrians and bicyclists. These programs have been a great success, drawing over 20,000 people in 2013 and garnering widespread support throughout the community.

http://www.cycloviatucson.org/
Policy 1.5: Provide transportation education at all levels.

What This Means for DC

Safer streets require more than physical improvements; they also require all users to understand their own responsibility to safely use the system for themselves and all others. A key approach to achieving this is safety education that is well-integrated into school curricula from a young age and day-to-day communication, as well as ongoing education through the Department of Motor Vehicles and other venues. The District has supported school-based bicycle and pedestrian education over the past 10 years through the Safe Routes to School program which should be continued both in terms of how to use each mode, but also how to safely interact with users of other modes. Additional education campaigns should be targeted towards DC visitors, highlighting the best and safest ways to ride transit and bicycles.

DDOT also currently develops educational and awareness campaigns through National Highway Safety Transportation Administration (NHTSA) grants and through the region’s Street Smart campaign.

moveDC goals supported by this policy:

- **Sustainability and Health:** achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility:** maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity:** support neighborhood vitality and economic development
- **Safety and Security:** achieve zero fatalities and serious injuries on District transportation network

Examples

**Burlington, Vermont** began an annual pedestrian safety campaign in 2006 that sought to reach a broad audience—of both pedestrians and other mode users, and of all different ages—to raise awareness of the city’s desire to promote a safe and walkable environment and to help pedestrians understand their responsibilities and practical skills for getting around on foot. The substance of the campaign’s public messages was based largely on the Federal Highway Administration’s Pedestrian Safety Toolkit. For the education component of this campaign, the City broadcast public service announcements over radio and television and displayed on safety slides at the downtown cinema. The City’s Department of Public Works collaborated with the Mayor, police, and local advocacy organizations to develop press releases and hold press conferences highlighting safety initiatives, using the media outlets mentioned previously to spread the message.

Closer to Washington, Rockville, Maryland created a bicycle education program, funded by the Maryland Highway Safety Office, to develop a Pedestrian and Bicycle Safety Education program for school-age children. This program begins with basic pedestrian principles (for children in kindergarten through the second grade) and follows with bicycle principles (in third through fifth grades), providing an ongoing exposure to these ideas.

In addition to safety for bicycle and pedestrians that may not transfer to other modes during their travel, many transit agencies around the United States have used media advertising and public service announcements as a way to raise public awareness of transit as a travel option. These are intended to

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4 [http://www.burlingtonvt.gov/DPW/Transportation/Bicycling-and-Walking/Safety---Regulations/]
promote transit use through explaining how to use the system and offering greater understanding of the costs and commitments relative to other travel modes (especially vehicles).

Programs such as these, when offered at the school level, introduce public transportation use to a young audience, and at a critical time when they are less likely to have access to vehicles. Snohomish County, Washington’s two transit agencies, Community Transit and Everett Transit, have featured several innovative programs intended to promote awareness of public transit and raise community interest. These include interactive media programs through a local children’s museum, demonstration days at local schools, and print media that makes transit use easy to understand for a broad audience of all ages.

What is critical to these programs is a partnership with the school district to ensure that public transit education programs are well integrated into a curriculum and not simply addressed as optional information for parents, teachers, and students to explore if they so choose.

Policy 1.6: Create new street connections to maximize connectivity.

What This Means for DC

When possible, the District should seek to re-establish street connectivity to maximize the functionality of the street network in providing local access. This could take the form of new streets as part of large-scale development projects or connections that re-establish access along a historic right-of-way for some or all modes. The District should prioritize those connections that can shorten walking distances to and from transit stations or activity centers. While the District will seek to create new street connections, it will not add vehicle lanes or vehicle capacity in its street system by moving curbs.

One recent application of this principle is in the CityCenter DC development southwest of Mount Vernon Square, where 10th Street is being extended south from New York Avenue to H Street (and thus reconnecting two separate lengths of the street), while I Street is being extended west from 9th to the new 10th. West of 10th, I Street will be extended as a pedestrian plaza connecting to the intersection of 11th Street and New York Avenue.

moveDC goals supported by this policy:

- **Sustainability and Health**: achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility**: maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity**: support neighborhood vitality and economic development
- **Safety and Security**: achieve zero fatalities and serious injuries on District transportation network

Examples

Restoration of the street network is increasingly understood as an important goal in urban redevelopment and many other American cities are pursuing it largely on an opportunity basis. In Atlanta’s recent Connect Atlanta multimodal transportation plan, the City of Atlanta adopted a project map gazetteer to accompany the plan’s prioritized list of transportation capital projects. This map book provides a generalized location of network restorations and additions on large properties and superblocks, and the City uses it as a basis for
negotiation with development applicants on where and how to add connecting streets to the existing network.\(^5\)

Throughout the United States, cities are increasingly guiding new development patterns with policies and ordinances to ensure connectivity through block dimensions or an aggregated connectivity index, or a simple numeric expression of the ratio of street network links to intersections. The higher this index, the more connected and complete the street network. The table below offers a sample of American communities that have formally adopted standards and what those standards are.\(^6\)

<table>
<thead>
<tr>
<th>Location</th>
<th>Max. Local Street Intersection Spacing (feet)</th>
<th>Max. Arterial Intersection Spacing (feet)</th>
<th>Street Stubs Required?</th>
<th>Cul-De-Sacs Allowed</th>
<th>Max. Cul-De-Sac Length (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland Metro</td>
<td>530</td>
<td>530</td>
<td>No</td>
<td>No (with exceptions)</td>
<td>200</td>
</tr>
<tr>
<td>City of Portland</td>
<td>530</td>
<td>530</td>
<td>Yes</td>
<td>No (with exceptions)</td>
<td>200</td>
</tr>
<tr>
<td>Beaverton, Or</td>
<td>530</td>
<td>1,000</td>
<td>Yes</td>
<td>No (with exceptions)</td>
<td>200</td>
</tr>
<tr>
<td>Eugene</td>
<td>600</td>
<td>none</td>
<td>Yes</td>
<td>No (with exceptions)</td>
<td>400</td>
</tr>
<tr>
<td>Fort Collins, CO</td>
<td>(Max. Block size 7-12 acres)</td>
<td>660-1,320</td>
<td>Yes</td>
<td>Limited</td>
<td>660</td>
</tr>
<tr>
<td>Boulder, Co</td>
<td>300-350 recommended</td>
<td>none</td>
<td>Yes</td>
<td>Yes, discouraged</td>
<td>600</td>
</tr>
<tr>
<td>Huntersville, NC</td>
<td>250-500</td>
<td>none</td>
<td>Yes</td>
<td>No (with exceptions)</td>
<td>350</td>
</tr>
</tbody>
</table>

The current reconstruction of the World Trade Center site in New York also provides an example of street network restoration on an opportunity basis. It does not follow a formal adopted policy in New York, but does follow similar principles of adding streets to former superblocks that had removed them. This is likely to be the basis for many of the network connections in the District of Columbia, as much of the District’s core is already highly developed and served by a largely complete transportation network. Additions to network on larger sites outside of the urban core may follow block dimension guidelines similar to those shown on the table above when there is not an historic precedent for location of network streets.

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\(^5\) The Connect Atlanta project map book is available for review at [http://web.atlantaga.gov/connectatlanta/maps.html](http://web.atlantaga.gov/connectatlanta/maps.html).

\(^6\) Adapted from research described in Susan Handy, Robert G. Paterson and Kent Butler (2004), *Planning for Street Connectivity: Getting From Here to There*, Planning Advisory Service Report 515, American Planning Association ([www.planning.org](http://www.planning.org)).
Policy 1.7: Enforce the rules of the road for all users.

What This Means for DC

Safety is the most basic standard for a transportation network. The District supports a culture of safety for all modes throughout the District, and encourages respect for all users by all users. This effort should be continued and can be expanded to make it easy to use the system safely through design and education. This also includes coordinating with enforcement agencies, so they are well trained in the safety requirements for all transportation user groups. The District's photo-enforcement efforts, including new technologies aimed at enforcing pedestrian laws help to reinforce the overall culture of safety.

moveDC goals supported by this policy:

- **Safety and Security**: achieve zero fatalities and serious injuries on District transportation network

Examples

To help Twin Cities-area law enforcement agencies with enforcement efforts related to pedestrian and bicycle safety, Bike Walk Twin Cities provides educational materials and training to these organizations. This program is based on the understanding that enforcement is an important aspect of creating safer streets and more vibrant walking and bicycling communities, but most public safety officers have not received specific pedestrian or bicycle enforcement training. This program is in addition to core safety training, to supplement and reinforce the importance of everyone understanding the laws that guide community members' travels.
2. Prioritize Pedestrians

Pedestrians are everyone, so nothing matters more than the District’s pedestrians.

Policy 2.1: Incorporate pedestrian priority into transportation investments.

What This Means for DC

Since every trip starts and ends as a walk trip, every traveler is a pedestrian at some point. Recognizing pedestrians as the highest priority effectively means that every traveler is the District’s highest priority at some point. To implement this policy, moveDC recommends:

- the City Council adopt a resolution confirming this policy as a legislative and funding direction; and
- District representatives lead regional partners in establishing the same policy within the Metropolitan Washington Council of Governments.

This policy supports the moveDC and Sustainable DC plan’s goals for non-motorized transportation and health and wellness, but also efforts to promote equity across the city.

moveDC goals supported by this policy:

- **Sustainability and Health:** achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility:** maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity:** support neighborhood vitality and economic development
- **Safety and Security:** achieve zero fatalities and serious injuries on District transportation network
- **Public Space:** reinforce Washington DC’s historic landscapes and quality of neighborhood

Examples

Well regarded for its innovative approaches to transportation planning and commitment to a balanced transportation system, Portland establishes pedestrians as their highest transport priority in its transportation system plan, an Oregon statutory requirement that establishes a long-term transportation vision and a set of priorities for policy and project investment. It uses a street classification system consistent with the more conventional functional classification system of its MPO’s long-range plan, but defines the function of streets in terms of how they are to serve each mode. Pedestrian travel is a consistently high priority as it facilitates access to transit, public spaces, and community facilities.

