

# 3 SIDEWALKS



Typical retail street in Alexandria



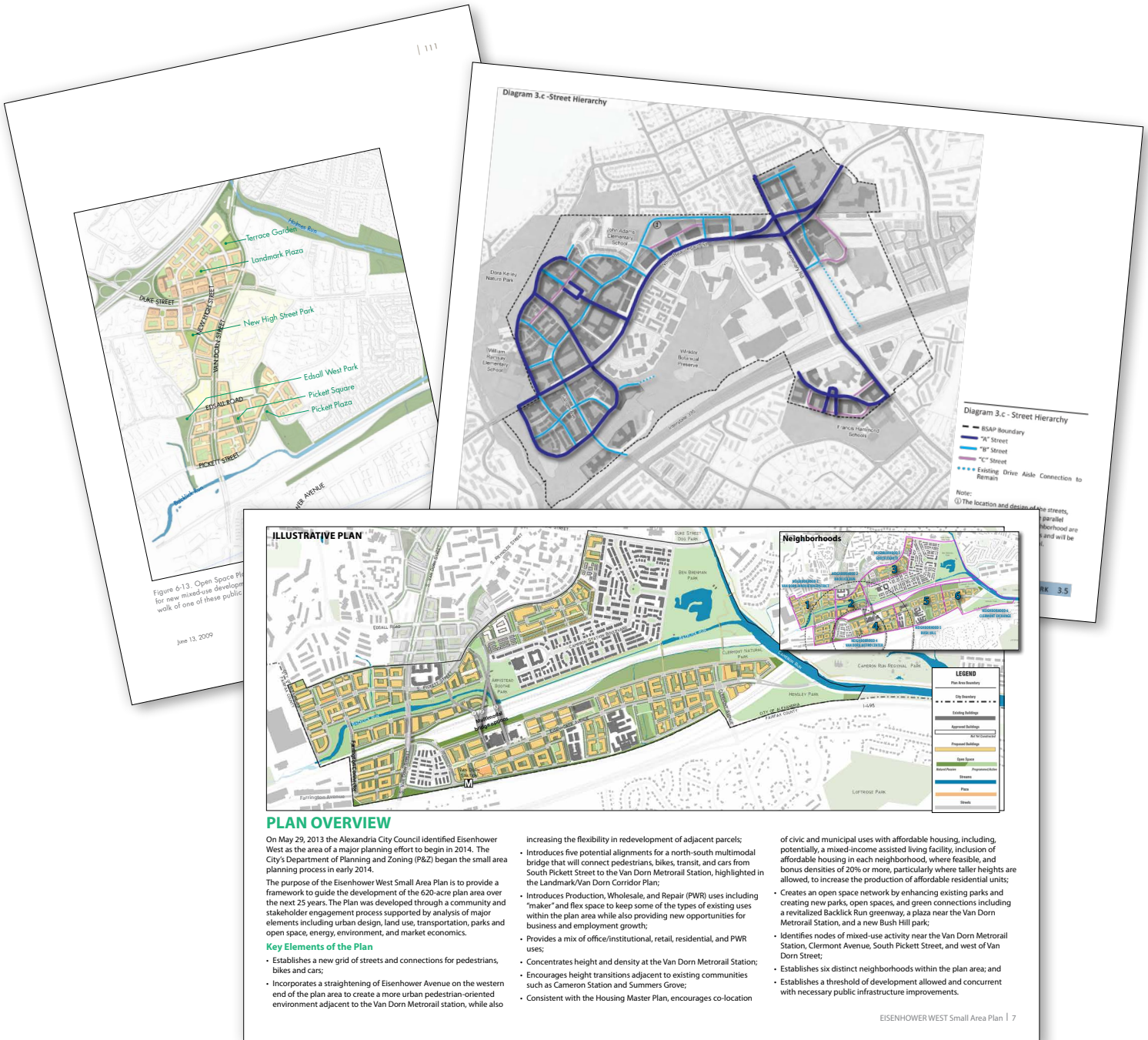
Typical residential street in Alexandria

Sidewalks are one of the most vibrant and active sections of the overall right-of-way. Throughout the city, sidewalks play a critical role in the character, function, enjoyment and accessibility of neighborhoods. Alexandrians value the walkability of their community and neighborhoods and wish to see this quality preserved and enhanced. The function and design of the sidewalk significantly impact the character of each street. Extending from curb to building face or property line, sidewalks are, of course, the place typically reserved for pedestrians, but they also accommodate street trees, stormwater best management practices (BMPs), street lights, bicycle racks, and transit stops. They are a place of transition and economic exchange as restaurants engage the public space and retailers attract people to their windows and shops.

In many ways, Alexandria is two types of cities in one. Old Town and the neighborhoods in the eastern portion of the city reflect a traditional urban pattern characterized by a regular grid of streets. In Old Town and Del Ray the street grid is very intimate: Streets are typically narrow and sidewalks, while also narrow, are generally complete. The grid distributes traffic well and offers many different routing options for pedestrians and travelers using a variety of different modes. Mixed land uses are common in these areas with many homes within walking distance of retail, commercial, community and green space amenities.

In the central and western areas of the city, many streets have a more typical suburban development pattern and curve through quiet residential areas with developed tree canopies. The land use is generally of lower intensity with greater separation and more open space. The sidewalk network is generally complete, however curvilinear streets create atypically shaped intersections with increased crossing distances and decreased pedestrian visibility. Though the neighborhood residential streets are lower volume

and tree-lined, a handful of very broad corridors with large sized blocks cuts across neighborhoods carrying heavily concentrated traffic. The City has recently approved plans such as the **Landmark-Van Dorn Corridor Plan, Eisenhower West Small Area Plan** and **Beauregard Small Area Plan**. These plans will significantly transform portions of this area of the city into a series of more compact, walkable neighborhoods with improved non-motorized access to commercial amenities, schools or other community destinations.

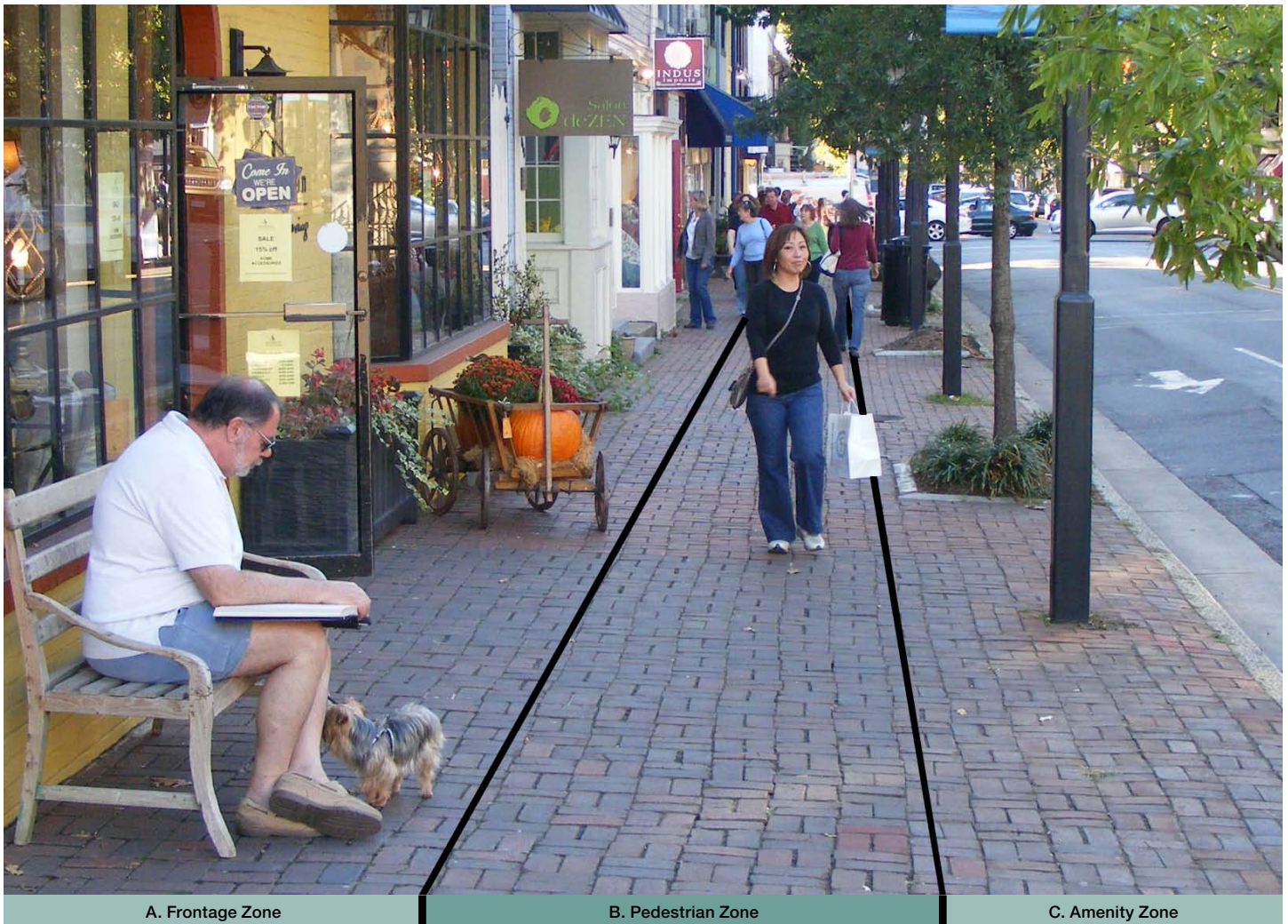


The plans demonstrate City efforts to increase connectivity, mix of uses, block and scale pattern of the West End street grid.

## Sidewalk Zones

Sidewalks are not a singular space, but are comprised of distinct usage zones. Sidewalks typically are located in the right-of-way that extends from the curblineline to the property line behind it. They can be broken up into three primary zones performing

unique functions in the overall operation of the street, and interface with adjacent private property uses. Although boundaries between zones may blur and blend, the overall function of each zone generally remains consistent.



### A. FRONTAGE ZONE

The Frontage Zone is the area of sidewalk that immediately abuts buildings along the street. In residential areas, the Frontage Zone may be occupied by front porches, stoops, lawns, or other landscape elements that extend from the front door to the sidewalk edge. The Frontage Zone of commercial properties may include architectural features or projections, outdoor retailing displays, café seating, awnings, signage, and other intrusions into or use of the public right-of-way. Frontage Zones may vary widely in width from just a few feet to several yards.

### B. PEDESTRIAN ZONE

Also known as the “walking zone,” the Pedestrian Zone is the portion of the sidewalk space used for active travel. For it to function, it must be kept clear of any obstacles and be wide enough to comfortably accommodate expected pedestrian volumes including those using mobility assistance devices, pushing strollers, or pulling carts. To maintain the social quality of the street, the width should accommodate pedestrians passing singly, in pairs, or in small groups as anticipated by density and adjacent land use.

The Pedestrian Zone should have a smooth surface, be well lit, provide a continuous and direct path with minimal to no deviation, and meet all applicable accessibility requirements. Although currently legal throughout most of Alexandria, bicycling on sidewalks is generally discouraged.

## C. AMENITY ZONE

The Amenity Zone, or “landscape zone,” lies between the curb and the Pedestrian Zone. This area is occupied by a number of street fixtures such as street lights, street trees, bicycle racks, parking meters, signposts, signal boxes, benches, trash and recycling receptacles, and other amenities. In commercial areas, it is typical for this zone to be hardscape pavement, pavers, or tree grates. In residential, or lower intensity areas, it is commonly a planted strip.

The Amenity Zone can provide an emergency repository for snow cleared from streets and sidewalks, although snow storage should not impede access to or use of important mobility fixtures such as parking meters, bus stops, and curb ramps.

Stormwater Best Management Practices (BMPs) are commonly located in the Amenity Zone. The **Green Sidewalks Best Management Practices (BMP) Design Guidelines** provide guidance on the selection and application of the most appropriate treatments for reducing stormwater pollution from public rights-of-way and improving the health of the street trees.

## THE CURB

Although not a zone per se, the curb is a unique and vital element of the street. It is the demarcation line between the pedestrian domain and the vehicular domain. The curb is typically a physical barrier providing vertical separation between the street and sidewalk. The curb coupled with adjacent gutter and stormwater inlets also plays a specific role in the drainage of the sidewalk and roadway and even of the adjacent property at times.

Bulbouts, also called curb extensions, extend the Amenity Zone and curb into the roadway. The use or function of bulbouts typically mirrors or complements that of the Amenity Zone and may include stormwater management features, transit stops or passenger facilities, seating, dining, or additional pedestrian space.

## LINKS

### Landmark/Van Dorn Corridor Plan

<http://alexandriava.gov/LandmarkVanDorn>

### Eisenhower West Small Area Plan

<https://www.alexandriava.gov/EisenhowerWest>

### Beauregard Small Area Plan

<http://alexandriava.gov/BeauregardPlan>

### Non-roadway Bicycle Routes Ordinance

[http://alexandria-va.eregulations.us/code/coord\\_title10\\_ch7\\_sec10-7-4](http://alexandria-va.eregulations.us/code/coord_title10_ch7_sec10-7-4)

### Green Sidewalks, BMP Design Guidelines

<http://alexandriava.gov/uploadedFiles/tes/info/GreenSidewalksBMPDesignGuidelines%20.pdf>

## Preferred Widths for Sidewalk Zones

The width of the various sidewalk zones will vary given the street type, the available right-of-way, scale of the adjoining buildings and the intensity and type of uses expected along a particular street segment. A balanced approach for determining the sidewalk width should consider the character of the surrounding area and the anticipated pedestrian activities. For example, is the street lined with retail that encourages window shopping or does it connect a residential neighborhood to a commercial area where pedestrians frequently need to pass one another? Does the scale of the buildings and the character of the street indicate a need for a wider sidewalk?

The width of the sidewalk should also relate to the street width and the height of adjoining buildings. If sidewalks are too wide, the street may feel empty and pedestrians may seem out of place, lost on a sea of sidewalk. If sidewalks are too constrained, friction may result between the sidewalk zones, leaving less space for healthy tree growth, limited access to parking meters or other fixtures, and a lower pedestrian level of service as pedestrians struggle to travel at their preferred pace.

Many streets in Alexandria have considerable right-of-way constraints. Preferred sidewalk zone widths may not always be possible and design judgment must be used to achieve a comfortable and functional balance. Traditionally, right-of-way has been allocated from the inside out, starting with the needs of motor vehicles, then dividing the remaining right-of-way among all other street users. Complete Streets marks a paradigm

shift: approaching street design from the outside in – considering the uses and activities along the street edge in addition to the through travel demands that dominate an “inside out” approach.

- The standard curb design in Alexandria is a 6" wide concrete curb with a 6" tall curb.
- Fixtures in the Amenity Zone should be installed a minimum of 2' from the front of curb (or 18" into the Amenity Zone)
- The Americans with Disabilities Act requires a minimum 3' clear width while the draft Proposed Right-of-way Accessibility Guidelines (PROWAG) recommend 4' clear width in the Pedestrian Zone. However, in the City of Alexandria, sidewalks are typically 6' at a minimum, though 5' is permitted if the sidewalk is a residential retrofit.
- Where minimums cannot be achieved, a design exception is required (see [Page V](#) of these guidelines). An exception will not be permitted for new developments. They will be considered for existing buildings or utilities that may preclude implementation of the plan.
- In rare cases where a design exception is made and a 4' wide sidewalk is constructed, a 5' wide passing zone must be constructed every 200' to allow two wheelchairs to pass each other.

