

Draft Framework

MTP Bicycle Element



February 2, 2018

I. The Role of Bicycling in Arlington Transportation

Arlington is a vibrant community, in the heart of the dynamic Washington, DC Metro region. Arlington's transportation network has contributed to a high quality of life in the County by providing various transportation options, making it possible to travel around and through Arlington at all times with relative safety, speed and ease. Bicycling has consistently been one of the transportation options integral to Arlington's successful transportation network.

As continued growth of both the County and the DC region produces more travel demands on the transportation system the need for a robust and versatile multimodal transportation system becomes greater. The value of that versatility becomes most evident during times of extreme stress, such as during natural disasters or major facility shutdowns. In Arlington, it is increasingly important to provide varied options to serve diverse resident and visitor travel needs while also finding ways to reduce the environmental footprint of local transportation systems. As identified in Arlington's [Community Energy Plan](#), achieving community and regional goals of improved air quality and reduced greenhouse gas emissions from fossil fuel use, depend greatly on shifting more travel to non-motorized travel modes such as bicycling and walking.

Bicycling plays a unique role in managing transportation demand for the growing population. When using bicycles, people can travel short- and medium-range distances quickly and efficiently while retaining freedom and flexibility in their routes and schedules. Bicycling can connect many origins and destinations to transit services, conveniently providing "the first mile, last mile" access that allows a broader geographic reach for fixed transit routes. Bicycles can provide students with quick, reliable transport to school and enable travel independence. Shifting trips from motor vehicles to bicycles can also improve motorists' travel by reducing congestion and demand for parking spaces. Therefore, when the capacity and quality of the bicycle network is enhanced, travel by transportation modes other than bicycles is often improved as well. Trips that are diverted from busy highway corridors onto adjacent bicycle facilities, such as the Custis Trail along Interstate-66, can help to reduce congestion on the roadways.

The public cost for building or maintaining bicycling infrastructure is typically many times lower than providing similar facilities for driving or transit. In addition, bicycles take up much less roadway and parking space than motor vehicles. Streets and trails can accommodate many bicycles, moving in two directions, within the same amount of asphalt used by a single motor vehicle travel lane. Similarly, significant amounts of bicycle parking can be placed within smaller spaces than parking lots at low fiscal expense and with minimal opportunity cost. Reducing our community's need to pave areas for travel and parking means that more land would be available for open space or other uses.

Due to its low cost and lack of licensing or other requirements, bicycling is a very accessible travel mode. Bicycling enhances equity in Arlington as it broadens travel opportunities for all persons.

Bicycling and other active transportation modes also enhance the health of our citizens by providing moderate exercise while commuting and undertaking other personal travel. In addition to being clean and quiet, bicycling and other active transportation help to build community. People walking and bicycling are more recognizable and approachable to neighbors and fellow community members than people in cars or other vehicles and provide positive activity on local streets. Bicyclists can more easily converse with neighbors, observe happenings in their communities and spend more time traveling on local streets. Bicyclists also help the local economy, as they are more likely than motorists to shop at nearby businesses, to make more frequent visits, and to spend more dollars locally. Having an outstanding bicycling environment is often identified as an important economic asset that attracts both businesses and highly-skilled workers to a community. Many residents and visitors are attracted to Arlington in part for its high-quality trails and bicycling facilities and the relative ease in traveling by bike here. Bicycling fits well with Arlington’s local values of encouraging all residents to get out and be part of the community.

It should **also be recognized** that many people choose to bicycle primarily for fitness and recreation. Enhancing trails and other bicycle infrastructure intended to aid transportation, typically also improves conditions for recreational and fitness bicycling.

Currently, the technological state of bicycles is changing. Small, quiet, battery-powered motors can be integrated into bicycles thereby making bicycling accessible for more people and purposes. Travelers who may not have the ability or interest in pedaling bicycles and those who may need some motor assistance when going uphill or carrying large loads or extra passengers are gaining additional transport and route options. These devices provide opportunities for more people to travel in active ways, thereby reducing traffic demands on streets, promoting better public health, developing community and reducing the strain on the natural environment.

II. Background

Current Conditions

In 2009 Arlington began collecting data on bicycle use from a network of electronic counters installed at selected locations on area trails and some primary roadways. Utilizing the data collected by those counters, and from the Capital Bikeshare

Arlington’s Designated Bicycle Network, Late 2017:

Off-Street Trails = 30.0 miles

Bicycle Lanes = 22.0 miles

Buffered Lanes = 1.5 miles

Protected Lanes = 2.0 miles

Bike Boulevards = 2.0 miles

On-street Routes: = 50.5 miles

system, the County is gaining a clearer picture of bicycle use in Arlington. In addition, recent estimates from the 2015 Arlington Residential Travel Survey and the 2016 American Community Survey found that bicycling now accounts for 2.4 to 5.0 percent of all commute trips by Arlington residents. Those figures, when compared to estimates from past decades, indicate a more than tripling in bicyclist commute mode share.

The designated bikeways network is comprised of approximately 108 miles of: shared-use trails; marked, protected and buffered bike lanes; bicycle boulevards; and signed bicycle routes. The network serves much of Arlington, provides links to bridges across the Potomac River, and includes trails that extend into neighboring Virginia jurisdictions. The designated bicycle facilities are supplemented by several hundred miles of low-volume residential streets which generally offer convenient and comfortable bicycling routes. However, significant gaps remain in the network, resulting in barriers that leave bicyclists in portions of Arlington disconnected from the overall network.

The Master Transportation Plan and Bicycle Element

The Master Transportation Plan (MTP) Goals and Policies document specifies three general policies that form the foundation of the MTP and, therefore, transportation in Arlington in the years ahead: integrating transportation with land use, supporting the design and operation of complete streets, and managing travel demand and transportation systems. This element of the MTP focuses on bicycle travel, which is greatly affected by land use, street design, traffic volumes, public perception and transportation system management. Bicycling can also affect motor vehicle traffic volumes when substituting for local travel by motorized vehicles.

Arlington County developed its first bicycle master plan in the early 1970's. That document established the first network of bicycle and pedestrian trails as well as signed on-street routes. The 1986 comprehensive rewrite of Arlington's MTP brought bicycles firmly into the County's multi-modal transportation planning. Subsequent bicycle plans added elements related to secure bicycle parking and bicycle lanes. The *Bicycle Element* of the MTP that was adopted in 2008 incorporated an expanded bicycle network plus extensive attention on educational and informational activities to encourage more travel by bicycle.