Denver has also taken recent steps in this direction, with a City Council action declaring pedestrian and bicycle safety would be top Council budget priorities. This was partly in response to a series of high-profile crashes resulting in pedestrian fatalities, but also to a growing understanding that other city and regional investments in other transportation modes—chief among them the substantial transit investment through the Denver region’s FastTracks program—would need to rely on safe and convenient pedestrian access in order to be successful.7

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Policy 2.2: Consider universal design principles in transportation.

What This Means for DC

While the District should prioritize pedestrians, there are many varying abilities of District residents to walk. Universal design for the transportation realm is a standard to make the built environment more usable by as many people as possible at little or no extra cost. The District should incorporate universal design to be a leader in supporting access by people with disabilities, including complying with the Americans with Disabilities Act, but also supporting the specialized transportation needs of older and younger users, hearing and vision-impaired users, and users with limited physical ability.

moveDC goals supported by this policy:

- **Sustainability and Health**: achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility**: maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity**: support neighborhood vitality and economic development
- **Safety and Security**: achieve zero fatalities and serious injuries on District transportation network

Examples

Vancouver, Canada is committed to delivering the highest level of accessible and barrier-free pedestrian environment possible. Over the years staff have investigated, experimented, consulted and trained to encompass techniques and practices in providing a seamless public realm. In designing for inclusion, accessibility, and barrier-free pedestrian environments, Vancouver follows the mission to design the environment to be usable by all people.

When designing a pedestrian environment, Vancouver considers:\8: natural surroundings (including the weather); users (including people that are large, people that are small, people that use wheelchairs, scooters, guide dogs, and white canes); people who have hearing impairments; and people who have learning disabilities. Materials, budgets, sustainability, maintenance and new technology are considered. The overall aim is to provide an inclusive design that will facilitate social inclusion for years to come.

Policy 2.3: Provide a connected pedestrian network.

What This Means for DC

Every District street except for limited access freeways should provide a sidewalk or pedestrian pathway on at least one side of the street, and preferably on both sides of every street. Sidewalks are important in providing comfortable and accessible travel for pedestrians. Very low speed streets may accomplish the same goal without providing a separate sidewalk area.

moveDC goals supported by this policy:

- **Sustainability and Health**: achieve 75% of all District trips by non-auto modes

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- **Citywide Accessibility and Mobility**: maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity**: support neighborhood vitality and economic development
- **Safety and Security**: achieve zero fatalities and serious injuries on District transportation network
- **Public Space**: reinforce Washington DC’s historic landscapes and quality of neighborhood

**Examples**

The City of Deltona, Florida recognized that their pedestrian network is key to their residents’ mobility and overall quality of life. To convert this priority into the built environment, in 2001 the Deltona City Commission adopted a sidewalk prioritization plan\(^9\) including specific guidance for constructing sidewalk on at least one side of all minor collectors and both sides of arterials and major collectors. In addition, the plan “permits that “The City may, at its discretion, construct a sidewalk along any street or roadway it feels is needed and appropriate for the health, safety and welfare of its citizens.”

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\(^9\) City of Deltona, FL, Sidewalk Prioritization Plan, Policy Number: CC01-003, Effective Date: 7/16/01
3. Make Bicycling Safe and Convenient

Bicycling is a great way to expand the reach and capacity of the transportation network. The number of bicycling trips has increased dramatically throughout the District in the past 5 years.

Policy 3.1: Invest in leading-edge bicycle infrastructure and technology.

What This Means for DC

The District currently has the second highest mode bicycle mode share of any large city. Continued investments in expanding and improving the District’s bicycle infrastructure should focus on improving the comfort and safety of the bike network. This will also help reduce demands on roadways from other users.

moveDC goals supported by this policy:

- **Sustainability and Health**: achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility**: maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity**: support neighborhood vitality and economic development
- **Safety and Security**: achieve zero fatalities and serious injuries on District transportation network

Examples

Arlington County, VA\(^{10}\) established bicycling as a priority mode, recognizing that a comprehensive bicycle network, the county could move more people without more traffic, promote safety and equity, and advance environmental goals. To accomplish these goals, Arlington identified strategy directives that expand the bicycle network, increase bicycle usage, and integrate bicycling with other transportation initiatives undertaken by the County.

Policy 3.2: Allow bicycling on sidewalks on streets with limited right-of-way/space in the street and low pedestrian activity.

What This Means for DC

Use sidewalk space for bicycles in certain kinds of streets. Although typically not practiced in urban areas, certain conditions may make this kind of approach acceptable, including:

- Bicycle Level of Service of D, E, or F
- Sidewalk width of at least 5 feet in residential districts or 8 feet in commercial districts
- Limited right-of-way, especially in the traveled way of the street
- Limited (or non-existent) cross street and driveway cuts
- High degree of visibility of sidewalks, especially from intersecting streets and median breaks

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\(^{10}\) Arlington Master Transportation Plan – Bicycle Element, July 2008
However, even when bicycles are permitted to be ridden on sidewalks, bicyclists should observe a 5 mph speed limit, yield right-of-way to any pedestrian, and give an audible signal (such as a ringing a bell) before overtaking and passing a pedestrian.

The District should re-evaluate the existing prohibition on biking on sidewalks in the Central Employment Area to determine whether the boundary should be modified and how to communicate the prohibition.

moveDC goals supported by this policy:

- **Sustainability and Health**: achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility**: maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity**: support neighborhood vitality and economic development
- **Safety and Security**: achieve zero fatalities and serious injuries on District transportation network

Examples

In Madison, WI\(^{11}\), bicycling is allowed on sidewalks, except where buildings are not set back from the sidewalk, as in commercial districts. Pedestrians always have the right of way on sidewalks and in crosswalks, bicyclists are required to give an audible warning before passing pedestrians, and bicyclists are directed to always pass with care.

**Policy 3.3: Allow bicycles to travel in some separated bus lanes where service runs at medium headways and the roadway is of a moderate grade.**

What This Means for DC

moveDC includes miles of separated transit lanes which will help transit accommodate many more riders per vehicle than general purpose lanes. While these streets will have high frequency transit service, there will still be additional capacity which can be used by bicycles. Allowing bicycles to use those lanes will provide travel space without the volume of vehicles in general purpose lanes, which will support bicycling even when a dedicated bicycle facility is not available. However, the highest priority for these lanes is transit, so bicycles will not be able to use these lanes when transit frequency increases to more than every 3 minutes or when the street is sloped enough to slow bicyclists therefore slowing the transit operation.

moveDC goals supported by this policy:

- **Sustainability and Health**: achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility**: maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity**: support neighborhood vitality and economic development

Safety and Security: achieve zero fatalities and serious injuries on District transportation network

Examples

A growing number of communities are using shared bus and bike lanes to give preferential treatment to both bikes and public transport. Paris has been a leader of this practice, with over 100 miles currently in place for bus lanes that allow bicycle and taxi use when buses are not in place. North American examples currently include San Francisco, Tucson, AZ; Madison, WI; Toronto, Ontario; Vancouver, BC; and Philadelphia, PA. Often the lanes are also able to be used by taxis and right-turning vehicles, although this may vary (especially if right turns are disallowed through a priority transit corridor).

Because the dual-mode use suggests that buses and bikes will pass each other in these lanes, lane width is an important issue. The AASHTO Policy on the Geometric Design of Streets and Highways (the ‘Green Book’) does not offer guidance on shared bus-bicycle lanes, and as a result many agencies that have begun using this street design practice have developed standards and guidelines of their own. Madison, Wisconsin has indicated a preference for 16-foot lanes to allow a clear three feet of separation between the bicyclist and a passing bus, but if either bus or bike traffic is light and space is limited, the width of a shared lane might be 14 feet or even less. Other cities that have used this treatment, such as Baltimore, Albuquerque, and Portland, have allowed narrower lanes (as narrow as 10 feet) to respond to constrained urban street widths.

Policy 3.4 Establish a citywide CaBi coverage goal.

What This Means for DC

75% of DC residents and 90% of DC employees should be within a ½-mile distance of a CaBi station and DDOT should establish density-based CaBi access goals.

Thisbeen an approach used in other cities, emphasizing the need for convenience in bicycle sharing and redundancy in the system to ensure that users are able to easily reach another station if the first station they visit is either at its bicycle-holding capacity or has no available bicycles.

At present, the location of CaBi stations is focused in the urban core of the District and around major activity centers (such as universities and neighborhood business districts). Residents, workers and visitors in these areas will have much more immediate access to CaBi bicycles than in outlying areas of the District. The CaBi coverage goal should also assess demand based on specific land uses to capitalize on bicycle sharing’s potential to assist in short trips that do not need to require a transit component but that may otherwise be beyond a convenient walking distance for residents. This is particularly important for neighborhoods well outside the urban core where neighborhood-serving land uses, such as retail, schools, and medical offices, are likely to be concentrated on corridors, and not mixed as evenly throughout neighborhoods as in the urban core. It can take advantage of university and college campuses, hospitals, schools and other centers of activity outside of downtown Washington to allow non-core bicycle stations to enjoy the same degree of natural fleet balancing that occurs in more urban locations with a greater mix of uses.

moveDC goals supported by this policy:

- Sustainability and Health: achieve 75% of all District trips by non-auto modes

- **Citywide Accessibility and Mobility**: maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity**: support neighborhood vitality and economic development

**Examples**

Vélib’, the bicycle sharing system for Paris and one of the largest in the world, maintains a location target of eight to ten bicycle stations within a 300-meter radius (around 1,000 feet or .2 miles) of any given point in the city, equating to about 28 stations per square mile. This allows flexibility in station placement and points to redundancy in the system, or the ability for bikeshare users to conveniently and easily choose other nearby stations in the event that a station’s supply is completely in use or that all of its bicycle racks are full. The density standards that it uses were developed and tested with another French system, the Vélo’V system in Lyon. These standards were underpinned by a strategic policy approach to locate stations at major intersections, an action intended to improve the visibility of bicycles throughout the city, combined with a target 5-minute walking distance. Lyon’s approach overlaid a grid of stations spaced at this distance over maps of population and employment density in the city and hand-adjusted their locations to focus on major intersections and public places. Subsequent refinements of this methodology, notably in Paris and Philadelphia, have focused on where there is demand for bicycle parking (such as near retail and civic uses) as well as how bicycle sharing is located relative to a city’s existing and planned bicycle network. The City of Philadelphia, working jointly with the Delaware Valley Regional Planning Commission, developed a methodology for assessing demand for bicycle sharing based on employment and population density, retail-based trips, and home-to-work trips. Where early planning models simply strove for a geographic distribution of stations based on population and employment density, Philadelphia used an approach that also evaluated different users (such as professionals, residents, students and tourists) and different trip types. The student and tourist factor in Philadelphia’s planning is significant and highly useful for the District of Columbia, which has a similarly high concentration of higher education campuses and visitor attractions. Philadelphia’s model helped to understand bicycle trip location and distribution, leading to a better understanding of where bikeshare stations should be placed and how many bicycles needed to be placed at each.