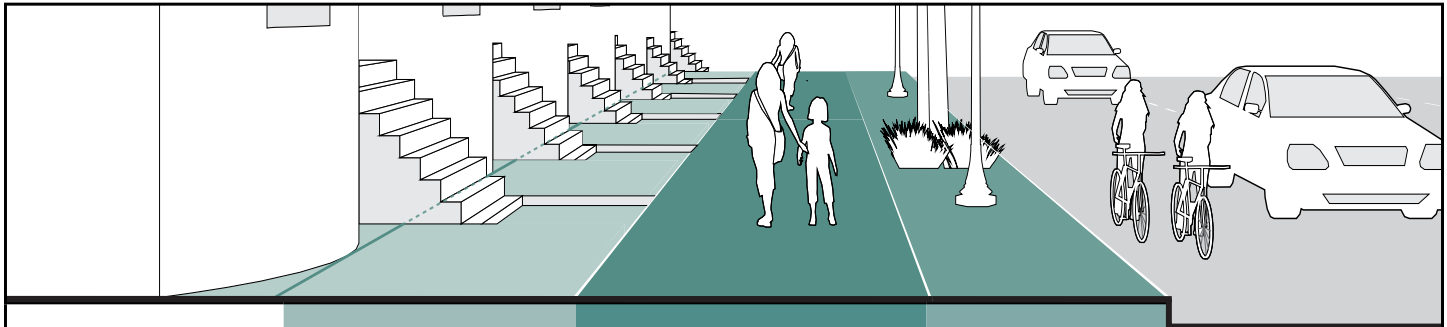


Brick sidewalk with a parking meter in the Amenity Zone



Concrete sidewalk with landscaping in the Amenity Zone

# Preferred Widths for Sidewalk Zones



Street Type	Frontage Zone <sup>1</sup>	Pedestrian Zone <sup>2</sup>	Amenity Zone <sup>3</sup>	Total Width
	Door swings, Awnings, Café seating, Retail signage and displays, Building projections	Zone should be clear of any and all fixed obstacles. Clear space for pedestrian travel only.	Street lights and utility poles, Street trees, Bicycle racks, Parking meters, Transit stops, BMPs, Street furniture and signage	
Commercial Connector	2'-5'	6'-15'	6'-10'	14'-30'
Main Street	2'- 6'	6'-10'	6'-10'	14'-22'
Mixed Use Boulevard	2'- 6'	6'-18'	6'-10'	14'-30'
Neighborhood Connector	2'	6'-8'	6'-7'	14'-17'
Neighborhood Residential	2'	6'	5'-7'	11'-13'
Parkway	N/A	6'-10'	5'-10'	11'-20'
Industrial	2' or N/A	6'	5'-7'	11'-15'
Shared Streets	2'	N/A	N/A	N/A

## NOTES SPECIFIC TO ZONES:

1. Frontage Zones used for sidewalk cafés are a special condition and should generally be no less than 6' in width. They should maintain the minimums discussed in the Sidewalk Outdoor Dining section of these guidelines (see page 3-12).
2. In locations with severely constrained rights-of-way, it is possible to provide a narrower Frontage Zone and Pedestrian Zone. Sidewalk width is based on the context, therefore in retrofit locations where development is not occurring and where existing building are anticipated to remain, 5' wide sidewalks may be adequate.
3. Sidewalk BMPs require a minimum of 7' of width for the Amenity Zone. The final dimensions will be established based on the context of each landscape area. Where BMPs are not provided in the Amenity Zone, this area may be at the lower end of the range.

## GENERAL NOTES:

- Where on-street parking is not present, the wider dimensions should be provided.
- The provision of tree well or landscape strip within the Amenity Zone will be based on the existing or planned character of the neighborhood.

## LINKS

Americans with Disabilities Act, as amended  
[www.ada.gov](http://www.ada.gov)

Proposed Right-of-way Accessibility Guidelines  
<http://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/proposed-rights-of-way-guidelines>

Green Sidewalks, BMP Design Guidelines  
<http://alexandriava.gov/uploadedFiles/tes/info/GreenSidewalksBMPDesignGuidelines%20.pdf>

Alexandria Small Area Plans  
<http://alexandriava.gov/planning/info/default.aspx?id=44614>

## Features to Activate Sidewalks

Pedestrians generally feel safer and will walk farther on sidewalks with animated edges. Animation can take the form of uses such as cafés and retail storefronts, or other elements such as porches, balconies or residential windows. Public art and plantings can also activate sidewalks by providing visual interest and a sense of motion or progression as leaves rustle, and views of public art come into focus and change, marking the time and progress of a pedestrian's walk.

Pedestrian-friendly sidewalks should be comfortable in terms of scale, light, and shade, and security. The sidewalk environment should be pleasing to the senses, offer visual stimulation, greenery, and provide a social atmosphere. Vibrant, pedestrian-friendly sidewalks attract activity and are both an indicator of, and a factor in, economic vitality.

The following sections describe features that activate sidewalks and how sidewalks can be places in and of themselves. Features range from the seam between sidewalks and buildings where the right-of-way and the private property interact to the overlap between the sidewalk and the street where reducing stress on sidewalks allows for better activation and user experience.

Publicly owned plazas and the permitting of outdoor cafés and push cart vendors are managed by T&ES and must be approved by the Planning Commission. The Department of Planning and Zoning (P&Z) will be consulted in the design of plazas and cafés; maintenance agreements with adjacent property owners are typically required.

There are many areas of the City that have existing small area plans or design guidelines that stipulate defining the street edge, selection of street trees and other sidewalk amenities. Please refer to Alexandria Master Plan (Small Area Plans & Citywide Chapters) for more information.

### LINKS

#### Small Area Plans

<http://alexandriava.gov/planning/info/default.aspx?id=44614>

# ACTIVE STREET EDGE



King Street in Alexandria

Street walls define the edge of a street or public space by creating a visual boundary. The street edges where sidewalks and buildings meet contain the dynamism of the city. When people in the public space of the street feel connected to the activities in the private space, their sense of safety, community, and well-being increases. Walking distances seem shorter in places with interesting street walls. Indeed, pedestrians will happily walk much farther through an area with an active and stimulating street edge than through an area that is generally quiet and disconnected from the street's public space.

Activity and transparency are key features of vibrant street walls. Activity at the street level creates valuable experiences for both pedestrians and motorists. Private developments should provide active and inviting ground floor uses. As part of new development and/or redevelopment, parking should also be located behind

or beside the building— or below grade for new developments – to encourage uses adjacent to the sidewalk. Loading docks, garage access, and blank walls should not be located along primary streets and should be accessed from alleys where feasible.

Transparency is most critical at the street level, because this is where pedestrian interaction most often occurs. It is also where the greatest interaction occurs between indoors and outdoors. At a minimum, vibrant street walls should be 50% transparent.

## DESIGN

- An active street edge is better achieved when the adjacent building's floor elevation is at or close to sidewalk grade and barriers such as steps and stoops removed or minimized to allow pedestrians maximum visual access to adjacent buildings.

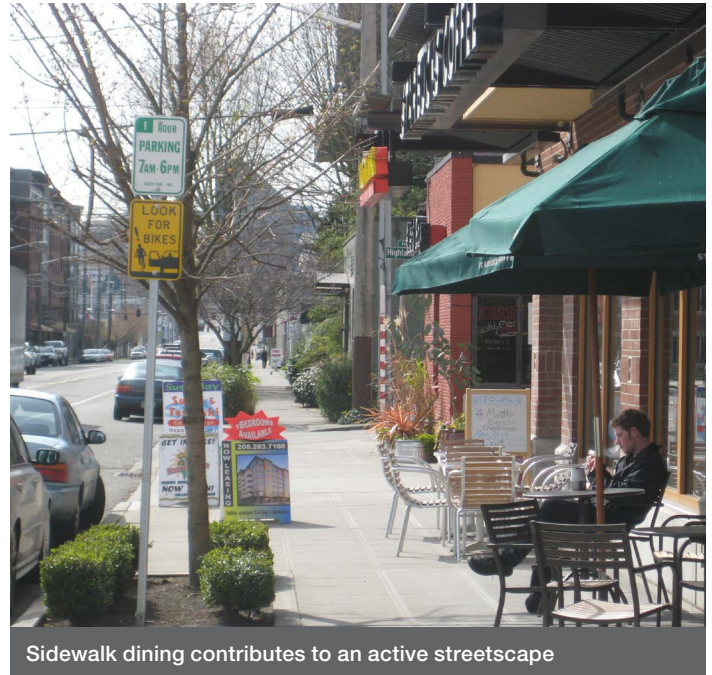


## ACTIVE STREET EDGE

- Larger retail floor plates such as major groceries, furniture stores, or other large format retail should line their façades with smaller establishments or specialty units of their enterprise or architectural treatment including materials and color in order to break up the scale of the façade and potentially provide more points of entry and interaction with the sidewalk.
- Transparency calculations should not include garage entrances, loading docks, egress doors, utility vaults, and service areas. Maximize the number of windows with the goal of 50%-70% transparency on the first floor.
- The desired distance between ground-level pedestrian entrances in new development projects along these street types is between 30' and 75', or about one entrance every 10 to 15 seconds as a person walks along a street. More frequent building entrances are encouraged to add street activity.
- Additional visual interest can be provided with awnings, lighting, signs, and foliage with appropriate approval where required. Plantings, banners and public art can provide seasonal color and texture.
- Garage access for all new townhouses will be from the alley rather than the street. Garage access for new multi-family and commercial buildings is encouraged to be from an alley if feasible.

### CONSIDERATIONS

- Vibrant street walls with active uses adjacent to the sidewalk are particularly valuable and should be encouraged on all street types excluding the Industrial Street type. Where an active use adjacent to the sidewalk is not feasible, visually engaging walls should be provided adjacent to the street. Strategies to improve the visual quality of a street wall include public art, and “living walls” that encourage plant growth along large expanses of solid surfaces.
- Upper levels can also contribute to a vibrant sidewalk environment as well through large windows, balconies, or other opportunities for private observation of the public space.



Sidewalk dining contributes to an active streetscape

- When ground floor activity and transparency cannot be accommodated by retail or commercial uses, residential uses will need to be provided.
- Also see applicable City Design Standards for streetwall and active use requirements.

### LINKS

#### Public Art Implementation Plan

<http://www.alexandriava.gov/uploadedFiles/recreation/arts/PAIP%20FINAL.pdf>

# PLAZAS AND RECLAIMED SPACES



Patent Office Plaza

## OVERVIEW

Whereas the sidewalk Pedestrian Zone is a place of movement, plazas and reclaimed spaces are designed to encourage people to linger, look, and gather—creating a sense of place and promoting social interaction.

Plazas are open “rooms” in the city. They may be located in public space or on private property, but are accessible for public use. They can support a wide variety of activities such as temporary markets, art installations, or performances. They utilize paving, seating, and plantings to create a distinct character and may incorporate BMPs to capture stormwater runoff from roofs and adjacent sidewalks and streets.

» *P&Z and the Department of Parks, Recreation and Cultural Activities must be consulted in the design of plazas. These departments are responsible for approving them. Maintenance and management agreements with adjacent property owners are typically required.*

Reclaimed spaces are created from redundant or underutilized street space that has been reallocated for pedestrian use or stormwater management. They can range from slightly enlarged corners at intersections to whole peninsulas of space created when multi-legged intersections are reconfigured. While these types of open spaces are a great benefit to urbanized areas, they should be used judiciously and appropriately.

They should be located in areas where people naturally congregate—close to centers of activity—or they should have features that draw activity to them such as retail offerings, playgrounds, or other attractions.

Management of plazas and reclaimed spaces depends on the type of space and their creation. Plazas located on private property may remain the responsibility of the private property owner who will control their use and manage their maintenance. If properties are given to the City through dedication or easement, generally the Alexandria Department of Recreation, Parks, and Cultural Activities will oversee their use and management.

» *Reclaimed spaces—because they remain fully within the right-of-way of the street—will generally remain the responsibility of T&ES; however often community groups will manage and maintain these sites through an agreement with the City.*

Both plazas and reclaimed spaces are especially valuable in areas of higher density and more intensive activity such as Commercial Connectors, Main Streets and Mixed Use Boulevards. Programming and activity in these open spaces is essential. Lining them with active ground floor uses and enabling and encouraging those uses to spill out into them ensures a vibrant place. They may be further activated by enabling or encouraging commercial activity in the space. This may include pop-up or modular retailing or nearby food service.

Plazas and reclaimed spaces may also be natural points from which to orient travelers to the rest of the community and great spaces to incorporate wayfinding and directional signage, community information, and local transit options information.

## DESIGN

- Consider use and maintenance in both day and evening hours and throughout the year. Light and shade are both critical elements of inviting plazas and reclaimed spaces.
- Promote visibility and observation to maintain a sense of safety and connection. Clear sight lines should be maintained to and from the public street and the plazas and reclaimed spaces.

## PLAZAS AND RECLAIMED SPACES

- Incorporate public art and the celebration of local history or culture. Addition of public art should be done sensitively and holistically to avoid the appearance of “plop art.”
- Provide a variety of seating options, some of which may be movable. Seating can be incorporated into building edges and walls. Typically, dedicate at least 10% of the open space to seating.
- Plazas and other spaces that are to be maintained by T&ES must be designed according to the **Memo to Industry 10-11 “Paving for Parks and Plazas which are to be City-owned and Maintained.”** [Click here to access the City of Alexandria Standard Materials List for information on pavers.](#)
- Provide trash and recycling receptacles to minimize littering. Receptacles should be placed in a manner as to be visible, yet should not impede pedestrian flow or visually degrade the appearance of the plaza.
- Ensure access for maintenance and emergency vehicles and equipment, as well as accessible routes from the sidewalk and through the plaza to building entrances and transit stops.
- The use and programming of plazas and reclaimed spaces shall be guided by the bi-annual **Alexandria Parks and Recreation Needs Assessment** to ensure the site reflects community interests.
- Maintenance responsibility and funding should be clearly established.
- Provision of electrical power and/or water expands the number and variety of uses that can utilize and activate the space, as well as eases maintenance and care activities, especially the establishment of plants and trees.
- Water features are highly popular and particularly effective at attracting people to plazas; however, they introduce substantial costs and maintenance concerns.
- The use of permeable, recycled, and/or locally sourced materials increases sustainability, reduces life-time energy consumption and improves environmental performance.

### LINKS

**Memo to Industry 10-11 “Paving for Parks and Plazas which are to be City-owned and Maintained.”**

<http://alexandriava.gov/uploadedfiles/tes/info/PavingForParksAndPlazaAreas2.pdf>

**Alexandria Parks and Recreation Needs Assessment**  
<https://www.alexandriava.gov/recreation/info/default.aspx?id=51672>

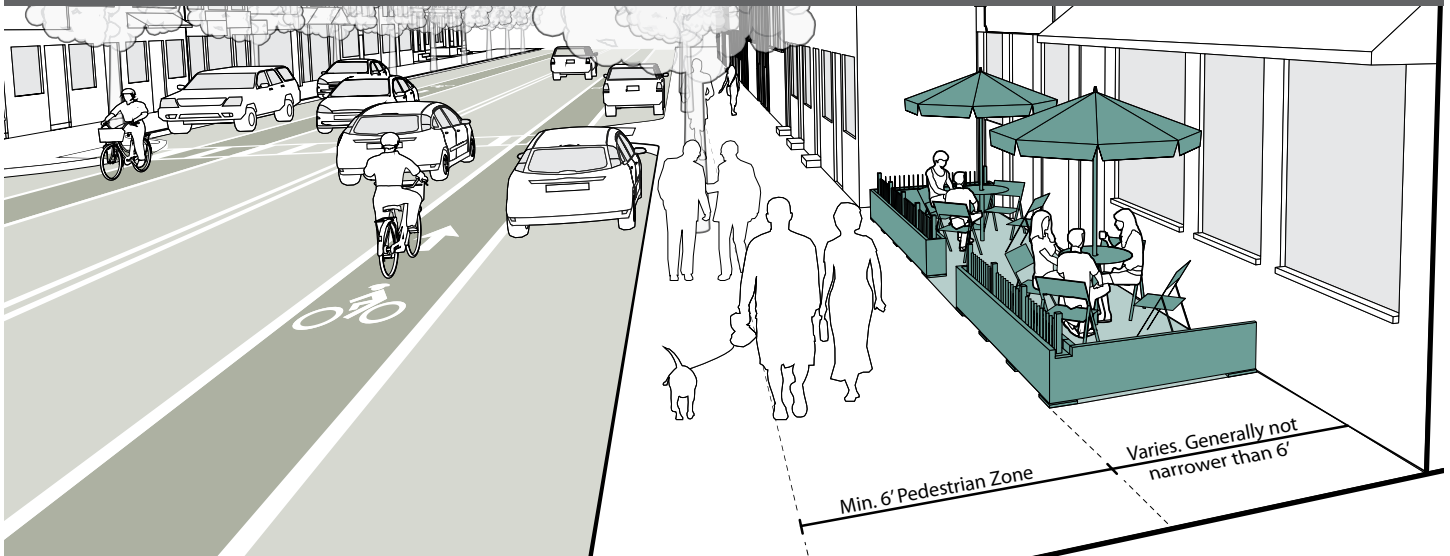
### CONSIDERATIONS

- Plazas and reclaimed spaces should accommodate access via a variety of modes, incorporating transit stops and amenities where appropriate and needed, and providing space for bicycle parking.