Since adoption of the *Bicycle Element* (Plan) in July 2008, there have been substantial changes to the bicycle environment in Arlington, the Washington, DC region and nationally that have changed the landscape for bicycling in urban areas. One of the most significant changes has been the introduction of regional bikeshare systems. In addition, several types of enhanced on-street bicycle facilities, such as buffered and protected bicycle lanes, have been implemented. Changes to national engineering and design guidance have also enabled greater utilization of innovative bicycle facility treatments. Moreover, during the past decade there has been substantial growth in local bicycle usage and awareness which necessitate making further revisions to the County's plans for how bicycling should be provided for and how to achieve more equity between travel modes and traveling populations.

The Bicycle Element Update Process

During the summer of 2017, Arlington County began a comprehensive public engagement effort to gain input from a broad cross-section of Arlington residents for an update to the MTP's bicycle policies. That public engagement effort which included: monthly meetings of a citizen advisory panel, on-line surveys, a visual preference survey, multiple presentations to advisory commissions and committees, public workshops, focus group sessions and dialogues with interested residents provided robust guidance for the plan update. Additional guidance was gained from reviewing the draft Arlington Public Spaces Master Plan. Bicycle master plans adopted by 12 peer communities and recent bicycle transportation research documents were also examined to provide useful points of reference for Arlington's Bicycle Element update effort.

The community expressed great interest in bicycle travel and a strong desire for making Arlington a safer and more comfortable place to bicycle. A large percentage (45%) of the respondents indicated that their concerns about the safety of bicycling on Arlington streets is the primary reason why they do not bicycle more often. Building more protected bicycles lanes (64% of respondents), along with expanding the trail system (45%) and enhancing the existing bikeway network (44%) with more low-stress routes, were identified as the best ways for Arlington to achieve greater bicycle safety and more bicycling for transportation. The community responses also favored:

- making bicycle lanes more visible,
- addressing vehicles that obstruct bicycle lanes and
- enhancing bicycle priority on neighborhood streets through motor vehicle diversions, traffic calming and
- greater route connectivity and improved access to local schools.

This guidance from Arlington's community outreach is reflected in updated plan's goals and policy statements.

Summary of Revisions

The primary focus of the *Bicycle Element* is the completion of a more fine-grained and comprehensive bicycle network of trails, bike lanes, and protected or buffered on-street facilities in order to create a safer and more comfortable bicycling experience for persons of all ages and abilities. Bicycling will be a more viable travel option for many Arlingtonians when several key network connections are completed. Enhancements in bicycle parking facilities at transit stations, shopping centers, schools, offices, and in multifamily residential buildings as well as ample shower facilities, lockers and maintenance stands will also make bicycling a more attractive travel option.

The Plan includes an objective of having at least half of all residents ride bicycles for transportation purposes at least occasionally. Such a participation level would indicate that

“average” residents find bicycling to be safe and convenient enough for at least some of their transportation needs. Achieving this level of comfort with bicycling will require, in addition to the facility network improvement, an effort by the County to address safety concerns. Many policy proposals in this plan are aimed at achieving greater safety and enhancing user comfort include facility upgrades, enhanced traffic law enforcement, safety education efforts, and promotional events such as mass rides and training classes. Bicyclists and all other travelers, can benefit from a proposed greater emphasis on safety educational and enforcement efforts including the adoption of a “Vision Zero” policy which seeks to prevent all roadway fatalities and serious injuries. Similarly, Arlington’s “Complete Streets” policy helps all street users by creating safer and more comfortable accommodations for all thereby reducing conflicts between bicyclists, motorists and pedestrians.

All Arlington travelers are expected to benefit from the overall efforts to expand the multimodal aspects of its transportation system. In particular, the effort to rebalance and right-size street space allocation to achieve more Complete Streets (explained in detail in the Streets Element of this plan) will help create safer and more comfortable streets. Better on-street bicycle facilities will reduce conflicts between bicyclists and pedestrians by shifting bicycle riding off sidewalks and into the roadway. Upgrading bicycle access to transit stations, through the construction of secure, sheltered parking and better bikeways expands transit service areas and improves the convenience of public transit travel.

This Plan carries forth the overall goals and policies of Arlington’s *MTP* while simultaneously bringing the Plan up to date with the advances in bicycle infrastructure, planning, execution, evaluation and technology and community desires that have occurred over the past ten years. The Plan seeks to achieve community desires through many, sustained County actions over the next decade. It focuses on increasing the use of bicycles as a transportation mode in Arlington by broadening the population of persons that feel safe and comfortable riding bicycles on our streets. The primary initiatives are to upgrade the bicycling network through achievement of a comprehensive network of low-stress bicycling routes, and making bicycling a “normal” activity for persons of all ages and abilities. In addition to facility upgrades, achieving the objective will include actions directed towards education: raising general awareness, increasing the use of bicycles as part of multi-modal travel, and further integrating bicycling needs in all aspects of planning, design, operation and maintenance of our community resources. Other aspects of bicycling that are strictly recreational in nature are excluded from this document and may be addressed in the Public Open Spaces Master Plan and other guidance.

III. Arlington’s Vision for Bicycling

Bicycling is an integral part of Arlington’s equitable, multi-modal transportation system and provides safe, reliable, convenient and comfortable travel for persons of all ages and abilities.

The vision statement captures a few important themes:

- Bicycling supports the MTP’s general policies of providing multiple viable travel options, supporting the design and operation of complete streets and managing travel demand and transportation systems.
- Providing a safe environment to bicycle within is a top County priority.
- Reliability and convenience are important determinants as to whether bicycling is actually an attractive travel option.
- The level of comfort of a route will affect a person’s desire to bicycle on that route.
- Bicycling should be a viable travel option for everyone regardless of their age or physical abilities and skills. Facilities and services should also be provided in an equitable manner.

IV. Goals of the MTP and Bicycle Element

MTP Goals

The MTP outlines six broad goals intended to guide and unify Arlington’s approach to transportation. These overall goals are:

- Provide high-quality transportation services
- Move more people without more traffic
- Promote safety
- Establish equity
- Manage effectively and efficiently
- Advance environmental sustainability

Bicycle Element Goals

This Bicycle Element updates and applies these goals for bicycle transportation.

- A. Provide an environment in which people of all ages and abilities can get places by bicycle safely and comfortably.
- B. Make all of Arlington accessible by bicycle using easy-to-follow, low-stress routes.
- C. Increase the mode share of bicycle travel, aiming to have the population of persons who bicycle for transportation be demographically similar to the population of Arlington overall.
- D. Provide an excellent trail system that serves the needs of people walking and bicycling for transportation and for recreation.
- E. Properly manage, maintain, and operate the infrastructure that supports bicycling in Arlington.
- F. Integrate bicycling into an efficient, sustainable and equitable transportation system.

