



ARLINGTON COUNTY, VIRGINIA

County Board Agenda Item Meeting of February 12, 2011

DATE: February 3, 2011

SUBJECT: Adoption of the Master Transportation Plan (MTP) Streets Element and Amendment of the MTP Goals and Policies Summary.

C. M. RECOMMENDATION:

1. Adopt an Amendment to the County Comprehensive Plan to add a Streets Element, entitled "Master Transportation Plan Streets Element," dated December 2010, to be included in the Amended MTP.
2. Adopt an Amendment to the County Comprehensive Plan's MTP Goals and Policies Summary to add a new Policy number 14 related to utilities in public streets.

ISSUES: The proposed Streets Element will be the final element of the Master Transportation Plan comprehensive amendments that began in 2005. The Streets Element identifies various actions to implement the policies for streets adopted by the County Board in 2007. The Element includes additional guidance on street types and their designs. The public input that went into the Element identified two significant issues: 1) The MTP Streets Element should provide clear guidance on how various street types should be designed, built and operated, however such guidance must also be flexible enough to be applied in a manner that is harmonious with existing and desired street and neighborhood character; and 2) The MTP Goals and Policies summary that was adopted in 2007 had not identified any policies to guide the placement and management of utilities within public streets rights-of-way. Thus an additional policy (number 14) was added.

SUMMARY: The current request is to adopt the proposed Streets Element and to complete the revision of the Arlington Master Transportation Plan (MTP). Streets policies have traditionally been the primary feature of previous Arlington Master Transportation Plans.

The Streets Element takes the 13 related policy statements that were adopted as part of the overall MTP Goals and Policies document and adds one additional policy. A total of 124 specific actions are identified to implement the 14 streets policies. Measures for tracking Arlington's performance in achieving its stated goals are also provided in the document.

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27.

BACKGROUND: In 1941, Arlington adopted its first long-range, County-wide transportation plan: Major Thoroughfares for Arlington, Virginia. Approximately 20 years later, a new thoroughfare plan was adopted, this time in concert with Arlington's General Land Use Plan (GLUP). Thereafter, in the mid-1970s, Arlington's long-range transportation plan became multi-modal, with four elements adopted for bikeways, streets, transit and walkways. Ten years later, a new Countywide Plan, Master Transportation Plan – Part I was developed, bringing together the streets, bikeways and walkways into one document in 1986. Between 1986 and the current efforts to update the MTP and all elements thereof, a new element was adopted for paratransit, and the portions of the 1986 plan for bikeways (now, bicycle) and walkways (now, pedestrians) were updated in 2008.

In October 2004, the Arlington County Board tasked County staff to undertake a complete revision of the County's MTP. The public process was initiated with a community-transportation survey that generated responses from about 800 Arlington residents and a series of focus-group and public-forum sessions were held in the fall of 2005. The information collected from the community was presented to the 24-member MTP Plenary Group which was comprised of representatives from several County advisory commissions. Over the course of a year-and-a-half of regular meetings, the MTP Plenary Group assisted the County staff and a consultant team with the development of the first draft of a new MTP. Three drafts of the proposed MTP revisions were presented for public review between June 2006 and March 2007 at public forums, on the County's website and through more than 50 presentations made to advisory committees and civic groups. In late 2007, the County Board decided to split adoption of the overall goals, policies and map portions to occur first, and the adoption of the six modal element documents to occur in subsequent years.

In November and December of 2007, The County Board amended the MTP to adopt a Goals and Policies document and a MTP Map (known collectively as the "MTP Additions"). The new documents provided updated vision, objectives, goals and policies for the future of the Arlington transportation system, as well as identified key planned transportation facility and service additions including new streets, transit lines, intersection and roadway improvements, and bicycle/pedestrian trails. In July 2008, as part of the "MTP Additions" the County Board adopted the Bicycle and Pedestrian elements to the Amended MTP, in December 2008 the MTP Demand and System Management Element was adopted. In June 2009 and November 2009 the Transit Element and the Parking and Curb Space Management Element respectively were adopted. The five new elements plus the MTP Goals and Policies document and the MTP Map were added to the Master Transportation Plan – Part I adopted in the 1986 with subsequent supplements and amendments.

The MTP Additions, Bicycle Element, Pedestrian Element, Demand and System Management Element, Transit Element, Parking and Curb Space Management Element and the previously-adopted MTP documents (known as the Existing MTP) now comprise the Amended MTP. (See Attachment A to this report for definitions of other terms used herein.)

DISCUSSION: As part of the Comprehensive Plan, the MTP is Arlington’s principal means of establishing planning policy for transportation matters. The MTP Additions were developed to incorporate the transportation-policy directives established by the County Board in recent years.

Moreover, the MTP Additions guide the implementation of a multimodal transportation system that will serve the future Arlington as envisioned by the County’s General Land Use Plan (GLUP). By the year 2030 Arlington’s residential and employment populations are forecasted to grow by about 25%. Arlington will experience increased travel demands not only from its own growth, but also from greater amounts of pass-through travel. The forecasted increased travel demands will challenge Arlington’s transportation system unless measures are imposed to manage travel times, shift more travel away from single-occupant driving and achieve greater efficiency in traffic accommodation.

The Master Transportation Plan established three general policies in regards to Arlington’s transportation systems: 1) they include integration of transportation with land uses, 2) development and operation of Complete Streets and 3) management of travel demand and transportation systems. The Streets Element is the primary document for detailing how “Complete Streets” are to be achieved. Complete Streets accommodate the transportation needs of all surface-transportation users: motorists, transit riders, bicyclists and pedestrians; they are also designed to support the type and character of planned and existing land uses.

The Streets Element is organized around five overall objectives, they are: 1) developing a well-connected network of streets compatible with adjacent land uses, 2) providing Complete Streets that accommodate all users, 3) designing and managing streets to reduce the incidence and severity injuries from traffic crashes, 4) managing streets for efficient use and minimizing long-term public expenses, and 5) enhancing the human and natural environments. Each objective is supported by established policy statements, and specified implementation actions. The draft Street Element also includes a traditional classification of all streets based upon the functional roles that each street currently plays. The draft element also provides a street typology for those streets classified as either arterial or local streets. The typology augments the functional classifications to better relate individual streets to their land use and historical context. Each street type is described in terms of land use and multimodal function and is provided with design guidance that establishes expected features and dimensions.

Major components and policy directives of the MTP Streets Element include:

- Fourteen streets policies, 13 of which were adopted previously by the Arlington County Board. These policies provide guidance for how the County should design and manage its streets over the next 20 years. The Streets Element specifies more than 120 actions to be undertaken to implement the County’s streets policies.
- Establishment of implementation actions that call for future review and update of the existing functional classifications and for the development of a County streets design manual.
- Identification of opportunities to improve the connectivity of the existing network of streets through the construction of new street segments as part of property redevelopment and through selected re-establishment of physical streets within existing public rights-of-way.
- Creation of new alleys and service streets in commercial area and the requirement of new, large commercial buildings to provide for adequate off-street loading.

- Prioritization of efforts to enhance the accessibility of all arterial streets for pedestrian travel and the provision of bicycle facilities, such as bicycle lanes within arterial streets.
- Management of traffic congestion by stabilizing traffic near current volumes while making selective improvements within the street network.
- Redesign and reconstruction of streets to reinforce safe operating speeds by motorists including reducing speed limits in districts with heavy pedestrian traffic.
- Establishment of a 15-year street pavement schedule and measures to reduce pavement cutting and utility work that disrupts street operation.
- Creation of vibrant public spaces within the street right-of-way through development of high-quality streetscapes, encouragement of sidewalk cafes/vending, street furnishing and the conversion of under-utilized street space to pedestrian ways and landscaped areas.
- Implementation of measures to achieve “Green Streets” including the planting of additional street trees and the use of pervious pavement and bio-retention areas within street rights-of-way.
- The development of a typology for local streets, along with accompanying design guidelines that include Urban Center and Pedestrian-Oriented streets.

Significant Policy Considerations in the Streets Element:

Streets Connectivity: An overall County objective, as identified in the proposed Streets Element (pages 4 – 7), is to develop a well-connected network of streets to permit greater efficiency in travel movement and to reduce overreliance upon individual streets. Provision of thoughtfully-planned additions to Arlington’s street network can greatly improve access for motorist, pedestrians, bicyclists and other street users while creating opportunities for new curb space and enhancing emergency service response. Planning processes such as Sector Plan updates, subdivision applications and site plan reviews are the most likely activities when new streets may be identified. New street linkages may also be achieved through conversion of existing public right-of-way where either a street closure had been made or no physical street facilities were ever built.

The development of new streets is likely to be controversial, particularly if such streets are in residential areas or could shift additional traffic volumes into established areas. On occasion residents have also petitioned the County have an existing street linkage closed. The Streets Element emphasizes that a public process be used in deciding street additions or closures. When potential new connections or closures are evaluated, consideration should be given to the overall community benefits such as public safety and convenience as well as impacts upon affected property owners.

Speed Limits: The MTP and Streets Element provide great emphasis upon designing and operating streets to be multimodal facilities that reflect the land uses and overall context of the street environment. In addition, the Streets Element (pages 9 – 12) places great emphasis on enhancing public safety through reductions in the occurrence and severity of traffic collisions. A key measure in both improving the accessibility and safety of streets, particularly from the standpoint of pedestrians, is to achieve lower vehicular travel speeds.

The Streets Element calls for the establishment of a maximum 25 miles per hour speed limit on all arterial streets within “downtown” commercial districts where pedestrian traffic is likely to be substantial. On some streets, there may need to be both reductions in the current speed limits as well as introduction of physical measures to achieve the desired speed reductions. To some street users, the changes may seem to be annoyances that degrade service on the street. It is important that the changes, such as speed limit reductions, be considered as part of overall efforts to enhance community safety and improve travel options.

Arterial Speed Management: Travel in Arlington is concentrated along the arterial streets. Even those arterials that pass through primarily low-density residential neighborhoods can carry tens of thousands of motor vehicles per day and may see large numbers of pedestrian and bicyclists crossing and traveling along the corridors. Residents along those arterial corridors frequently raise concerns about the safety, noise and other negative impacts of the high volumes of travel. While the County has an established Neighborhood Traffic Calming (NTC) program to address issues of traffic speeding on local streets, some of the NTC measures cannot safely or appropriately be applied on arterial streets with high traffic volumes.

The Streets Element emphasizes (on pages 9 – 11) use of the measures identified in the Arterial Traffic Management (ATM) study that the County conducted in 2005 to control speeding on arterial streets. Several ATM projects have been constructed specifically to address speed and safety concerns on arterial streets through residential areas. The projects generally involve significant reconstruction of the streets but have achieved substantial traffic speed and crash reductions. More projects will likely be implemented provided that sufficient funding is available.

Traffic Congestion Management: Generally, traffic flows reasonably smoothly on Arlington’s network of local and arterial streets, although extreme weather, construction and crashes can create incidents of significant back-up. Although currently traffic on Arlington’s streets is relatively free-flowing, substantial increases in future traffic volumes could overwhelm the capacity of the existing system. Population and employment projections for Arlington over the next 20 years indicate a more than 25% increase in peak period travel demand which could cause challenges for our street network.

Fortunately, most of the new jobs and residences are planned to be located within the County’s transit-oriented corridors. County Transportation Demand Management (TDM) efforts are being directed to achieving a significantly higher percentage of travel occurring by public transit, carpooling, walking, bicycling and telecommuting in order to minimize the traffic impacts upon our streets. The County’s adopted goal is to accommodate the new travel demand for the year 2030 with no more than a 5% increase in the peak hour traffic volumes. The traffic increase that does occur can be addressed without significant increased congestion through measures (pages 8 and 9) such as traffic signal timing optimization, enhanced incident detection and response, real-time traveler information, additional left turn lanes, new street connections and better management of on-street deliveries and parking. Overall the County’s approach to traffic congestion is to reduce peak vehicular traffic volumes and minimize flow obstructions rather than widen streets.

Design Guidelines for Neighborhood Streets: The County has developed design standards for streets and many other public facilities that reflect what are considered to produce the preferred outcomes. The design standards may be drawn from national standards and studies or reflect the expert opinions of the professionals involved in drafting them. The Streets Element and some other MTP elements provide a number of standards or guidelines that affect street designs.

In some cases, when undertaking a street reconstruction project there will be conflicts between those standards and the desires of the residents that live on the street. The community concerns may be related to desires to maintain a certain unique character of their street or to preserve specific features such as street trees. The Streets Element includes language (pages 25-28) that the County staff should consider the character of the street when developing a design for modifications. To the extent possible, the staff will look for flexibility in the design that still achieves the overall functional and accessibility objectives while attempting to meet the community's desires and maintain the established local character.

Appropriate Street Widths: For many years, the standard width for neighborhood streets was 36 feet between the curbs. That street width allowed for a full travel lane and a parking lane on both sides of the street. Within the last decade, the County has revised its design standards and now allows low-volume streets with parking on both sides to be as narrow as 28-feet wide. The reduced width results in a "yield" street which not only uses less space and requires less impervious surface, but it also reduces the average travel speed. In addition, a narrower street section provides greater opportunities for the installation of street improvements such as new sidewalks without impacting front yards or established trees.

However, the narrower streets do have some drawbacks. It can be difficult for residents on the street to get in and out of their driveways when the street is narrow. Yield streets, when heavily used by motorists, especially when densely parked, can be cumbersome to drive on, often requiring motorists to pull aside and allow an opposing vehicle to pass. Therefore, not all residents are supportive of narrowing streets. The Streets Element includes guidance on local street widths (see Table 2, page 28) but also includes policy language that reinforces the need for designers to involve the affected community in the design process and to keep the street's local context in mind when designing modifications.