Reclaimed space in Arlington, VA

# SIDEWALK OUTDOOR DINING



## OVERVIEW

Outdoor dining opportunities contribute to a lively street environment and add economic value by enabling private commercial activity to spill into the public environment of the street. Sidewalk cafés are encouraged on all street types where commercial activity occurs.

Alexandria has established a special sidewalk café **policy** and **design guidelines** for King Street in Old Town with the express purpose of facilitating café activity as a benefit to the street environment. Sidewalk cafés are generally not public seating, rather they are associated with a particular business and reserved for the explicit use of their patrons. Sidewalk cafés pay a modest fee for this occupancy of public space.

Sidewalk cafés are often, though not always, impermanent and seasonal. They may be removed or taken in every evening after business hours or during the colder winter months.

» *T&ES is responsible for the permitting of outdoor cafés. P&Z must be consulted in the design of cafés and must approve them. Permits generally establish maintenance responsibilities and uses permitted to the sponsoring adjacent property owner(s).*

## DESIGN

- Sidewalk cafés may be located either in the Frontage Zone (front or side) or in the Amenity Zone. Sidewalk cafés should not extend beyond the frontage of their respective business without explicit approval.

- Sidewalk cafés should not alternate between Frontage Zone and Amenity Zone in the same block face. They should be consistently located in one zone or the other.
- Sidewalk cafés located in the Amenity Zones should remain at least 2' away from the face of curb to enable curbside parking and other uses access and egress from the roadway to sidewalk.
- A Pedestrian Zone of at least 6' must be maintained. This Pedestrian Zone is determined by applying a straight line down the length of a block face between the outermost obstacles in the Frontage Zone to the innermost obstacles in the Amenity Zone.
- Sidewalk cafés generally require a minimum 6' depth to provide adequate space for tables and seating. Seating may not be located within 5' of a fire hydrant. Sidewalk cafés should not be located within a transit stop loading or landing area.
- A 4' wide corridor to and from the Pedestrian Zone to the restaurant doorway must be maintained.
- The area approved for a sidewalk café should be clearly demarcated with identifiable markers such as ropes and stanchions or planters. If alcohol is served, full enclosure of the space is required. Markers should generally be difficult to move but at the same time must not be permanently affixed to the sidewalk or roadway.

## SIDEWALK OUTDOOR DINING

- Furniture should be durable, free-standing, and matching. It should be sized appropriately to the space permitted for use. Plastic furniture is generally discouraged.
- Awnings and/or umbrellas are desirable, but must not project into the Pedestrian Zone at a height less than 7' from sidewalk grade.
- Additional lighting of the sidewalk café area may be necessary in locations with inadequate pedestrian-scale lighting.
- Heat lamps may be used to extend outdoor dining into the colder months.
- In the **Old & Historic Alexandria and Parker-Gray districts**, applications may need Board of Architectural Review approval. **Design guidelines are available for sidewalk cafés on King Street.** SAPs and design guidelines for SAP areas may include requirements for outdoor dining.

### CONSIDERATIONS

- Sidewalk cafés in the Frontage Zone eliminate the need for servers and patrons to cross the Pedestrian Zone and potentially conflict with pedestrian through movements. Cafés in the Amenity Zone infill between other street fixtures often optimizing that space.
- Retailers want to have pedestrians walking close to their storefronts so window shoppers can see their wares. While cafés and retailers intermingle along a commercial street, the needs of both should be taken into account when determining the best location for a sidewalk café.
- Sidewalk cafés can be renewed annually. Unannounced inspections should be conducted at least annually to confirm cafés are occupying only permitted seating areas and not encroaching on the Pedestrian Zone or adjacent business frontages.
- Sidewalk cafés are not permitted to advertise in the public space. For instance, umbrellas emblazoned with a vendor product name, logo or brand are not permitted.

- Café furniture should not be stacked and stored in the public space during months when the café is not in use. Furniture and barriers must be entirely removed from the public space during the winter months.

### LINKS

Ordinance No. 4521

[http://alexandriava.gov/uploadedFiles/planning/outdoor\\_dining\\_ordinance.pdf](http://alexandriava.gov/uploadedFiles/planning/outdoor_dining_ordinance.pdf)

King Street Outdoor Dining Overlay Zone

[http://alexandriava.gov/uploadedFiles/planning/info/outdoor\\_dining\\_design\\_guidelines.pdf](http://alexandriava.gov/uploadedFiles/planning/info/outdoor_dining_design_guidelines.pdf)

Historic District Boundary Map

[https://www.alexandriava.gov/uploadedFiles/gis/info/2013\\_HistoricDistricts.pdf](https://www.alexandriava.gov/uploadedFiles/gis/info/2013_HistoricDistricts.pdf)

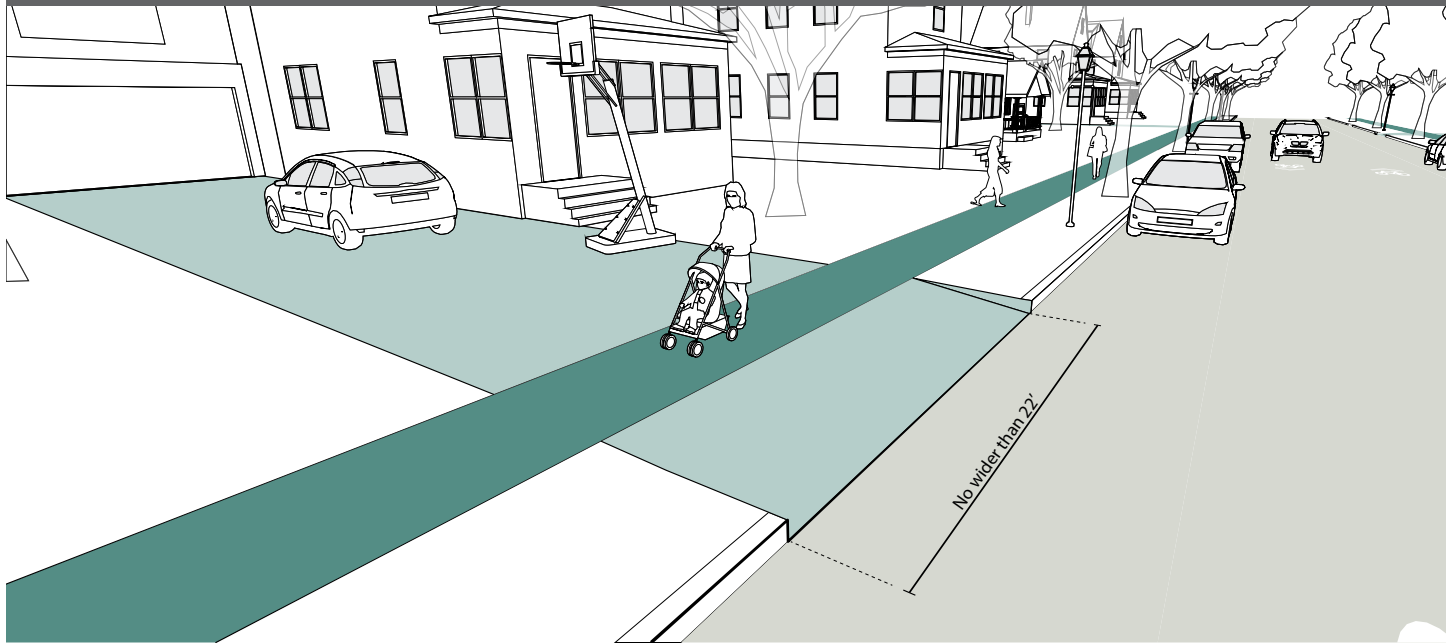


Cafe seating



Sidewalk dining on Mt. Vernon Avenue

# DRIVEWAY ACCESS



## OVERVIEW

Driveways provide access from public rights-of-way onto private property.

They should be used only where alley access or other shared access points or easements are unavailable. Driveways should be consolidated and/or minimized on higher intensity commercial streets—particularly Commercial Connectors, Main Streets and Mixed Use Boulevards.

Driveways introduce a conflict zone between vehicles, pedestrians, and curbside uses, such as bicycle facilities or transit lanes and driveway vehicular access. Driveways require special treatments in order to maintain a safe and comfortable walking environment.

» **Existing Guidance:** *New driveways, or changes to existing driveways for either commercial or residential use will be processed as outlined in city code section 5-2-14. An application must be submitted to the permit and site plan section of the Department of Transportation & Environmental Services (T&ES).*

» **New driveways or changes to existing driveways for either commercial or residential use must be reviewed by both P&Z and T&ES, and approved by T&ES.**

## DESIGN

- When public sidewalks interact with private crossings, public sidewalks are given right-of-way priority. Driveways should be designed to reduce conflict for all modes on both the street and sidewalk.
- Driveway width and apron turn radii should be minimized to the extent possible. Standard design is for 10 mph. Driveway openings should not be larger than 22' wide.
- The Pedestrian Zone must meet ADA Standards at driveway crossings.
- Driveways must maintain the Pedestrian Zone as a continuous, level, and clearly delineated path across to encourage drivers to yield to pedestrians. For example, if the sidewalk is composed of brick, the brick surface treatment should be continuous across the driveway. If the Pedestrian Zone is composed of concrete and it is crossing an asphalt driveway, the concrete should be continuous across the driveway. Materials must meet accessibility requirements outlined in the Sidewalk Materials section found later in this chapter.

## DRIVEWAY ACCESS

- In locations where a driveway functions as an intersection, pedestrian safety features should be included. These features may include crosswalks, small corner radii, and pedestrian signal heads (if signalized) as warranted.
- In locations where sight distances are limited for drivers exiting driveways, such as at parking garage exits and other locations, stop/yield signs and other cautionary messages should be provided to ensure drivers proceed cautiously and yield to pedestrians on the sidewalk.

» *Additional details for driveway design are provided by the Infrastructure and Right-of-way Section of T&ES.*

### CONSIDERATIONS

- In constrained locations where the sidewalk width is insufficient for a fully raised crossing, the roadway can be partially raised and the sidewalk partially lowered. This design minimizes the disruption to the pedestrian while still providing a traffic calming effect. On a typical 6" high sidewalk, this is achieved by ramping down the sidewalk at the driveway by 3" and raising the driveway by the same amount.
  - Vehicular access across sidewalks must maintain the minimum width requirements in the Pedestrian Zone. If the sidewalk is too narrow to achieve this, a curb extension should be considered where on-street parking is present. These locations should be designed to meet ADA Standards.
  - Properties should typically be restricted to one vehicular entrance (driveway) on each street frontage and no more than two on any street frontage should be permitted without clear documentation of the vital need. The effort to consolidate or eliminate driveways should be made wherever possible. Where alleys exist, access should be provided from alleys.
- » *New driveways, or changes to existing driveways for either commercial or residential uses must be reviewed and approved by T&ES.*



Level sidewalks across driveways improve pedestrian convenience and safety

# ALLEYS



Alleys in Alexandria

## OVERVIEW

Alleys may be either public or private. Although their primary purpose is for access and service, an alley may also function as a low volume multimodal connector through a block and be attractively designed as a Shared Street.

The low volume nature of alleys provides an ideal opportunity for the installation of stormwater BMPs.

Alexandria has an incomplete alley system. Alleys are more common in the older parts of the City. More recently developed portions tend to rely on private alleys for access rather than the shared alley facilities. Alleys should be required in infill developments and redevelopments as they reduce the number of vehicular access points on the public street and thereby reduce the number of conflict points improving safety, operations, and aesthetics for all uses.

## DESIGN

- Newly established alleys should be a minimum of 15' wide if designed as one-way operations but 18' wide to provide two-way access.
- Alleys should be properly drained with either center or side drainage.

- Alleys provide an ideal opportunity for BMPs such as pervious pavement. Though the traffic volumes are low, there are frequently heavier service vehicles, BMPs must be designed with these heavier vehicles in mind.
- Parking and the storage of dumpsters and other obstacles should not be permitted within the right-of-way of the alley as this impedes vehicular access, circulation, and service in the alley.
- Lighting is important in alleys to provide a sense of comfort and promote safety.

## CONSIDERATIONS

- Alley maintenance and snow clearance is a low priority for the city. Abutting property owners should be encouraged and enabled to take over maintenance responsibilities if possible.
- Private alleys must be privately maintained.
- In locations where alleys are adjacent to open space or parks, they should be given an enhanced design, similar to Shared Streets, to allow for pedestrian use.



# SIDEWALK MATERIALS



Different sidewalk materials in Potomac Yard

Sidewalk materials can reinforce neighborhood identity and history through their selection, arrangement, coloring, or patterns.

At the same time, the use of too many sidewalk materials and patterns can contribute to a disjointed appearance. Ideal sidewalk materials should be smooth, stable, slip resistant and durable to minimize vibrations, tripping hazards and reduce maintenance costs and concerns. With this understanding, the City of Alexandria has given much thought to the design requirements for sidewalks in redeveloped areas—both within and outside historic districts—and has established [the Citywide Sidewalk Map and Neighborhood Guidelines](#) which includes Sidewalk Design and Construction Standards, and [Green Sidewalks: BMP Design Guidelines](#).

## OVERVIEW

Alexandria’s sidewalks must be accessible to people of all ages and abilities. This includes people with vision, hearing or mobility disabilities, users of mobility assistance devices, and those who push strollers or carts.

Accessibility is most critical in the Pedestrian Zone and at crossings. Materials and details should be selected to minimize gaps, discontinuities, rough surfaces, or any other vibration causing features. Details should be designed to prevent the creation of tripping hazards as materials settle and age and to avoid uncomfortable or painful bumps and vibrations for pedestrians using wheeled devices such as walkers, strollers, and wheelchairs. To achieve this, the City must meet all applicable accessibility requirements.

New or reconstructed sidewalks should comply with the [Citywide Sidewalk Map and Neighborhood Guidelines](#) and Sidewalk Design and Construction Standards. In Alexandria, granite curbs are required in the Old & Historic Alexandria and Parker-Gray districts, while concrete curbs are required elsewhere. Where bluestone curbs or brick gutters remain, they must be preserved and retained. Unless otherwise indicated on the City Sidewalk Map, the standard material for sidewalks will be City standard concrete. Rolled or mountable curbs should not be used because they enable motorists to encroach onto the sidewalks.

## SIDEWALK MATERIALS



Brick sidewalk in Old Town

The City recommends the use of the following sidewalk materials within the public right-of-way or areas where the city is responsible for maintenance. The sidewalk materials used outside the public right-of-way or in areas not subject to city maintenance will be determined as part of the development review process.

**City Standard Brick:** Provided within areas where brick sidewalks are required or repaired. Brick will be provided in a running-bond pattern.



Brick in the Amenity Zone and concrete in the Pedestrian Zone

**Combination of brick and concrete:**

Provided based on the context of the street, block frontage, and adjoining streets. The intent is to reinforce the existing character of each block and neighborhood, age of building, setting, and context. The material and scoring pattern allow flexibility to keep brick as part of the streetscape, but have concrete within the Pedestrian Zone.



Concrete sidewalk in Potomac Yard

**Concrete:** Provided within areas where city standard concrete sidewalks are required. The scoring pattern is intended to generally be 3'x3' or the scoring size as depicted in the [Citywide Sidewalk Map and Neighborhood Guidelines](#) where appropriate or required by the city. Other scoring patterns can be approved on a case by case basis.



Permeable pavement

**Permeable pavers and porous pavement:**

Provided if determined applicable and appropriate based on the context of the street, grades, subsoils, drainage characteristics, and groundwater conditions.