In development of its CitiBike system, New York also developed a methodology similar to the Paris and Lyon systems, using a similar distance as the basis for station location and seeking to avoid gaps in the placement of stations. This distance in New York generally equates to one to two city blocks.

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14 http://www.mobiped.com/wa_files/Mobiped-4_years_down_the_path-what_is_the_mobility_impact_of_Velo_v.pdf
4. Maximize the Person-Carrying Capacity of Transit

Transit is one of the critical elements of the District’s transportation network. While the city has a robust transit network, there are currently places that are difficult to reach by transit and times with limited service.

**Policy 4.1: Provide go anywhere, all day transit.**

What This Means for DC

The District’s transit network should allow residents, workers, and visitors the ability to travel anywhere in the District by transit in a convenient and reliable manner. The figure below shows the moveDC draft transit modal plan, highlighting all areas throughout the district within a 7.5 minute walk of existing or future high capacity transit.

By expanding and upgrading, the District’s public transport network over the next 30 years, the system will provide excellent accessibility throughout much of the city, not just the downtown core. With this degree of accessibility, users will be able to use the transit system as much as they would use their car and be able to go anywhere in the District for at least 18 hours every day.

**moveDC goals supported by this policy:**

- **Sustainability and Health:** achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility:** maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity:** support neighborhood vitality and economic development

**Examples**

Melbourne, Australia’s Transport Strategy Update 2012 established a Go Anywhere, Anytime public transport strategy. Inner Melbourne was designated as a place where reliable and frequent transit would service all day long.¹⁷

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Blenched Approach High Capacity Transit Access
Policy 4.2: Reduce the barriers to accessing transit in low-income neighborhoods.

What This Means for DC

When people opt to pay less to ride a slower transit service, they are sacrificing their time and ultimately the District’s potential for economic productivity. This is especially prevalent in low-income neighborhoods which are further outside of the core where bus travel times into education and job centers require significantly longer travel times by bus than by train. To encourage use of the faster Metrorail over Metrobus for longer trips, the District should lower the cost of rail trips starting or ending at stations in low-income neighborhoods. This could be accomplished through additional subsidy provided by the District directly to WMATA.

moveDC goals supported by this policy:

- **Sustainability and Health**: achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility**: maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity**: support neighborhood vitality and economic development

Examples

Tri-Met (Portland, OR) established Access Transit fare programs to recognize that access to public transit is access to opportunity. The programs set aside $1.3 million to help low-income individuals access transit and offset the most recent fare increase.

Policy 4.3: Establish clear modal priorities and functions for transit.

What This Means for DC

Different elements of a transit system provide options to serve the rich diversity of trip types characteristic of highly diverse, complex urban environments. In the District of Columbia, each type of transit will serve a particular purpose in an overall framework of urban mobility. These are detailed as follows:

- Heavy rail rapid transit and commuter rail serves higher speed and longer distance transit connections from the larger Washington region, with either direct rides or connections with direct transfers between rail vehicles to major activity centers within the District.
- Express bus will serve a role similar to rail, focuses on non-stop connectivity between major origins and destinations and use of the regional expressway system to increase travel times and allow buses to take advantage of the region’s investments in managed lanes.
- Guideway-based transit on urban streets, such as dedicated lane bus and streetcar, will be the spine of the District’s surface transit. It will both provide direct connectivity across the District as well as reinforce commercial streets and districts by facilitating access to shopping, dining and entertainment without requiring parking. It generally provides farther stop spacing than bus, but closer spacing than heavy rail transit.
High-frequency bus corridors provide regular service at 15-minute or better headway with regular stop spacing along commercial corridors and serving residential areas.

Local bus and paratransit, including local WMATA Metrobus services as well as those provided by other operators will continue to serve as feeder routes, providing the most basic level of transit mobility with critical links to lower density areas of the District. These services have the shortest stop spacing but the lowest frequencies.

Regardless of whether the transit mode is a bus or train, transit stops that are easy to find and use are critical to transit’s attraction and usability. Provision of stop infrastructure is frequently tied to the number of riders who board and alight at each stop. The greater the number of riders (currently or planned), the greater the capital investment.

- All stops should have:
  - A level concrete pad
  - Reliable pedestrian access
  - Adequate lighting for safe and comfortable night use
  - Route and schedule information

- Stops with more than 50 boardings a day (including transfers) should have:
  - Bus shelter with bench
  - System map
  - Trash receptacles

- Stops with more than 300 boardings a day (including transfers) should also have:
  - Extended shelters to accommodate high volumes of waiting riders
  - Real time travel information

Another important component of bus stops consists of safety and security measures, which increase transit effectiveness. Safety and security requires transit operators to provide a predominantly controlled environment so riders perceive that the agency is protecting them. In addition, it also requires emergency planning for when uncontrolled events occur, so that responses are planned and procedures are in place to answer unforeseen incidents. These preparations provide riders with both an actual and perceived safe environment, preventing public concerns that would limit the effectiveness of the transit system.

Providing a safe and secure environment requires a combination of design features, response plans, evaluation of public perception, and coordination between the multiple transit services and levels of government. All stops should be well-lit and provide clear sight lines with no “blind spots.” Placement of stops in view of active uses is recommended. Wherever possible, stations and stops should be accompanied by clearly marked crosswalks and traffic control devices to provide a safe, controlled roadway crossing.

moveDC goals supported by this policy:

- **Sustainability and Health**: achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility**: maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity**: support neighborhood vitality and economic development
Examples

Portland, Oregon is currently in the process of updating its Transportation System Plan and its citywide Comprehensive Plan. As part of this effort, Portland's transit policies are identifying how different types of public transportation can more directly be assigned to serve trip length and different trip types.\(^\text{18}\)

The amenities described above support transit service by making the bus riding experience comfortable and convenient. As described in TCRP Report 46: *The Role of Transit Amenities and Vehicle Characteristics in Building Transit Ridership*, provision of certain physical amenities will draw more riders. The TCRP study was built around the Transit Design Game Workbook, a survey distributed to bus passengers in five cities: Rochester, New York; Ann Arbor, Michigan; Aspen, Colorado; Portland, Oregon; and San Francisco, California. The survey allowed people a budget of 12 to 18 points to spend on amenities, and also had the respondents weigh spending money on amenities or lowering the fare.\(^\text{19}\) Spending 18 points on amenities roughly equated to $450,000 in annualized costs for a 300-bus system, and resulted in a 1.5 to 3 percent increase in ridership. A study by the University of North Carolina at Charlotte also has indicated that improved bus stop amenities increases ridership.\(^\text{20}\)

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\(^{19}\) TCRP. *Transit Design Game Workbook (Part of TCRP report 46)*. 1999.

5. Manage Private Vehicle Capacity to Expand Person-Capacity and Reliability

Private vehicles, including cars, taxis, and trucks, are a vital component of the District’s transportation system that require proactive management in order to support the needs of the transportation system without resulting in congestion and gridlock.

**Policy 5.1: Price private vehicle access to improve reliability and reduce congestion.**

**What This Means for DC**

As the District continues to grow, pricing private vehicle access on key corridors and to key destinations is an important approach to providing reliable access to activity centers. The District’s congested entry routes, including freeways and bridges, as well as the Central Employment Area are areas to explore pricing as a way to manage congestion. The best known examples of this are based on a cordon area and typically involve center cities and the places and times of day with the highest concentrations of travel demand. Where it has been implemented, extensive investment in vehicle detection and payment collection technology has been made prior to congestion pricing taking effect, suggesting a larger scale for which this approach is usually applied. Arterial managed lanes are an emerging practice, studied mostly as a potential approach to congestion management and increasing the reliability of urban arterial networks for those customers willing to pay tolls. They may include dedicated lanes for transit and other non-motorized travel modes or lanes that permit vehicles but restrict single-occupant vehicle use.

A congestion charging zone in Washington DC could be implemented for weekday trips into the greater Downtown area at a rate approximately equivalent to a maximum round-trip period Metrorail fare. Revenues from private vehicle pricing should go to operations and maintenance of the managed facility and towards regional projects that expand the person-moving capacity of the transportation system.

These approaches to managing capacity also help to manage the reliability and accessibility of goods movement and delivery in the District.

**moveDC goals supported by this policy:**

- **Sustainability and Health:** achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility:** maximize system reliability and capacity for moving people and goods
- **Funding and Financing:** invest in transportation to achieve outcomes within plan horizon

**Examples**

London’s congestion charge program is probably the best known example of this. First explored as early as the 1960s, London’s program took effect in 2003 after further studies in the 1990s both recognized the potential effectiveness of cordon-based pricing and established a link between this pricing and revenue that

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21 Smeed, R.J. (1964). Road pricing: the economic and technical possibilities. HMSO. The ‘Smeed Report’ is credited as the first major study of road pricing feasibility in London, and posited a rule that new drivers would not continue to use existing roads if speeds fell below a certain threshold, but that if speeds rose, more drivers would begin using roads until congestion was created. The balance lay in pricing to alleviate congestion so that reasonable travel speeds could be maintained.
could be applied for other transportation improvements, principally those that offered alternatives to driving. Initially defined as an area comprising the City of London (the financial district, equivalent in size roughly to downtown Washington) and the West End (an entertainment and shopping area), proposals to increase the size of the pricing area have been made and the price charged to motorists has been increased. Studies after the program’s implementation suggest that it has met its objectives, as general vehicle traffic levels have decreased by nearly 30 percent, bicycle ridership has increased, and transit travel times have been reduced.