Green Streets Measures: The Streets Element recognizes the impact that the construction and operation of streets has upon the local natural environment (pages 16 and 17). An innovative practice in street design is the "Green Street" which utilizes landscaped areas within the street right-of-way to capture and naturally filter rainwater flowing from the roadway, driveways, sidewalks and other paved surfaces. Arlington is currently developing its first projects to install Green streets type measures in County streets. The projects are intended to minimize the quantity and rate of water that enters into the storm sewer system and eventually into our local streams such as Four Mile Run. In addition to absorbing much of the stormwater flow, the Green streets facilities can also filter out contaminants on the streets such as oils and litter that would otherwise be deposited in the streams. These measures are expected to enhance the long-term health of Arlington's streams as well as the Potomac River.

Most Arlington streets have been built with storm sewers, curbs, and gutters next to grass landscaped strips. The new Green streets measures will involve building vegetated areas along the street that are less-manicured looking than grass and will at times be wet and unwalkable. Some on-street parking spaces may be removed to create areas for stormwater collection and treatment. The Green streets may also involve the use of new porous pavement materials to absorb stormwater within the street itself. These materials have a slightly-rougher look and texture than the traditional concrete and asphalt currently used on County streets and are more expensive to construct and maintain. As part of the Green street design process County staff intends to work with the residents and property-owners to work through concerns about the non-traditional measures.

Urban Center and Pedestrian-Oriented Street Types: The Streets Element includes a street Typology that describes 10 different types of arterial or local streets that may be found in the County. The street types have been developed to reflect the existing or planned land uses, the street functions and contexts. The street types are intended to assist staff and citizens in selecting the most appropriate design when planning street modification projects.

The Street Typology (pages 21- 28) includes four types of local (non-arterial) street types, including two that have been identified prior to this MTP and could be unfamiliar to many Arlingtonians. The Urban Center Local Street is typically found as “side streets” in commercial districts. The streets may be important for building service access, as well as pedestrian routes and sources for on-street parking. Considerably less common are Pedestrian-Oriented Street, of which none have yet to be formally been established in the Arlington. The Pedestrian-Oriented Street is envisioned as having low vehicular speeds and volumes, and high pedestrian activity. Motor vehicle traffic may be restricted to only certain hours or may be restricted to travel at little more than walking speeds by both physical and legal measures. The intent of the Pedestrian-Oriented Street is to emphasize greater pedestrian safety and comfort in specific corridors, but to maintain some vehicular access. County staff will need to further develop appropriate guidance for application and design of any future Pedestrian-Oriented streets.

Proposed Amendment to the MTP Goals and Policies Summary:

The MTP Goals and Policies Summary (see Attachment B) was adopted by the County Board in November 2007 with 13 policy statements regarding streets issues. None of those policies provided specific direction as to how the County should address the use of streets as corridors for publicly and privately-owned utilities. Nearly all public utilities, both those placed aboveground and below, are currently routed within public street rights-of-way. How those utilities are installed and maintained can affect the operations and appearance of the street. Utility installations can also impact upon the County’s ability and cost to reconstruct streets for safety and mobility improvements. Likewise how the street and adjoining development are constructed can significantly impact the operations and future installation of utilities both public and privately owned.

The proposed MTP Streets Element includes a new policy statement (listed as number 11 in the Streets Element) that provides specific guidance on utilities use of street rights-of-way. The policy statement is “*Provide adequate space within Arlington’s streets for efficient delivery of*

public and privately-owned utilities. Manage utility company use of Arlington's streets to minimize their impacts upon the public roadway, streetscape and adjacent private properties." The intent of the policy is to achieve better planning of new utility installations and coordinated management between County and utility companies for utility facilities that are located in or above the public street right-of-way.

Community Process:

Arlington County staff has worked extensively with the Arlington Transportation Commission, the Arlington Planning Commission and other advisory commissions, committees and civic organizations to draft and update the proposed element. This has included about 20 public presentations at which public review and comments were invited. In addition to the meetings with advisory commissions, committees and other civic organizations, a community workshop was held on November 15, 2010 to gather public feedback on a recent draft. Throughout the process, drafts of the element have also been posted on Arlington County's website along with other elements of the Master Transportation Plan (MTP), and public input has been invited.

Comments Received After Advertisement was Approved:

Comments and recommendations for changes to the version of the Element existing at the time of advertisement have been submitted by several Arlington advisory committees and residents. County staff has reviewed the comments and incorporated a number of the recommendations in the current revised version. The Arlington Bicycle Advisory Committee expressed a generally favorable opinion of the Element however they requested several minor text changes to reflect enhanced on-street bicycle accommodations such as "Bicycle Boulevards". County staff also identified a few minor text revisions. A member of Arlington's Urban Forestry Commission also recommended a few minor text changes regarding tree planting standards and the utility wire undergrounding. A representative of Arlington's building industry (NVBIA/NIAOP) requested a revision regarding the provision of alleys in all commercial development projects.

The Arlington Transportation Commission held a final review of the Streets Element at their January 27, 2011 meeting. The Commission reviewed the recently submitted text changes and voted 6 to 0 to support the adoption of the proposed Streets Element and to amend the MTP Goals and Policies Summary. The Commission incorporated one minor change to the text amendment requested by the NVBIA/NIAOP representative.

The Arlington Planning Commission held a public hearing on the Streets Element at their January 31, 2011 meeting. Three speakers addressed the Planning Commission and expressed some specific changes to the text of the document. Two speakers were representatives of the Urban Forestry Commission and had concerns about tree planting and efforts to enhance the attractiveness of community streets. The other speaker, Ms. Carrie Johnson, sought additional text to strengthen recognition of the existing character of older communities when developing street designs. Several Planning Commissioners also proposed text changes to better reflect the nature of Arlington Boulevard, to clarify the designation of street types and to address the conversion of Pedestrian-Oriented streets to public areas solely for pedestrian passage and use. The Commission approved by a vote of 10 to 0, a motion that supports the proposed Street

Element with the incorporation of text changes to reflect the recommendations of Ms. Carrie Johnson, the Urban Forestry Commission and of the Planning Commissioners. The Commission's motion also supported the proposed amendment to the MTP Goals and Policies Summary which would add a new Policy 14.

With the adoption of the Streets Element, the Master Transportation Plan – Part I (1986) and all supplements and amendments thereto will have been superseded by the Amended MTP.

FISCAL IMPACT: Adopting the amendments to the Existing Plan to include a Streets Element, will impose no immediate financial commitments on the County. However, many of the proposed implementation actions in the document call for the establishment, operation and maintenance of higher levels of public facilities and services. Implementation of the MTP will require the County to determine to what extent, to which purposes, and on what schedule, it will commit its own revenues as well as those non-local funds that it may control. Such decisions will be made by the Arlington County Board as part of future operating and capital-budget deliberations.

**Attachment A: Master Transportation Plan (MTP) Terminology to Board Report for
February 12, 2011 County Board Meeting**

Name:

Consists of:

Existing MTP

- Master Transportation Plan – Part I (1986), and
- All supplements and amendments since they were adopted by the County Board as reflected in the five-year updates, or otherwise.

MTP Additions

- MTP Goals and Policies Summary, adopted November 2007
- MTP Map, adopted December 2007
- Bicycle Element, adopted July 2008
- Pedestrian Element, adopted July 2008
- Demand and System Management Element, adopted December 2008
- Transit Element, adopted June 2009
- Parking and Curb Space Management Element, adopted November 2009

Amended MTP

- *Existing MTP* and the *MTP Additions*
The *MTP Additions* will have precedence in instances of conflicts or inconsistencies with the *Existing MTP*.

Future MTP

- *MTP Additions* and the proposed Streets Element. The Streets Element, upon adoption by the County Board, will be part of the “MTP Additions” and part of the “Amended MTP,” each as described above.

Appendix B: Master Transportation Plan Goals and Policies Summary: Policies for Streets

Streets Policies:

1. Utilize the plan's typology of arterial streets to guide street planning, management, design and construction/reconstruction (See Map.) The typology identifies categories of arterial streets which are primarily assigned with relation to the types of land use found along them. Each street type should support the general policies of complete streets and the compatibility of transportation design with adjacent land uses. *Refer to the MTP Map for guidance on street design and dimensions.*
2. Include the appropriate facilities to meet the needs of bicyclists, pedestrians, transit riders, motorists and freight movements as part of all County street and facility improvement projects. Operate arterial streets in a manner that balances the needs of pedestrians, bicyclists, transit users and motorists in the right-of-way. Utilize the principles of Safe Routes to School in designing and operating streets in the vicinity of Arlington schools.
3. Accommodate travel growth through shifts to non-automobile modes and improved management of the existing streets rather than the addition of significant new street capacity. Reconstruct streets within the existing street right-of-way except where additional space is needed for safety and operational improvements such as sidewalks, transit facilities, crosswalks, bike lanes, and left-hand turn facilities. Alter the circulation direction and alignment of streets as appropriate to address safety, pedestrian access or traffic circulation needs.
4. Design streets to generally favor lower vehicle speeds without impeding or diverting existing vehicle volumes. Reduce lanes where unused lane and unneeded capacity can be converted to better use of the underlying land.
5. Design neighborhood streets to control travel speeds. Permit those streets with relatively low traffic volumes (under 1,500 vehicles per day) and single family development to be narrowed and operate as "yield streets". Implement additional neighborhood traffic calming, sometimes including street narrowing on streets with defined speeding problems. Involve local residents and neighbors in the design of street modifications.
6. Maintain and enhance a grid-style street network. Facilitate desired creation, realignment or relocation of existing streets as appropriate, including through vacation of existing and acquisition of new street right-of-way. Enhance the connectivity of the existing street network by constructing new streets with redevelopment of large blocks and avoiding permanent closures or other reductions in street connectivity. Whenever feasible, new streets should be publicly-owned. Privately-owned streets should have in place agreements with the County regarding their maintenance and provision for public access. Seek to manage privately-owned streets in the same manner as those publicly-owned, including such areas as parking regulation. *Some areas where new street connections would be appropriate are illustrated on the MTP Map.*
7. Expect service alleys and off-street delivery/loading zones in all new commercial, mixed-use and high-density residential developments. Minimize the number and size of curb cuts for new developments, particularly along arterial streets. Place curb cuts where pedestrian volume is lowest.
8. Design and operate Arlington's streets to be vibrant public spaces through incorporation of human-scale structures and street furnishing, attractive landscaping, and active streetfront uses. Allow streets to be important public spaces that may be periodically closed to traffic to permit farmers' markets, festivals and other civic events.
9. Repave streets on approximately a 15-year cycle, considering streets' Pavement Condition Index (PCI) assessments, public and private construction schedules and traffic volumes. Repair, rather than repave streets lacking basic improvements such as curbs and gutters except if such streets are

unlikely to have significant improvements made in the near future and annual repair expenses are comparable or greater than a one-time repavement cost.

10. Design and operate Arlington's street network in a manner that balances safety to users while still supporting efficient emergency responses. Provide signal priority for emergency vehicles on arterial streets as appropriate.
11. Enhance Arlington's natural environment through improvements to the street tree canopy by planting trees in landscape strips and medians and by creating planting areas where they do not currently exist.
12. Reduce storm-water runoff by minimizing the creation of additional impermeable areas and increasing the infiltration of storm water in street-side collection areas and through permeable pavement.
13. Expand High Occupancy Vehicle (HOV) incentives to additional roadways and bridges, such as Jefferson Davis Highway (Route 110) and the 14th Street Bridge, to encourage greater carpooling and transit use on regional roadways. Ensure that High Occupancy Toll (HOT) lane implementation does not negatively affect the efficiency of existing transit and carpooling.
14. Provide adequate space within Arlington's streets for efficient delivery of public and privately-owned utilities. Manage utility company use of Arlington's streets to minimize their impacts upon the public roadway, streetscape and adjacent private properties.

ARLINGTON MASTER TRANSPORTATION PLAN STREETS ELEMENT



December 2010 (Revised)

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I. Introduction

This element of the MTP focuses on multi-modal use of public streets and rights-of-way. Streets have traditionally been seen as the domain of the automobile but are essential facilities for nearly all forms of transportation including individual and mass transit, taxicabs, bicyclists and pedestrians. Moreover, our local streets are not just transportation facilities, they also serve as and shape many of our community's most public spaces.

The MTP establishes six broad goals for Arlington's transportation policy that direct the policies and implementation actions for street development and management that are identified in this document. Those goals are:

1. Provide high-quality transportation services.
2. Move more people without more traffic.
3. Promote safety.
4. Establish equity.
5. Manage effectively and efficiently.
6. Advance environmental sustainability.

Those goals are supported by 27 strategies including the following statements which directly relate to street policy in Arlington. Those strategies regarding street policy are:

- Construct and manage streets to be "Complete Streets." Streets should be safe and comfortable for pedestrians, bicyclists, transit riders, motorists and other users.
- Increase the overall person-capacity of Arlington's transportation network through the more efficient use of existing streets rights-of-way.
- Provide safe and convenient access on all streets.
- Minimize rates of injuries and accidents for each mode of transportation with a goal that transit riders, pedestrians, bicyclists, and motorists feel safe and comfortable to all times when traveling in Arlington.
- Minimize the creation of impervious surface area for streets and other transportation facilities, and manage the collection and release of runoff in an effective and environmentally-sensitive manner.
- Increase planting of trees at appropriate locations within street rights-of-way.