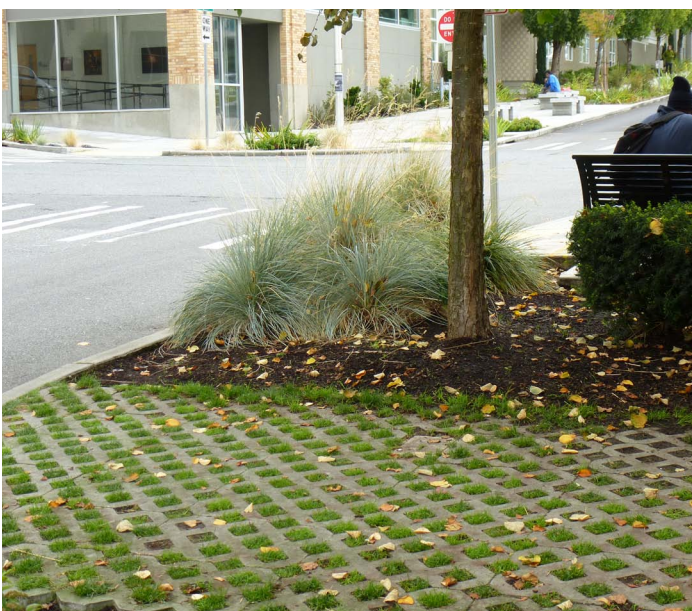
[Click here to access the City of Alexandria Standard Materials List for more information on sidewalk materials and colors.](#)

## SIDEWALK MATERIALS

Permeable paving materials and techniques allow stormwater runoff to infiltrate through the sidewalk into the ground rather than running off into the street and storm drain system. They filter pollutants; reduce flooding, and ponding; contribute to improve water quality; and may reduce the size of infrastructure needed to treat and convey stormwater off site. Permeable paving materials include continuous solid expanses of porous materials and/or pavers specially installed to enable rainwater to run through gaps maintained between them.

Permeable pavement systems are typically underlaid with an infiltration bed and subgrade soil and may be used in sidewalks, plazas, cafés, parking areas, alleys, and other low-traffic areas. In specific locations where infiltration is not desired, such as adjacent to building foundations, engineered geotextile liners can be used to redirect the water to an appropriate location. Both systems permit water to permeate through to underground storage before sheeting off and running into the street. Water may then be gradually absorbed into an engineered soil media in a designated stormwater management cell.

Please refer to [Park Facilities Standards Manual](#) and the [Standard Sidewalk Details](#) for preferred permeable paving materials.



Permeable pavers can help to bring greenery into the streetscape

### DESIGN

- Surfaces should be smooth, stable, and slip resistant, minimizing gaps, rough surfaces, and vibration causing features. Discontinuities in the surface, such as gaps, rises, and falls should not exceed 1/8". (Some exceptions are necessary to allow gaps between pavers when a pervious surface is desired; however, the surface must still be smooth, stable and slip resistant.)
- The cross-slope of the walking zone may not exceed 2%.
- If permeable pavers are selected, a shallower slope is encouraged to allow runoff to collect in the BMP.
- Ramps must be present at all intersections (excluding raised crosswalks). Their design should minimize conflicts with motor vehicles. Detectable warnings must be included in the ramps or approaching raised crosswalks to indicate where the roadway begins per PROWAG. For more information on ramps, see the [Curb Ramps](#) section.
- The design and installation of the sidewalk base materials plays a crucial role in creating functional and lower maintenance sidewalks and should be considered early in the design process.
- Patterns can be tooled or sandblasted into standard concrete or aggregates to change the surface.
- Joints in the sidewalk should be oriented along the direction of travel where possible to reduce the frequency of joints across the Pedestrian Zone.
- Transitions between concrete panels, bricks, and tree grates should be given special attention and designed to minimize bumps and differential settlement.
- Where installed over a tree trench, paving materials need to be structurally supported. This is typically achieved over a concrete raft or over root cells and allows the tree roots a separate space in which to grow without disturbing the paved surface.

## SIDEWALK MATERIALS

### CONSIDERATIONS

- Tree grate surfaces are not considered part of an accessible Pedestrian Zone unless the grate surface meets ADA Standards.
  - In some cases, non-standard materials may be used but require maintenance agreements.
  - Permeable paving materials should be regularly **maintained**, including annual inspection, periodic material replacement and actual vacuuming to remove solid particulate matter and unclog sand and debris.
- » *To ensure durability and limit maintenance, all material specifications must be approved by T&ES prior to installation.*
- » *T&ES is responsible for the management of publicly-owned sidewalks. Maintenance agreements with adjacent property owners are required for non-standard materials or installation details.*
- Where sidewalks are provided within the public access easements as part of new development, the responsibility for future maintenance will lie with the property owner/developer.
  - There are some areas of the City that have existing Small Area Plans and design guidelines that stipulate sidewalk materials. Please refer to Alexandria Master Plan (Small Area Plans & Citywide Chapters) for more information.
  - The City advises caution in use of permeable materials due to limited resources for maintenance, especially clearing or unclogging porous surfaces where accumulation of dirt or debris may make surfaces unsafe. Alexandria provides guidance for maintenance of permeable surfaces (See link to the right).

### LINKS

Citywide Sidewalk Map and Neighborhood Guidelines  
<https://www.alexandriava.gov/uploadedFiles/localmotion/info/gettingaround/Sidewalk%20Materials%20Staff%20Guidance%20Packet%209.5.14.pdf>

Standard Sidewalk Details which includes Sidewalk Design and Construction Standards  
[http://alexandriava.gov/uploadedFiles/localmotion/info/programs/Brick-Concrete%20Sidewalk%20Standard%20Details\(1\).pdf](http://alexandriava.gov/uploadedFiles/localmotion/info/programs/Brick-Concrete%20Sidewalk%20Standard%20Details(1).pdf)

Park Facilities Standards Manual  
<https://www.alexandriava.gov/uploadedFiles/recreation/parks/Park%20Facilities%20Standards%20Manual.pdf>

Small Area Plans  
<http://alexandriava.gov/planning/info/default.aspx?id=44614>

Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way  
<http://www.access-board.gov/attachments/article/743/nprm.pdf>

Northern Virginia BMP Handbook  
<https://www.novaregion.org/DocumentCenter/Home/View/1679>

Virginia Deq Stormwater Design Specification No. 7 Permeable Pavement  
<http://chesapeakestormwater.net/wp-content/uploads/downloads/2014/04/VA-BMP-Spec-No-7-PERMEABLE-PAVEMENT-FINAL-DRAFT-EDITS-v2-0-02April2014.pdf>

Permeable Pavement Maintenance Schedule and Guidelines  
<http://alexandriava.gov/uploadedFiles/tes/info/PermeablePavementMaintenanceGuidelines.pdf>

# Street Trees

Trees play an important role in making streets comfortable, delightful, memorable, and sustainable. Used appropriately, they can help define the character of a street.



Different types of streets require different trees

Trees provide shade that reduces energy use and mitigates the urban heat island effect. Their leaves capture rainwater and evaporation cools the ambient urban air temperature. Trees sequester carbon dioxide and thus contribute to the mitigation of climate change associated with the greenhouse effect. Trees capture gaseous pollutants and particulates in the tree canopy surface, removing as much as 60% of the airborne particulates at street level.

Trees are part of the urban forest contributing to natural diversity. They provide habitat for a range of living creatures in the urban context, including people. Psychologically, trees have been found to reduce stress and improve concentration. This may partly explain why studies have found that tree lined retail corridors do better than counterparts lacking street trees. Consumers spend more time on tree lined streets more often than those without trees and spend more time and money there.

Street trees require their own allocation of right-of-way in order to thrive. For technical guidance and standards for protection and preservation of existing street trees, crown area coverage, installation procedures and on-going maintenance requirements, please refer to the Landscape Guidelines. The City has developed the Green Sidewalks, BMP Design Guidelines to provide preferred methods of treating stormwater within the right-of-way. The **Plantings and Stormwater Management** section of these Guidelines includes more detail on this element of street design. For additional technical guidance using street trees in sidewalk BMPs, also refer to the Virginia Department of Environmental Quality Stormwater Design Specification for Landscaping.

Any resident of Alexandria can request to have a street tree planted in front of their home or business, provided the right-of-way is wide enough and other specific conditions are met, by calling the Tree Planting Program at 703-746-5496. The City Arborist must inspect the site to determine if a tree can be planted and must evaluate whether establishment and healthy

## STREET TREES



Street trees in the Carlyle neighborhood



Newly planted trees along the Potomac Yard trail

growth can be reasonably expected.

» *The Department of Recreation, Parks and Cultural Activities oversees maintenance and planting of trees in the public right-of-way. The maintenance program includes pruning, disease control, removal, and storm damage repairs. The Department's oversight includes review and approval of trees to be planted by others and the planting of new trees throughout Alexandria's neighborhoods. Tree selection and planting design in the public right-of-way must be approved by the Department of Recreation, Parks and Cultural Activities, T&ES and P&Z.*

### STREET TREES AND URBAN DESIGN

Street trees are both a transportation and urban design tool. As vertical elements in the streetscape, trees help to frame and define the street wall, accentuate spaces and focus view corridors. Canopy trees provide an enclosure to the street that reinforces the sense of intimacy and scale. This enclosure can have positive effects in slowing traffic and increasing driver awareness.

Street trees improve walkability by providing necessary shade and filtered light. They provide interest and intrigue to pedestrians walking along a block face. Street trees are an opportunity to express the image of a community through plant selection and arrangement. Trees also provide seasonal interest and variation.

### SELECTING THE RIGHT TREE

Trees come in a wide variety of shapes and sizes. The Landscape Guidelines provide a list of recommended plant species ranging from large shade trees to small ornamentals, though not all trees on the list are appropriate as street trees.

The biodiversity of the urban forest is an increasingly important aspect of maintaining a healthy tree coverage. Using a range of tree species beyond those typically found on the City's streets is strongly encouraged.

Below is a suggested list of species to be used as street trees due to their tolerance of urban conditions.

### SUGGESTED STREET TREE SPECIES

- Maple
- London Plane
- White Oak
- American Elm
- Willow Oak
- Ginkgo
- Sawtooth Oak
- Japanese Zelkova
- Littleleaf Linden
- Eastern Redbud
- Cherry
- Japanese Maple
- Dogwood
- Holly
- Crape Myrtle

In order to select an appropriate street tree for a specific street, the species must have the appropriate scale and form for the context of the street and the adjacent land uses and, most importantly, the appropriate amount of soil volume to thrive. Other considerations include: sun exposure and culture; whether the trees growth might interfere with sidewalks surfaces, site distances, or other site amenities; if overhead and subsurface utilities might impede growth; the desired quality of light and shade; mature canopy size in relation to adjacent buildings; and frequency of curb-running vehicles such as buses.

## DESIGN

- Street trees shall be approved for each individual project by the City Arborist and P&Z where part of a development of a master-planned area.
- Tree species should remain constant along the entire length of a block face.
- Exposed surface area of tree wells shall be a minimum of 4' by 10'. Larger dimensions may be required if deemed appropriate by the City Arborist and by P&Z where part of a development of a master-planned area or required as part of the Site Plan process.
- Tree wells shall support a subsurface tree trench large enough to provide sufficient arable soil volume and adequate moisture for individual trees. Tree wells shall hold a minimum volume of 300 ft.<sup>3</sup> per tree. Continuous trenches that link individual wells shall be provided where possible.
- Planting strips for existing conditions shall be a minimum of 2.5' in continuous width. New development shall be minimum of 6' in continuous width.
- Planting strips and tree wells should be planted with hardy evergreen ground cover or grass sod or covered with a tree grate. The grate's size, shape, material and design should be approved by the City Arborist and by P&Z where part of a development of a master-planned area.
- In densely urban areas or those with limited sidewalk width, ADA-compliant tree grates are preferred.
- For areas with mid-high residential density, consider low growing shrubs, such as euonymus, that can better withstand the impacts from dogs.
- As street trees mature, they must be limbed up to a height of 7' from finished grade in order to provide clearance for pedestrians.
- Shade trees should be spaced approximately one tree for every 30 linear feet on center.
- Ornamental trees should be specified where overhead utilities are present.
- Smaller ornamental trees should be spaced approximately 20 feet apart feet on center.
- Evergreen trees are not to be used as street trees.
- Street trees do not apply toward crown coverage allowances.

## STREET TREES

### STREET TREES

Street trees should be provided in every street design project. In general, the City's policy is to provide the largest tree species that is possible, given the particular constraints and context of each street. The City's **Landscape Guidelines** cover all aspects and requirements for street tree planting (including acceptable species) and should be consulted when designing streetscapes.

### SOILS SELECTION AND MANAGEMENT

Soil selection is crucial not only to ensure plant health, but also to maximize stormwater management benefits. Healthy soils support healthier trees and plants and provide more space to absorb and filter rainwater. Heavily compacted soils are little better than concrete. They provide few nutrients, little ability to absorb water, and a harsh growing environment. Tree roots in compacted soil will migrate toward the surface for air and water, causing sidewalks to crack and heave, degrading the walk environment. Existing soils can be enhanced by aeration to restore porosity and/or through the addition of soil amendments, such as weed-free compost, which help retain soil moisture. Soil maintenance should be part of an operation and maintenance plan for urban vegetation.

Soil volume is as important as soil quality. The City recommends a minimum of 300 cubic feet for standard trees and 450 cubic feet per tree for BMP installations and a soil depth of 36-48". In constrained situations where large open tree trenches or planters are not feasible, soil volume can still be achieved through engineering treatments. Providing sufficient rooting soil in a dense, urban environment can be costly, but is worthwhile given the unique benefits that mature shade trees provide. Dedicated root space prevents buckling of sidewalk pavement and allows street trees to flourish over a longer-term, reducing replacement cost. Many of the significant environmental benefits that street trees provide only occur if trees are able to grow to their full, mature size.

### INSTALLATION AND MAINTENANCE

Because trees are living infrastructure, proper installation, care, and maintenance are required to maximize the city's investment. The **Landscape Guidelines** provide recommendations for planting installation seasons, installation standards, and a recommended plant list including the size of street trees, shrubs, perennials and groundcovers.

For established street trees, standard maintenance consists of structural pruning on a regular cycle (typically every 3-5 years depending on the species, size, and location of the tree) and regular inspection by a certified arborist (recommended every 1-2 years) to assess the condition of the tree and determine the presence of any disease or damage that could lead to failure of the tree. Seasonal maintenance includes watering to ensure establishment of plant material; mulching to minimize water use, discourage weeds and protect against erosion; and pruning low shrubs and groundcover to control overgrowth onto sidewalks.

### LINKS

#### City Arborist Tree Planting Program

<http://alexandriava.gov/recreation/info/default.aspx?id=18902>

#### Landscape Guidelines

[https://alexandriava.gov/uploadedFiles/recreation/info/040907\\_land\\_guidelines.pdf](https://alexandriava.gov/uploadedFiles/recreation/info/040907_land_guidelines.pdf)

#### Green Sidewalk, BMP Design Guidelines

<http://alexandriava.gov/uploadedFiles/tes/info/GreenSidewalksBMPDesignGuidelines%20.pdf>

#### Virginia Department of Environmental Quality

##### Stormwater Design Specification for Landscaping

[http://www.vwrrc.vt.edu/swc/documents/2013/DEQ%20Introduction\\_App%20E\\_Landscaping\\_SCraftonRev\\_03012011.pdf](http://www.vwrrc.vt.edu/swc/documents/2013/DEQ%20Introduction_App%20E_Landscaping_SCraftonRev_03012011.pdf)

#### Small Area Plans

<http://alexandriava.gov/planning/info/default.aspx?id=44614>



# PLANTINGS AND STORMWATER MANAGEMENT



Stormwater quality BMPs can take the form of structural underground facilities (known as ultra-urban BMPs) that provide stormwater treatment, or BMPs can take the form of landscape features in the sidewalk or right-of-way that allow for vegetative plantings and treatment of stormwater runoff known as “green infrastructure”. The Guidelines in this section are based on the [Green Sidewalks, BMP Design Guidelines](#) for green infrastructure or urban bioretention techniques, and the [Virginia BMP Clearinghouse](#). They seek to balance the treatment of stormwater with the realities of limited space by using BMPs to create high-performing, healthy, thriving streetscapes that enhance the visual character and pedestrian environment of the street.

With over 500 lane miles, Alexandria’s streets provide an optimal opportunity to rapidly and radically transform traditional practices and implement stormwater BMPs. Additional capture of runoff for treatment in BMPs within the right-of-way helps the City reach its goals for reducing pollutant loads. These goals for meeting target reductions for the Chesapeake Bay Total Maximum Daily Load (TMDL) for nitrogen, phosphorus, and total suspended solids are enforced locally by the Virginia Department of Environmental Quality (VDEQ) through the City’s Municipal Separate Storm Sewer System (MS4) general permit. Additionally, the Virginia Stormwater Management Act, promulgated

under the Virginia Stormwater Management Program (VSMP) Regulations effective July 1, 2014, and adopted into Article XIII of the Zoning ordinance, requires the reduction of phosphorus loads associated with land-disturbing activities. Development and redevelopment projects must also meet the City’s more stringent “Alexandria Water Quality Volume Default” (WQVD) by treating ½" of stormwater runoff generating from all of the site’s impervious area. BMPs installed to meet the WQVD not associated with the state phosphorus reduction requirements may be credited towards the City’s TMDL goals.

Routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original construction of a project is exempt from the VSMP phosphorus reductions requirements. Paving an existing road with a compacted or impervious surface and reestablishing existing associated ditches and shoulders is considered routine maintenance if performed in accordance with local ordinance. Implementing stormwater BMPs for projects that undertake routine maintenance are an opportune time to provide stormwater quality treatment and reductions of pollutants to meet the City’s Chesapeake Bay TMDL requirements. In this case, the City can count all of the pollutant reductions toward the Bay TMDL goals. Land-disturbing activities for linear roadway projects

on prior developed lands meeting the VSMP phosphorus reduction requirements may be applied to Bay TMDL goals. New roads must meet the phosphorus reduction requirements for new development by implementing BMPs and the reduction cannot be credited toward Bay TMDL pollutant reduction targets. For roadways associated with redevelopment, phosphorus, nitrogen, and sediment reductions may be credited toward Bay TMDL pollutant reduction targets. Public and private roads and streets must meet pollutant reduction requirements during the plan review and approval process.

The systems described in this section are closely related to each other and should be customized for each specific location. Landscape architects and civil engineers should survey existing soil and drainage conditions, create an overall drainage and recharge plan, and specify the various components according to the opportunities and constraints for a particular project and location.

## LOCATIONS FOR PLANTINGS AND BMPs

Planting in the public right-of-way typically occurs in the Amenity Zone; however, this is not the only place that can accommodate planting. Wherever there is an opportunity for landscape features, street, or development projects should also look for opportunities to incorporate BMPs. The preferred BMPs for use in the right-of-way are above-grade systems located within the sidewalk that treat stormwater runoff from adjacent roads and sidewalks.

Landscaped areas in the Frontage Zone can be excellent places to plant trees as they offer open areas for roots to spread. This is particularly the case when the Frontage Zone consists of (or is adjacent to) lawn panels or other open spaces. Plantings are still possible in the Frontage Zone adjacent to building foundations; however, to avoid any intrusive roots, barrier material is recommended.

It is important to note that while even modest improvements can advance the health of street plantings and the overall environmental performance of the street, surface BMP systems are typically installed only when streets are substantially improved or when new streets or sidewalks are established. The City is currently considering BMP retrofits in both MS4 and CSO areas to meet permit requirements for pollutant reductions in the former and green infrastructure requirements in the latter.

## CONSIDERATIONS

- Location of buried utilities and width of sidewalk
- Frequency of pedestrian access and circulation patterns
- Accommodation of other streetscape features such as light poles and parking meters should be considered early in the design process
- Available soil volume and soil quality
- Slopes and gradients
- Level of pedestrian activity
- Where BMPs are required to meet the City's Stormwater Program goals of complying with the Chesapeake Bay TMDL and the MS4 general permit regulations, sizing for the BMPs shall follow the Green Sidewalks guidelines, the Virginia BMP Clearinghouse, the Virginia BMP Handbook and specifications or Bay Program specifications to the satisfaction of the Directors of T&ES and P&Z.
- Where BMPs are required to meet the City's more stringent WQVD not associated with BMPs to meet the state phosphorus reductions, sizing is based on treating the first ½" of runoff and may be based on the **Green Sidewalks** guidelines, the **Alexandria Supplement to the Northern Virginia BMP Handbook**, the **Virginia Stormwater Management Handbook**, or other appropriate design criteria, to the satisfaction of the Director of T&ES.
- Where BMPs are required to meet state phosphorus reduction regulations, they shall be sized in accordance with the Virginia BMP Clearinghouse and/or the most current Virginia BMP Handbook and VDEQ specifications. Water quality is computed using the 1" storm event and must be demonstrated using latest **Virginia Runoff Reduction Method (VRRM)** spreadsheet.
- In areas where design guidelines exist, consideration for the type of BMP system should be chosen to reflect the overall design intent
- BMPs require a 2' setback from the face of curb
- A minimum of 6' unobstructed sidewalk shall be maintained between the building face and the BMP
- Appropriate vision clearance must be maintained at intersections and pedestrian crossings
- Need for accommodating curbside parking or outdoor dining

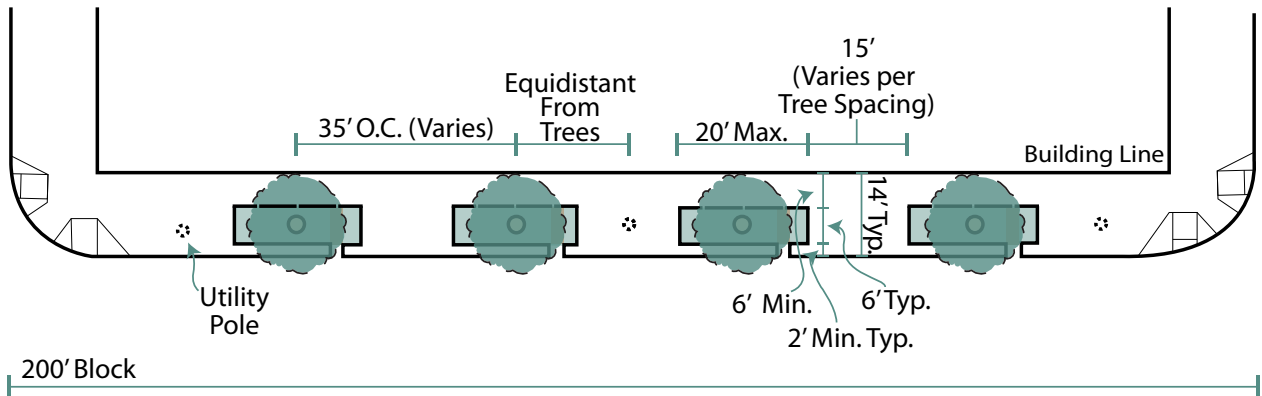
## TYPES OF BMPS

There is a symbiotic relationship between the health and function of street trees and the BMP system. While BMPs improve the health of street trees, a healthy tree in turn offers such biological benefits as intercepting precipitation and filtering pollutants, reducing heat island effects and improving air quality.

To enhance tree health and better manage stormwater, designs should utilize and enlarge the space dedicated to street trees. Recommended design treatments do

more than just serve trees and waterways, they also enhance the image and functionality of the street.

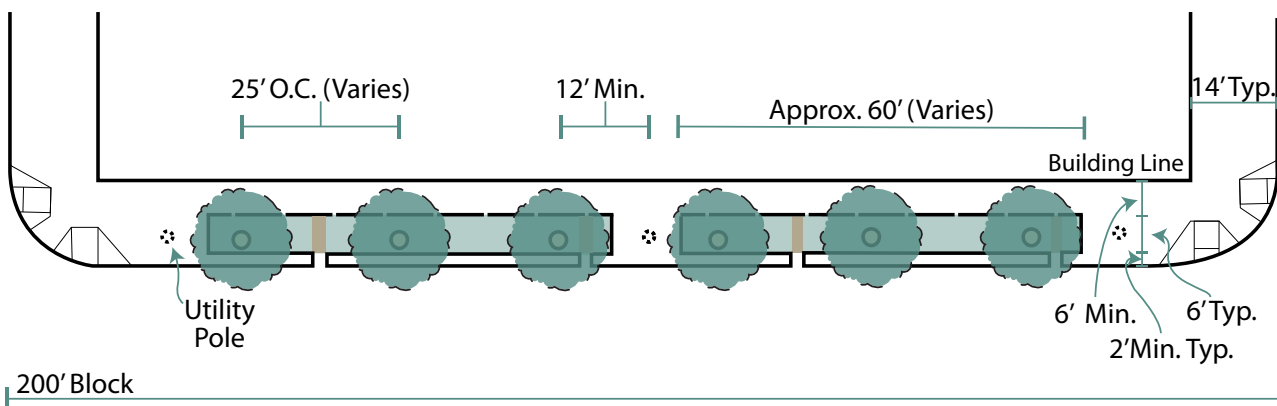
Different urban locations and uses require different BMP solutions. Consideration should be given to the following: street type; whether curbside parking is to be accommodated; adjacent land use and activities; and anticipated pedestrian circulation. Four main types of sidewalk BMPs are recommended in the **Green Sidewalk BMP Design Guidelines**:



### Tree Well BMP

A landscape feature in the sidewalk that allows for tree planting and treatment of stormwater runoff. These systems are installed in a series with drains connecting the series. At street level, they appear to be individual features with sidewalk segments separating each well.

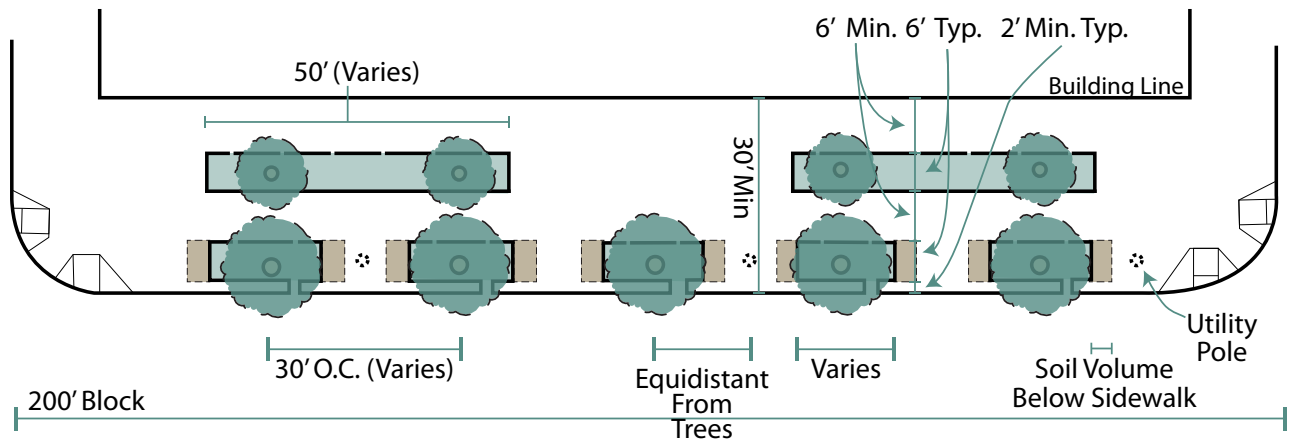
*Consider installation on Main Streets, Mixed Use Boulevards and Shared Streets.*



### Continuous Planting Strip

A landscape feature in the sidewalk that allows for tree planting and treatment of stormwater runoff. These systems are installed in a series with drains connecting the series. At the street level, they appear to be a continuous feature with a large area of visible landscape planting and are occasionally separated by sections of sidewalk.

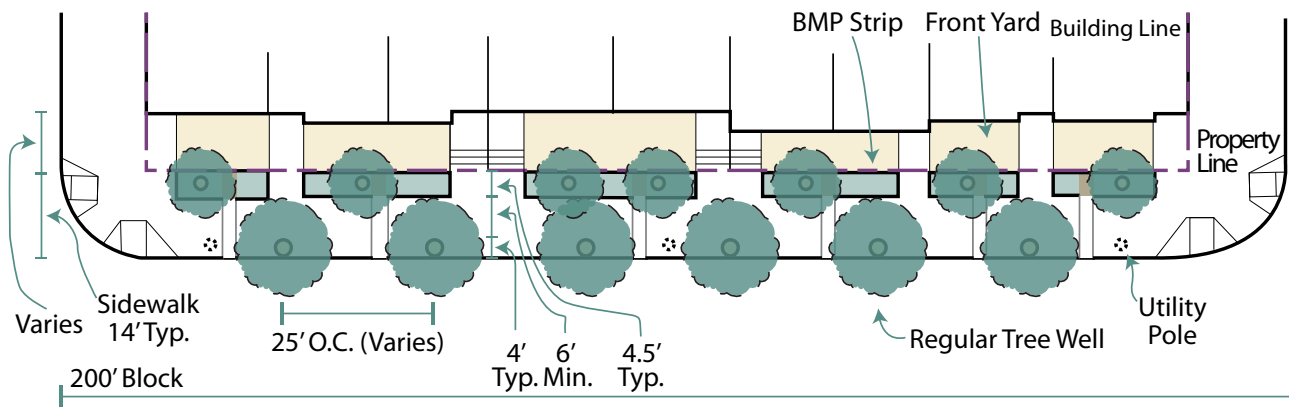
*Consider installation on Commercial Connectors, Neighborhood Connectors and Industrial streets.*



### Mid-Sidewalk BMP

A landscape feature in the sidewalk that allows for tree planting and treatment of stormwater runoff. These systems are installed in a series with drains connecting the series. At the street level, they appear to be a continuous feature with a large area of visible landscape planting and are occasionally separated by sections of sidewalk. They are set back approximately mid-way between the curb and the building line.

*Consider installation on Mixed Use Boulevards.*



### Back of Sidewalk BMP

A landscape feature in the sidewalk that allows for planting and treatment of stormwater runoff. These systems are installed in a series with drains connecting the series. At the street level, they appear to be either a continuous feature or a series of smaller features with an area of visible landscape planting and are occasionally separated by sections of sidewalk. They are located at the back of the right-of-way, and can be adjacent to front yards.

*Consider installation on Neighborhood Residential Streets and Neighborhood Connectors.*

## INSTALLATION AND MAINTENANCE REQUIREMENTS

Please see the **Green Sidewalks: BMP Design Guidelines** for installation and maintenance requirements for green sidewalks in new development or redevelopment projects. While the BMP Design Guidelines provide more detail on where and when BMPs should be used, in general they should be incorporated into projects where “significant new construction will take place (e.g. large scale buildings or facilities, or areas of large scale master plan implementation) that includes either the construction of new roads and sidewalks, or significant rehabilitation of the existing right-of way facility.”

The Green Sidewalks: BMP Design Guidelines include specifications used for the design and installation of sidewalk BMP systems including soil, species, size and spacing, as well as planting design and layout. An appendix of typical details is also included.

In addition, the Green Sidewalks: BMP Design Guidelines address maintenance responsibilities and requirements. In many cases, the City will maintain the BMP after the bond period. In these situations, T&ES maintains the hardscape and drainage elements while the RPCA maintains all associated plantings and landscape elements.

Maintenance responsibilities will form part of a BMP Maintenance Agreement between a developer/applicant and the City. The **Memo to Industry No. 04-2014** shall be the basis for such agreements.

## CONSIDERATIONS

- First year maintenance operations to ensure successful establishment
- Spring maintenance inspection and cleanup
- Routine and non-routine maintenance tasks, such as maintaining elevation differences, mulching, and sediment and trash removal

## LINKS

Green Sidewalks: BMP Design Guidelines  
<http://alexandriava.gov/uploadedFiles/tes/info/GreenSidewalksBMPDesignGuidelines%20.pdf>

Total Maximum Daily Loads (TMDLs)  
<http://alexandriava.gov/tes/oeq/info/default.aspx?id=52652>

Virginia Runoff Reduction Method  
<http://www.vwrrc.vt.edu/swc/Virginia%20Runoff%20Reduction%20Method.html>

Virginia Department of Environmental Quality Stormwater Design Specifications: Landscaping  
[http://www.vwrrc.vt.edu/swc/documents/2013/DEQ%20Introduction\\_App%20E\\_Landscaping\\_SCraftonRev\\_03012011.pdf](http://www.vwrrc.vt.edu/swc/documents/2013/DEQ%20Introduction_App%20E_Landscaping_SCraftonRev_03012011.pdf)

Northern Virginia BMP Handbook  
<https://www.novaregion.org/DocumentCenter/>

Memo to Industry 10-11 “Paving for Parks and Plazas which are to be City-owned and Maintained.”

<http://alexandriava.gov/uploadedfiles/tes/info/PavingForParksAndPlazaAreas2.pdf>



Newspaper box



Bollards



Bike rack



Off-board bus fare payment machine

## Wayfinding and Street Furnishings

Supporting street life requires more than just providing trees and sidewalks.

Streets also require places to park a bicycle, places to sit and linger, and wayfinding guidance to local destinations. Street furnishings such as benches, transit shelters, bicycle parking, bollards and trash receptacles are all key components of the public right-of-way that should be designed to ensure maximum accessibility and enjoyment of the street.

While there are some exceptions, most street furniture installation is installed in the Amenity Zone. For example, on occasion bicycle parking may be installed in the frontage zone if it is sufficiently wide enough to accommodate it. Regardless, street furniture should not impede movement in the Pedestrian Zone.