V. Policies and Implementation Actions

Fourteen principal policies have been developed to direct the County’s approach to bicycling. They are grouped here supporting the six Goals of the plan introduced above. Each policy is in turn implemented via specified actions intended to achieve desired outcomes. Performance measures and targets are established to assess progress toward achievement of the goals.

Goal A. Provide an environment in which people of all ages and abilities can get places by bicycle safely and comfortably.

Arlington County aims to make bicycling safe, secure, convenient and accepted. This is achieved through projects that improve the physical infrastructure for bicycling, and by programmatic activities that build public acceptance for safe, convenient, and accessible bicycling. Persons of all ages, abilities and backgrounds are considered when developing bicycle projects and programs.

Policy 1 – Make existing streets safer and more comfortable for bicycling by persons of all ages and abilities.

Implementation Actions

- a. Regularly review all bicyclist crash reports, and consider other reports of safety concerns, to identify street and trail locations where user safety can be improved through physical changes or other engineering, enforcement or education interventions.
- b. Upgrade existing on-street bikeways on arterial streets to include buffer striping or protective barriers where possible. Emphasize the provision of protected or buffered bicycle lanes on roadways with speed limits of 30 miles per hour or greater and all roadways with daily traffic volumes of 6,000 vehicles per day or greater.
- c. Provide for safer, more comfortable bicycling at intersections with high-volumes of vehicular traffic. Make full use of available traffic control devices including: signals, signs, beacons, delineators and roadway markings.

Policy 2 – Enhance the safety of bicycling in Arlington by addressing unsafe behaviors and encouraging safe travel behaviors. Increase traffic law enforcement pertaining to bicycle safety, placing priority on those violations that endanger vulnerable road users.

Implementation Actions

- a. Incorporate bicycle safety efforts into an integrated “Vision Zero” travel safety program, with the goal of zero traffic deaths or serious injuries occurring in Arlington.
- b. Promote PAL, the County’s approach to travel safety wherein all street and trail users are encouraged to be Predictable, Alert, and Lawful. Provide education materials in multiple languages and reach out to population groups across Arlington.
- c. Coordinate with local police to implement traffic law enforcement programs directed towards the violations of traffic safety law, by motorists, bicyclists and pedestrians, that

are most likely to cause crashes and injuries. Target efforts at the locations with frequent bicycle/motor vehicle or bicycle/pedestrian conflicts.

- d. Utilize public awareness campaigns, law enforcement and, physical barriers (where appropriate) to prevent drivers from obstructing bicycle lanes and from opening car doors in the path of oncoming bicyclists.
- e. Continue headlight and helmet distributions that reach young bicyclists and persons of limited incomes.
- f. Encourage greater use of bicycles by police and County staff for routine and special work, such as trail patrols and site visits.
- g. Offer training to continuously upgrade planning, engineering, law enforcement and maintenance staffs' knowledge of best practices for bicyclist safety. Establish minimum training requirements for these professionals.

Policy 3— Expand travel safety education programs for children and adults.

Implementation Actions

- a. Develop **multi-lingual** public safety campaigns and driver education materials aimed at addressing educating drivers on how to drive safely around people on bicycles and pedestrians.
- b. Continue to undertake local and regional safety education campaigns (such as Arlington's PAL campaign) that remind bicyclists, pedestrians, and motorists of safe and courteous behavior on streets and trails and encourage ongoing cooperation amongst travelers. **Include multi-lingual materials and targeted outreach efforts to achieve broad awareness across Arlington.**
- c. Conduct **adult and youth** bicycle safety and maintenance courses through **Arlington Public Schools (APS)**, Arlington Adult Education and BikeArlington programs. Encourage community colleges, civic organizations, fitness clubs, and others to offer bicycling safety instruction. Consider providing financial assistance to institutions or to students to encourage participation.
- d. Produce Spanish-language and multilingual bicycle safety education literature and media campaigns, and continue to participate in the Washington region's multi-lingual Street Smart safety campaign.
- e. Support an ongoing Safe Routes to School program for Arlington's schools that includes encouragement, education, enforcement, engineering and evaluation components, and involves school administrators, faculty, staff and parents, in addition to students.
- f. Provide all Arlington elementary and middle school students **on-bike and classroom** training in safe and confident bicycling, and extend the training to high school physical education programs.
- g. Designate recommended bicycling routes to neighborhood schools. Criteria for safe routes should be established jointly among the staff of Arlington Public Schools, Parks,

Transportation, and Police. Continue to improve public infrastructure to increase the number and extent of routes that can be recommended for bicycling to school.

Goal B. Make all of Arlington accessible by bicycle using easy to follow, low traffic stress routes.

Arlington County desires a network of low-traffic-stress bicycling infrastructure that reduces travel barriers for persons of all ages and abilities and improves connectivity between origins and destinations across all of Arlington. The low-traffic-stress bicycling network will incorporate off-street trails, local neighborhood streets and arterial streets with protected or buffered bicycle lanes to support bicycling between residential neighborhoods, retail and commercial districts, schools, recreation centers and parks, employment sites, transit stations, and activity centers in neighboring jurisdictions.

Policy 4 – Provide a network of low-traffic-stress bicycling routes that connect residential areas, commercial centers, transit stations, schools and County facilities across all of Arlington with links to outside destinations. Implement those projects that will have the greatest impact in providing safer bicycle travel across the network and in achieving a more equitable bicycling environment.

Implementation Actions

- a. Fund and build planned projects and trail improvements identified in adopted County planning documents. Establish a regular funding stream and level of staff support to enable timely implementation of bikeways projects independently of other street improvements.
- b. Develop new shared-use connector trails or routes that link low-volume streets and establish more effective and efficient bicycle travel corridors. Emphasize access to public facilities such as schools, transit stations and community centers.
- c. Evaluate the geographic coverage of the existing bicycle network and seek to provide additional bikeways to serve the under-represented areas and populations.
- d. Identify desired land acquisitions or easements needed to connect bikeway routes, and pursue such land acquisitions or easements through donations, site development or public purchase.
- e. Prioritize projects that overcome barriers and complete network connectivity, in particular work with regional partners to enhance bicycle access to all Potomac River bridges. Improve the safety and comfort of bicycling on existing north-south routes, and identify opportunities to provide additional low-stress corridors for north-south bicycle travel.
- f. Provide bikeways on new or existing streets in conjunction with major new development or redevelopment activities in Pentagon City, Crystal City, the Potomac Yard, Columbia Pike, Lee Highway, Rosslyn and elsewhere and in conjunction with new school construction.