The street is where every element of transportation must be addressed and accommodated: pedestrians, individual and mass transit, bicycles, passenger vehicles, trucks, and parking. It is also where many other aspects of public life take place, including displaying civic pride, setting the tone for public life and commerce, providing space for vegetation, and providing storm water management. The street binds and enhances a community so that the public thoroughfares serve it.

Managing streets from this holistic point of view is a complex task. The purpose of the Streets Element of the Master Transportation Plan (MTP) is to provide a framework for addressing and managing these often-conflicting street uses.

II. Summary

Unlike previous Arlington long-range transportation plans, the existing 2007 MTP does not propose the acquisition of substantial new right-of-way or an increase in road-widening efforts. Rather, the 2007 MTP seeks to use existing rights-of-way more efficiently through greater usage of group-riding, public transit and non-motorized transport (Transportation Demand Management), more-effective management of existing street capacity (Transportation System Management) and more-effective integration and balancing of travel modes through the implementation of Complete Streets. These concepts serve as guiding principles and provide the underlying framework for the Master Transportation Plan (MTP) and all its elements.

If not managed effectively, the increased demand on Arlington's transportation system, from anticipated local and regional growth in population and jobs, will far exceed the existing or future capacity of the street system and overall transportation network. Therefore, it is important to focus on implementing the most effective demand management and system management strategies (see the Demand and System Management Element of the MTP for details). Providing multiple viable modal options is a core element of the MTP. Plan policies call for safety and mobility enhancements for people who choose to travel by private vehicle, but in conjunction with, rather than at the expense of, improvements for individual and mass transit operations and non-motorized travel.

Complete Streets accommodate the transportation needs of all surface-transportation users, motorists, transit riders, bicyclists, and pedestrians; they are also designed to support the type and character of planned/existing adjacent land uses. Complete Streets also promote environmental quality, enhance community identity and values, and respect historic resources, including neighborhoods and commercial areas. To understand the concept of Complete Streets, it is important to think beyond the roadway itself to its overall encompassing environment and potential uses.

The Streets Element establishes the following principles as underpinnings for its objectives and recommendations:

- Make the best use of existing streets and rights-of-way to move people, goods, and services safely and efficiently.
- Protect travelers and neighborhoods from traffic speeds that are incompatible with adjacent uses and can result in traffic crashes with personal injuries and property damage.
- Incorporate environmental considerations into every street-related decision to effect a positive change in the environment and public health, and respect the existing character of local neighborhood streets.
- Establish attractive streets that are compatible with the surrounding community.

III. Policies, Implementation Actions and Performance Measures

Arlington has the ability, experience and solidarity to transform its transportation network and fine-tune its performance to better serve the community. Arlington has enacted policies and implemented some projects aimed at the remaking of its transportation system into a network of Complete Streets. The Streets Element establishes five objectives that build on the MTP goals of high-quality transportation services for everyone and all modes, safety, efficient management, and environmental quality. Specific policies are provided to support each objective. Specific actions have been identified to implement each of the policies. The policies have been given new numbers different from the 2007 MTP Element, and also shown in parentheses is the number assigned in the MTP Goals and Policies Element. One entirely new policy (number 11) has been written to address matters not addressed in the Goals and Policies Element.

To monitor progress toward achieving the Streets Element policies, performance measures are also provided at the end of each objective section. Both existing and new data sources will need to be collected to support the planned performance measures. This MTP recommends establishing a new data-collection procedure that implements a regular survey of residents' travel habits, upon receipt of such data, new performance measures will be recommended by County staff.

Objective: A Well-Connected Network of Streets Compatible with Adjacent Land Uses

Provision of thoughtfully-planned additions to Arlington's street network can greatly improve access for motorists, pedestrians and other street users while creating opportunities for new curbspace and enhancing emergency service response. New local streets and service alleys also can relieve the arterial streets of some local traffic and loading activity that creates travel delays and unsafe conditions. New and reconstructed streets should be designed and managed to appropriately serve the existing and planned adjacent land uses, as well as reflect the established or emerging character of the communities through which the streets pass.

Available street right-of-way is not likely to change significantly in the next two decades. Limited street right-of-way is a constraint that must be factored into design decisions and likely to be a significant constraint on project implementation. It is expected that Complete Streets will often be implemented in phases through a combination of County-initiated projects and private property redevelopment. Design constraints may also be imposed by the Virginia Department of Transportation (VDOT) on those streets that are owned and maintained by VDOT.

Changes to the existing street network, whether they are new streets or significant modifications or closures of existing streets, will most often be identified during part of land use and transportation planning processes. Any proposed changes to the Arlington street network should be adopted through a public process to amend the County's Master Transportation Plan Map. Neighborhoods can also initiate an amendment process by filing a formal request with the Arlington County Manager.

Policy 1 (1) - Utilize the plan's typology of arterial streets to guide street planning, management, design and construction/reconstruction. The typology identifies categories of arterial streets which are primarily assigned with relation to the types of land use found along them. Each street type should support the general policies of complete streets and the compatibility of transportation design with adjacent land uses.

Implementation Actions

- a. Use the MTP when making decisions to set priorities for transportation project funding and design transportation facilities.
- b. Coordinate sector, corridor, area and neighborhood planning with MTP goals and policies. Amend the MTP periodically to reflect updated planning principles.
- c. Plan, design, construct, educate, enforce, and then monitor and evaluate the effectiveness of Complete Streets efforts.
- d. Implement Arlington's Complete Streets policy through use of recommended street types to guide redesign of streets. Work with communities to tailor or update the application of the street types to most appropriately fit the affected streets.
- e. Develop and publish a streets design and operations manual that addresses the elements of all types and context of arterial and local streets.
- f. Re-evaluate the current Functional Street Classifications for all County streets. Utilize national Complete Streets guidelines to revise any classifications that appear to be inconsistent with current and planned street functions.
- g. Work with VDOT to obtain State adoption of Urban Design Standards that better reflect the pedestrian-oriented urban context of Arlington's streets.
- h. Design streets to be harmonious with their context and compatible with adjacent land uses. Allow flexibility in street design guidelines to enable an attractive and compatible fit with the neighboring community.
- i. Provide visual cues in street facilities that help travelers identify changes in land use and street context and travel at appropriate speed.
- j. Improve streets in an incremental manner when resources such as public right-of-way and/or funding are insufficient for completion of the complete set of desired improvements.
- k. Investigate incentives that can be used to encourage by-right development to provide County-desired streetscape improvements.

Policy 2 (6) – Maintain and enhance a grid-style street network. Facilitate desired creation, realignment or relocation of existing streets as appropriate, including through vacation of existing and acquisition of new street right-of-way. Enhance the connectivity of the existing street network by constructing new streets with redevelopment of large blocks and avoiding permanent closures or other reductions in street connectivity. Whenever feasible, new streets should be publicly-owned. Privately-owned streets should have in place agreements with the County regarding their maintenance and provision for public access. Seek to manage privately-owned streets in the same manner as those publicly-owned, including such areas as parking regulation.

Implementation Actions

- a. Identify and implement opportunities for new multi-modal streets through sector plan and other area planning efforts.
- b. Develop a list of relatively-short street connections, or realignments that could be developed to create new linkages that enhance the existing street network. Consider overall community benefits, property impacts, and neighborhood sensitivities, and ability to acquire needed property rights in relation to the cost, when determining priorities for right-of-way acquisition.

- c. Evaluate currently used “cut-throughs” across private property to determine if public streets are needed.
- d. Acquire street right-of-way from Arlington Schools and other owners as needed to widen or extend existing streets that currently do not meet the legal right-of-way requirements (e.g. 30’ minimum width).
- e. Evaluate all existing “paper streets” (i.e. streets that have been dedicated, accepted and established, but have not been constructed and exist only as public right-of-way) and determine whether such streets should be constructed, and can be established for other uses such as trails and parkland or vacated.
- f. Acquire, when available, the legal interest to one-half the required width of streets, as interim measures when the full right-of-way width is not currently available for acquisition.
- g. Work with neighboring jurisdictions to identify where potential new cross-boundary street connections can be made.
- h. Study whether existing one-way streets should be converted to two-way traffic. Discourage future conversions of two-way streets to one-way.
- i. Review older traffic management restrictions (pre Neighborhood Traffic Calming program), to determine if they are still warranted and supported. Evaluate whether to reopen streets or portions thereof that were discontinued (i.e. no longer streets but still owned by the County) in past traffic management efforts.
- j. Permit new partial street closures (physical separations) only where there is a demonstrated need for public safety improvement and the closure will have little or no impact upon the function of the street network. Any physical street closures implemented should be accompanied by transportation enhancements to adjacent streets.
- k. Require privately-owned streets that are open for public use, to be built to the same design standards as publicly-owned streets.
- l. Acquire dedication of new streets whenever feasible. When fee simple or easement rights are not offered, very specific agreements should be entered that state the public’s rights for access and use of the streets and establish County responsibilities for operation and management
- m. Define what private activities are permissible uses of the public street right-of-way. Allow for minor temporary encroachments for specific events with approved permits or licenses.

Policy 3 (7)-Expect service alleys and off-street delivery/loading zones in all new commercial, mixed use and high-density residential developments. Minimize the number and size of curb cuts for new developments, particularly along arterial streets. Place curb cuts where pedestrian volume is lowest.

Implementation Actions

- a. Provide for new alleys and service streets in commercial centers where appropriate to the building site and surrounding street network. Require alleys to serve multiple land uses through recorded public access easements required by the development site plans. Ensure that access easements are available for adjacent properties.
- b. Review all “paper” public alleys to determine whether such alleys should be improved as public streets, alleys and trails or vacated to adjacent property owners.
- c. Seek to determine and categorize the ownership, public access rights and County maintenance responsibilities for all existing alleys.

- d. Develop design standards for new public alleys, including minimum criteria regarding pavement, pedestrian routes, lighting and utility access.
- e. Enforce against encroachments into public alleys that are inconsistent with the public use or interest.
- f. Manage curb space in commercial zones to provide passenger loading zones during peak commute periods, converting into truck-loading zones during off-peak periods.
- g. Adopt County standards and enact ordinance processes that limit the number and frontage sizes of driveway curb cuts for commercial and residential developments.
- h. Require commercial sites to provide adequate off-street loading areas. Enforce against loading that occurs on-street rather than through available loading docks or alleys. Place loading zones away from primary pedestrian paths.
- i. Provide exceptions to on-site loading requirements for those small sites (less than 20,000 square feet) where on-site loading may not reasonably be accommodated. Also allow exceptions for ground-floor retail tenants in secure buildings and other retail establishments without access to loading areas.
- j. Establish loading dock design standards that match loading dock size with the building design; coordinate through the Zoning Ordinance and site plan conditions.

Performance Measures for Policies 1, 2 and 3

- 1. Utilize a street connectivity index for commercial districts and other selected parts of the County and compare against established national recommendations.
- 2. Measure utilization of loading docks at those buildings which have them.
- 3. Measure changes to travel time for different modes including emergency response, walking distance, and congestion in redevelopment areas.

Objective: Complete Streets that Accommodate All Users and Encourage Alternatives to Driving

Arlington’s streets and bridges should be developed and managed to provide for safe and efficient accommodation of all intended travelers including motorists, transit riders, pedestrians and bicyclists. Street improvements should focus upon implementation of the facilities that enable and encourage greater travel by non-motorists, especially pedestrians, bicyclists and transit riders.

As Arlington’s population continues to grow, travel is expected to grow likewise. The MTP establishes a goal of accommodating the increased travel demand projected for the year 2030 while holding motor vehicle traffic growth to only a five percent increase over the year 2005 levels. Achieving that goal will require significant increases in non-single-occupant automobile travel, principally public transit, carpooling, walking and bicycling. To enable greater uses of those modes, our streets network must become more accommodating of non-motorized travel as well as include special facilities that enhance high-occupancy-vehicle (HOV) travel by carpools, buses and streetcars.

Due to the presence of limited access highways (I-66, and I-395) that run roughly east-west through Arlington, north-south travel is impaired and only a few continuous north-south routes are available to Arlington travelers. Attention to enhancing efficient and safer north-south travel flow for all transportation modes will be a priority.

Policy 4 (2) – Include the appropriate facilities to meet the needs of bicyclists, pedestrians, transit riders, motorists and freight movements as part of all County street and facility improvement projects. Operate arterial streets in a manner that balances the needs of pedestrians, bicyclists, transit users and motorists in the right-of-way. Utilize the principles of Safe Routes to School in designing and operating streets in the vicinity of Arlington schools.

Implementation Actions

- a. Prioritize the implementation of Complete Street redesign projects. Endeavor to have all sidewalks and crossings meet Americans with Disabilities Act (ADA) or the Public Rights-of-Way Design Guidelines (PROWAG) design standards.
- b. Complete the bicycle network including accommodating bicycles on streets with markings and/or physical measures that allocate or prioritize some street space for bicyclist use. On arterial streets, treatments such as bicycle lanes that provide a dedicated area for bicycling are preferred over shared travel lanes.
- c. Provide easy and safe pedestrian and bicycle access to transit stops.
- d. Adopt and update street, streetscape, and traffic control design guidelines and standards that address the needs of everyone and comply with PROWAG guidelines where feasible.
- e. Enhance walkways and pedestrian crossings through signage, signalization, median safety refuge areas and high-visibility crosswalks where appropriate.
- f. Implement facilities within the public right-of-way that provide travel priority to high-capacity transit services in the Primary Transit Network corridors.
- g. Conduct strategic studies and data-gathering initiatives to support multimodal usage goals and street management, operations, and maintenance objectives. Develop new approaches to measuring street performance that support the goals of Complete Streets. These measures should emphasize person-capacity instead of vehicle-capacity, qualitative measures of service in addition to quantitative measures, and should include measures that address all modes.
- h. Provide local way-finding signs that serve all street users and are integrated with the highway guide sign system.
- i. Provide clear signing of truck prohibitions, weight limits, and loading zones where appropriate and authorized by law.