Street furnishings should enhance the overall function and character of the street. First and foremost, furnishings should be functional and safe for all users. In historic districts and areas with existing design guidelines, site furnishings should comply with the established guidelines. Elsewhere, a consistent palette of street furnishings is desired to provide a complement to the character and context of the street. For areas of Alexandria addressed by Small Area Plans, standard specifications for street furniture are provided. In other locations that are not covered by Small Area Plans, street furniture should be uniform throughout the project and should match the context of the street (subject to review and approval by P&Z).

Newspaper boxes are often a mix of sizes, shapes,, and colors. It is preferable to replace these with more visually appealing newspaper corrals that are placed in locations that do not impede pedestrian flow, while still ensuring freedom of speech and easy access to information.

Street furnishings often share space with other Amenity Zone elements such as sign and light poles, utility covers, hydrants, traffic control devices, and parking meters. Furnishings should be coordinated with these other elements to minimize clutter and maximize use, safety, and comfort. Please refer to the **Park Facilities Standards Manual** for a list of preferred amenities and manufacturers.

# STREET NAME SIGNS



## OVERVIEW

Street name signs are important for safety and convenience and should be placed at strategic locations to maximize visibility. Street name signs play a critical role in wayfinding throughout the roadway network.

» **All signs on Alexandria's streets should conform to the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD) and meet all accessibility requirements. Locations for signs should be selected based on engineering judgment and must be approved by T&ES.**

## DESIGN

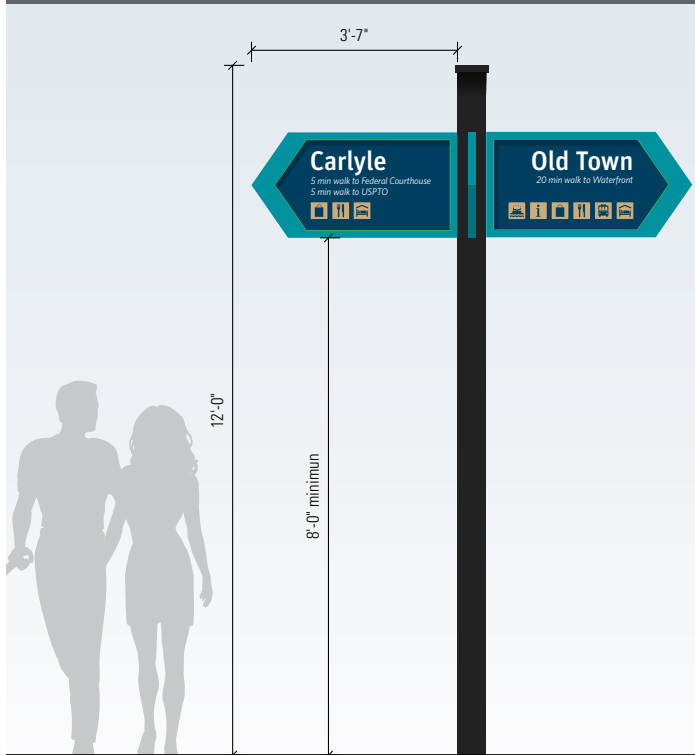
- Street name signs can be mounted overhead or on posts.
- Post-mounted street name signs should be placed on existing posts wherever possible unless obstructions reduce visibility.
- Internally illuminated box street signs should be limited to designated arterials.
- Individual location obstructions including trees, utility poles, traffic signals, and other signs are to be considered.
- Placement of street name signs should be determined on a case-by-case basis using engineering judgment.

## LINKS

2010 Wayfinding Design Guidelines  
<https://alexandriava.gov/Wayfinding>



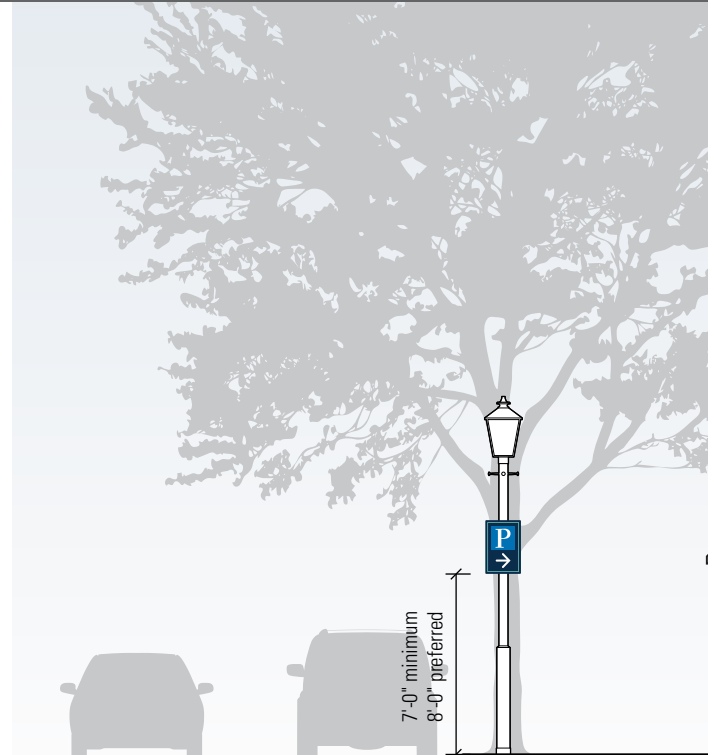
# MULTIMODAL WAYFINDING



Alexandria Wayfinding Design Guidelines Pedestrian Signage

A distinct wayfinding system for pedestrians and bicyclists further enhances the efficiency in which people can travel around the City. The ability to create modern and distinctive wayfinding can distinguish walking or bicycling routes, highlight specific destinations, and define popular routes like the Alexandria Heritage Trail.

In September 2010, the City of Alexandria completed the development of a citywide **Wayfinding Design Guidelines Manual** that guides the implementation of wayfinding signs. The wayfinding system projects a consistent image for the entire city; reduces visual clutter; and promotes walking, bicycling, and use of mass transit. The goal of this system is to create an overall identity for the City that is compatible with its historic character that will also help to differentiate existing and emerging districts.



Alexandria Wayfinding Design Guidelines Parking Signage

The design manual addresses the following sign types:

- Highway signs
- City gateways
- Vehicular directional
- Parking signs
- Pedestrian kiosks and directional
- Shared use path signs
- Interpretive signs
- Destination identity
- Banner standards
- Neighborhood identity

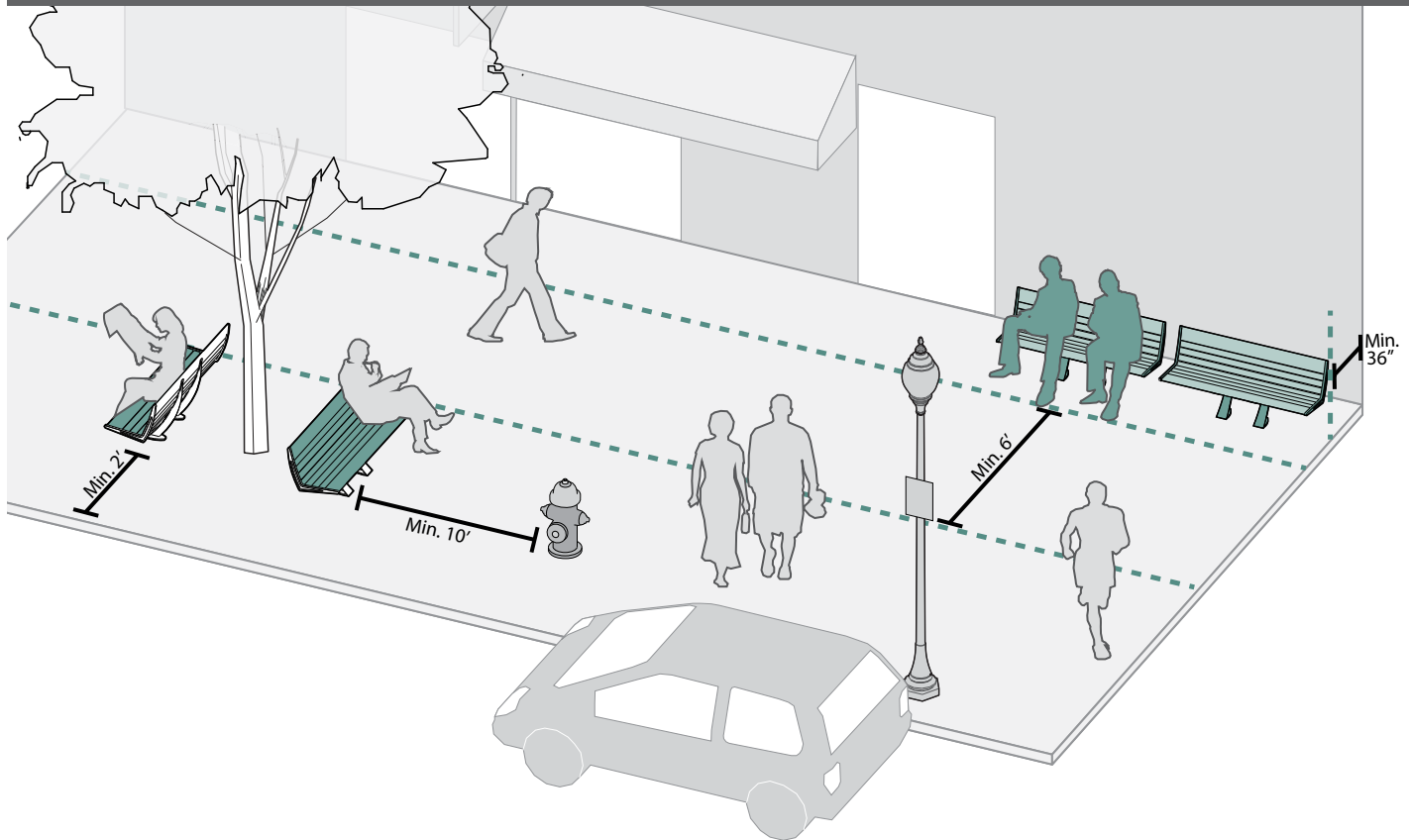
The manual addresses more detailed aspects of wayfinding sign design, including the size, color and design of each sign, as well as the placement of the sign with respect to the adjacent street.

## LINKS

2010 Wayfinding Design Guidelines

<https://alexandriava.gov/Wayfinding>

# PUBLIC SEATING



## OVERVIEW

Public seating enhances the usability and enjoyment of the street and can be provided in a number of different ways. It can be integrated into other street elements such as the edge of planters and steps or as protection around trees. Seating may be fixed or mobile and adaptable. It may be made of any number of materials; however, durability and maintenance are key considerations.

» *T&ES approves certain seating types with specific requirements for anchors and mounting hardware; these must be used in order for T&ES to assume maintenance of any sidewalk furniture.*

## DESIGN

- Seating should be located where it is most attractive and useful. Seating that serves a particular need, waiting for transit or resting from shopping, are always welcome.
- Seating is comfortable when it is in an area that has adequate observation to and from street life and sufficient lighting to feel safe.

- Seating in the Amenity Zone should be located at least 2' from the face of curb to reduce conflict with other curbside uses. It should be at least 10' away from fire hydrants and have at least 36" of clear space between it and trash receptacles or other fixed objects.
- Seating should be designed with a bench seat height of 17 inches minimum and 19 inches maximum above the ground.
- Seating is most commonly located in the Amenity Zone of the street, but may also be placed in the Frontage Zone. Seating in the Amenity Zone should generally face away from the street and toward the sidewalk or be aligned perpendicular to the curb. Seating in the Frontage Zone should face the street.
- Seating should be visible, but not obtrusive. It should remain out of the primary paths of travel and not conflict with entrances to buildings, loading zones, parked vehicles, access to fire hydrants or other similar activities.

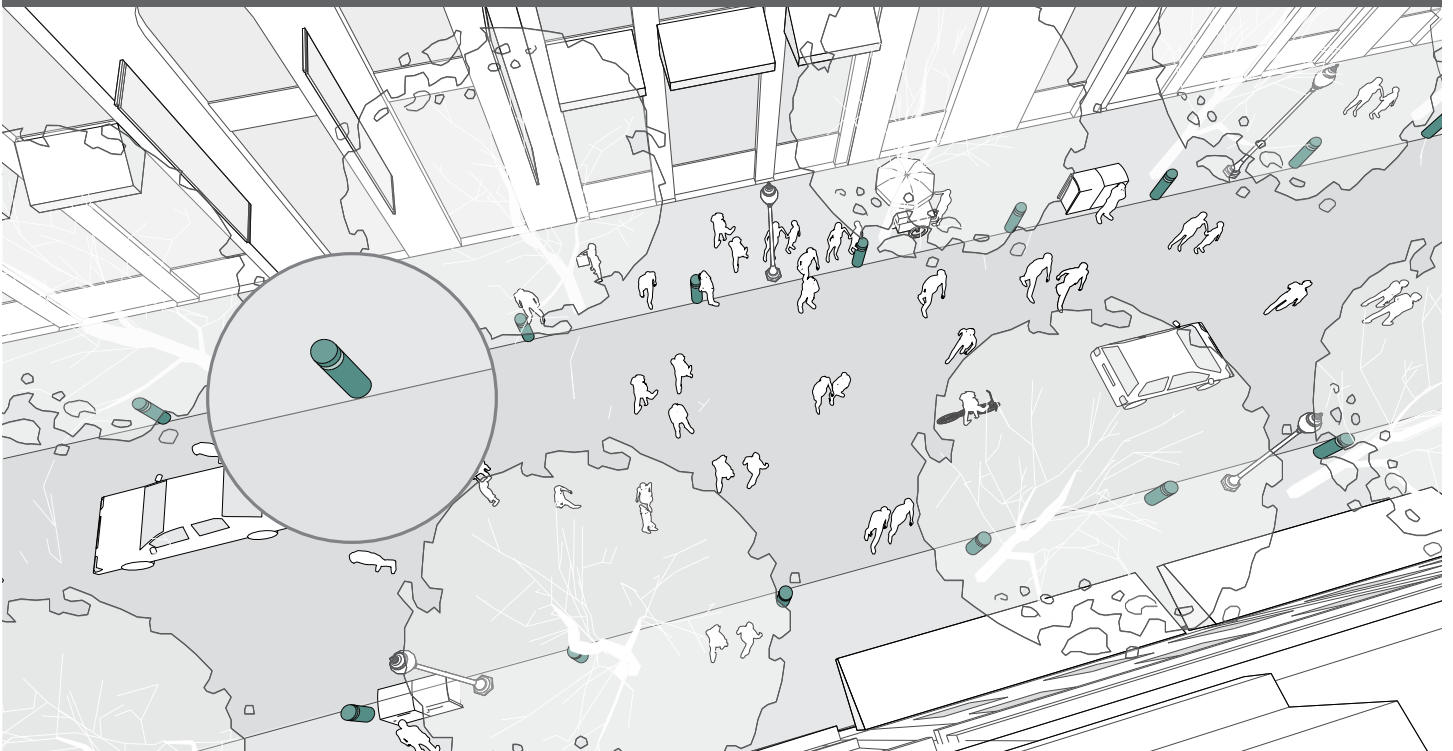
## PUBLIC SEATING

- Seating may be located in areas with or without shade. Shaded seating is appreciated in the hot summer months, while seating in sunlight is desirable on colder days.
- Seating should be provided for a minimum of two people. Single seats may be provided as long as they are in groups of two or more.
- [Click here to access the Parks Facilities Standard Manual for more information on public seating.](#)

## CONSIDERATIONS

- Seating should be provided both with and without armrests if possible. Armrests provide stability for those who require assistance sitting and standing. Seating without armrests allows a person in a wheelchair to maneuver adjacent to seating or to slide onto it easily.
- Movable seating is generally provided by and/or through a private owner who will store seating at night and monitor its use to ensure it is not placed in any travel way.

## BOLLARDS



## OVERVIEW

Bollards are posts or objects used to create an unobtrusive boundary between different modes of transportation or different realms of the street. Bollards are commonly used to define protected bicycle facilities; restrict vehicle access or entry; provide protection to pedestrian spaces or other street elements; or as security measures for buildings and infrastructure such as government and financial institutions.

Bollards can be fixed, flexible, or movable. They can be designed to withstand heavy impacts or give way on impact. Movable and breakaway bollards are intended to deter vehicle access but allow entry for fire engines and ambulances in case of an emergency. Information regarding the City's standard bollard is found in the [Parks Facilities Standard Manual](#).