Bergen and Oslo, Norway have also had center-city congestion pricing in place since the late 1980s and early 1990s, respectively. In each city, geographic limitations greatly limited how the existing roadway network could be expanded through traditional widening measures, but proposed projects to alleviate traffic congestion and improve vehicular traffic flow through the city were prohibitively expensive for local agencies to take on independently. Bergen’s program is a simple cordon crossing system that covered an area slightly larger than Bergen’s central business district with a limited number of toll gates. The program’s stated intent was to raise revenue, not necessarily to deter traffic, and as a result it allowed no effective by-pass routes. The charging cordon therefore covered a wider area than that which was needed solely for traffic reduction.22

Managed lanes for tolling and other forms of traffic control on surface arterial streets is a theoretical practice, as natural limitations of surface streets (namely traffic signals and left turns) preclude an easy application to tolling only portions of a surface roadway. One of the most notable examples of this research has been conducted in Florida, a state with historically high rates of population and traffic growth and a heavy dependence on state-maintained arterial roadways for primary traffic distribution and for access to community-serving commercial property. What the Florida studies suggested is a new design treatment featuring an underpass or overpass that bypasses a signalized intersection. A motorist would pay a toll for use of this bypass facility, allowing a premium use to be assigned to vehicle-based avoidance of traffic congestion and potentially reducing that congestion and facilitating travel by other modes.

Although this policy should not suggest a path to implementation involving costly capital projects, Washington, DC already has several examples of grade-separated roadways at key intersections, especially along major diagonal streets passing through monumental circles. Management of these in a way that adds a cost (whether monetary or in time) to through travel may be an effective way to reduce congestion and safety risk, thus facilitating use of major arterial streets for other modes of travel.

**Policy 5.2: Manage vehicular speed for safety and efficiency.**

**What This Means for DC**

While many people believe that slow speeds result in slower travel times along a given arterial, travel times area function of how many vehicles can pass through an intersection, not the street speed. Slower speeds can help improve overall driving travel time by allowing more time for better progression and coordination of traffic signals. The District should emphasize safety in the design of all roadways by designing road speed that maintains a safe, multimodal transportation environment.

**moveDC goals supported by this policy:**

- **Sustainability and Health:** achieve 75% of all District trips by non-auto modes
- **Neighborhood Accessibility and Connectivity:** support neighborhood vitality and economic development

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Safety and Security: achieve zero fatalities and serious injuries on District transportation network

Examples

To balance safety and multimodal efficiency, while recognizing that city streets are places driving must not restrict walking and biking, the State of Texas has enacted through statewide legislation that the maximum speed limit through an urban district is 30 miles per hour. 23

Policy 5.3: Preserve key freight corridors for goods movement.

What This Means for DC

Freight access needs must also be integrated so that freight can reach necessary destinations, but not in a way that impedes overall system balance or endangers the users of other modes (especially bicycles and pedestrians).

Urban areas around the United States—and indeed, around the world—have had to address the dramatic increases in freight movement in the last twenty years. Globalized production models and supply chains have meant that goods manufactured overseas must be distributed back to markets where they are consumed, which has increasingly been through low-cost container shipping, and just-in-time delivery models and reduced on-site inventories at supply locations have meant an increased need for quick and regular shipments to many different points. These have both led to a substantial increase in truck traffic, and many urban areas lack a dedicated system of infrastructure to accommodate large trucks and other heavy vehicles.

The District should preserve existing truck and bus routes to continue to serve goods movement needs while also improving safety for all users in these corridors. Preserving these corridors means maintaining design standards that accommodate larger vehicles and seeking treatments that reduce conflicts between large vehicles and other users.

moveDC goals supported by this policy:

- **Citywide Accessibility and Mobility:** maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity:** support neighborhood vitality and economic development

Examples

New York City has designated truck routes that commercial vehicles must use. New York has designated two route classes. Local Truck Routes are designated for trucks with an origin and destination in the city. Through Truck Routes are primarily major urban arterials and highway and must be used for trucks that have neither an origin nor a destination in the city. Trucks should only use non-designated routes for the purpose at the beginning or end of a trip or when travelling between their origin/destination and a truck route. The operator must use the shortest and most direct route to and from the truck route. The rules do not apply to authorized emergency vehicles or authorized public utility company vehicles engaged in an emergency operation. The presence of signage is not required to enforce Truck Route regulations 24.

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23 Texas Department of Transportation, Procedures for Establishing Speed Zones, April 2012.
North Carolina has designated a statewide truck network, providing reasonable access routes across the state and within the major metropolitan areas. Trucks are allowed up to three miles from the truck network for fuel, repair, lodging, and destinations. Additional truck routes may be added through a process that includes safety analysis and public input. In addition, the North Carolina Department of Transportation designates truck restricted routes.  

**Policy 5.4: Expand demand responsive parking pricing.**

**What This Means for DC**

DDOT identifies two, related goals, for its metered parking practices: maintaining consistent access to short-term parking spaces near retail and service destinations; and improving traffic circulation in commercial areas. As commercial districts flourish, the disparity between the value and demand for curbside spaces and their supply widen, further increasing the "cost" of not finding a space, and driver motivation to keep circling until they do. Meter rates are, typically, kept artificially low via a process that requires political approval for meaningful changes to parking rates. In the last ten years, DDOT has begun to move away from this price-setting structure to relink curbside rates to demand and "performance" (availability), provide a more rational/defensible basis for rate setting, and tap into the potential for performance-based rates to improve curbside access and traffic circulation. This has included the creation of a premium meter rate for high demand areas, and the extension of meter hours into evenings where dining and entertainment activity is high.

To support this increased focus on performance and strategic rate-setting, DDOT has also invested in innovative meter technology for monitoring, data collection, and payments. In one sign of the market’s response to these investments, approximately 40% of meter transactions are now conducted through a pay-by-phone payment service.

Curbspace in commercial and mixed-use zones is an opportunity for the transportation system to support the District’s goal for economic sustainability. By continuing efforts to make curbs available based on demand, the District can increase the number of customers who can access our stores, while at the same time reducing the number of vehicles circling for parking spaces freeing up more space for general circulation.

**moveDC goals supported by this policy:**

- **Citywide Accessibility and Mobility:** maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity:** support neighborhood vitality and economic development
- **Public Space:** reinforce Washington DC’s historic landscapes and quality of neighborhood

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25 North Carolina Department of Transportation https://connect.ncdot.gov/business/trucking/Pages/default.aspx
Examples

Current practice in parking management understands and emphasizes keeping a certain amount of parking available in a given location to reduce the number of drivers using roadway space (and their own time) to search for parking. A key strategy to achieving this to set parking prices in a way that preserves some of the capacity at a given moment, even at high-demand locations. Underpriced parking spots tend to be full, leading cars to circle in vain looking for spaces, which in turn adds to congestion, air pollution, and distracted driving. The San Francisco Municipal Transportation Agency (SFMTA) has initiated one of the most comprehensive approaches to parking management through its SFpark program, a system of dynamic parking pricing that responds to demand and seeks to maintain available parking inventory in high-demand areas.

The San Francisco Municipal Transportation Agency (SFMTA) has initiated one of the most comprehensive approaches to parking management through its SFpark program, a system of dynamic parking pricing that responds to demand and seeks to maintain available parking inventory in high-demand areas.

Under SFpark, parking spaces throughout the city will contain sensors that give real time digital information about whether the space is occupied and for how long. The sensors will be wired into a database that coordinates parking across San Francisco. Information is compiled at a block-by-block level and available via the web, smartphone applications, text messages and roadway signs. In order to keep an optimum amount of parking available throughout the city, the hourly parking rates will be raised or lowered in response to demand. The changes in price will occur no more than once a month and be published in advance. The goal is to set a pricing level that will keep from 10 to 30 percent of spaces in a given area vacant.

The San Francisco Municipal Transportation Agency received a $19.8 million grant from the U.S. Department of Transportation’s Urban Partnership Program, which amounts to 80 percent of the SFpark project costs. The remaining 20 percent of the program comes from the agency's budget.27

Policy 5.5: Manage commercial vehicle loading zones to help increase total available capacity.

What This Means for DC

Goods delivery is an increasing issue that impacts the business climate and the ability for the District to manage multi-modal needs. DDOT has already made significant progress in curbside management for freight, having developed a Downtown Curb-Space Management Plan in partnership with the Downtown DC and Golden Triangle Business Improvement Districts. This included an extensive inventory of commercial loading zones in downtown Washington as well as changes to specific locations of loading zones (moving them, for example, to the approach ends of blocks where possible in order to lengthen the zones and to minimize double-parking and vehicle movement friction against moving traffic). It also extended enforcement of spaces so that smaller trucks and commercial vans did not use the loading zones for parking for extended periods of time.

27 Transportation For America, Smart Transportation Case Study #4: Dynamic Parking in San Francisco. Available online at http://t4america.org/blog/2010/10/12/smarter-transportation-case-study-4-dynamic-parking-pricing-san-francisco/.
Overall, DDOT should continue the efforts started in the Downtown Curb-Space Management Plan and the ongoing citywide Curbside Management Plan and seek to improve freight movement opportunities.

(Pending: Define freight villages, off-peak use and space reservations)

**moveDC goals supported by this policy:**

- **Citywide Accessibility and Mobility:** maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity:** support neighborhood vitality and economic development
- **Public Space:** reinforce Washington DC’s historic landscapes and quality of neighborhood

**Examples**

Emerging practices in how to achieve this balance include the use of freight villages, or intermodal distribution facilities that concentrate very large vehicles and allow transfer to smaller vehicles, to rail, and to other modes that may fit better into an urban transportation system for distribution to their final destinations. Freight villages are widely used in European countries, with the first facilities appearing along with the rise of trucking for freight movement after World War II. Well-known examples in the United States include the Raritan Center in New Jersey and the Cumberland Valley Business Park in Pennsylvania, both of which serve the greater New York region.²⁸

With what is probably the most active commercial center in the United States in Midtown Manhattan, New York City implemented a series of changes to its curbside management for freight vehicles in order to maintain the efficient flow of goods and services. NYCDOT’s *Commercial Vehicle Parking Plan* defined several curbside management strategies to address a limited number of loading/unloading zones available, use of these spaces for long-term parking, and the resulting double parking. The general approach was to increase available curbside space but reduce the amount of time by which individual spaces are to be occupied by a single vehicle, and increasing enforcement to ensure that the needed turnover was happening.