- g. Work with regional partners on the development of grade-separated bicycle and pedestrian crossings of major highways and to enhance existing at-grade crossings.
- h. Work with the Metropolitan Washington Airports Authority (MWAA) to establish convenient bicycle connections to Reagan National Airport from Crystal City and the Mount Vernon Trail.
- i. Increase engagement with federal landowners to develop efficient routes for crossing or circumnavigating large federal institutions and properties, such as Joint Base Fort Myer Henderson Hall, the Pentagon Reservation, National Foreign Affairs Training Center, George Washington Memorial Parkway, and Arlington National Cemetery.
- j. Work with the Virginia Department of Transportation (VDOT) and the National Park Service (NPS) to ensure that bikeways are provided on and across VDOT and NPS operated arterial roadways, interstate and parkway corridors, as part of all projects to improve or reconstruct these roadways. Support the National Park Service with implementation of its 2016 Paved Trails Plan.

Policy 5 – Accommodate bicycle infrastructure as part of all street improvement projects and provide the highest-quality on-street bikeway possible.

Implementation Actions

- a. Review existing arterial street cross-sections and look for opportunities, through restriping or reconstruction, to reallocate street space to enhance bicycling safety, access and separation. Look for opportunities to create new protected or buffered bike lanes that bridge gaps in the existing bikeway network.
- b. Identify opportunities to achieve new or upgraded bicycle facilities from proposed new land development projects, including schools, as they undergo the development approval process. In particular, work to implement significant sections of the projects identified in this Section TBD of this plan.
- c. Design and install new and upgraded on-street bicycle facilities in accordance with the National Association of City Transportation Officials (NACTO) guidelines and shared-use trails in accordance with the American Association of State Highway Officials (AASHTO) guidelines.
- d. Pilot innovative street, traffic signal and bikeway designs, considering examples and research from across the USA and rest of the world. Conduct test applications of markings, and reallocation of road space with paint or delineators.
- e. Add contra-flow bicycle facilities to one-way streets, where safe and appropriate.
- f. Implement traffic calming and other speed management measures as needed to improve safe sharing of roads by bicyclists and motorists.
- g. Upgrade and expand the signed bike route system. Provide wayfinding for bicyclists with signs, maps and mobile apps and adjust as necessary over time to account for changes to routes and destinations.

Goal C. Increase the mode-share of bicycle travel, aiming to have the population of persons who bicycle for transportation be demographically similar to the population of Arlington overall.

Make using a bicycle for transportation, at least occasionally, an accepted travel option for the majority of the Arlington residential population. When a large-enough portion of a community participates in an activity, it spawns a culture whereby an activity previously considered “fringe” becomes embraced by the mainstream of the community. Approaches should aim to address challenges to greater bicycle use such as: limited-English skills, physical restrictions and lack of access to bicycles and bikeways. Expanding bicycle use will help to achieve Arlington’s goals of reduced: traffic congestion, energy consumption and greenhouse gas emissions while expanding travel opportunities.

Policy 6 - Establish bicycle use as a mainstream travel mode. Raise visibility and participation of bicycling in Arlington through events, prominent facilities, education and encouragement activities.

Implementation Actions

- a. Expand the encouragement program of BikeArlington, including map publication, Bike-to-Work Day, organized group rides, Car Free Day, valet bicycle parking at events, learn to ride classes and route assistance. Collaborate with Arlington Public Schools staff to provide bicycling encouragement that reaches students, parents and staff.
- b. Distribute bikeway maps, program brochures, and safety education materials. Include guidance for safe and courteous use of shared-use paths and streets. Educate bicyclists and others about facility types that may be relatively new to the Arlington public.
- c. Improve outreach to potential bicyclists that have been traditionally underrepresented in County planning and programs. Aim to reach and influence persons of lower incomes, recent immigrants, non-residents who pass through Arlington and young people and renters who may be less engaged in civic affairs.
- d. Identify new marketing and education approaches, including multi-lingual and age targeted media, to reach groups and individuals that are not currently bicycling or are low-confidence riders.
- e. Continue to promote bicycling as a part of the County’s Transportation Demand Management (TDM) activities aimed at businesses, employees, schools, and residents. Expand school-based TDM efforts to incentivize more bicycle use by staff and driving-age high school students.
- f. Encourage employers to provide cash compensation to their staff who choose to bike to work, rather than receiving subsidizing motor vehicle parking at their workplaces.
- g. Conduct regular surveys and focus groups to determine actions to encourage greater bicycle use.
- h. Promote bicycling as an activity that will improve health and fitness and conveniently incorporate exercise and recreation into daily life. Support activities such as group bicycle rides and competitions that encourage more bicycle use.

- i. Support a range of BikeArlington programs to encourage bicycling for transportation, fitness, and recreation, including:
 - o Bicycle fitness and training programs by the County and schools. Encourage similar programs by bike shops, bicycle advocacy organizations and bicycle clubs.
 - o Recognition awards and incentives for bicycling – e.g., awards honoring residents who bicycle to work, and ride through the winter; awards for businesses and citizens who help make Arlington a better place for bicycling; awards for exemplary bicycling support in schools, businesses, and youth organizations.
 - o Regular community-based bike rides that appeal to less-experienced bicyclists.
 - o Open street events.
 - o Learn-to-ride classes and training for the less-confident bicyclists.
 - o Bicycling incentive programs at County schools for staff and students.
- j. Incorporate information about Arlington’s bicycle registration program in County publications **and in bicycling classes and events.**
- k. Clarify where electric bikes, and other small motorized vehicles such as Segways and motorized skateboards, can be legally ridden. Encourage the use of electric-assisted bicycles, as a means to broaden the appeal and range of uses of bicycling.
- l. Undertake policing and communications programs that address reducing bike theft **and enhancing personal security while bicycling.**
- m. Undertake measures that will lead to achieving by the year 2020, Gold Level Bicycle Friendly Community status, an honor awarded by the League of American Bicyclists for communities with exemplary bicycle programs and bicycle use.

Policy 7 – Encourage and support provision of facilities to support bicycling, including showers, lockers and adequate bicycle parking by all new property developments.