Policy 5 (3) – Accommodate travel growth through shifts to non-automobile modes and improved management of the existing streets rather than the addition of significant new street capacity. Reconstruct streets within the existing right-of-way except where additional space is needed for safety and operational improvements such as sidewalks, transit facilities, crosswalks, bike lanes, and left-hand turn facilities. Alter circulation direction and alignment of streets as appropriate to address safety, pedestrian access or traffic circulation needs.

Implementation Actions

- a. Use traffic management and operational interventions to reduce congestion and better manage conflicts amongst passenger, freight, transit, bicycle, and vehicles.
- b. Manage traffic congestion by stabilizing traffic volumes near today's volumes while making selective improvements to the street network, such as new service streets in commercial areas, traffic signal timing optimization, and new left-turn lanes at key intersections.

- c. Hold regular meetings among traffic engineers, transportation planners and police officers to identify safety needs, congestion causes and potential measures to address those problems.
- d. Manage street maintenance and construction-related lane closures to improve traffic flow especially during peak travel periods.
- e. Develop plans for improving traffic flow at locations along key arterial corridors.
- f. Implement regular traffic signal performance analysis and timing optimization. Provide sufficient crossing times for bicyclists and pedestrians.

Policy 6 (13) – Expand High Occupancy Vehicle (HOV) Incentives to additional roadways and bridges such as Jefferson Davis Highway (Route 110) and the 14th Street Bridge, to encourage greater carpooling and transit use on regional roadways. Ensure that High Occupancy Toll (HOT) lane implementation does not negatively affect the efficiency of existing transit and carpooling.

Implementation Actions

- a. Work with VDOT to implement measures to ensure that HOV traffic on Interstate-66 regularly moves at efficient speeds. Work with VDOT and neighboring jurisdictions to improve coordination of HOV time restrictions and occupancy requirements, both in- and outside-the-Beltway, to enable the greatest use by carpools. Investigate variable occupancy requirements.
- b. Work with VDOT, regional officials and State legislators to expand the application of HOV travel incentives, such as reserved carpool lanes, to apply to more of the limited-access roadways in Arlington.
- c. Participate in the development and management of future regional HOV/HOT facilities to ensure that such facilities provide priority service for carpools and transit operations.

Performance Measures for Policies 4, 5 and 6

- 1. Measure spot speeds of vehicles and elapsed travel time for all modes on a routine, periodic timetable. This will establish baseline and benchmark performance comparison with pre- and post-construction of Complete Streets and other projects.
- 2. Include Complete Street-related questions on periodic resident surveys to measure quality of service results for all transportation modes.
- 3. Continue collecting traffic counts to verify stabilization of vehicular volumes. Identify cost-effective approaches to estimating level of service for every travel mode.
- 4. Conduct annual surveys of visitors to Arlington to measure the effectiveness of way-finding systems, and identify suggestions for improvement. Conduct rigorous review of suggestions, and incorporate the best ideas into work programs.

Objective: Manage Streets to Reduce Injuries and Eliminate Fatalities Sustained in Traffic Crashes

Traffic safety is a great concern to Arlington County. Each year in Arlington, several thousand traffic crashes are reported to occur with several hundred persons sustaining physical injuries including a number of fatalities. (See Appendix A for a summary of recent traffic crash data). These incidents also result in substantial private and public property losses and can negatively affect the perceived livability of the community. Therefore, it is vitally important to undertake

the physical, legal and operational measures that are available to enhance safety for Arlington's travelers.

In recent years, the number of reported traffic collisions has been trending downward (a 19% reduction between years 2004 and 2008) even as the number of residents and jobs in the County has increased. The reduction in crashes has followed a concerted effort to redesign the County's streets for greater safety and livability. The County wants to prevent traffic fatalities from occurring on Arlington streets. The County is focusing upon street design and operation including, for example, reducing traffic travel speeds to levels that minimize the occurrence of severe physical injuries. The severity of injuries in traffic crashes are largely determined by the speed(s) of the involved vehicles. For example, a speed reduction of just five miles per hour (from 30 to 25 mph) can result in a 50% reduction in lethal injuries to pedestrians, as well as provide significantly more time for motorist reaction and crash avoidance.

Arlington will utilize street redesign, increased or enhanced traffic enforcement, and other traffic management measures to achieve safer streets. In many cases simply slowing down automobile travel speeds will help improve safety and reduce the severity of injury and damage in vehicular crashes. Measures to slow traffic to safer speeds can involve physical changes to street design including, for example, special interventions such as speed humps and traffic circles, as implemented by the Neighborhood Traffic Calming program, as well as greater adherence by the travelling public and pedestrians to and awareness of traffic laws. Constructing streets to an appropriate width or rebuilding streets to be narrower can reduce pedestrian crossing distances. It can also enhance safety by slowing travel speeds, thereby permitting better driver reaction time. It is important that achieving the desired reductions in the occurrence of traffic crashes involving motorists, pedestrians and bicyclists be undertaken in a way that still provides the ability for enhanced and more effective emergency response. Measures must also be taken to protect the safety of persons such as police and fire personnel, refuse collectors, street maintenance workers and others that regularly work in the street and are exposed to traffic.

Policy 7 (5) – Design neighborhood streets to control travel speeds. Permit those streets with relatively low traffic volumes (under 1,500 vehicles per day) and single family developments to be narrowed and operate as “yield streets”. Implement additional neighborhood traffic calming, sometimes including street narrowing on streets with defined speeding problems. Involve local residents and neighbors in the design of street modifications.

Implementation Actions

- a. Design and operate streets to encourage compliance with safe travel speeds. Neighborhood Conservation street reconstruction projects should include measures that reduce the design speed of streets to achieve safe travel consistent with the posted speed limits.
- b. Seek enabling legislation from the State to authorize reduction of speed limits on selected neighborhood streets to 20 mph. Establish a policy on when such speed limit reductions would be considered and implemented.
- c. Expand the elements in the Neighborhood Traffic Calming “toolbox” to include more use of measures, such as, chicanes, innovative street markings and tree/vegetative plantings as speed control measures.
- d. Use Neighborhood Traffic Calming, WALKArlington, and Neighborhood Conservation projects to construct facilities that improve traveling safety on local streets.

- e. Facilitate the active involvement of neighborhood groups and businesses in safe driving promotional campaigns.
- f. Develop a guide on how citizens can be involved in the planning of street projects.
- g. Use the Neighborhood Traffic Calming program design guidelines and the Narrow Residential Street policy for street design and speed control projects.

Policy 8 (4) – Design streets to generally favor lower vehicle speeds without impeding or diverting existing vehicle volumes. Reduce lanes where unused lane and unneeded capacity can be converted to better use of the underlying land.

Implementation Actions

- a. Redesign and reconstruct arterial and local streets to reinforce safe operating speeds by motorists, to encourage walking and bicycling, and to maintain adequate emergency vehicle, transit, and service deliveries. Place priority on funding projects for safety improvements on arterial streets.
- b. Utilize measures identified in the 2004 Arterial Transportation Management Study, such as tree nubs, on-street parking and other treatments as appropriate to help manage the speeds of traffic on arterial roadways.
- c. Study the use of alternative pavement materials as possible speed control measures while considering the physical mobility of all travelers.
- d. Establish the design speed to be the same as the posted speed limit.
- e. Adopt 25 miles per hour as the standard speed limit for all arterial streets, within Arlington’s “downtown” districts, on which there are high volumes of pedestrian crossings and higher density land development. Review speed limits on other arterial streets outside of “downtown” areas.
- f. Target safety awareness and law enforcement campaigns towards achieving greater motorist compliance with speed limits particularly in school and construction zones.
- g. Improve the efficiency of vehicular operation on arterial streets to minimize diversion of traffic onto neighborhood streets.
- h. Evaluate all marked crosswalks and implement upgrades, including street lighting and pedestrian signal controls as need, to all those that do not comply with nationally established standards of safe design. Regularly evaluate and enhance safety at pedestrian crossings through attention to traffic-signal timing and placement of STOP signs and other traffic control devices.

Policy 9 (10) – Design and operate Arlington’s street network in a manner that balances safety to users while supporting efficient emergency responses. Provide signal priority for emergency vehicles on arterial streets as appropriate.

Implementation Actions

- a. Use photo red-light enforcement at selected intersections based on history and severity of traffic accidents and red-light violations and seek State enabling legislation to permit Arlington to broaden use of photo-red-light technologies.
- b. Investigate new technologies, such as photo-speed control, that can allow more remote enforcement of traffic laws.
- c. Seek enabling legislation from the State to allow speed limits to be reduced in work zones on County streets.

- d. Expand the use of radar speed-display signs. Adopt a policy specifying the conditions for when and where such signs may be used.
- e. Install emergency signal preemption equipment on traffic signals for all arterial streets within Arlington. Develop an implementation prioritization schedule.
- f. Expand the installation of cameras for monitoring and managing traffic congestion due to traffic accidents and other incidents on Arlington streets.
- g. Provide adequate fire access to all public buildings, while looking for flexibility in fire access requirements through use of certain fire prevention/protection equipment, such as building sprinklers, and by providing mid-block passing zones.
- h. Seek to use smaller fire trucks that function satisfactorily and meet the established fire codes while seeking adjustments to fire association standards regarding vehicle size.
- i. Apply best practices of retro- reflective markings, retro-reflective signs and other devices to enhance the visibility of roadway features at night and in poor weather conditions, especially applicable on streets with 35 mph or greater posted speed limits.
- j. Allow fire access on normally non-transportation routes through bollards and gates to allow emergency-only access to places where motor vehicles are not normally permitted.
- k. Work with regional partners to prepare emergency travel contingency plans and to improve coordination and cooperation among federal, state, and local jurisdictions and agencies.
- l. Publish on-line maps and regulations pertaining to snow emergency routes and the associated on-street parking policies.
- m. Conduct snow plowing operations in a manner that provides paths for safe pedestrian travel across and along streets, and avoids piling snow where it will obstruct those paths.
- n. Evaluate traffic accident report data on a regular and comprehensive manner to identify possible safety problems and potential countermeasures. Standardize how data is recorded and accessed. Seek information about crashes that have not been reported to local Police.
- o. Create public awareness and law enforcement campaigns to address the driver, bicyclist, and pedestrian behaviors that most often contribute to crashes with severe injuries. Pursue active partnerships with insurance companies to invest in educational campaigns that address speeding and the public safety effects of high-speed driving
- p. Conduct periodic safety meetings that include safety professionals, schools staff, transportation officials, Police and Fire personnel. Consider safety research developed by government, academic, advocacy and industry sources, and strive to become a model safe community through pilot projects, programs, and initiatives.

Performance Measures for Policies 7, 8 and 9

- 1. Compile annual statistics on the number, circumstances, and severity of injuries and crashes on Arlington's streets and evaluate against goals set to measure occurrence and severity. Seek annual crash reductions to achieve levels substantially below (less frequent than) the national average, with zero fatalities.
- 2. Use GPS tracking or other devices to monitor actual emergency response times and evaluate against acceptability thresholds.
- 3. Regularly gather speed data at selected locations to evaluate long-term trends and identify locations with frequent speeding concerns.

Objective: Manage Streets to Maximize Their Efficient Use and Minimize Long- Term Public Expense

Operate and maintain Arlington's streets in a manner that provides a high standard of usefulness over the long-term. Seek to achieve cost efficiencies through well-planned construction and maintenance practices, such as traffic signal and street lighting retrofits that reduce energy consumption. Manage street activity to achieve greater effectiveness for users without substantially increasing public expense.

Maintaining smooth travel surfaces on our streets is important to the efficient, safe and comfortable use by all modes of travel. Smooth pavement enhances the ride quality for motorists, bicyclists and bus riders. Street pavement free of potholes or other forms of pavement deterioration also reduces the possibility of jarring vehicular movements and distractions that can lead to crashes or other physical damage. Street markings, such as crosswalks, lane lines and bike lane symbols adhere best and have their highest-visibility when placed on fresh pavement. Well-maintained streets are also important for community image, citizen satisfaction and better quality of life.

Arlington's streets are corridors not only for transportation of people and goods they are also the primary routes for the utilities that serve Arlington's residences, workplaces and community facilities. The provision of space for utilities, both aerial and below-ground, is a significant component of street design and implementation. Lack of prior planning for the installation and maintenance of utility needs can have costly impacts upon the community, as well as affect efficient street travel.

Policy 10 (9) - Repave streets on approximately a 15-year cycle, considering streets Pavement Condition Index (PCI) assessments, public and private construction schedules and traffic volumes. Repair, rather than repave streets lacking basic improvements such as curbs and gutters except if such streets are unlikely to have significant improvements made in the near future and annual repair expenses are comparable or greater than a one-time repavement cost.

Repaving on a 15-year cycle does not mean that each street is repaved every 15-years. The 15-year cycle refers to a repaving of about one-15th of the overall system each year. Some heavily utilized streets will require repaving on a more frequent basis while less-traveled streets may not require repaving for longer periods. The PCI assessment will be the primary determinant of when a street segment will be repaved.