## BOLLARDS

» *Bollard locations and types require review by the Fire Department and should not be installed across emergency vehicle entrances or other fire access points.*

### DESIGN

- Bollards must be visible under all lighting conditions for all users, particularly pedestrians and drivers.
- Bollards should be appropriately sized and spaced to serve their intended purpose. Bollards typically must be close enough together to restrict vehicle entry but far enough apart to provide accessible passage between them.
- Bollards can provide other amenities, such as bicycle parking, lighting, power outlets, litter and recycling receptacles, and art.
- Bollard use is not recommended at the entrances to off-road shared use paths, per the AASHTO Bike Guide.

### CONSIDERATIONS

- Bollards in or adjacent to vehicle travelways are subject to substantial wear and tear. They should be maintained and replaced on a regular basis to ensure they are not a detriment to the street environment and its use.
- Bollards should not obstruct any travel way, but still should be placed appropriately to serve their protective function.
- Bollards should be judiciously and sensitively used. Security concerns in recent years have led to an abundance of bollards in the public space of the Washington DC region. Very few of these contribute to an inviting street environment.
- Bollards may need to be removed or demarcated with a taller vertical element during winter months to ensure they are still identifiable to snow clearance equipment operators.

### LINKS

Parks Facilities Standard Manual

<https://www.alexandriava.gov/uploadedFiles/recreation/parks/Park%20Facilities%20Standards%20Manual.pdf>

# BICYCLE PARKING



Alexandria Bike Corral



Overnight bike parking at Braddock Metro Station

Without bicycle parking, bicycle networks are of limited use. Bicycle parking enables bicyclists to safely leave their bicycles and enjoy the offerings of the street or to patronize businesses and destinations in the city. Bicycles take up substantially less space than automobiles—in fact, 10 bicycles can typically park in the area needed for a single car. Therefore, by providing bicycle parking, Alexandria can ensure access for many while using a relatively small area of the right-of-way. Visit the [Local Motion website](#) for more information on bicycle parking.

Bicycle parking consists of a rack that supports the bicycle upright and provides a secure place for locking. Bicycle racks should be permanently affixed to a paved surface. Movable bicycle racks are only appropriate for temporary use, such as at major community gatherings.

On-street bicycle parking is intended for short term use. Bicyclists parking overnight should utilize off-street bicycle parking facilities. Bicyclists typically find a variety of fixed objects in the street to which they

lock their bicycles. These include parking meters, tree well fences, lawn fences or other objects. These objects may satisfy the need for bicycle parking, but if this is the intent, they should be designed and located with this use specifically in mind. Otherwise, the use of such objects as parking may indicate insufficient or inappropriately located bicycle parking facilities.

The most common means of providing bicycle parking is with bicycle racks and bicycle corrals. Bike share stations are a unique form of bicycle parking utilized only by bicycles associated with that system.

- » ***Bicycle parking is installed by T&ES and requires agency approval. The City installs over 100 racks each year throughout the city. While most racks were installed based on surveys of need, residents and businesses can request that the City install racks on public sidewalks near their properties.***
- » ***The specific amount and type of bicycle parking required for new developments is outlined in the [City of Alexandria's Bicycle Parking Standards](#).***

# BIKE RACKS



## OVERVIEW

Bike racks are fixtures that provide a secure place to park and lock a bicycle. Bike racks may be stand-alone items bolted into the surface of the sidewalk or roadway or they may be integrated with other items in the street such as parking meter poles, street light poles, planters, or other items.

The alignment of bike racks should minimize the parked bicycles impact on the use of the sidewalk or curbside. Bike racks are frequently grouped in small clusters to better meet the needs of multiple users.

## DESIGN

The City provides a list of [acceptable bicycle rack designs](#). These designs reflect industry standards for acceptable rack design and include the following requirements:

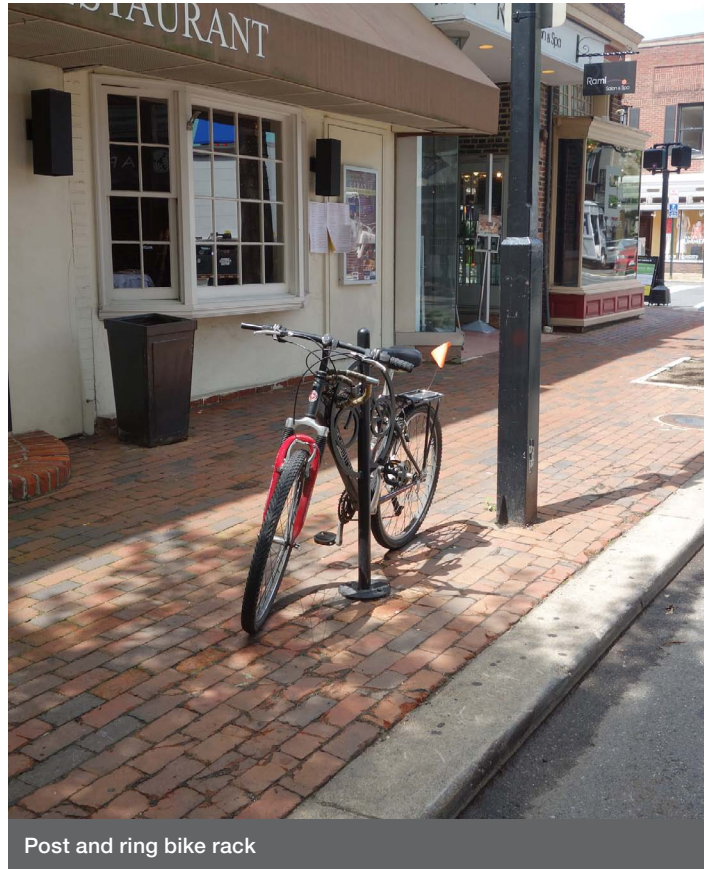
- Bike parking is typically located in the Amenity Zone, in a parking lane, or on curb extensions or bulbouts in groups of at least two.
- Place bike racks at least 5' from fire hydrants and crosswalks; 4' from loading zones, bus stops, bus shelters and benches or other seating; and a minimum of 3' from parking meters, newspaper

racks, mailboxes, light poles, sign poles, driveways, tree wells, trash receptacles, manholes, or other street furniture.

- Bike racks are typically installed parallel to the curb line to prevent intrusion into the Pedestrian Zone. Bicycle racks may be aligned at an angle or perpendicular to the curb where space permits. In all cases, the full length of a typical bicycle (70") should be considered when placing bike racks on sidewalks. A full bike rack should not intrude into the Pedestrian Zone.
- “U-racks” (bicycle racks shaped in an upside-down U) should typically be placed 10' apart on center. Bicycle racks located perpendicular to the curb should be a minimum of 3' apart.
- Bike racks should be installed close to building entrances, preferably within 50', in sites that provide good visibility and personal safety.
- Where possible, bike racks should be placed in a location that provides cover or protection, such as under awnings, shelters or other covered areas.

## CONSIDERATIONS

- Bike racks should support the frame of the bicycle at two points above the bicycle's center of gravity.
- Where space permits, bike racks should provide options for parking different bicycle frame sizes and styles, such as bikes with trailers (117"), recumbents (82"), and tandem bikes (96").
- Bike rack design should allow easy locking of the frame and at least one, but preferably both, wheels.
- Bike racks may be customized to highlight a nearby **bicycle-friendly business**, a business or neighborhood district, or just as a feature of public art. If the latter, design must be reviewed to ensure that it can adequately serve its primary purpose of accommodating bicycle parking.
- Property owners are encouraged to request a bike rack on a public sidewalk in front of their property. Applications are available on the City website.
- On-street bicycle parking should be considered where there are space constraints on the sidewalk. This can be accomplished by converting an automobile parking space into a bike corral. Bike corrals are addressed in more detail in the curbside parking section of these guidelines.
- Bike rack installation requires a public space permit.



Post and ring bike rack

## LINKS

### Bicycle Parking Rules and Regulations

<http://www.alexandriava.gov/uploadedFiles/localmotion/info/gettingaround/Alexandria%20Bicycle%20Parking%20Requirements.pdf>

### Local Motion- Bicycle Parking

<http://alexandriava.gov/BicycleParking>

### Local Motion and Bicycle Friendly Businesses

<http://alexandriava.gov/localmotion/info/default.aspx?id=49872>

### Bike Rack Design

<http://alexandriava.gov/uploadedFiles/localmotion/info/BicycleParkingDesigns.pdf>

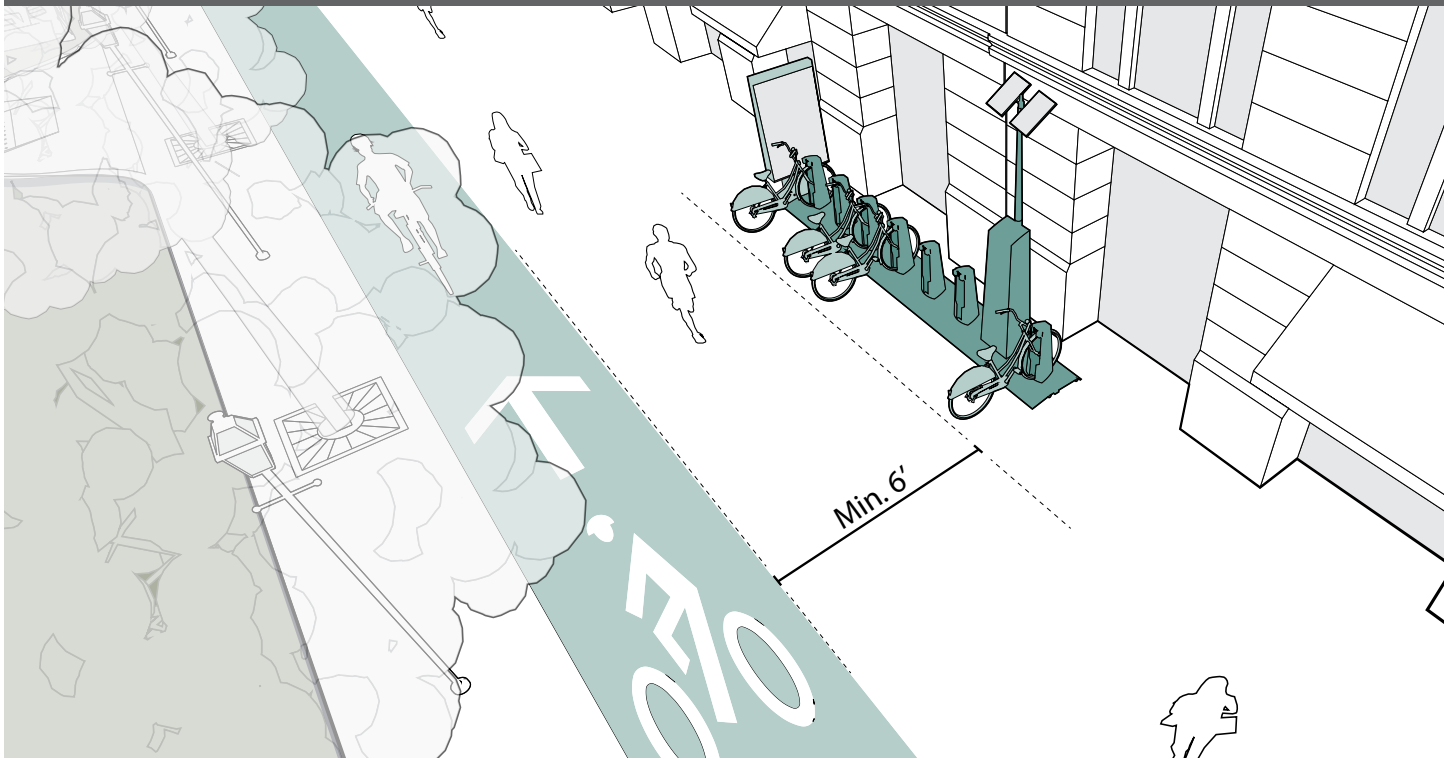
### Bicycle Parking Rack Replacement

<http://alexandriava.gov/uploadedFiles/localmotion/info/B-Bike%20Parking%20On%20Street%20-%20Plan.pdf>



"U" bike racks

# BIKE SHARE STATIONS



Capital Bikeshare station outside Braddock Road Metro Station

## OVERVIEW

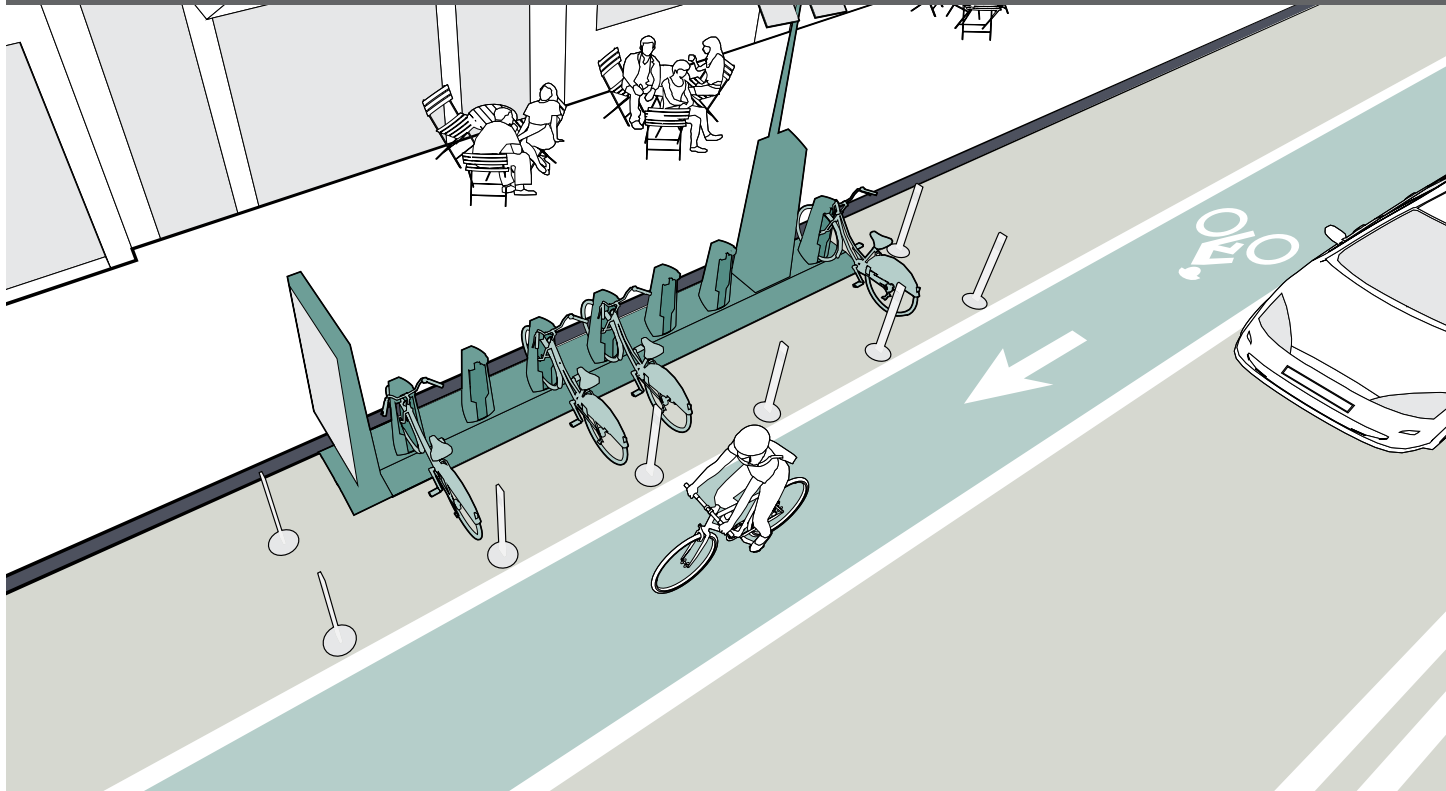
Bike share stations should be located to encourage short, one-way trips for commuting, shopping, running errands, social outings, exercise, and sightseeing. Bike share stations help address the first and last mile issue many transit riders face. For more information see the [Local Motion](#) and/or [Capital Bikeshare websites](#).