Implementation Actions

- a. Utilize the Arlington County Bicycle Parking Standards document, or its successors, to develop new bicycle parking installations by public and private efforts. Review the standards periodically and adjust as needed.
- b. Amend the County zoning ordinance to require all commercial and multifamily residential buildings to provide ample, convenient and secure bicycle parking.
- c. Assist the managers and owners of commercial properties, including multifamily residential buildings, in selecting and installing high-quality, secure bicycle parking at existing buildings.
- d. Require appropriate bicycle support facilities, such as room for changing clothes, showering and bicycle parking in site plan conditions for commercial developments, including establishing minimum standards for quality and location. **Include appropriate bicycle support facilities in all new school construction and major renovation/expansion projects.****

- e. Provide bicycle parking both in buildings and on-streets that can accommodate cargo bikes.
- f. Provide more bicycle maintenance stands and resources, particularly in lower-income areas.
- g. Provide opportunities for e-bike charging at commercial, multi-family and public facilities.

Goal D. Provide an excellent trail system that serves the needs of people walking and bicycling for transportation and for recreation.

Arlington’s multi-use trail system is a highly-valued resource. Sufficient resources must be dedicated to ensure that all trails are well-maintained and available for year-round use. Attention must be directed to: physical improvements, including lighting; management and education; and issues of trail user conflicts and security.

Policy 8 – Manage shared-use trails as community assets that enhance transportation and recreational opportunities for everyone.

Implementation Actions

- a. Provide additional multiuse trails where significant community demand and support are expected. Develop and formalize trail concepts identified in adopted County documents such as the Public Spaces Master Plan, and area and sector plans.
- b. Promote volunteer maintenance on County-owned trails.
- c. Establish **operation and** maintenance responsibilities and protocols for all trails in public access easements on privately-owned properties.
- d. Perform periodic trail pavement condition assessments. Establish a regular maintenance cycle for trail repaving and repair similar to that used for County streets.
- e. Implement measures such as consistent mileage markers, new trailheads, and GPS coordinates to help emergency personnel and vehicles.
- f. Establish guidance for the installation and operation of night-time lighting on trails. Upgrade existing trail lighting equipment to improve reliability and energy efficiency while achieving specified light coverage.
- g. Provide access to drinking fountains, bathrooms, seating and shaded resting areas on popular trails.
- h. Evaluate all existing trail signage and markings and modify as needed to enhance user safety and clarity.
- i. Expand the bikeway network wayfinding signage system. Implement trail identification signs, markers or art features at key trail entry points.
- j. Expand public outreach methods to ensure that information alerts about trail activities, are distributed widely to reach Arlington and regional bicycling networks.
- k. Protect the trails and buffer areas against encroachments from adjacent roadways and new development.

Policy 9 – Manage trails for safety with increased use. Improve facilities to address user conflicts and encourage safer user practices.

Implementation Actions

- a. Prioritize trail widening and trail/roadway intersection projects where frequent user conflicts or crashes have been documented.
- b. Undertake safety evaluations of all street/trail intersections. Identify how safety might be improved through changes to traffic signals, signage, markings, traffic calming, tunnels/overpasses, or other measures.
- c. Expand staff expertise in the proper design, upkeep and operation of heavily-traveled multi-use trails.
- d. Institute regular trail patrols by Police, park rangers, and volunteers especially during early morning and evening hours.
- e. Test innovative use of pavement markings and/or barriers to separate bicyclists and pedestrians on trail sections with frequent user conflicts.
- f. Undertake awareness campaigns that emphasize proper behavior and etiquette by all trail users.
- g. Improve trail user security and safety with measures such as trail lighting, convex mirrors and landscape treatments that improve visibility.
- h. Provide additional, high-quality, on-street bicycle routes that encourage faster bicycle traffic to relocate from trails to streets.

Policy 10 - Make trail corridors more environmentally sustainable, with reduced storm-water runoff, additional shade and increased planting for bio-retention.

Implementation Actions

- a. Submit plans for new or significantly modified trails to Arlington’s environmental assessment process early in the design stage.
- b. Review trail width standards; consider widening to accommodate heavy use, and allowing narrower trails for lighter use and smaller footprint.
- c. Minimize adverse impacts from paved trails in environmentally-sensitive areas, such as Resource Protection Areas; explore utilizing permeable paving materials.
- d. Modify County design practices to allow for planting of greater numbers of native trees within trail corridors.

Goal E. Properly manage, maintain, and operate the infrastructure that supports bicycling in Arlington.

Planning, designing, funding, and building infrastructure brings it into existence. To extend the life and utility of infrastructure, it must be well-managed, maintained and operated. This applies

to the bicycle network – including the on-road portion- in order to provide sufficient bicycle travel capacity, an attractive level of service, functional reliability, safety, and security.

Policy 11 – Implement measures to assure safe and convenient bicycle travel during and after inclement weather and with street and trail construction.

Implementation Actions

- a. Improve and promote the County’s Report-a-Problem system that allows individuals to report maintenance needs and safety concerns on the web, over the phone, and via e-mail mobile app.
- b. Adopt the maintenance program and practices in Appendix TBD.
- c. Develop Maintenance of Travel (MOT) plans that maintain safe, continuous, and equivalent bicycling and pedestrian routes as part of all significant construction in the public right-of-way. Vigorously enforce MOT requirements throughout the duration of construction projects.
- d. Develop guidance for use by contractors about how to maintain safe bicycling routes while working in the public right-of-way.
- e. Designate priority transportation trails that require snow clearance and other regular maintenance.
- f. Enhance trail, bike lane and sidewalk snow/ice/debris clearance practices to minimize the time such travel facilities are unusable.

Policy 12 – Manage the bicycle network through regular collection and analysis of data including user counts and reported crashes.

Implementation Actions

- a. Refine bicycle data collection on streets, trails, and bridges, to establish baselines, and monitor use, plan for maintenance and expansion, evaluate safety, and model active transportation.
- b. Operate trail and bikeway data collection systems in an efficient, sustainable, collaborative and comprehensive manner. Provide open access to collected data.
- c. Conduct periodic travel surveys that include bicycle use questions.
- d. Apply bicycle count and crash data in project prioritization, identification of bicycle facility needs, and other decisions regarding the transportation network.
- e. Build on bicycle count data to develop methods for characterizing and estimating bicycle use for future planning efforts.

Goal F. Integrate bicycling into an efficient, sustainable and equitable transportation system

Continue to integrate bicycling with transit, walking, taxicab, ride-sharing and high-occupancy vehicle (HOV) travel modes. Improve access to bicycling for residents of all backgrounds.

Policy 13 - Provide convenient, covered and secure bicycle parking at transit stations, schools, public facilities and commercial centers.