Generally, the County practice has been that streets should have curb and gutter along both sides before the street can be repaved. The existence of curb and gutter helps to prolong the life of the pavement and reduces the likelihood that the street will be reconstructed and pavement damaged. However, the County has repaved some streets without curb and gutter when pavement conditions are very poor and no curbs and gutter installation or other street improvement projects are imminent. Priority should continue to be given to repaving those streets with very low PCI assessments even if they are lacking complete curbs and gutters. The County may also choose to repave a street without curb and gutter where it has been determined that swales or other bio-retention measures are the most appropriate means to handle street stormwater runoff.

Implementation Actions

- a. Develop street maintenance practices and procedures that support Arlington's Complete Streets policy and minimize the life-cycle cost of facilities.
- b. Use Pavement Condition Index (PCI) assessments of 70 or greater plus other factors such as needs for street remarking to identify short-term priorities for repaving.
- c. Develop databases to better identify when construction will take place and how utility replacement/upgrades on the same street could be coordinated to use a shared pavement cut.
- d. Establish a practice that County streets should not be cut for five years after paving is completed, except for emergency services and for new development. Pavements must be restored after cuts to full lane width.
- e. Require developers and utility companies to repave wide areas (full lane width or to street centerline) around pavement cuts that they have made.
- f. Use, and encourage others to use, directional boring and other methods of utility repair and installation that do not cut the street pavement.
- g. Reduce energy consumption of traffic signals and streetlights through greater use of more energy-efficient lighting such as light-emitting diode (LED) displays and solar power.
- h. Evaluate the spacing and type of current street light installations and revise as needed to provide good overall lighting coverage while achieving greater energy efficiency. Test adjustable street lighting so that lights can be brightened or dimmed as needed to ensure adequate lighting levels for pedestrian safety.
- i. Use more recycled material in street elements, but select materials and fixtures that are known to be durable especially for high-wear areas. Maximize the re-use of materials on street construction and maintenance.
- j. Coordinate street signage and seek to consolidate signs on common poles. Eliminate signs that are superfluous or no longer necessary.

Policy 11 (NEW) – Provide adequate space within Arlington's streets for efficient delivery of public and privately-owned utilities. Manage utility company use of Arlington's streets to minimize their impacts upon the public roadway, streetscape and adjacent private properties.

Implementation Actions

- a. Compile County Geographic Information System (GIS) layers for all underground utilities, both public and privately-owned.
- b. Develop a County plan to direct where new underground utility lines should be installed in the future.
- c. Require all utility companies and other entities with facilities within County street rights-of-way, to identify where their lines or facilities are located. Utility companies should provide "as built" drawings as part of all installation and upgrade projects.
- d. Allow no new, permanent utility poles, lines and devices to be installed in areas covered by the Utility Undergrounding Plan except those required for streetcar service and electric-vehicle charging stations.
- e. Obtain rights for the County to place public utilities within private streets.
- f. Discourage the construction of garages under streets that would hinder the installation of utilities within the public street right-of-way.
- g. Identify locations and measures that can be used for capture of solar, geothermal and/or wind power within the street right-of-way.

- h. Promote undergrounding of existing overhead utilities when redevelopment of other cost-effective opportunities occur.

Performance Measures for Policies 10 and 11:

1. Repave each year on average one-fifteenth of the County's overall street lane miles.
2. Conduct traffic signal timing evaluation and optimization on a three-year cycle.
3. Convert all traffic signals from incandescent bulbs to energy-efficient LED lighting by 2012. Track the conversion rate of street lights from incandescent bulbs to LED fixtures and evaluate against County goals.

Objective: Enhance the Human and Natural Environments

Better utilize Arlington's large area of public street rights-of-way to create more interesting and vibrant public spaces that enhance and help delineate adjacent communities. Enhance existing street right-of-way through well-planned design and upgrades to create public places ("Place-making") that are more attractive, comfortable and safe for pedestrians and other street users.

Some desirable uses of public streets, such as temporary closures (by permit) for events, will not significantly inhibit transportation while supporting other community goals. Look for opportunities to remove unnecessary paved roadway areas and convert those areas to landscaping, walkways and plazas that can add human activity to formerly motor-vehicle dominated streets. The thoughtful use of street furnishings, public art, landscaping, lower-scale lighting and information displays can create affinity for a



street space that generates value to adjacent buildings and the overall community. Street and bridge design should also complement the unique or historic character of the adjacent properties and neighborhood and should seek to strengthen the desirable aspects of that neighborhood character. Recognize and reinforce the role of residential streets and streetscapes in defining each neighborhood's scale, ambience, connectivity and traditional character.

In addition to undertaking projects that enhance the human environment, street projects should also give greater consideration towards long-term community sustainability. Aspects of streets, such as the amount and quality of stormwater runoff they produce, heat absorption/radiation, material durability and long-term energy demands, can have substantial impact upon the natural environment. As nearly one-third of Arlington's land area is streetscape, what happens on and within the street can greatly affect our ability to address global issues such as climate change and energy security as well as more local concerns about livability. Emerging design considerations utilized by some American jurisdictions, including Arlington, has led to the development of "Green Streets" projects which utilize physical and vegetative measures to reduce and treat street runoff (see Appendix B). Street trees and trees on private property can help by increasing

infiltration of water into soil and reducing the amount of runoff reaching the street. Together, nearby trees and vegetation planted in Green Streets projects also reduce local heat absorption and energy consumption.

Policy 12 (8) - Design and operate Arlington's streets to be vibrant public spaces through incorporation of human scale structures and street furnishings, attractive landscaping, and active streetfront uses. Allow streets to be important public spaces that may be periodically closed to traffic to permit farmers' markets, festivals and other civic events.

Implementation Actions

- a. Use good design, landscaping, wide sidewalks, public art, and other elements to create public streets and bridges that are enjoyable places for users.
- b. Promote livability and support economic development goals by establishing and maintaining high-quality streetscapes. Take advantage of opportunities to transform public streets, walkways, and adjacent semi-public (public-access easements) spaces into great urban places.
- c. Work with VDOT, WMATA, Federal agencies, neighboring jurisdictions and community partners to temporarily close streets and highways for special events such as street festivals, parades, mass rides, and races.
- d. Convert underutilized street space, including parking spaces and turn lanes in commercial and high-density districts, into urban plazas with public seating and landscaping. Use planters, temporary curbing and bollards to demarcate the proposed plazas areas before permanent construction.
- e. Enhance existing street-side urban plaza spaces with enhanced landscaping, upgraded furniture, art installation, shelters, kiosks and vending activities as appropriate and legally permissive.
- f. Allow, by permit and other regulatory measures, minor reductions in standard sidewalk clearspace in order to accommodate sidewalk cafes, street vending and other uses that add to the vibrancy of public streets, provided that sufficient walking space remains for routine pedestrian flows including that of persons using wheelchairs, strollers and other walking devices.
- g. Work with appropriate County commissions and civic organizations to identify the distinctive physical characteristics of various Arlington neighborhoods, with emphasis on street and walkways, streetscapes and relationships between public and private spaces that help to establish each neighborhood's identity and traditional character. Include those analyses in neighborhood conservation plans, historical preservation manuals and other planning materials and consult those plans when designing local street projects.

Policy 13(11) – Enhance Arlington's natural environment through improvements to the street tree canopy by planting trees in landscape strips and medians and by creating planting areas where they do not currently exist.

Implementation Actions

- a. Plant trees as part of street improvement projects, and initiate landscaping projects on locally and state-owned roadways where trees can be accommodated without negatively affecting safety.

- b. Provide landscape strips wide enough for new street trees as part of all street improvement projects when neighborhood character can be maintained. Where public right-of-way is lacking, encourage tree planting on adjacent private property.
- c. Preserve existing trees through innovative designs or techniques that minimize impacts upon tree roots.
- d. Enhance tree growing media by adding County produced waste products, such as compost, to ambient soils. Develop and apply soil quality standards for street tree planting areas.
- e. Use structural measures, including continuous soil panels, structural cells or other means to increase soil volume available to trees. Utilize the Arlington Landscape Standards: Standards for Planting & Protection of Trees on Site Plan Development for descriptions and details.
- f. Minimize impacts of overhead wires upon trees; where feasible place more overhead wires underground, raise wires, and offset alignments of utility poles and street trees.
- g. Plant a greater variety of native street trees to minimize potential impacts from disease and to help establish individual character along certain streets or neighborhoods.
- h. Acquire unused state-owned highway rights-of-way for use as open space.

Policy 14 (12) – Reduce storm-water runoff by minimizing the creation of additional impermeable areas and increasing the infiltration of storm water in street-side collection areas and through permeable pavement.

Implementation Actions

- a. Minimize the creation of impervious surface area within streets. Use pervious pavement in streets, alleys and sidewalks where physically and economically feasible.
- b. Pilot the use of innovative stormwater management measures, such as swales that channel water from impervious pavements into bio-retention or other water treatment measures. Continue to seek and adopt emerging best practices in Green Street design and management.
- c. Conduct a comprehensive survey of how stormwater is handled by way of public improvements within the County properties and street rights-of-way.
- d. Develop a maintenance program for the long-term upkeep of stormwater treatment measures.
- e. Establish design and installation standards and specifications for the water treatment facilities in the public street rights-of-way and in public easements.
- f. Allow flexibility in all street standards to permit innovations or alternatives that will result in greater achievement of County stormwater runoff goals and policies. Consider the benefits of innovative stormwater facilities relative to other competing demands for public street area.
- g. Conduct public education about the benefits of new bio-retention and other best management practices. Seek to minimize the quantity of water that flows from private properties into the public street.
- h. Establish incentives for private property owners and managers to remove excess pavement and other impervious surfaces on private property and use permeable pavement materials. Amend the Arlington Zoning Ordinance as necessary to support impervious pavement reductions.

Performance Measures for Policies 12, 13 and 14

1. Annually count the net number of additional trees growing in the public street right-of-way and compare against established County tree-planting goals.
2. Treat or reduce stormwater runoff originating from streets, so that there is a net decrease in the amount of untreated water.
3. Measure, and evaluate the annual monetary investments (both public and private) in high-quality streetscapes and other public spaces.

IV. Functional Classifications and Controlled-Access Highways

Street Classifications

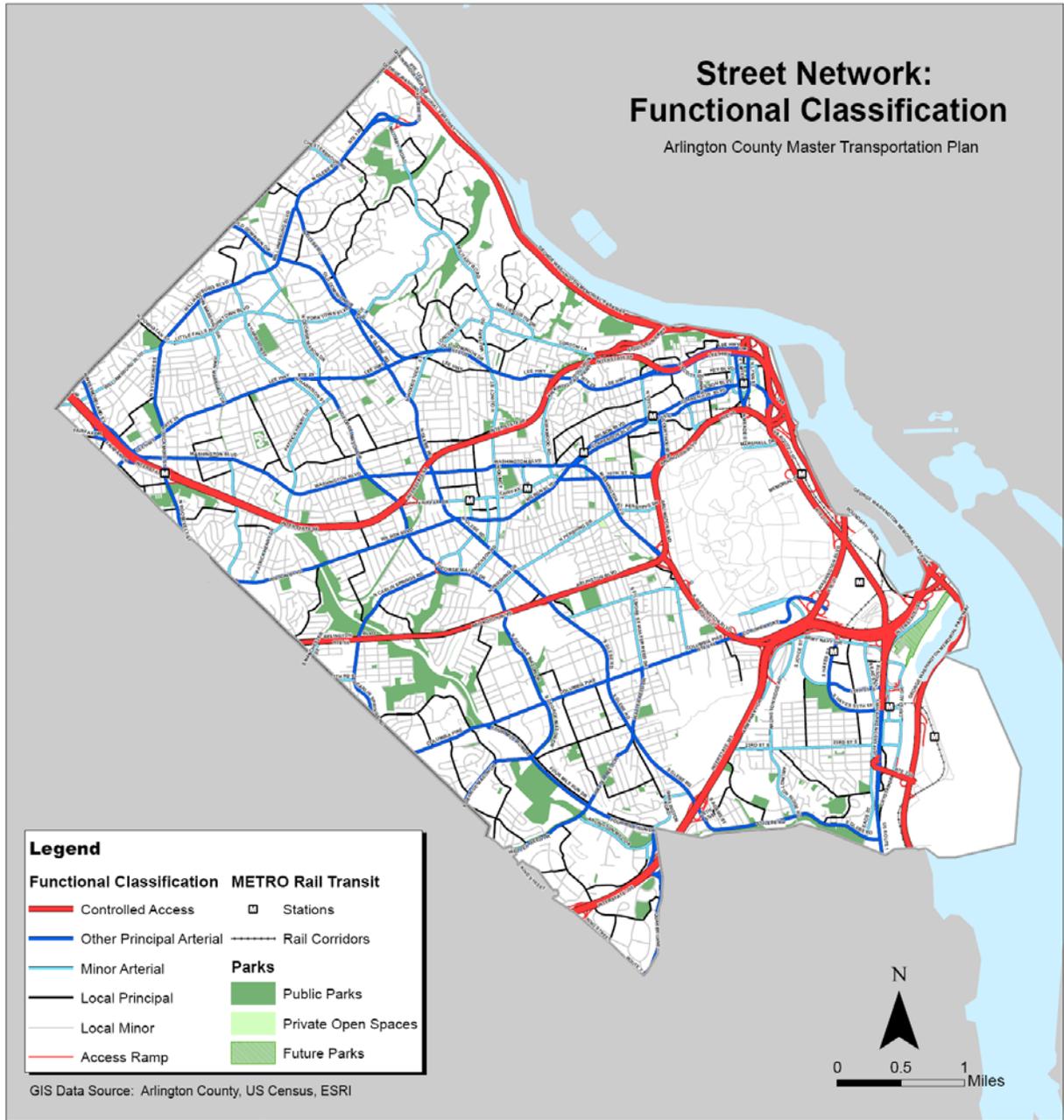
Each of Arlington's roadways has been placed into one of the following categories:

- Controlled-access highways.
- Arterial streets (both principal and minor).
- Local streets (both principal and minor).
- Alleys.