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6. Maximize System Efficiency Through Transportation Demand Management

The entire transportation network operates best when both supply and demand are managed. Transportation Demand Management provides the counter part to the previously identified policies for multimodal capacity.

**Policy 6.1: Include Transportation Demand Management (TDM) programs in all property development projects (for all land uses, as of right or requiring special approvals).**

**What This Means for DC**

DDOT has already made extensive strides in integrating transportation demand management (TDM) approaches into its development review process for projects requiring Zoning Commission approval. This recommendation was first made in a 2010 report on TDM and development review (DDOT Incorporation of TDM in the Development Review Process), which included a series of action items for implementation.

The effects of TDM are well understood, especially that it:

- Reduces the strain on existing transportation infrastructure, helping it last longer;
- Reduces the demand for new roads and parking, freeing up resources and space for jobs, housing, parks and other amenities;
- Maximizes the use of existing public transit services and investments;
- Supports the economy with increased commute flexibility and increased access to and visibility of local businesses;
- Improves the environment by reducing emissions of greenhouse gases;
- Improves public health by reducing emissions of particulate matter and offering transportation options that increase physical activity.

The next step in increasing the effectiveness of local TDM programs is to ensure they’re provided for all development projects, not just those requiring zoning approval. This would establish TDM as a transportation requirement equally as important for site access as curbs cuts, with different quantities of TDM programming required for different development intensities and in context with the transportation options available within any given neighborhood.

**moveDC goals supported by this policy:**

- **Sustainability and Health:** achieve 75% of all District trips by non-auto modes
- **Neighborhood Accessibility and Connectivity:** support neighborhood vitality and economic development
- **Funding and Financing:** invest in transportation to achieve outcomes within plan horizon

**Examples**

Arlington County has developed similar policies to those recommended in the DDOT report mentioned previously. Transportation Demand Management for Site Plan Development is an Arlington County Commuter Services program that coordinates the design and construction of large development projects with
commuter and transit service to enhance the mobility of residents, workers, and visitors. TDM for Site Plans works directly with developers and property managers to mitigate the transportation impacts of residential and commercial development; its focus for this mitigation is increasing the availability, awareness, and use of transit, ridesharing, carsharing, biking, bikesharing, and walking.

Santa Monica, California is another long-time leader in incorporating TDM policies into development review and approval. The City of Santa Monica adopted Transportation Management Plan Ordinance 1604 (TMP 1604) in 1990 in an effort to reduce traffic congestion and improve air quality. The Ordinance affects employers with ten employees or more and focuses on reducing the number of employee commute trips generated by Santa Monica employers, and it follows a multi-level framework of requirements (depending on the number of employees at a particular organization) as follows:

- All employers are required to submit annual trip reduction plans to the City government.
- Employers of 10 to 49 employees are required to attend a City-sponsored workshop and submit a plan to the City each year detailing approaches to emission reductions, including how the employer will provide all employees with transportation and ridesharing information.
- Employers of 50 employees or more are required to designate a certified Employee Transportation Coordinator (ETC) and submit one if two different types of ERPs:
  - **Employee Trip Reduction Plan (ETRP)**
    An Employee Trip Reduction Plan (ETRP), an incentive-based plan which focuses on reducing employee trips to and from the worksite. After leading a survey of employees and determining how many use vehicles to get to work, employers identify incentives and marketing strategies that will encourage their employees to rideshare to and from work rather than drive alone. Employers must submit a plan to the City that clearly identifies a path to achieving 1.5 employees per vehicle.  
  - **Emission Reduction Plan (ERP)**
    The other option for employers is to purchase emission credits from a state-certified broker in lieu of an ETRP. Employers must survey employees to determine the rate of vehicles driven to employees commuting and purchase emissions credits to bridge the shortfall between current employee-vehicle ratios and the City target of 1.5.

Santa Monica also follows California state regulations that any employer of 50 employees or more must provide a parking cash-out option, or offering an employee the option of accepting the entire cost of any parking subsidy associated with providing parking in exchange for forgoing his or her parking space, to its employees; in Santa Monica this option must be included in an ETRP. If an employer does not subsidize any employee parking, employer owns their own parking, or has their parking bundled in their lease, they are exempt from these parking cash-out requirements.

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29 [http://www.smgov.net/Departments/PCD/Transportation/Employers/](http://www.smgov.net/Departments/PCD/Transportation/Employers/)
Policy 6.2: *Require large employers to provide access to pre-tax non-auto transportation benefits.*

**What This Means for DC**

Across the United States, many municipalities promote pre-payment of fare media for individual users where bulk transfers are not economically feasible or where there is not sufficient interest. The most common approach to this is through payroll deductions that are exempted from tax liability. The next step is to require employers of a certain size to offer this benefit. This, in conjunction with TDM requirements in development review, should be explored as a way to actively reduce the number of drive-alone trips that new District developments generate. A bill requiring employers over 50 or more employees has been introduced to the Council.

**moveDC goals supported by this policy:**

- **Sustainability and Health**: achieve 75% of all District trips by non-auto modes
- **Neighborhood Accessibility and Connectivity**: support neighborhood vitality and economic development

**Examples**

San Francisco’s ordinance is for all businesses with 20 or more employees nationwide to offer this benefit to their employees.30

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**Policy 6.3:  **Offer *transit bulk fare media purchases for organizations.*

**What This Means for DC**

One common approach in transportation demand management is the use of bulk purchases of transit passes, farecards, and other fare media for organizations. This allows an individual end user to pay a lower price for transit fares, even beyond any discounts realized by purchasing passes over individual fares, thus further increasing employee incentive to use transit as an alternative to driving. This also provides the transit agencies with up front funds at a lower marginal cost than individual fares paid on the day of travel. Bulk fare purchase programs work best with larger population bases, including large employers and universities purchasing fares for students. This program should also include Capital Bikeshare (CaBi) purchases and corporate memberships.

Pricing and management of these bulk fares are typically organized by the service providers and not a local government, though some local government policies have committed public agencies to participate in these programs. This program should include all DC transit agencies and CaBi.

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moveDC goals supported by this policy:

- **Sustainability and Health**: achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility**: maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity**: support neighborhood vitality and economic development
- **Funding and Financing**: invest in transportation to achieve outcomes within plan horizon

**Examples**

The University of Washington’s (Seattle)31 U-PASS program is a voluntary, membership program that utilizes a participation sticker, placed on the back of a student, faculty, or staff ID cards (called Husky Cards), to provide unlimited, free access to King County Metro, Community Transit, and Sound Transit. Students are automatically sent a U-PASS sticker at the beginning of each quarter, along with a business reply envelope that they can use to return the sticker if they choose not to participate. Unless a sticker is returned, the student is enrolled in the benefit, and charged a U-PASS fee along with his or her tuition. Faculty and staff must sign up for the program, either online or at the University’s Commuter Services office. They have the option of an annual U-PASS that can be renewed automatically. To access transit provided by any of the participating providers, a U-PASS holder simply shows the driver/operator a valid U-PASS sticker32. For faculty and staff, the U-PASS fee amounts to about one-third of the cost of independently purchasing the least expensive peak-period retail pass product.

**Policy 6.4: Explore consolidated fare media (WMATA, Circulator, CaBi, Commuter Rail).**

**What This Means for DC**

The use of consolidated fare media, or unified payment options that allow use of a wide variety of transit and travel services with a single medium, greatly facilitate the use of other networks by making it easy for people to pay, all using one payment system. This can also streamline payment, facilitate automated billing and fare collection, and potentially allow savings on individual fares and trips.

A consolidated payment system should be considered for all transit agencies serving the Washington, DC region, including regional commuter rail, regardless of operator. Although pricing for the Capital Bikeshare system is currently managed through individual subscriptions and a separate key access system, future upgrades to this system should explore opportunities for consolidation so that this can be included in a multi-system transit pass, helping any pricing for last-mile connections from transit to be fully integrated for users.

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32 Transit pass programs within the Seattle region are moving toward a universal transit pass, using "tap-and-go" technology, called ORCA. In step with this advancement, UW has partnered with ORCA to incorporate this technology into its Husky Cards to provide U-PASS participation benefits digitally. See: orccard.com/ERG-Seattle/p1_001.do
A consolidated payment system will require buy-in and coordination from all of the individual agencies who operate a service, but the effort can be spearheaded by the District, possibly through the Metropolitan Washington Council of Governments.

moveDC goals supported by this policy:

- **Sustainability and Health**: achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility**: maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity**: support neighborhood vitality and economic development

Examples

Examples include the Clipper Card for the various transit agencies of the San Francisco Bay area and the ORCA card in Seattle and the Puget Sound region, both of which allow a single card to provide fare collection for commuting trips that may take place over multiple services.

**Policy 6.5: Partner with local community organizations to reduce financial barriers to alternative transportation.**

What This Means for DC

DDOT currently partners with Bank On DC to encourage community member to participate in the benefits of bikesharing. All current and new Bank On DC account holders are eligible for a discounted Capital Bikeshare annual membership of $50. This program directly addresses concerns about residents unable to participate in CaBi due to lack of a credit card or the cost of membership. This program should be expanded in low-income neighborhoods by working with additional local businesses and community groups.

The District should also pursue programs to expand access to carsharing programs and reduce cost burdens of the public transportation system.

moveDC goals supported by this policy:

- **Sustainability and Health**: achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility**: maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity**: support neighborhood vitality and economic development
- **Funding and Financing**: invest in transportation to achieve outcomes within plan horizon

Examples

Bank On DC is a nationwide best practice in helping overcome financial issues to support a more equitable availability of transportation options.
7. Utilize the Public Realm to Invest in Placemaking

The District’s transportation network is a location for more than just travel, but also for experiencing the city. Employing this space create a better place, provides additional value beyond mobility.