Implementation Actions

- a. Coordinate with WMATA and private property owners to increase the quantity and quality of bicycle parking at all Metrorail stations. Initiate new bicycle/transit integration services, and manage existing services. Provide sufficient free bicycle parking that offers a high level of security and weather protection.
- b. Improve the security of bicycle parking at transit stations with more bicycle lockers, monitored bicycle stations and reliable surveillance. Seek better bicycle parking opportunities and bike sharing opportunities at major regional travel destinations such as National Airport and the Pentagon.
- c. **Coordinate with APS to** provide sufficient bicycle parking at schools to meet established per-student and per-staff ratios. Provide secure bicycle parking for staff, and locations for parent/child bike drop-off.
- d. Work with property-owners to enhance the quality and quantity of bike parking in commercial centers. Increase the provision of on-street bike parking for visitors and shoppers and emphasize new installations at locations with little existing secure parking. Require new high-quality bicycle parking on private property as part of development approval and incentivize improvements at other times.
- e. Regularly assess the availability of secure, convenient bicycle parking for all types of bicycles, at County facilities and park and recreation sites. Upgrade quality and quantity of bicycle parking as part of regular facility/site improvements.
- f. Assess the market for integrating bicycle transportation with carpools, vanpools, taxis, car-sharing programs, and commuter bus or rail services.

Policy 14 – Coordinate with regional partners and private providers to increase bike-sharing across Arlington and the Washington, D.C. region.

Implementation Actions

- a. Reduce barriers, such as payment methods and age requirements, that limit the use of Capital Bikeshare and other bicycle-sharing systems.
- b. Locate bike share stations to attract greater numbers of system users and improve non-motorized access to County facilities and transit services and ensure that convenient access to bike share is available especially in lower-income residential areas.
- c. Identify how GPS-based, dock-less bike sharing systems can best integrate with and complement Capital Bikeshare and other transportation services. Investigate best practices for regulation of dockless bike share and implement agreements with private providers of dockless bikes.
- d. Promote bike sharing as a preferred travel mode for first and last mile trips to and from transit services.

- e. Support privately provided loaner bicycle programs for users such as employees and hotels guests.

VI. Measures of Performance and Progress Targets

It is important that there are quantifiable measures to gauge progress towards achieving the six goals of the Bicycle Element. Establishment of target dates and outcomes will assist County staff and members of the public in tracking Arlington’s progress in achieving the plan’s goals. Several measures will require the collection and analysis of data that is not currently being captured by Arlington County. The measures should be reviewed periodically to evaluate the level and rate of progress achieved, and to determine if additional data collection is need.

This is currently a work in progress; Many target dates and figures have not yet been selected. Most baseline data is currently being collected.

	Progress Target	Baseline in 2017	Goal A	Goal B	Goal C	Goal D	Goal E	Goal F
1	Reduce bicycle crash injury rates per 10,000 residents by at least _% per year	1.72/year	○				○	
2	Achieve K-12 student education in bicycle safety to _% by year 20_, and _% by year 20_		○		○			○
3	Increase number of adult participants in bicycle education and encouragement events, such as Bike to Work Day, by _% per year		○		○			○
4	Complete _% of the planned Low Traffic Stress Bicycle Network by year 20_ and _% by year 20_		○	○	○		○	○
5	Provide a low-traffic-stress bicycle route within ¼ mile of _% of all households by year 20_, and _% by 20_		○	○	○	○		○
6	Achieve 5% bicycle commute mode share by year 2020, and achieve 10% bicycle mode share by 2025	2.4 %* ACS estimate			○			
7	Achieve _% of K-12 students bicycling to school by year 20_, and achieve _% by year 20_	3% estimate			○			
8	Increase the number of bicyclists counted on specified trail and street facilities by _% each year				○			○
9	Reconstruct/repave at least 4% of all the multi-use trail miles each year		○			○	○	
10	Provide covered bicycle parking spaces at _% of transit stations, schools and public facilities by year 20_		○		○			○

11	Expand access to bikeshare with 20% of adult residents having a membership in at least one system by 2025		O	O	O			O
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VII. Network and Program Implementation Procedures

Prioritizing Proposed Facility Improvements

Appendix {TBD in later version} provides lists of planned projects with locations and project descriptions. Existing and planned facilities are depicted in the MTP Map document. The entire planned bikeway network is shown in Figure {TBD in later version} of this document. Prioritizing projects remains a dynamic process that will evolve over time as the MTP is implemented.

The Prioritization Process and Criteria

Bikeway project priorities are periodically reevaluated in conjunction with funding opportunities, such as the Arlington Capital Improvement Plan (CIP). Prioritization takes place through a formal process that involves Bicycle Advisory Committee members, BikeArlington staff, and representatives of other agencies as appropriate. The prioritization criteria in the text box below are to be considered in determinations regarding resource allocation and timing. While these criteria are used to develop project priorities, public input is also considered in finalizing priorities.

Project Prioritization Criteria

Highest Priority Criteria:

- Enhancement of safety for bicyclists, pedestrians and other street or trail users
- Importance of improvement to connectivity of the bikeway network
- Estimated demand for usage and potential to attract new bicyclists
- Ability to reduce level of traffic stress and increase use comfort of bicyclists
- Opportunity to improve the network coverage to serve under-represented areas and populations or link with adjacent jurisdiction's bikeways.

Secondary Priority Criteria:

- Distance to and convenience of access to existing, high-quality alternative facilities
- Potential to relieve user congestion and/or conflicts on multi-use trails
- Cost relative to capital budget and availability of non-County funding
- Ease of implementation, including neighborhood, environmental clearance, and need for additional right-of-way
- Opportunity to achieve cost savings or easier implementation through combination with another project

Reporting priorities to neighboring jurisdictions, State and regional transportation planning agencies can allow planned projects to take advantage of proximate roadway work by other area agencies.

Implementation

The Arlington Division of Transportation's bicycle program is responsible for implementing many of the policies and strategies in this document to help ensure that bicycling accommodations and considerations are appropriately integrated into land development and regional transportation plans. The program also manages the design and construction of bicycling improvements undertaken by the County and works with the agencies responsible for projects not controlled directly by the County. Coordination amongst County agencies, especially agencies such as Parks and Recreation (DPR); Police; Community Planning, Housing and Development (CPHD); and Arlington Public Schools (APS) is essential. For example, DPR maintains Arlington's trails and is involved in bicycle promotion and recreation. The Police Department is responsible for traffic law enforcement and crash reporting. CPHD directs neighborhood and sector planning, zoning, and development review. APS is responsible for guiding Safe Routes to School initiatives, providing safety education, and addressing school transportation issues. Coordination with neighborhood-based and business associations is also important for successful project implementation.