Arlington's street functional classifications are based upon definitions used across the United States to categorize streets by their travel function. The primary determinant of a street's category is the degree to which vehicular travel on a street is for access to the immediate or proximate properties. Streets upon which most of the vehicular traffic is generated by, or destined to the immediate properties, are identified as "local" streets. Arterial streets are those that primarily provide for "through" travel rather than solely for access to adjacent properties. The functional classification system is focused exclusively on vehicles as opposed to taking all modes of travel into account.

The functional classification of a street often determines its priority for maintenance service (for example: controlled-access and arterial roadways are the first to be cleared during a snow storm) and operational changes (for example: neighborhood streets are favored for speed control devices like humps and traffic circles.) Examples of controlled-access highways are I-395, and the Spout Run Parkway. Examples of arterial streets are Columbia Pike, Wilson Boulevard, and Lee Highway. Local streets include Neighborhood Principals such as Key Boulevard and S. Quincy Street, Neighborhood Minor streets, and commercial streets. Alleys are narrow travelways that serve only a limited number of properties, usually via the side or rear of the properties.

Figure 1: Arlington Street Network: Functional Classification



Controlled-Access Highways

This plan focuses on arterial and local streets; however, Arlington County and its residents also have a strong interest in the major highways and the access to these travelways that traverse Arlington. While these facilities are owned and/or managed by state and federal agencies for regional, state, and national purposes, it is the County’s responsibility to represent the interest of its residents in the ongoing planning and management of these facilities. In so doing, the following policy guidelines create a framework for understanding the interests of the County, its residents, and its businesses.

Interstate 66 was constructed in Arlington during the late 1970s and early 1980s against the wishes of the Arlington County Government and most residents. Since its opening, I-66 has been a multimodal facility that incorporates the Metro Orange Line, bus routes, and a shared-use trail. Trucks are prohibited from using I-66 inside the Beltway, and the four travel lanes for general traffic have peak-period restrictions that limit travel to high-occupancy vehicles in the peak direction (eastbound in the morning and westbound in the afternoon). Over time VDOT has reduced those restrictions from HOV-3 to HOV-2 with the intention of reverting to HOV-3 should travel speeds drop below set minimum standards. Traffic on I-66 has grown considerably since its opening, and traffic congestion routinely occurs in both directions in peak and nonpeak hours. The adjacent Orange Line and Custis Trail are also extremely well utilized, with those facilities together carrying more people in the peak hours than the adjacent travel lanes.

At the time of this MTP adoption, VDOT is moving forward with three “spot improvement” projects to add a third westbound lane between the Spout Run area interchange and the Beltway. Arlington County’s policy is to oppose these projects; it believes such a widening will adversely affect neighboring residential and park properties, diminish the possibilities for expansion of transit in the I-66 corridor, and not produce enough long-term improvement in travel to justify the millions of dollars of expense.

Arlington County would instead like to see the highway upgraded through improvements to ramps and merge lanes at interchanges such as at Washington Boulevard and the installation of intelligent transportation system and Transportation System Management measures will provide more-timely traveler information and quicker incident response. Greater capacity on the roadway could be achieved through a reversion to HOV-3 for the peak-period, peak-direction vehicles and application of HOV-2 at certain other high-demand periods. Arlington also supports provision of more-frequent bus service in the I-66 corridor and the reservation of right-of-way for addition of high-capacity transit rail lines. Arlington also believes that, should the highway be modified, it should not come at the expense of the existing Custis Trail. Bicycle and pedestrian travel through the corridor must be maintained or enhanced. The County intends to remain actively involved in VDOT’s planning for any proposed changes to I-66.

Interstate 395 (Shirley Highway) along with I-95 is the most heavily used transportation corridor in the Washington region. In addition to the eight general travel lanes, the road also includes two dedicated HOV lanes that operate northbound on weekday mornings and southbound in the evenings. I-395 is a HOV-3 facility and the HOV lanes are used extensively by carpools, vanpools and transit buses traveling to Washington, DC and Arlington locations such as the Pentagon and Crystal City from as far south as Spotsylvania and Stafford counties. While a number of significant projects have been undertaken to improve travel on the roadway, including an extensive rebuilding of the I-395/Beltway (I-495) “mixing bowl” interchanges, the highway can experience periods of considerable congestion, particularly due to accidents, severe weather, or other major incidents.

At the time of this MTP’s adoption, VDOT has supported the implementation of a privately initiated project to modify the I-95/-395 roadway that would in part implement high-occupancy-toll (HOT) lanes. The two existing HOV lanes would be converted to HOV and HOT travel, and a third HOV/HOT lane would be constructed. Additional construction, such as new ramp access in the Pentagon/Crystal City areas and in several locations outside Arlington, are anticipated as part

of the project. Again Arlington has significant concerns about the impact of this project on local travel and its potential ultimate negative affects upon HOV and transit use of the corridor. Arlington is also working with VDOT, the federal government, and the District of Columbia on improvements to the 14th Street Bridge that would improve traffic direction and flow where I-395 crosses the Potomac River.

The **George Washington Memorial Parkway (GWMP)** runs the length of Arlington’s shoreline along the Potomac River. The GWMP has a very limited number of access points, several of which are difficult to access from Arlington. The U.S. National Park Service owns and maintains the GWMP and its adjacent Mt. Vernon Trail. The parkway is managed, in part, to maintain the appearance of its wooded setting and its scenic views of the Potomac River and Washington, DC.

Arlington recommends the limited-access roads be managed and modified in the following ways:

1. Encourage high-occupancy-vehicle use on these facilities to minimize traffic congestion and to reduce air pollution. Expand HOV hours, occupancy requirements, and enforcement efforts to ensure that travel in the HOV lanes is free-flowing and remains a strong incentive for carpooling.
2. Reconsider the implementation of (HOT) lanes for single-occupant-vehicles, and consider variable-occupancy toll lanes for HOV facilities to retain incentives for carpooling.
3. Maintain or increase capacity using the following strategies: increase use of high-occupancy vehicles including buses; employ Transportation System Management techniques; use intelligent transportation systems and evaluate the implementation of congestion pricing measures.
4. Provide the appropriate location and configuration of access ramps such that Arlington residents may use these roadways to travel to other destinations within the region and allow regional travelers access to jobs, shopping, entertainment, and other sites and services in Arlington.
5. Provide way-finding information about Arlington to the users of these highways.
6. Prevent and/or mitigate the negative impacts on residents and businesses located near the highway during roadway improvement projects.
7. Manage and maintain these facilities, including provision of traffic law enforcement, in such a way that they remain attractive, secure, and safe.
8. Expand pedestrian and bicycle travel and access through new connections across highways and ramps; in particular, provide access to the Potomac waterfront and bridges to Washington, D.C.

Further information on plans for these and other Northern Virginia regional highways can be found in the Northern Virginia 2030 Plan that was developed and adopted through the Northern Virginia Transportation Authority in 2006.

Arlington Boulevard is a primary arterial of mixed character that runs through the center of Arlington between the Theodore Roosevelt Bridge and the Fairfax County line. Much of Arlington Boulevard (U.S. Route 50) has been built as a six-lane, controlled-access roadway, while in some sections there are un-signalized intersections and even direct driveway connections. The highway is a well-traveled (65,000+ vehicles per day) connection of central Arlington to downtown Washington, D.C. It is heavily used by commuters and other travelers to and from Fairfax County and other jurisdictions west of Arlington, as well as for local travel.

A reconstruction of the interchanges around Courthouse Road and 10th Street North is scheduled to begin in 2011. The project will address some of the existing concerns about vehicular safety, discontinuity of the parallel bicycle/pedestrian trail and motor vehicle access in that congested area. The project will also include a significant public art component that will help to establish an enhanced image for Arlington Boulevard. Community concerns about other sections of the road remain including: safety and accessibility of pedestrian crossings, convenience of bus access, left-turn safety, motorist speeding and an uneven overall appearance. Preliminary work on a community vision for Arlington Boulevard has been started but remains incomplete. County staff intends to initiate a more complete planning effort as well as reconstruction projects directed primarily at safety improvement, better integration with the adjacent properties and neighborhoods and enhanced accommodations for pedestrians, bicyclists and public transit use.

V. A New Typology for Arlington Streets

The Master Transportation Plan (MTP) establishes a typology of arterial and local streets to augment the existing functional classification system. Prior to this MTP, the functional classification system was used as the only way to distinguish between higher- and lower-order streets. That approach disregarded the broader aspects of street function, such as framing building lots, setting block lengths, providing public space, and accommodating public transit and bicycle and pedestrian travel in recognition of the adjacent land uses. This plan retains the functional classifications and creates new street types to provide additional detail and context to supplement those classifications. The new typology has been developed to enable the County, its residents, and its businesses to understand streets in terms of their land use and multimodal function, not just their motor vehicle function.

Arterial Streets

This overlay will be a guide for redesigning, and rebuilding the arterial streets. The MTP Map illustrates the six types of Arlington arterial streets.

- A. Primarily Retail Oriented Mixed Use.** An arterial street segment that serves (or is planned to serve) a dense commercial area and is fronted by (or planned to be fronted by) predominantly high-intensity, ground-level retail and consumer service. It is highly oriented to pedestrian, bicycle, and transit access with wide sidewalks, bike lanes, and transit stops prioritized over motor vehicles' travel space and parking.
- B. Primarily Urban Mixed Use.** An arterial street segment that serves (or is planned to serve) a dense mixed-use area that is fronted by (or planned to be fronted by) a variety of commercial, institutional, government, and/or residential uses. The street design emphasizes pedestrian, transit, and bicycle travel with adequate facilities provided within the street right-of-way.
- C. Primarily Commercial Center.** An arterial street segment that serves (or is planned to serve) a low- or medium-density commercial area that may be equally oriented to retail stores, service and industrial use. This street emphasizes transit and motor vehicle travel, including truck movement.

- D. Primarily Garden Apartments and Townhouse Neighborhoods.** An arterial street segment that serves (or is planned to serve) a primarily residential area with medium to high densities, such as multistory residential buildings. This street emphasizes pedestrian, transit, bicycle travel, and motor vehicle access.
- E. Primarily Single-Family Residential Neighborhoods.** An arterial street segment that serves (or is planned to serve) and traverses a primarily single-family-home neighborhood and is fronted by (or is planned to be fronted by) residential, park, or institutional property. This street’s design emphasizes bicycle and pedestrian travel, local motor vehicle travel, and transit access.
- F. Primarily Low to Medium Density Mixed Use.** An arterial street that serves (or is planned to serve) some local mixed use properties, although it also primarily functions as a connector road with other adjacent jurisdictions. Type “F” is a higher-speed street that provides for greater travel capacity, generally with intersections and crossings at greater than normal spacing. Dedicated travelways for higher-occupancy vehicles and transit travel may be included as well as a shared bicycle-pedestrian trail.

This new typology will assist Arlington in creating Complete Streets—streets that in some way address every function that is important for their particular role in the network. The creation of Complete Streets may also indirectly affect traffic on local streets through good urban design that encourages responsible driving behavior. The following figure displays the proposed street typology for all the County arterials. Each designation in the typology is characterized by its size, by elements that occur (or may occur) within the roadway, and by the street type’s relation to the adjacent development, as outlined in Table 1 (page 25). Along the length of a street, the designated street type may change to reflect variations in the predominant land use of each section.

Arterial Street Design

Arlington County has been actively engaged in redesigning many of its arterial streets to make them safer for all users and more accommodating of non-motorized travel. In addition to streetscape improvement projects that have widened sidewalks, planted street trees, and enhanced street lighting, many street improvement projects have redesigned the street travelway. Certain design standards have emerged as County practice or policy from the planning efforts that have gone into those projects. One design standard is the width of vehicular travel lanes. Arterial curb lanes with significant bus and truck traffic should be 11-foot wide. Interior and dedicated turn lanes are generally designed to be 10-foot wide. Accommodations may be made for bicyclists that include dedicated bike lanes or shared curb lanes up to 14-foot wide. Raised medians are another design element for which the Arlington Department of Environmental Services has adopted a standard. At crossing points on wide streets, medians should be a minimum width of six feet to provide pedestrians with a safe refuge area.



The street descriptions provided in Table 1 are illustrative and general. Each street will undergo a public design process as part of any traffic management or other street improvement project. County staff will work with the community and other relevant stakeholders, such as VDOT, to develop a design that reflects the specific character and context of that street. Other elements of the MTP, including the Pedestrian Element, provide more detailed information such as dimensions and materials that are likely to be incorporated into the development of the final project design. Some streets, although different from this plan’s ideals, may be left as is, if the County staff and community agree that the streets work well for all the expected users, or if the streets front historic buildings and/or facades.

Some streets designated and defined as future “Transit Streets” or “Bicycle Boulevards” in the MTP Transit or Bicycle elements may be subject to other treatments such as access management, speed control, special markings or traffic signals and distinctive signage as permitted by law. Transit Streets and Bicycle Boulevard treatments will prioritize transit or bicycle usage but should not prohibit or adversely affect other travel modes.