**Policy 7.1: Encourage active living through the physical environment.**

*What This Means for DC*

Physical inactivity is one of the leading causes of premature death in the United States. The physical environment that we build can directly encourage regular physical activity by creating neighborhoods, streets, and outdoor spaces that encourage walking, bicycling, active transportation and recreation. With so much of the District’s public realm coterminous with its rights of way, designing streets that make it enjoyable to be outside can result in a healthy population. This policy would expand DDOT’s public space purview to plan and fund projects that enhance the public realm for physical activity.

*moveDC goals supported by this policy:*

- **Sustainability and Health:** achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility:** maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity:** support neighborhood vitality and economic development
- **Safety and Security:** achieve zero fatalities and serious injuries on District transportation network
- **Public Space:** reinforce Washington DC’s historic landscapes and quality of neighborhood

*Examples*

Several cities around the United States have begun to adopt policies and guidelines for physical design that promotes active living. New York City’s Active Design Guidelines were developed in response to the increasing public health concerns of obesity and Type 2 diabetes, and they seek to identify clear areas of change in the built environment that could promote more regular use of walking, cycling and generally increased physical activity as ways of moving around. The New York City Health Department partnered with other city agencies for this initiative, including the Departments of City Planning and Transportation, in order to identify potential capital projects that could be used to demonstrate more active living patterns and to identify areas of policy that may be leading to insufficient physical activity. This resulted in one of the Guidelines’ four chapters focusing on urban design, identifying elements of street design (such as sidewalks, bicycle lanes, and intersection and midblock crossings) intended to facilitate increased pedestrian and bicycle activity.\(^3\)

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Policy 7.2: Create great places through beautification and public art of the transportation network.

What This Means for DC

Just like the public realm can be an opportunity for improved physical health, it offers a great laboratory to improve quality of life through design and public art. Re-purposing space traditionally thought of as the transportation network with visual cues and public plazas, encourages all day use, generates more pedestrians, and encourages more vibrant streets.

Washington, DC has begun to explore this approach in selected areas, with recent curb extension projects at 7th and K Streets NW (at the southeast corner of Mount Vernon Square) and at 6th and I Streets NW (adjacent to Seaton Park).

moveDC goals supported by this policy:

- **Neighborhood Accessibility and Connectivity**: support neighborhood vitality and economic development
- **Public Space**: reinforce Washington DC's historic landscapes and quality of neighborhood

Examples

Sometimes there is not a formal policy on how to repurpose transportation infrastructure, but there is an established practice. New York City is arguably the national leader of repurposing transportation right-of-way to serve as public space, usually by removing excess travel lanes and auxiliary lanes near intersections and converting the space to hardscaped plazas. Through the Public Plaza Program, New York City Department of Transportation (NYCDOT) works with selected not-for-profit organizations to create neighborhood plazas through transforming underused streets into public spaces, typically in early steps through the use of paint, texturing materials, and other low-cost, low-effort applications that may later be programmed as more extensive capital projects. The Public Plaza Program is a key approach to achieving an overall city objective that all New Yorkers live within a 10-minute walk of quality open space.

Perhaps the best known example of this practice is the conversion of Broadway in Midtown Manhattan. Between 2008 and 2009, NYCDOT closed multiple travel lanes on Broadway between Columbus Circle and Madison Square Park and introduced buffered bicycle lanes, public plaza seating, and raised planters to help define the Broadway right-of-way as public space. This set of improvements was also applied to Union Square in 2010, with lane reductions, changes to signal timing and extensions of plaza space.34

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Policy 7.3: Protect the physical environment through Low Impact Design to reduce heat islands, and improve air and water quality.

What This Means for DC

Incorporation of Low Impact Design into District streets will be consistent with the efforts of the District Department of the Environment, which seeks to reduce stormwater runoff pollution and has in place a vigorous stormwater program and stringent citywide regulations. Major DOE initiatives include significantly reducing stormwater pollution flowing into the area's water bodies by making the land "spongier" and create financial incentives for installation of stormwater retrofits.

moveDC goals supported by this policy:

- Public Space: reinforce Washington DC's historic landscapes and quality of neighborhood
- Preservation: achieve a state of good repair for all District infrastructure

Examples

Portland, Oregon is arguably the national leader in innovative stormwater best management practices (BMPs) to improve water quality. In the 1970s, Portland began charging a separate stormwater utility fee to help pay for stormwater management costs, and in the intervening years has used funds generated from that fee to develop new management techniques designed to reduce overall long-term costs of management, both to the city and the individual user. Beginning in the early 1990s, Portland's Bureau of Environmental Services (BES) has developed a multi-faceted, highly successful program that achieves not only regulatory compliance, but also education, outreach, and community greening and beautification. In the early 2000s the City Council established a reward system for ratepayers who keep stormwater from leaving their property. This program, called Clean River Rewards, offers residential ratepayers a discount of up to 30 percent of their stormwater fee obligations based on the extent to which they can manage runoff from roof areas. Commercial customers can claim a discount for managing runoff from both roof and paved areas. Additional credits are offered for having a small impervious footprint, creating or maintaining tree coverage, disconnecting downspouts, installing rain gardens or drywells, and other low impact development BMPs. The City makes the various retrofit options known to residents and businesses by hosting an online technical assistance page and offering workshops tailored to residential and commercial customers.35

Philadelphia is also emerging as a national leader in this trend. The City of Philadelphia, under a consent decree from the Environmental Protection Agency, has developed a plan for stormwater management that greatly emphasizes on-site collection and infiltration an seeks to reduce demand on the city's 'hard' infrastructure of underground pipes and tanks. "Green City, Clean Waters" is Philadelphia's 25-year plan to protect and enhance the City's watersheds by managing stormwater primarily with innovative green infrastructure. As the City agency charged with ensuring compliance with the federal Clean Water Act, the Philadelphia Water Department (PWD) developed "Green City, Clean Waters" to reduce its combined sewer overflows (CSOs), manage its stormwater runoff and associated pollution, and provide a clear pathway to a sustainable future by using green stormwater infrastructure systems that assist or mimic natural processes. Many of these are located in public rights-of-way, with rain gardens, bioswales, and catchment basins located within the footprint of conventional street features (such as parkway planter strips adjacent to curbs and in on-street parking stalls). PWD plans to invest approximately $2.4 billion in a combination of both treatment plant upgrades and green stormwater infrastructure over the next 25 years to fulfill this plan, and nearly half

35 http://www.werf.org/liveablecommunities/studies_port_or.htm
of stormwater runoff is to be addressed through green methods and will not enter into the City’s central system.

The stormwater regulations ensure that Philadelphia has a progressive and effective stormwater program that meets state and federal requirements while also coordinating with the changing regulations occurring in upstream municipalities.

**Policy 7.4: Support Car-Lite Living**

**What This Means for DC**

About 4 out of every 10 DC households live without a car and approximately 80 percent have zero or one vehicle. This has occurred naturally over the past few years tied to national trends of younger people less interested in owning a car and Washington DC's extensive options for walking, biking, and transit. With 40% of the households, this is a significant portion of the District’s population and a lifestyle worth the District’s support.

DDOT can help accommodate and encourage this approach by many of the policy and programmatic elements described throughout moveDC (‘Pedestrians are the Highest Priority’ and ‘Go Anywhere Transit’). Beyond these efforts, DDOT can investigate whether financial incentives for car-free households should be considered, as households without a vehicle place fewer demands on the city’s roadway and curbspace networks, generate fewer environmental emissions, and generate less opportunity for crashes. Carsharing is a prime element of supporting car-lite living, as each shared vehicle reduces individual household car ownership (and parking demand) by 9 to 13 vehicles

The District already supports carsharing by dedicating on-street parking spaces for ZipCar and establishing curb management policies for car2go

**moveDC goals supported by this policy:**

- **Sustainability and Health:** achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility:** maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity:** support neighborhood vitality and economic development

**Examples**

Hoboken, NJ supports car-free and car-lite living by providing incentives for residents to “Surrender Your (parking) Permit”. This program provides over $200 in financial programs for any resident to not keep their parking permit. Beyond the direct financial offerings, Hoboken supports a community-based carshare system (“Corner Cars”), a community shuttle bus (“The Hop”), and significant walking and biking programs.

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Policy 7.5: Encourage zero emissions vehicles with electric charging vehicle infrastructure.

What This Means for DC

The transportation sector is one of the greatest emitters of air pollution, so zero emission engines are an area where transportation policy can have a direct impact on improving the environment. Plug-in electric vehicles that use electric batteries charged from an external source are a significant opportunity to maintain current personal mobility while reducing auto emissions to effectively zero.

DDOT’s Electric Vehicle Fleet Program is working to bring hundreds of electric cars and charging stations to the District. Establishing Zero Emissions as a District-wide policy will help to prioritize DDOT’s on-going efforts. This policy may include requirements for zero emissions vehicle infrastructure in private space or partnering efforts in addition to what can be achieved in the public space of the District.

moveDC goals supported by this policy:

- **Sustainability and Health**: achieve 75% of all District trips by non-auto modes

Examples

To encourage consumers to purchase electric vehicles, the State of Illinois (with support from the Federal government) has put in place multiple programs to stimulate growth of the electric vehicle industry and make clean driving more affordable37. For electric vehicles to become a viable element in the District’s transportation network, charging infrastructure would be needed throughout the city. Utilizing federal stimulus funding, electric vehicle chargers are being installed throughout the New York City metropolitan, including commercial parking lots38.

8. Identify Sustainable Funding Strategies and Approaches

The District must aggressively invest in transportation strategies to meet the demands of a growing population.

Policy 8.1: Identify all funding and delivery options for construction and operations of the transportation system.

What This Means for DC

Public-Private Partnerships (PPPs or P3s) are an increasingly popular method of financing major infrastructure projects. The combination of funding from public and private sectors can significantly expand government agencies’ purchasing power for projects.

An important dynamic of successful PPPs is the ability of government agencies to identify the potential for return on investment in order to make a business case for attracting private financing.