Staff

As of 2017, the County's Division of Transportation applies the equivalent of three full-time employees for staff to implement infrastructure, policy, educational and encouragement activities. This work includes developing and managing projects, encouraging bicycling, and educating people about bicycling. Additionally, other staff members work on projects and activities that are bicycle-related, such as: 1) managing multimodal projects that include bicycle facilities and elements; 2) conducting promotional activities related to bicycling; and 3) working on safety, maintenance, traffic operations, and other multimodal transportation activities. Staffing is required to develop the large projects that enhance the bikeway network, as well as review all street improvement projects, increase the amount and quality of bicycle parking, enable bicycle safety education efforts, collect data such as usage and crashes and initiate the many encouragement activities that build the bicycle culture. The pace of project implementation will largely be governed by the staff and financial resources available to the program. Significant increases in the annual number of projects implemented will require additional staff resources. The County benefits from volunteer assistance with: advisory committees, event staffing, bike counts, facility inspections, educational efforts, and other activities.

Project Implementation Mechanisms

Bicycle facility projects will continue to be implemented in a variety of ways. Many will be done as opportunities arise, such as street resurfacing or rehabilitation projects, while others will be implemented as independent bicycle improvements. Some projects may be developed for both bicyclists and pedestrians and as part of "Complete Street" efforts. Bicycle accommodations and considerations are routinely considered in the planning and scoping phases of new projects in

Arlington County. Although providing a complete bikeway at one time is preferred, to avoid missed opportunities, planned facilities may be implemented in a piece-meal manner.

Providing high-quality bicycle facilities is a priority when considering improvements to the streets in the bikeway network. However, some streets in this network are also significant for other modes' networks. In situations where limited right-of-way exists to adequately accommodate the highest-quality facility for each user group, the priorities of each mode will be considered on a case-by-case basis and balanced as much as possible. This balancing will consider the overall MTP goals and the need to complete and enhance the bikeway network. Typically bike lanes and shared-use-lanes "sharrows" have been created by reallocating roadway space from overly-wide travel lanes. Alternatively, on-street bicycle improvements, such as protected or buffered bicycle lanes, may be provided or enhanced by reducing the number of travel or parking lanes. Impacts upon traffic flow, safety, accessibility and community welfare are all considered in deciding whether existing roadway area should be reallocated to non-motorized travel modes.

Regional Coordination

Many of the arterial roads within Arlington are under Federal or State management and are not directly subject to County policy. As a result, many bicycle projects will be implemented by or in conjunction with other agencies. In addition, large areas of Arlington, and several key travel routes, are under the control of Federal agencies such as the Department of Defense. It is critical that Arlington staff continue to coordinate closely with regional, state, and federal agencies to ensure that projects undertaken by these agencies contribute to and not hinder the completion of the Arlington bikeway network. Arlington staff will also work closely with neighboring jurisdictions on bicycling-related improvements within those jurisdictions that are of particular interest to Arlingtonians.

Funding

In both the areas of capital improvements and maintenance, an adequate amount of funding needs to be available to ensure regular progress toward achieving the bicycle objectives of the MTP. The County works to identify new sources of funding to implement bicycle-related projects and programs and seeks to maximize the amount of Federal, State and private funding that can be leveraged by local dollars. Funding decisions will be made by the Arlington County Board as part of the Capital Improvement Program (CIP) and the annual budget processes.

Appendix A – Glossary of Terms

Provided are definitions of some commonly used terms in the plan, as well as, descriptions of types of bicycle infrastructure.

All Ages and Abilities – Design with the intent of accommodating and attracting the traditionally under-represented bicyclists, in particular children, seniors, women, people of color, persons with disabilities and low-income riders as well as the traditional confident bicyclist.

Bikeway – A street or trail facility that has been specifically developed or designated for bicycle use. Bikeways may be designed for the exclusive use of persons riding bicycles or shared with either pedestrians and motorized vehicles.

Bike Share – Systems wherein persons can obtain short-term rental of bicycles from either publicly or privately owned bicycle fleets. Bike share may be through term membership or via single-trip purchases. Bike share is intended to expand access to bicycles, often as a means to enable more convenient access to and from transit services. Bicycles may be either obtained from centralized stations (or docks) or via more dispersed, “dockless” systems wherein bicycles are parked independent of a station.

Connectivity – The linkage of bicycle facilities into a network that provides for convenient access to and between places within a community.

Low Traffic Stress – Generally as motor vehicle volume, travel speed, truck traffic and parking turnover increase so too does the amount of traffic stress that bicyclists and other users of streets. Increased traffic stress often degrades the comfort and safety of street users such as bicyclists. Low-traffic stress bicycling routes either utilize streets with naturally low travel speeds and volumes or employ devices to either protect the bicyclist on the street or calm/buffer the street traffic.

Open Street Events – Short-term events that will close or substantially restrict private motor vehicle access to a street or streets, in order to encourage use of the street space for pedestrians and bicycle travel as well as community activities such as fairs, displays, games and other public gatherings.

Bicycle Infrastructure Facility Types

Arlington County has a variety of different types of bicycle facilities that help make traveling in Arlington County by bike friendlier for residents and visitors. There may be variations within each facility type depending upon a number of factors including: available public right-of-way, traffic volumes on the street, roadway width, anticipated use and the local environment.

Multi-Use Trails

Arlington County has an extensive [network of bicycle infrastructure](#). These multi-use trails are generally 8 to 12 feet wide with a yellow line striped down the middle to separate users. Trails are used by a wide variety of types of users, including children and adults, ranging from pedestrians, dog walkers, runners, and people on bikes. Cars and other motor vehicles are prohibited from operating on the off-street trails. Some trails include over- or under-passes that carry the trail across highways, streams and other possible barriers or conflict points.



Bike Lanes

The basic, or standard, Bicycle Lane is a striped area on the roadway designated for the preferential use of bicyclists over motor vehicles. On most streets, bicycle lanes are provided either adjacent to the curb, or between the curbside parking lane and the right travel lane. Bicycle lanes provide for a single direction of travel and typically match the travel direction as the adjacent vehicular lane. However, in some applications, a contra-flow bicycle lane is marked that has bicyclists traveling in the opposite direction of the adjacent motor vehicle lane.



Buffered Bike Lanes

Buffered bicycle lanes provide the same functions as a standard bicycle lane with the addition of marked buffer space on one or both sides of the lane. Depending on the location there may be buffers provided between the bicycle lane and the travel lane, between the bicycle lane and on-street parking, or both.