Arterial Traffic Management

The 2004 Arterial Traffic Management (ATM) study identified measures that can be used to address speeding and other safety concerns along arterial streets. Preliminary design guidance was provided on how 11 sections of arterial streets within Arlington could be rebuilt to better control traffic speeds, improve the safety and comfort of facilities for pedestrians and bicyclists, and enhance bus stop access. Following up on that study, the County has undertaken two major ATM demonstration projects. Sections of Wilson Boulevard and Four Mile Run Drive have undergone redesign and reconstruction. That work has been relatively expensive but has received significant praise from the local communities. Spot ATM improvements have also been implemented on other arterials including Arlington Ridge Road and Military Road.

Funding and right-of-way availability are likely to be the largest constraints on future ATM efforts. The County will have to consider how best to evaluate potential projects and determine funding priorities. It is anticipated that most future ATM projects will be developed as Complete Street projects that address multimodal travel and community character in addition to travel speed management. Project evaluation and ranking criteria should be developed by County staff working with appropriate citizen advisory organizations.

Table 1 - Arlington Street Typology with Associated Street Characteristics

Street Type	Travel Lanes	Median Priority	Target Speed* (mph)	Transit Service	Bicycle Facilities	Limit Driveway Access	Priority for Street Parking	Pedestrian Way
Arterial Streets								
A – Primarily Retail-Oriented Mixed Use	2 to 4 & turning	None	20 to 25	Frequent	Bike lane or shared lane	Yes	High	10 to 16 ft. sidewalk, plus 6 ft. landscape & furniture zone
B – Primarily Urban Mixed Use	2 to 4 & turning	None to Low	25 to 30	Frequent	Bike lane or shared lane	Yes	High	6 to 12 ft. sidewalk plus 6 ft. landscape &

								furniture zone
C- Primarily Commercial Centers	4 & turning	Medium	30	Frequent	Bike lane	No	Low	6 to 8 ft. sidewalk plus 6 ft. landscape & furniture zone
D. Primarily Garden Apartments and Townhouse Neighborhoods	2 to 4 plus turning	High	25 to 30	Moderate	Bike lane	No	High	6 to 8 ft. sidewalk plus 5 to 6 ft. landscape strip
E. Primarily Single-Family Residential Neighborhoods	2 to 4	None to Medium	25 to 30	Limited	Bike lane or shared lane	No	Medium	5 to 6 ft. sidewalk plus 4 to 6 ft. landscape strip
F. Primarily Low to Medium Density Mixed Use	4 to 6	High	35 to 45	Limited	Dedicated Shared-use trail or paved shoulders	Yes	None	6 ft. sidewalk or 10 ft. shared-use path, plus 8+ ft. landscape strip
Local (Non-Arterial) Streets								
Urban Center Local (medium to high density)	2	Low	25	Limited or none	Shared lane	No	High	6 to 8 ft. sidewalk, 4 to 6 ft. landscape
Neighborhood Principal	2	None	20 to 25	Limited or none	Shared travelway	No	Med	4 to 5 ft. sidewalk, 2 to 4 ft. landscape
Neighborhood Minor	1 1/2 (yield) or 2	None	20 to 25	None	Shared travelway	No	Med	4 to 5 ft. sidewalk, 2 to 4 ft. landscape
Pedestrian-Oriented	1 1/2 (yield) or 2	None	10 to 15	None	Shared travelway	No	Low	None to 5ft. sidewalk, multiple landscape areas

*Target speed is the intended regular operating speed for most vehicles. It is typically at or below the posted speed limit.

Actual clear zone dimension to be determined by sector plan or other applicable small area plan. Landscape strip includes the curb and most above-ground utilities, signs, light poles, and plantings.

Local (Non-Arterial) Streets

Arlington County owns, manages and maintains its local streets. The primary purpose of local streets is to provide access to residences and businesses within the community. Local streets also provide internal connectivity within neighborhoods and link neighborhoods within the County. In the functional classification system, these streets are categorized as either neighborhood principal, or neighborhood minor streets. While most local streets have relatively low traffic demands, they also need to be Complete Streets. For this reason Complete Street typologies are established to augment their functional classification.

The local streets typology closely fits with the functional classification system, adding the consideration of urban form adjacent to the streets. Table 2 (page 29) outlines the specific design criteria and elements for four local street types. The design criteria for local streets specified in Table 2 are desired and should be used for new streets or major reconstructions. Preservation or enhancement of neighborhood character and desired community attributes should also be primary considerations in developing street projects. On-street parking also may be added where it would be consistent with the available right-of-way and street dimensions. However, where existing property, topography and landscape conditions are not consistent with these specifications or other special circumstances exist, such as adjacent historic buildings or where neighborhood character would be changed, partial improvements may be made without requiring full adherence to the specifications. Modifications to street dimensions may also be made at the request of emergency service agencies to enhance emergency access. County staff will consult with adjacent property owners and residents consistent with County policies and practices, when developing measures to address significant operational problems on local streets.

Urban Center Local Streets

Urban center local streets are neighborhood (non-arterial) streets located in a medium or high-density residential, commercial, or mixed-use area. These streets, often called “side streets”, may include street-level shops, but do not have the same level of pedestrian and vehicular activity as arterial streets. Typically, these streets provide service, utility and emergency vehicle access to alleys, loading docks, and building areas for loading and unloading goods, recyclables, and refuse. In addition to being service routes, these streets also can be the primary building access routes for vehicles and pedestrians. Access to the street system from off-street or garage parking may also be located on urban center local streets.



Physical improvements such as, sidewalks, landscaping, and furnishings (i. e. street lights and furniture) should be provided on the Urban Center Local streets, but at a reduced scale when compared with arterial streets. Typically these streets should have one 10- to 11-foot-wide travel lane per direction, plus on-street parking. Bicycle parking facilities and bus service are typically not needed, but can be added as space allows and demand supports. In some locations, these streets can allow motorists to avoid using arterials for short trips in the same corridor. These streets may also provide pedestrians and bicyclists a quieter alternative to an arterial street. Urban center local streets will have a posted speed limit of 25 mph and are eligible for traffic calming measures should a significant speeding problem be identified.

Neighborhood Principal Streets

Neighborhood principal streets occur in lower-density residential areas and provide access for fronting properties and links to adjacent streets. Neighborhood principal streets should have two travel lanes, will vary from 28 to 36 feet in curb to curb width, and will have posted speed limits of 25 mph. Like urban center local streets, they provide a way to travel to and from home, connections to local resources, and a shared space in the neighborhood for walking, biking, talking with neighbors, and conducting everyday activities.

On-street parking is a priority but is regulated according to need, space availability, and character of the neighborhood. Parking may be provided on one or both sides or not at all based on each street's conditions. In rare cases, dedicated bicycle lanes may be provided; however, most often bicyclists will share the travel lanes with motor vehicles. Auto accommodations focus on access and local uses, so low speeds are required.

Neighborhood Minor Streets

Neighborhood minor streets occur in low- and medium-density residential areas. These streets are very similar to neighborhood principal streets in form and function. The distinctive feature of these streets is their nearly exclusive orientation to providing access to residences. Because residential streets typically have low traffic volumes with infrequent travel by large vehicles, all users (other than pedestrians) can be accommodated within a relatively narrow travelway. On-street parking should usually be provided, and sidewalks should be provided along at least one side although preferred for both sides.

Most neighborhood minor streets should be 20 to 32 feet wide, depending upon parking provision and have a maximum design speed of 25 mph. Because of limited right-of-way availability, newly constructed or rebuilt lightly traveled local streets may be constructed as "yield streets" in which roadway width is kept as narrow as possible and, as a result of this design, motor vehicles necessarily will yield to opposing traffic. Arlington's Residential Street Width Guidelines provides additional information on how to determine the appropriate street width. Many existing minor streets have been built to wider dimensions (36 feet is a common curb-to-curb width) and are unlikely to be reconstructed unless there is a specific need, such as installation of missing sidewalk or curb and gutter.



Arlington's long-established policy is that all streets should have a sidewalk along at least one side. Sidewalks must be fully accessible, at least four- and preferably five-feet in width, with curb ramps and no obstructions in the walkway. Utility poles, street lights, sign posts, fire hydrants and other public facilities should be located in utility/landscape strips that separate sidewalks from the street travelway. Curbs, gutters, storm sewers and/or bio-retention measures should be included to collect and manage water flowing off the paved street surfaces. All streets should also have sufficient street lighting to meet County lighting standards. On-street public parking and street trees are desired features for all neighborhood streets and should be provided to the extent possible considering available right-of-way and neighborhood interest. The design of street improvement projects should be undertaken in a cooperative manner with the residents, and owners of the affected properties, neighbors and applicable civic associations and in accordance all legal requirements, with applicable County processes, and in consideration of the community character.

Minor streets place the highest transportation priority for pedestrian, bicyclist, and local motor vehicle access. Because emergency vehicles and school buses are often routed on neighborhood principal and minor streets, the streets also must allow for the safe operation of these larger

vehicles. Social use of minor streets for community gatherings and other functions is accommodated and encouraged.

Neighborhood (principal and minor alike) and urban center local streets are addressed by the Neighborhood Traffic Calming (NTC) Program and a recently developed set of street-width guidelines. The process, criteria, and measures to be used for NTC projects were adopted by the Arlington County Board in March 2000 and periodically amended following community and County Board review. Additionally, the Neighborhood Conservation Program responds to neighborhood initiatives for street and environmental preservation, storm water management improvements, improved safety and security, and other interventions that ensure continued access but the maintenance of reasonable vehicle speeds.

Pedestrian-Oriented Streets

In some commercial or residential locations, a local street with a very-low volume of motor vehicle traffic (250 or fewer vehicles per day) may be constructed as a pedestrian-oriented street. The street is characterized by shared use of the entire street area by motorists, pedestrians, and bicyclists. In some European countries, these streets may be known as “Woonerven”, “play streets” or “pedestrian zones”. These streets are designed and constructed to discourage travel at more than 15-miles per hour. Vehicular entrance to the street is via driveway-style curb ramps and the surface of the street may be of materials other than traditional asphalt. Linear curbs, landscaping strips, sidewalks parking and travel lanes may not be provided; instead the various uses may be interspersed within the street area. Motor-vehicle access may also be limited to certain specific hours and purposes so as to enhance the pedestrian experience. In appropriate circumstances, consideration should be given to the conversion, by the applicable legal processes, of public streets to public areas solely for pedestrian passage and usage. The Pedestrian-oriented street is most appropriate in locations where pedestrian activity on the street is expected to match or exceed that of vehicles and its development is contingent upon approval of an engineering study.



Table 2- Local Streets Design Guidelines

Street Type	Total No. of Lanes	Paved Width (feet; face of curb to face of curb)	Lane Width (feet)	Parking Lane Width (feet)	Landscape Strip Width (feet)	Sidewalk Width (feet)		Right-of-Way Minimum Width (feet)
						Residential (feet)	Commercial (feet)	
Urban Center Local	2	28 to 30 (Parking 1 side)	10 to 11	7 to 8	4 to 6	N/A	6 to 8	50 to 60 (Parking on one side)
		34 to 36 (Parking 2 sides)						55 to 63 (Parking on both sides)
Neighborhood Principal	2	28 to 30 (Parking 1 side)	10	7 to 8	2 to 4	5	5 to 6	44 to 49 (Parking on one side)
		34 to 36 (Parking 2 sides)						49 to 55 (Parking on both sides)
Neighborhood Minor (Without parking)	2	20 (No parking)	20 Shared for both directions	N/A	2 to 4	4 to 5	N/A	33 to 39
Neighborhood Minor (Parking one side)	1 1/2 (yield) or 2	22 to 27 (Parking 1 side)	14 to 20 Shared for both directions	7	2 to 4	4 to 5	N/A	35 to 46 Varies with paved width of street
Neighborhood Minor (Parking on both sides)	1 1/2 (yield) or 2	28 to 32 (Parking 2 sides)	14 to 18 Shared for both directions	7	2 to 4	4 to 5	N/A	41 to 51 Varies with paved width of street
Pedestrian Oriented	1 ½ (yield) or 2	20 to 40	Not designated	Integrated	Integrated	Integrated	Integrated	20 to 40

Note: Neighborhood minor streets are often narrow, slow-traffic streets where “yield” movements are intended and the street is considered a “shared” street, such that opposing vehicles share a single lane. Volumes must be less than 1,500 vehicles per day. Lane width dimensions are subject to approval by the Arlington Fire Department. Some design variations may be appropriate for streets in older, historic neighborhoods as determined by a community process. Narrower street widths may be suitable for some one-way streets.

Alleys and Private Streets

Alleys

Both publicly and privately owned alleys supplement the public streets by providing valuable building access and loading away from routes with significant pedestrian and vehicular traffic. Alleys are by definition public thoroughfares, less than 30 feet in width, that provide vehicular and pedestrian access exclusively to the side or rear of lots or buildings. Alleys most commonly are unnamed, are accessed via driveway aprons, and do not usually provide separate areas for pedestrian travel or landscaping. They are designed for very low-speed use, principally by service vehicles such as delivery vans and trash-collection trucks.

The primary purpose of alleys is to provide for loading and parking access that is not obtrusive to the activity on the adjacent sidewalks and streets. Other purposes of alleys include providing locations for utilities, allowing circulation within a block, and enhancing firefighting capabilities. Alleys may also be pedestrian routes and could include walkways, provided such facilities that do not diminish the usability of the alley for the other purposes.

New alleys should be encouraged as part of large land redevelopment projects, particularly where they can function both as a service drive for buildings on a block, but also as a physical divide that signals change in the scale or type of buildings within a block. Specifically, plans for the redevelopment and revitalization of the Columbia Pike corridor and Rosslyn to Ballston corridor call for the development of system of new alleys. Alleys should be considered for larger townhouse developments in particular to provide access to “rear-loaded” buildings.