## DESIGN

- Station size and configuration varies. Designers should be aware of the station footprint to ensure successful placement in the public Right of Way.
- Station locations should:
  - Maintain a 6' clear pedestrian path (see [Page 3-6](#))
  - Target popular destinations and high density areas
  - Receive sufficient sunlight for solar apparatus
  - Utilize sidewalks, private property or parking lanes efficiently
  - Avoid obstructing utilities, fire hydrants or other street furniture



## BIKE SHARE STATIONS

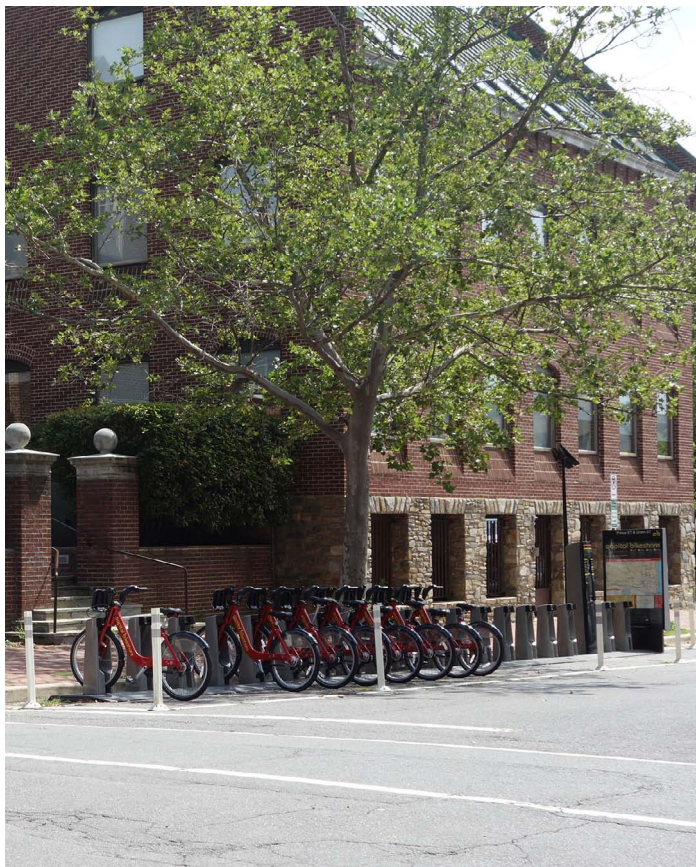


### CONSIDERATIONS

- Bike share stations may be located either on the sidewalk or in the curbside of the roadway. They may also be located on parks, in plazas or on privately owned space so long as they remain publicly accessible.
- Bike share stations are modular and can be arranged in a number of different configurations. Bike share stations must be placed so as not to impede the Pedestrian Zone.
- Access to and from a bike share station must be considered, especially when located in the Amenity Zone. The placement should maximize convenience for bike share users, yet minimize conflicts with pedestrians if bicyclists access the station by riding on the sidewalk.

### LINKS

Local Motion- Capital Bikeshare in Alexandria  
<http://alexandriava.gov/localmotion/info/default.aspx?id=55082>



Capital Bikeshare station at Union and Prince Streets

## Transit Amenities

Every transit trip begins and ends as a pedestrian trip. Sidewalks are an integral part of a functioning transit system.

Transit stops, however, must provide for two purposes: the through movement of pedestrians along the sidewalk as well as space for waiting, queuing, and disembarking from transit vehicles. In constrained sidewalk conditions, meeting both demands can be challenging. It requires careful and sensitive placement of transit stop fixtures in concert with other elements of the street edge, such as street trees, street lights, signal boxes, storm drains, and other additional elements. All transit stops must meet all applicable accessibility requirements. All transit stops should have paved sidewalks connecting them to the larger network and area destinations.

Transit stops commonly include, at a minimum, an unobstructed paved pad for boarding and alighting and a signpost indicating the transit provider, route and schedule. Additional basic features may include waste receptacles, seating, or leaning rails and route maps. Premium transit stops may have larger shelters, more comfortable waiting spaces, enhanced rider services, and place-making elements such as unique lighting and/or public art.

Transit stops should be clearly identifiable as such. Enhancing a transit stop with the elements above increases comfort for riders and pride and ownership from the community.

At present, three bus systems provide service within the City of Alexandria: DASH, Metrobus, and Fairfax Connector provide transit service within the City of Alexandria. The free King Street Trolley branded service is operated by DASH. Two of the three premium transit corridors in the City are being planned and one has been implemented

# TRANSIT STOPS



## OVERVIEW

Any marked or signed location where transit vehicles stop and service passenger boarding and alighting is a transit stop. Transit vehicles will only stop where there is a transit sign. The most basic transit stops have only a pole mounted “header” sign indicating the transit provider and route(s). High frequency routes and higher volume stops generally have more passenger amenities such as benches, shelters, traveler information, trash receptacles, bicycle parking, and other features.

Transit stops can be found on virtually any street type.

All transit stops should be readily identifiable, comfortable, safe, and accessible. The design of the stop, including length and location, should be determined

in consultation with the transit operators within the City. Width should be adequate to ensure waiting transit patrons do not block or constrain pedestrian flow on the sidewalk. All stops are required to be ADA compliant, including providing landing pads and curb heights that allow for the loading and unloading of passengers in wheelchairs.

Transit stops should be designed to accommodate passenger activity at all doors of the transit vehicles. If landscape strips or street trees are provided in the bus zone, these should be located in such a way that does not require transit passengers to walk through or over planting areas. Street trees must be trimmed or located to reduce conflict with the approaching transit vehicle.

## TRANSIT STOPS

### DESIGN

- Transit stops on urban streets are typically located at the natural curb line or on a bus bulb or transit island. Dedicated transit facilities may use medians. Transit operations, curbside uses, posted speed limits, traffic volumes, transit frequency and typical bus dwell time all influence location decisions for transit stops. See Transit Accommodations at Intersections for bus bulb design guidance.
- Transit stops may be located near-side, far-side, or mid-block. Near-side stops are immediately prior to intersections. Far-side stops are immediately after an intersection. Mid-block stops are located between intersections.
- Transit stops should be proximate to crosswalks. Mid-block stops should provide access to mid-block crosswalks.
- The landing zone at each transit vehicle door should be a clear zone 5' long, (parallel to the curb) by 8' deep (beginning immediately adjacent to the curb). Newly constructed sidewalks should have a 10' by 8' landing zone to provide an accessible space for loading and unloading. If the sidewalk is not wide enough to support an 8' landing zone, a curb extension (bus bulb) should be built where on-street parking is present to accommodate the minimum width. Bus bulbs should extend to within 1' to 2' of the edge of travel lane (see **Bus Bulb** section). All transit stops should meet ADA Standards. 1' to 2' of the edge of travel lane.
- Landing zones should be provided at all doors of the transit vehicle. For articulated buses, the distance between the front and rear landing zones is 18'. Different length buses have different door configurations and landing zones should be designed in coordination with all transit providers.



Patrons board a DASH bus



Users alight from the bus

## TRANSIT STOPS

- The landing zone should be clear of all obstructions including street trees, signal or light poles, and signposts.
- When street trees are desired near or within bus stops, the transit provider must be consulted and the following guidelines should be adhered to to avoid conflicts between transit vehicles and street trees (General street tree guidance can be found in the Street Tree section of this document on page 3-21).
  - Trees should be excluded from a 40 ft. zone which represents the length of the bus as it is serving the stop (60 ft. in the case of articulated buses).
  - Trees within both the 10 ft. departure zone and the 20 ft. approach zone (on either side of the 40 ft. zone) should be selectively located to minimize conflict with vehicles and to allow direct line of sight for approaching buses.
- The length of the stop depends on vehicle type as well as the location of the stop, (i.e., near-side, far-side or mid-block) and should be done in consultation with the transit provider. High frequency routes or stops serving multiple transit routes may require additional transit stop space; however, in general:
  - Far-side stops should be at minimum 60' long, 80' for routes with articulated buses
  - Near-side stops should be at minimum 90' long, 100' for routes with articulated buses
  - Mid-block stops should be at minimum 100' long, 120' for routes with articulated buses
- Transit stops should be setback a minimum of 5' from crosswalks. Where feasible, a 10' setback is preferred. Where stops are not at an intersection, pedestrian crossings should be accommodated behind the departing transit vehicle.
- Install signposts indicating the transit providers and routes servicing the stop at the front of the transit stop 2' behind the curb. The signpost is generally used as the stop measure for transit operators indicating the stop point of the front of the vehicle. The rough location of bus doors may be measured from this point.
- Where possible, trash and recycling receptacles should be placed near the front of the transit stop, at a minimum of 18" from landing zones, minimum 3' away from benches or shelters, and in the shade where possible. They should also be anchored to the pavement to deter theft.

### CONSIDERATIONS

- Bus bulbs generally enhance transit performance and improve the passenger experience; however, they may only be utilized on streets where curb lanes are not used for travel and generally where posted speeds are 35 MPH or less. See Transit Accommodations at Intersections for guidance on bus bulbs.
- Consider bus bulbs where additional pedestrian space is needed or where a transit vehicle re-merging into traffic is challenging.
- Transit stops should be well lit and highly visible to improve the sense of safety and comfort at all times of the day.
- Consider seating at or near transit stops. Seating need not be a unique and dedicated element, but may include leaning rails, planters, ledges, or other street elements.
- Consider opportunities for shade in the vicinity of transit stops such as street trees, awnings, or other elements to improve passenger comfort while waiting, especially in hot or inclement weather.
- Whenever possible, provide bicycle racks at or near transit stops to accommodate intermodal transfers. Bicycle racks should not impede access to or from transit stops or pedestrian flow on the adjacent sidewalk or crosswalk.

# TRANSIT SHELTERS



## OVERVIEW

Transit shelters increase both the comfort and visibility of transit stops by providing shelter from sun, rain and other elements. Shelters typically, though not always, provide additional seating and lighting at a transit stop adding comfort and convenience for riders.

» *All transit shelter installations must be approved by the City of Alexandria's T&ES Department and meet the design and specifications as approved by the City in May, 2014.*

## DESIGN

- Transit shelters should adhere to the most recent standard shelter design and specifications adopted by the City of Alexandria. [Click here for the City's standard bus shelter design](#). The standard shelter has three sides and is open to the street on the fourth side. It is 5' 4" deep and 12' 11" wide.
- Shelter placement must allow for unobstructed loading and unloading.
- Shelters must not impede pedestrian flow on the sidewalk. A minimum 6' clear Pedestrian Zone must be maintained.
- Per City criteria, shelters are only recommended for stops with 40 or greater passenger boardings per day. Stops should have adequate right-of-way to accommodate a shelter and the required Pedestrian Zone width. Shelters are also considered for locations near designated activity centers and locations serving multiple routes or transfers.
- The following requirements must be met before a shelter can be considered:
  - Property ownership
  - Adjacent property owner approval
  - Compliance with accessibility requirements
  - Adequate physical space and clear widths
  - Close proximity to an existing bus stop
  - Approval and maintenance agreements by the City of Alexandria

## TRANSIT SHELTERS

- The following minimum clear widths for shelter placement should be maintained:
  - 1' from a blank building face (shelters should not block active store windows)
  - 8' from the back of curb
  - 15' from crosswalks (for visibility at near-side bus stops)
  - 1' from any ground obstruction (i.e., manhole, tree pit, signpost, etc.)
  - 10' from fire hydrants
  - 3' clear of the landing zone (maximum 25' |to the right of the landing zone)

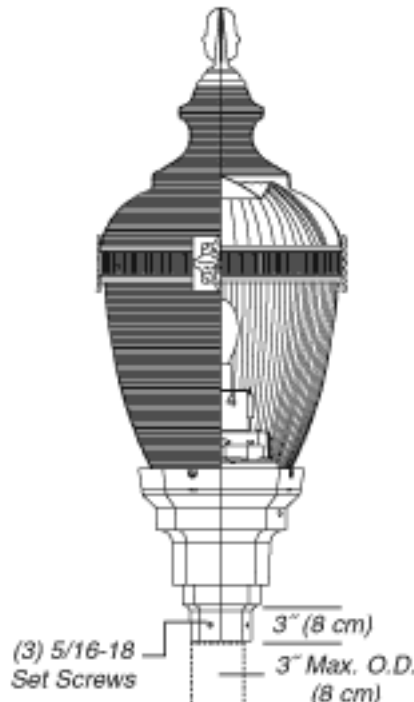
### CONSIDERATIONS

- The location of transit shelters should minimize obstruction of sight lines.
- Shelters should be located to facilitate maintenance (e.g. glass and other elements of the shelter can easily be replaced as necessary).
- Shelters should provide their own light source, preferably utilizing solar photovoltaic systems. Where lighting is not provided in the shelter, shelters should be located where street lighting is abundant.
- Shelters should be located between store entrances or shop windows wherever possible to avoid obstructing views of retail activity or offerings.
- Consider opportunities to provide additional passenger amenities concurrent with shelters such as seating, local area information, wayfinding and real time traveler information.
- Transit stops with passenger activity high enough to warrant a shelter also warrant bike racks.



Transit shelter examples in Alexandria

# STREET LIGHTS



Street lights add comfort and safety to the street while providing character and scale. Street lighting is typically oriented toward the vehicle or pedestrian travel ways; however, additional street lighting can highlight public art, architectural features, or be an artistic expression itself.

Street lighting can also be an expression of street type. Higher activity commercial streets typically have a higher level of overall street lighting, while lower intensity areas such as residential streets and parkways will generally have less frequent street lights and lower lighting levels.

Lighting levels should be consistent along the street without pools of light and dark. Lighting should be managed to reduce energy consumption and light pollution. The spectrum of light should ideally mimic sunlight where possible as this is more pleasing to the human eye. The City of Alexandria uses

the recommended values in American National Standard Practice for Roadway Lighting (Illumination Engineering Society RP-8-00) for LED street lights and follows Federal Highway Administration standards for lighting for roadways, walkways, bicycle facilities, crosswalks, and pedestrian underpasses. These levels vary depending on light type, street functional classification, and level of pedestrian activity or conflict.

- » Please refer to **Chapter 2 of the Parks Facilities Standard Manual** for information regarding lighting standards.
- » Additionally, [click here to see a map of Gadsby Light District boundaries](#).
- » *Dominion Virginia Power owns and maintains the majority of street lights in the public right-of-way in Alexandria. T&ES approves street lights.*



## DESIGN

- In general, lighting should reflect the character and urban design of the street type to create a recognizable hierarchy of roads and spaces.
- Pedestrian scale lighting will be provided for all new development projects
- Comply with lighting requirements in areas with existing design guidelines.
- Light Emitting Diode (LED) or solid-state lighting (SSL) are strongly encouraged. Both LED and SSL are more energy efficient and are therefore consistent with Alexandria's Eco-City Charter. See [Streetlight Pilot Project](#) for more details.
- Lighting is typically located in the Amenity Zone of the street. Depending on conditions, lighting may be permitted in medians, however this is less common and often restricted.
- Light poles are typically located 18" off the front of curb.
- Lighting should be oriented toward travelers both in the roadway and on the sidewalk. Adequate lighting at intersections and crossings is essential.
- Pedestrian scale lighting (lower than 20') should be used alone or in combination with roadway scale lighting in high-activity areas to encourage nighttime use and as a traffic calming device.
- Critical locations such as ramps, crosswalks, transit stops, and seating areas that are used at night must be visible and lit.
- Lighting may either alternate on either side of a street or be arranged parallel. Parallel arrangements are more formal and common in retail activity centers.
- Lighting should be located in concert with street trees—often alternating trees and lights—so that trees do not block the illumination.
- Light poles should not impede the pedestrian way.

## CONSIDERATIONS

- Clamp-on brackets for banners or hanging planters are possible but are not installed or managed by Dominion Virginia Power. They are considered enhanced treatments that require maintenance agreements.
- Lighting on residential streets should not illuminate residential quarters such as upper level windows to the extent possible.
- Quality and color temperature of light can impact the character and visitor perception of a street or neighborhood.

## LINKS

Chapter 2 of the Parks Facilities Standard Manual  
<https://www.alexandriava.gov/uploadedFiles/recreation/parks/Lighting%20Section.pdf>

Alexandria's LED Streetlight Pilot Project

<https://www.alexandriava.gov/tes/oeq/info/default.aspx?id=34122>

Local Motion Solar Bus Shelter

<http://alexandriava.gov/localmotion/info/default.aspx?id=21470&src=rss>

Street Light Maintenance

<http://alexandriava.gov/tes/info/default.aspx?id=3534>