Green Bike Lanes

Green bike lanes (literally, green paint within the existing bike lanes) are relatively new in Arlington. They help reinforce the presence of the bike lane in places where the street markings might not get noticed by drivers. Arlington County uses them at specific, critical locations where bike lanes and drive lanes cross each other in unusual configurations, such as at "Y" intersections or at the start of some dedicated right turn lanes.



Protected Bike Lanes



Protected bike lanes, also known as cycletracks or separated bike lanes, provide physical separation between people on bikes and motor vehicles. The separation can be provided in a number of ways including: plastic bollards, landscaping or large planters, curbs or even car parking.

Designated Bicycle Routes

Arlington County has many miles of designated, on-street bicycle routes that are streets which have been determined to be bicycle friendly or provide important connections within the bicycle network. Designated bicycle routes can include arterial and local streets, as well as short sections of off-street trail. These routes are signed in many places and are identified on Arlington County's bicycle maps.



Bicycle Boulevards

Bicycle boulevards are designated routes on streets which have been optimized for bicycle travel. Bicycle boulevards use signs, pavement markings, and speed and volume management measures to discourage through travel by motor vehicles and create or enhance the safety and comfort of bicycling on the street. Bicycle Boulevards are designed to give priority to bicyclists for through travel and to link with trails and other streets that are safe and comfortable for bicycling. The most popular bike boulevards in Arlington parallel Columbia Pike.



Sharrows

“Shared-lane markings” or “sharrows,” are markings used to indicate a shared lane environment for bicycles and motor vehicles and intended to help motorists and bicyclists safely share and navigate streets. Sharrows are typically marked as a means to connect or continue bicycle facilities such as bicycle lanes and trails. Sharrows are designated with a bicycle symbol and two chevron stripes. Additional signs permitting bicyclists to use the full travel lane are typically also installed.

Bike Boxes

A bike box is a designated area at the head of a traffic lane at a signalized intersection that provides bicyclists with a safe and visible way to get ahead of queuing traffic during the red signal phase. Bike boxes are typically marked using green paint and bicycle symbols.





Wayfinding Signs

Wayfinding signs consist of comprehensive signing to guide bicyclists to their destinations along preferred bicycle routes. These wayfinding signs help bicyclists and pedestrians more easily identify and navigate multi-use trails, on-street bike lanes and designated bike routes. Directions and distances to destinations such as transit stations, schools, commercial districts and community facilities are typically provided on the signs.

Bicycle Parking and Fixit Stands

Arlington County has many thousands of bicycle racks across the County with over 4500 spaces identified on RackSpotter.com. Transit stations and office buildings may have sheltered parking or locked facilities for day-long use, while in commercial districts and at County facilities the short-term visitor parking is more likely to be an open rack, like a standard “inverted-U”. Arlington also has bicycle repair “Fixit” stands located near several Metro Stations which include an air pump and tools for basic repairs and adjustments.



Appendix B: Design Guidance

Arlington utilizes design guidance provided by the U.S. Federal Highways Administration (FHWA) American Association of State Transportation and Highway Officials (AASHTO) and the North American City Transportation Organization (NACTO) in the development of its bicycle facilities on streets and trails.

The most commonly referenced design guidance for bicycle facilities in urban settings is the NACTO Urban Bikeway Design Guide. The guide provides examples of bicycle related street treatments along with conditions for when those treatments are considered to be most appropriate for use. In all cases good engineering judgement based upon a knowledge of bicycle transportation should be employed in choosing the most appropriate design for the context.

The American Association of State Highway Transportation Officials (AASHTO) publishes the Guide for the Development of Bicycle Facilities. This guidebook is used nationally, primarily for the design of off-street multi-use trails.

The Manual on Uniform Traffic Control Devices (MUTCD) provides national guidance of the appropriate use of signs and markings on public streets and includes a section applicable to on-street bikeways.

Arlington County staff have developed a set of design details that refine the general guidance provided by NACTO, AASHTO and the MUTCD with specific applications intended to fit the context of Arlington's streets and trails. The design details are kept by the DES Transportation Engineering & Operations Bureau. Based upon operational experience, national research and technology changes the details are revised, updated and appended by staff as needed for optimal use.

NACTO Contextural Guidance for Selecting All Ages and Abilities Bikeways

Contextual Guidance for Selecting All Ages & Abilities Bikeways				
Roadway Context				All Ages & Abilities Bicycle Facility
Target Motor Vehicle Speed*	Target Max. Motor Vehicle Volume (ADT)	Motor Vehicle Lanes	Key Operational Considerations	
Any		Any	Any of the following: high curbside activity, frequent buses, motor vehicle congestion, or turning conflicts [‡]	Protected Bicycle Lane
< 10 mph	Less relevant	No centerline, or single lane one-way	Pedestrians share the roadway	Shared Street
≤ 20 mph	≤ 1,000 – 2,000		< 50 motor vehicles per hour in the peak direction at peak hour	Bicycle Boulevard
≤ 25 mph	≤ 500 – 1,500	Single lane each direction, or single lane one-way	Low curbside activity, or low congestion pressure	Conventional or Buffered Bicycle Lane, or Protected Bicycle Lane
	≤ 1,500 – 3,000			Buffered or Protected Bicycle Lane
	≤ 3,000 – 6,000			Protected Bicycle Lane
	Greater than 6,000			Protected Bicycle Lane
Greater than 26 mph [†]	≤ 6,000	Single lane each direction	Low curbside activity, or low congestion pressure	Protected Bicycle Lane, or Reduce Speed
		Multiple lanes per direction		Protected Bicycle Lane, or Reduce to Single Lane & Reduce Speed
	Greater than 6,000	Any	Any	Protected Bicycle Lane, or Bicycle Path
High-speed limited access roadways, natural corridors, or geographic edge conditions with limited conflicts		Any	High pedestrian volume	Bike Path with Separate Walkway or Protected Bicycle Lane
			Low pedestrian volume	Shared-Use Path or Protected Bicycle Lane

* While posted or 85th percentile motor vehicle speed are commonly used design speed targets, 95th percentile speed captures high-end speeding, which causes greater stress to bicyclists and more frequent passing events. Setting target speed based on this threshold results in a higher level of bicycling comfort for the full range of riders.

[†] Setting 25 mph as a motor vehicle speed threshold for providing protected bikeways is consistent with many cities' traffic safety and Vision Zero policies. However, some cities use a 30 mph posted speed as a threshold for protected bikeways, consistent with providing Level of Traffic Stress level 2 (LTS 2) that can effectively reduce stress and accommodate more types of riders.²⁸

[‡] Operational factors that lead to bikeway conflicts are reasons to provide protected bike lanes regardless of motor vehicle speed and volume.