A Federal Transit Administration survey of eight PPPs for transit projects found that the surveyed projects were operational one to six years earlier than planned and realized cost savings of $1 to $38 million.\(^39\) As with design-build and design-build-operate-maintain project delivery (both described below), PPPs also reduce the need for separate bids at each project stage, and private companies in a PPP often bid for a project with a fixed fee and thus do not require time for lengthy negotiations of financial terms.

PPPs often use the design-build-operate-maintain (DBOM) model as an integrated partnership that combines the design and construction responsibilities of design-build contracts with operations and maintenance. A single private sector entity is selected with a single contract, with financing secured by the public sector. This project delivery approach is also known by a number of different names, including “turnkey” procurement and build-operate-transfer (BOT). DDOT has been utilizing this process on recent District projects, including the 11th Street Bridge and the H Street Streetcar Line. This model should be considered for future major infrastructure projects.

moveDC goals supported by this policy:

- **Citywide Accessibility and Mobility:** maximize system reliability and capacity for moving people and goods
- **Preservation:** achieve a state of good repair for all District infrastructure
- **Funding and Financing:** invest in transportation to achieve outcomes within plan horizon

Examples

PPPs occur most commonly at the state level, as state transportation agencies typically retain ownership of large infrastructure, although they can occur at the local level as well when permitted by state statute. One example is the Reno Transportation Rail Access Corridor, which is a railroad corridor that was constructed to ease congestion and air quality issues that stemmed from a major freight rail line passing through downtown Reno and crossing streets at grade. The city partnered with the Union Pacific Railroad, the freight line’s owner, to create a 1.75-mile long, 33-foot deep trench that would carry trains under local streets. What were

once at-grade rail crossings are now bridges. The improvement has resulted in less congestion and delays for automobiles, thus improving overall air quality and travel conditions.

Policy 8.2: Evaluate the role of the District’s transportation investments in regional economic development.

What This Means for DC

The District of Columbia’s transportation infrastructure may be located within the city’s boundaries, but it serves as the nerve center of the region’s mobility. Investments that the District makes improve access to the Washington area’s largest employment center (and the largest in the United States outside of New York) and undoubtedly benefit residents of neighboring Maryland and Virginia by maintaining a functional and reliable transportation system in the city.

The long-term viability of DC continuing to make these kinds of investments is closely tied to making a regional business case for their benefit to the entire region. This may not yield direct financial assistance from the other states, but it can help to guide discussions of how to prioritize transportation projects in regional long-range plans, how Maryland and Virginia may be able to offset DC’s outlay of resources through increased support for transit operations or other regionwide contributions, and how these states can help DC in appealing for federal funding assistance that benefits the entire region.

WMATA has already taken similar steps, developing a report that helps to make the business case for transit and presenting this argument from multiple angles.\(^4\) This report presents data on transit’s effects on municipal tax base near stations, the access to jobs that it provides for riders, and the savings that it offers to Washington-area households. Most importantly, it compares these data to the cost to taxpayers and the lost opportunities for economic development that would result were it not for the Metrorail system.

Making this case at the regional level can identify how to invest in region-serving projects in the District and in cooperation with surrounding jurisdictions.

moveDC goals supported by this policy:

- **Citywide Accessibility and Mobility:** maximize system reliability and capacity for moving people and goods
- **Preservation:** achieve a state of good repair for all District infrastructure
- **Funding and Financing:** invest in transportation to achieve outcomes within plan horizon

Examples

Minnesota’s Twin Cities have also made a similar effort through the Itasca Project, a business community-led initiative that seeks to identify ways to improve quality of life and increase economic competitiveness for the Minneapolis-St. Paul region. Itasca developed a study of the returns that the region can expect on transit,

estimating internal rates of return on transit investment in the region to be from 8 to nearly 21 percent, and the potential for employers to have non-automobile access to another 500,000 employees.41

As the District of Columbia continues to mature as a city, it will make transportation investments that fill in a finer grain than what the Metrorail system provides within the District’s boundaries. These investments are no less important in providing urban mobility and should be understood as a part of a coherent regional system that allows metropolitan Washington to have one of the most dynamic, prosperous regional economies in the nation and the world.

**Policy 8.3: Help start a regional infrastructure bank for mega-projects.**

**What This Means for DC**

Usually practiced at the state level or regional level, infrastructure banks are an emerging practice in transportation funding. Transportation agencies are able to borrow at reduced interest from an infrastructure bank financed by the state legislature. This can help to fund and deliver projects that are critical to a state’s or city’s development that could not otherwise fit into fiscally constrained programs.

The Federal state infrastructure bank (SIB) program currently in place was established in the SAFETEA-LU transportation bill, although SIBs have been allowed in some form since the mid-1990s. This allows states to establish infrastructure-specific revolving funds in partnership with USDOT and for these funds to be capitalized with Federal funding. They allow loans at reduced rates, financing of bonds, credit lines, bond insurance, and other loan guarantees.

Washington, DC’s state-equivalent status means that it may be able to develop such a program, but most likely should look to do so in partnerships with other regional partners. In doing so, its greatest particular opportunities may be in the ability to use SIB funds to leverage other funding sources, including private funds (refer to the section on PPPs below).

**moveDC goals supported by this policy:**

- **Citywide Accessibility and Mobility:** maximize system reliability and capacity for moving people and goods
- **Preservation:** achieve a state of good repair for all District infrastructure
- **Funding and Financing:** invest in transportation to achieve outcomes within plan horizon

**Examples**

Among the more than 30 states that have infrastructure banks in operation, there are valuable lessons learned that point to how these could work for the District of Columbia. Florida’s infrastructure bank has loaned over 10 percent of the $1 billion it has been funded so far to transit projects—including the SunRail commuter line in the Orlando metropolitan area, and this project is expected to generate several hundred million dollars in private investment. The District of Columbia’s emphasis on transit projects, including its currently-planned streetcar system, is a prime opportunity to capitalize local DC funds with Federal funding through DC’s state status.

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Policy 8.4: Explore dedicated transportation funding/lockbox for capacity expansion.

What This Means for DC

Creating a dedicated funding source and protecting it from diversions of funds to other purposes is an important step in establishing long-term political commitment to creating a city competitive on the national and international scales.

At the state level, the move toward funding lockboxes has come as much needed maintenance of infrastructure and enhancements to public transportation systems have been deferred due to funds being transferred to other uses, sometimes in high-profile occurrences where key events have coincided with transportation funding shortfalls due to diversion of resources.

Currently, Washington DC’s transportation budget is part of the citywide budget process. While generally consistent, there is always the possibility that future administrations would not value transportation at current levels. Establishing a dedicated transportation fund would provide a minimum financial security for the District’s invaluable transportation resources. If special purpose funds are considered an option for the District, it should be a method limited to where they are applicable, specifically for large, complex projects, and not daily operations and maintenance.

moveDC goals supported by this policy:

- **Citywide Accessibility and Mobility:** maximize system reliability and capacity for moving people and goods
- **Preservation:** achieve a state of good repair for all District infrastructure
- **Funding and Financing:** invest in transportation to achieve outcomes within plan horizon

Examples

Action to establish lockboxes has either been through legislation, as occurred recently in Connecticut\(^ {42} \), or through voter referendum, as has been proposed for an amendment to the Maryland state constitution. The lockbox itself is typically a procedural rule that specifies conditions to be met in order for dedicated transportation funds to be used for other purposes. Under the proposed Maryland lockbox, this would be a three-fifths vote in both legislative houses and a declaration of a state of fiscal emergency by the state governor.

Multiple transit agencies around the United States are funded at least partially with dedicated sources such as sales taxes, payroll taxes and portions of regional motor fuel taxes, and the creation of a separate agency facilitates the exclusive use of these funds for their intended purpose. When transportation is the responsibility of a general government agency with other responsibilities (and control of a series of funds), the lockbox legislation needs to define terms in which use of dedicated transportation funds can be made and establish standards for public transparency on where funds will be applied.

\(^ {42} \) Tri-State Transportation Campaign. “Connecticut raids transportation funds – for the last time?” Available online at http://blog.tstc.org/2013/06/06/ct-budget-raids-transportation-funds-for-the-last-time/.
9. Proactively Manage the Transportation System

DDOT operations should support the mission and vision of moveDC to implement policy refinements and monitor the performance of the system overall.

Policy 9.1: All transportation investments should be State of Good Repair Projects, too.

What This Means for DC

This strategy seeks to align project programming and funding between projects intended to bring the transportation system to a State of Good Repair (SGR) and new construction and enhancement projects. The purpose of doing this is not only to combine funding sources and realize efficiency in project delivery, but also to demonstrate an agency commitment that repair and maintenance of the transportation system are just as important as major changes to it.

SGR refers to maintenance and rehabilitation projects that keep infrastructure in a sound and functional condition and offset the need for more costly, extensive maintenance into the future. For DDOT, the logistical needs of these projects, such as maintenance of traffic, mobilization of work crews and equipment, and potential temporary impacts on parallel infrastructure systems (such as utilities) represent project costs, and to the extent that other adjacent or connected projects can be integrated into the SGR project, an overall cost savings may be achieved by reducing the outlay of resources needed for these supporting functions of project delivery.

moveDC goals supported by this policy:

- **Citywide Accessibility and Mobility**: maximize system reliability and capacity for moving people and goods
- **Safety and Security**: achieve zero fatalities and serious injuries on District transportation network
- **Preservation**: achieve a state of good repair for all District infrastructure
- **Funding and Financing**: invest in transportation to achieve outcomes within plan horizon

Examples

Berkeley, California is one example of this kind of a policy in action, as the City coordinates its five-year resurfacing program with projects that extend the overall utility of the transportation system by offering other modal options or enhancements to other parts of the street and right-of-way (such as sidewalks and bicycle facilities).43

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Policy 9.2: Further formalize the data collection, evaluation, sharing and monitoring program within DDOT.