Private Streets

A small number of Arlington streets have been constructed on private property, typically within easements that grant public access to the County and the public at large. It is general County policy to achieve all future newly created streets in publicly owned street right-of-way, except where private properties (such as parking garages) exist underneath them. However, when planned streets can be achieved only through private ownership and public access easements, the easement should provide that the private streets are built to the same standards and materials as public streets. Agreements, easements or site plan conditions should specify responsibility for operational issues such as snow removal, parking regulation, and general maintenance. All publicly-accessible streets should operate as part of the public system without differences in design or operation that can create confusion for the intended users.

Street Modification Projects

Many of Arlington’s local streets lack some desired elements, such as sidewalks, curb ramps, curbs and gutters, or are otherwise not built to the dimensions specified by this plan. As public funding and private redevelopment provide opportunities, those streets should be upgraded to provide essential street functions such as safe and convenient access for pedestrians, bicyclists, motorists, emergency vehicles, and proper storm water management. County staff will work with property owners and residents of those streets to develop designs that best meet both functional needs and community desires. For design issues not specified by federal or state law, staff should be flexible when confronting challenges, such as severe topographic change, tree and historic resource preservation, constrained right-of-way, and community concerns. Street designs should seek to preserve or enhance the existing unique character of the surrounding neighborhood.

Appendix A: Traffic Crashes Statistical Summary

SUMMARY OF LONG TERM TRENDS

Following are some highlights about long term collision trends on streets in Arlington County between the years 1998 and 2008.

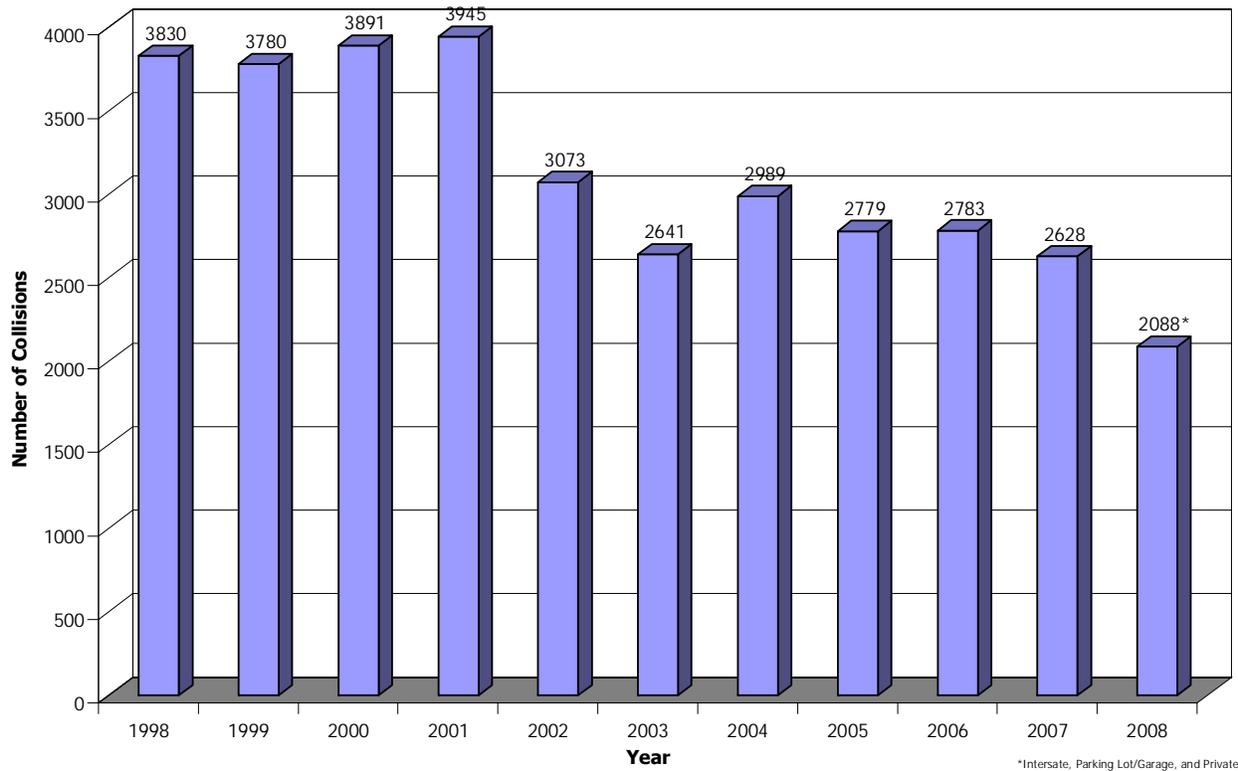
Over the 11-year period (1998 - 2008):

1. Reported total collisions have dropped by about 38%.*
2. Reported injury collisions have dropped by about 53%.*
3. Collisions resulting in fatalities have dropped by 83% (Based on five-year averages for the years ending in 2008 versus 2000).
4. Total reported pedestrian collisions have dropped by about 23%.*
5. The decrease in collisions has been achieved while overall County population has increased by 11.2%.*
6. The number of collisions per 1000 residents has dropped by more than one-half.*

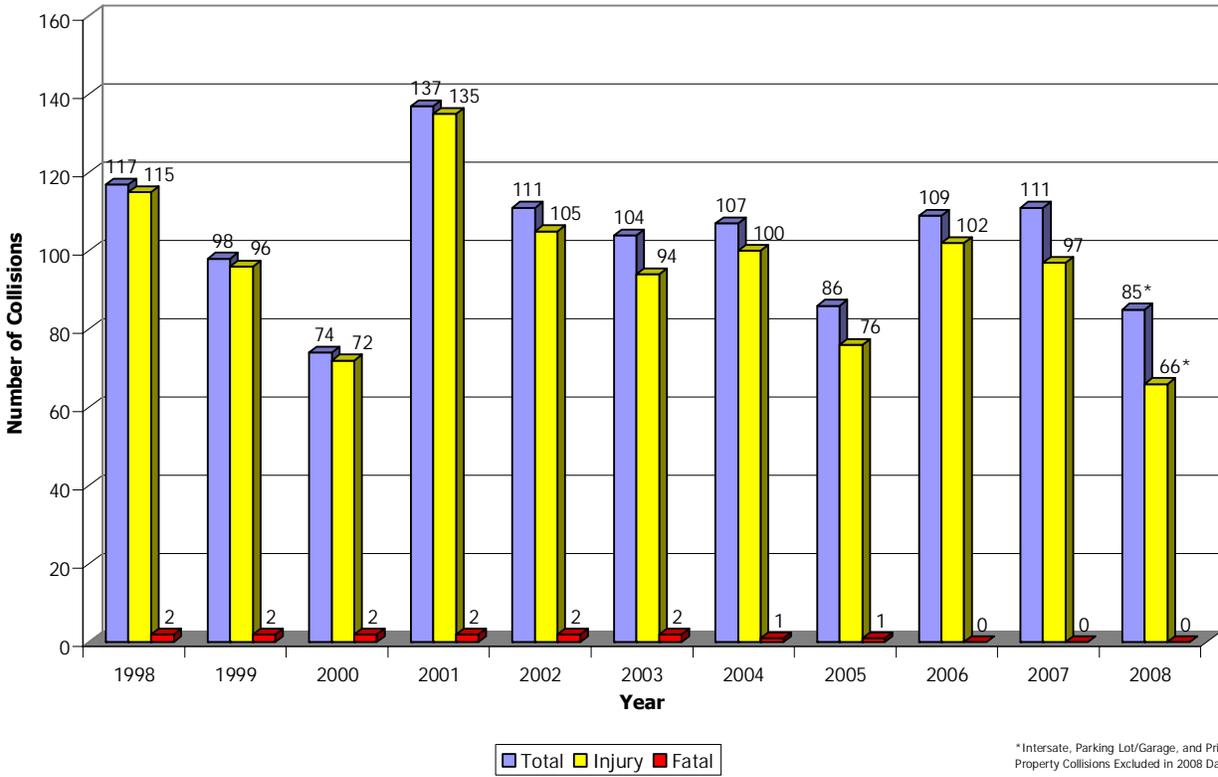
* Note that in collision statistics prior to 2008 collisions that occurred on interstate/freeway facilities, parking lots, and private property (off-system) were included in total collisions. Such collisions were not included in total collision statistics for 2008. Data Collected in 2008 and prior years was reported by Arlington County Police

Graphs showing the reported number of collisions and collisions involving pedestrians for each year between 1998 and 2008 are provided on the following pages.

Total Reported Collisions by Year (1998 - 2008)



**Reported Total, Injury, & Fatal Pedestrian Collisions by Year
(1998 - 2008)**



GREEN STREETS

LANDSCAPING FOR CLEAN WATER

What is a green street facility and what are the benefits?



Green streets slow down, filter and clean stormwater runoff.

A green street facility transforms a small area of the street into a landscaped green space that captures runoff and lets water soak into the ground. These landscaped areas are also known as raingardens or bioretention areas. The plants and soil in the green street facility help to filter and break down pollutants in the runoff. Green streets convert stormwater from a waste directed into a pipe, to a resource that replenishes groundwater supplies. They also can absorb carbon, improve air quality, neighborhood aesthetics, and pedestrian and bicycle safety, and calm traffic.

Arlington County is committed to green building and sustainable stormwater management. Green streets are an innovative, effective tool to improve the health of our streams. Green streets also help the County meet regulatory requirements for pollutant reduction for local streams and the Chesapeake Bay.

Urban stormwater runoff pollutes local rivers and streams. Green Streets facilities reduce the negative impacts of stormwater runoff by using soil and vegetation to slow down and filter runoff near the source.



Frequently Asked Questions about Green Streets

How are the locations for Green Streets facilities selected?

The County is conducting studies of each watershed to identify potential locations for green streets. The sites are evaluated and ranked according to the amount of stormwater runoff that they can collect, and their capacity to remove pollutants from the runoff. The sites are also evaluated for utility conflicts and significant trees. After each watershed is studied and the sites are ranked, green streets projects will be selected for installation. If you have a site you'd like to suggest for a green street project, please email us at des@arlingtonva.us.

Will the Green Street facility remove parking spaces?

It depends on the type of facility. Some green streets facilities are installed between the sidewalk and the curb, or in a street median, and these facilities do not remove parking spaces. If the green streets facility is installed as a curb extension, it will likely displace several parking spaces and in some cases eliminate parking across the street. The County's goal is to maintain parking where possible, but in most cases a curb extension is the only option because of utility and tree conflicts within the planting strip, or the narrow width of the strip. Curb extensions can enhance pedestrian safety by decreasing crossing distances, keeping site lines clear, and slowing traffic.

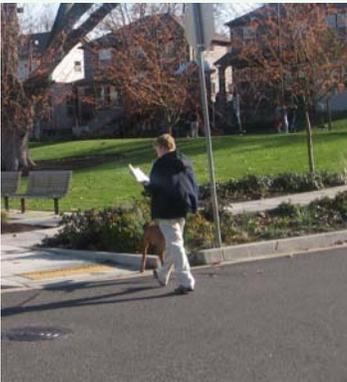


A green street facility on a neighborhood street.

Learn more:
www.arlingtonva.us/des



These green streets collect and treat runoff from the nearby road



Runoff from the roadway flows into a green street facility along a sidewalk.

Plants and Maintenance

What kinds of plants will be in the facility?

Plants are selected that can tolerate both wet and dry conditions. Generally, the County strives to select native grass and wildflower plants that grow no more than 2 to 3 feet high. Rushes and sedges are commonly used.

Who will maintain the Green Street facility?

The County will maintain green street facilities as an important part of our stormwater infrastructure. The County has a contract for maintenance of the facilities, including a minimum of two visits per year to weed, prune, clean out sediment, and replace plants. The County welcomes help from neighbors to keep the facilities free of litter and leaves.

Will a Green Street facility breed mosquitoes?

Green street facilities are designed to drain in less than 48 hours to prevent mosquito breeding. Special soil is installed in the facility, along with an underdrain, to ensure that the water can easily infiltrate into the soil and exit the facility even if underlying soils drain slowly. The County will monitor the facilities to make sure they do not become a breeding area for mosquitoes.

How do we know the facility is working correctly?

Green streets facilities are designed to overflow to stormwater inlets when they reach capacity during heavy rain. The County will regularly monitor facilities, but if you see a problem, please report it to des@arlingtonva.us.

Safety Concerns

Will a Green Street facility near our house cause water to seep into my basement?

No. The distance from most homes to the street, along with the depth and design of green street facilities, will ensure that green streets facilities will not cause basement seepage. An underdrain is installed with each facility, to ensure that treated water is directed back into the storm sewer system if underlying soils drain slowly.

Is the Green Street facility a safety hazard for children in the neighborhood?

Green streets are designed to only have 6 – 12 inches of water that ponds in them, and any water above that amount will overflow to a stormwater inlet. The special soil installed in the facility ensures that the water can easily infiltrate into the soil. The facility will only hold water for a few hours following a storm.

Does a Green Street facility concentrate pollutants in the soil?

Plant roots and soil organisms in green streets facilities help break down stormwater pollutants, and the pollutants captured bind to soils or are taken up by plants. The County will be taking soil samples from some green streets facilities to tests for pollutant levels over time. Other cities using green streets, such as Portland, Oregon, have analyzed soils from green streets facilities and have not found any evidence of pollutants accumulating in concentrations that pose a health risk. Green streets soils are not intended for direct contact and therefore exposure to any pollutants captured will be limited.



Indentations in the curb allow water to flow into the green street facility.