What This Means for DC

Unified data collection and monitoring programs are a key means of identifying where changes to the transportation system are needed, universal application of policies and standards, and informed evaluation as to what is most effective after implementation. DDOT should establish a program across its different administrations to allow consistent data formats, regular updates, and systematic means of evaluation and monitoring of transportation system performance. This policy also includes making public access to as much non-personal or non-proprietary data as possible in real time or close to it.

moveDC goals supported by this policy:

- **Citywide Accessibility and Mobility**: maximize system reliability and capacity for moving people and goods
- **Safety and Security**: achieve zero fatalities and serious injuries on District transportation network
- **Preservation**: achieve a state of good repair for all District infrastructure
- **Funding and Financing**: invest in transportation to achieve outcomes within plan horizon

Examples

Arlington County’s Data Collection and Analysis Program is a comprehensive transportation data collection effort that focuses on traffic data. It collects vehicle traffic counts as part of an annual counting program, which allows it to identify and respond to changes in traffic patterns in order to reduce accidents and alleviate traffic problems. This program also collects and analyzes vehicular and pedestrian traffic accident data for the purpose of identifying safety deficiencies and needs, suggesting operational and capital project responses to address key safety issues.

In Philadelphia, a city with an even greater mix of travel patterns between expressways, surface street transit, and local streets than Washington DC, the City found that it was not economically feasible to maintain an independent program in their Streets Department, and that it was more economical to hire the Delaware Valley Regional Planning Commission (DVRPC), the Philadelphia region’s MPO, to perform their required data collection. This suggests that a critical mass of data collection is necessary to realize benefit out of the costs applied to a program, as well as a need to utilize equipment and personnel. DVRPC makes extensive use of equipment and crews, with a traffic counting program in operation every day of the year.44

Policy 9.3: Establish a consistent policy towards traffic calming in neighborhoods.

What This Means for DC

Successful approaches to traffic calming have both demonstrated effectiveness in reducing negative impacts of vehicle traffic (especially speed, accident rates, and through-traffic volume on neighborhood streets) and earned the support of their communities. This last point is critical, as many neighborhoods have rejected

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traffic calming measures as disruptive to their own residents’ necessary use of their own streets. Achieving successful outcomes and sustained community support has relied on using a broad palette of physical designs for traffic calming treatments as well as a consistent policy on the conditions in which each can be used.

The District has implemented traffic calming in many of its neighborhoods, including a program of Traffic Calming Assessments intended to observe traffic conditions and to identify opportunities. This program was designed to respond to neighborhood concerns and to evaluate a focused area of neighborhoods for ways that traffic calming approaches might be implemented. DDOT has also created the “Livability Program” to conduct neighborhood transportation planning studies and advance small-scale improvements to the public realm and safety.

Further expansion of this program should shift from a policy of neighborhood-requested traffic calming to include standard assessments of where traffic calming is appropriate. These should lead to place-appropriate traffic calming techniques to ensure that design interventions that are well coordinated with their neighborhood context. DDOT already permits a wide range of traffic calming design options, representing a sophisticated understanding of the practice.45

**moveDC goals supported by this policy:**

- **Sustainability and Health:** achieve 75% of all District trips by non-auto modes
- **Neighborhood Accessibility and Connectivity:** support neighborhood vitality and economic development
- **Safety and Security:** achieve zero fatalities and serious injuries on District transportation network
- **Public Space:** reinforce Washington DC’s historic landscapes and quality of neighborhood

**Examples**

Portland, Oregon has developed a comprehensive Neighborhood Traffic Management Program (NTMP) that not only uses traffic calming design approaches but also assesses neighborhoods throughout the city for traffic calming suitability and evaluates the effectiveness of design interventions. This is based on a general policy framework in Portland of promoting complete streets and a balanced transportation system for all users, including the third of Portland’s population under age 18 or over age 65.46 This complements an existing Traffic Calming Program that had been installing traffic calming devices since the 1980s, including speed tables, traffic circles (mini-roundabouts), diverters, median islands and curb extensions. Under Portland’s NTMP, the City identifies locations through a series of selection criteria including traffic speed and accident data relative to the street classification system, and identifies patterns of safety concern where speeds or crash severity occur on streets designed to serve a neighborhood collector function. After projects have been designed, programmed, and implemented, the City studies their effectiveness and gauges any impacts they have on surrounding neighborhood streets where traffic calming was not applied.47

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10. Utilize Transportation-related Technology to Stay on the Forefront of Community Building

Policy 10.1: Encourage open data from data systems to stimulate public and private collaboration in data exchange and creation of valuable information for operators and consumers.

What This Means for DC

The amount and type of data that is collected from systems all around us is staggering. The primary issues to open data lie in access permissions and rights to data and the format in which it is stored. Getting data out of systems that are all around us and having it available to be used for for analytical and operational purposes for public and private organizations can have tremendous benefit in terms of delivering more effective and efficient transportation solutions. Innovation begins with a full understanding of issues and data access is among the keys to understanding those issues.

moveDC goals supported by this policy:

- **Sustainability and Health**: achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility**: maximize system reliability and capacity for moving people and goods

Examples

The establishment of General Transit Feed Specification (GTFS), pioneered by Google, is a good example of the implementation of an open data format. Prior to Google’s initiative in creating this standard for themselves and the later industry acceptance of this and eventual formal standardization of transit data into GTFS, most data from technology applications for transit operations was locked up inside vendor systems, protected legally/contractually, and in a proprietary format. If agencies tried to get to their data and share outside the system, it was legally and practically impossible.

Through demand by transit agencies requiring open data and ensuing vendor competition, transit data began to become open. Google provided transit agencies a user-friendly portal through which to distribution data, which was then refined into usable consumer information. Today most vendors automatically offer direct feeds to Google because the transit operator community forced the change through legal changes in procurement language to benefit.

Policy 10.2: Explore how crowdsourcing and gamification can contribute to more informed transportation system decision-making and operations and incentivize travelers to explore more sustainable travel behaviors.

What This Means for DC

Social media touches more and more parts of our lives. The data and information it generates has tremendous value for many different applications, including transportation. The penetration of social media and peoples’ apparent willingness within its associated applications to share updates on their activities, location, travel choices, and so on offer tremendous potential to better understand the operation of the transportation system in real time, while also adapting it to best serve people’s desired travel behaviors. Gamification for
transportation is one way that social media is being linked directly to transportation. Executed appropriately, gamification can incentivize people to travel by more sustainable, available, and efficient travel modes, while providing analysts (public and private) with critical data on the operation of the transportation system, permitting it to be adapted to better suit actual, instead of modeled, travel patterns and needs.

**moveDC goals supported by this policy:**

- **Sustainability and Health:** achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility:** maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity:** support neighborhood vitality and economic development

**Examples**

Internationally, London’s Chromaroma (http://www.chromaroma.com/) is one of the best examples of successful transportation gamification. To understand Chromaroma, it helps to think of London as a game board with real people as players of the game (which they are) and an individual’s Oyster Card as the game token. Like in a board game, to move, a person must user their token. In this case, they have to swipe their Oyster Card to move. Each time a person swipes their card at the Tube, on a bus, at bikeshare or another eligible location for service, the system records the swipe and adds points to a person’s score and updates their travel profile. Important data is then stored and can be used in analysis and system condition reporting by the transportation agency. From the user side, swipes earn points, which translate into a (if the user wants) publicly-available score and rank among game players.

**Policy 1.3:** Support autonomous vehicle implementation and connected vehicle research, using DC as a test bed for the Nation.

**What This Means for DC**

Autonomous vehicles and connected vehicles have the potential to improve safety, efficiency, and mobility, while also reducing parking challenges and improving air quality. Successfully implemented, autonomous vehicles have the potential to offer people the convenience of driving, without many of its negative impacts and challenges. With or without autonomous vehicles, connected vehicle technology has the potential to offer people a safer, more efficient, and more predictable driving experience, while at the same time, allowing the transportation system to perform more efficiently.

Successfully implemented, connected vehicle technologies could transform operations for the District helping to reduce crash frequency and severity, providing data to traffic managers in real-time to optimize system performance, providing travelers better information to make informed travel choices and to understand the impact of those choices, and to permit vehicles to talk to the system to increase vehicle energy efficiency and system operational efficiency. The District could become an urban test bed for both autonomous vehicles and connected vehicles through policy and legal support.

**moveDC goals supported by this policy:**

- **Sustainability and Health:** achieve 75% of all District trips by non-auto modes
- **Citywide Accessibility and Mobility:** maximize system reliability and capacity for moving people and goods
- **Neighborhood Accessibility and Connectivity**: support neighborhood vitality and economic development

- **Safety and Security**: achieve zero fatalities and serious injuries on District transportation network

**Examples**

The Google car (an autonomous vehicle) is now legal in Nevada and California. Both states passed legislation to permit it to operate within the traffic laws and regulations based on successful tests. On the connected vehicle front, major auto manufactures (domestic and foreign) as well as the Federal Highway Administration continue to invest substantially in connected vehicle research and implementation. Test sites exist across country and are as near as Fairfax County and Blacksburg, Virginia.

**Policy 10.4: Develop Integrated Corridor Management applications including use of 511**

**What This Means for DC**

Integrated corridor management (ICM) is a comprehensive set of strategies deployed to gain operational efficiencies and provide travelers with better information along transportation corridors. Strategies include multimodal applications in traveler information and corridor technology applications to create better mobility and improved operations. Successful ICM implementation in DC and neighboring states could result in better utilization of available multimodal system capacity serving key travel routes, improving system operations, reducing the severity and duration of congestion, and increasing travel time reliability.

There are many events scheduled and unscheduled that effect DC daily. Weather and security concerns can severely disrupt travel throughout the city. 511 services can be used to direct messages to a wide audience throughout the city. By directing travelers to 511, web, app and phone systems, critical messages can be distributed using one tool and in-turn, help people make informed decisions about travel. 511 technology has been used for decades in some states and remains a viable communication mechanism.

**moveDC goals supported by this policy:**

- **Sustainability and Health**: achieve 75% of all District trips by non-auto modes

- **Citywide Accessibility and Mobility**: maximize system reliability and capacity for moving people and goods

- **Safety and Security**: achieve zero fatalities and serious injuries on District transportation network

**Examples**

The Federal Highway Administration is sponsoring two test bed sites for ICM applications, one on San Diego and one in Dallas. Virginia has successfully developed ICM plans in the I-95 corridor and is implementing those plans in the form of real-time parking information and multi-modal travel time information comparing HOV, general purpose lane, and Virginia Railway Express travel times. Many states are already using 511 in various forms. Some states use 511 for special incident, weather and safety information and others for travel services or both.