Complete Streets Policy

I. Purpose and Background

Complete Streets provide streets that have facilities for all users, including pedestrians, bicyclists, transit users and motorists, to the extent appropriate for the land use or the context of the street. Under the Complete Streets framework, minimizing traffic delay for private motor vehicle transportation should not be the only goal of the roadway and could be undesirable depending on the surrounding land use and needs of other roadway users.

Providing Complete Streets includes improvements in compliance with the American with Disabilities Act accessibility guidelines, such as handicapped accessible ramps at intersections with detectable warning surfaces for the visually impaired. Other characteristics of Complete Streets are features that create a multimodal-friendly environment, such as narrowing or removing traffic lanes ("lane diets" and "road diets"), adding median refuges, providing road re-striping to include bicycle lanes, reconfiguring parking, installing curb extensions ("bulb-outs"), and adding accessible pedestrian signals and countdown pedestrian signals.

Like many suburbs, some areas in Rockville were designed for automobile transportation, and lack facilities such as sidewalks, bus shelters, and bicycle lanes. With implementation of Rockville's Pedestrian Policies, Bikeway Master Plan and the Sidewalk Prioritization Policy, key improvements for pedestrians and bicyclists have been made. As demand for walking, bicycling, and transit facilities grows, safe and accessible transportation accommodations for all modes becomes even more necessary. Additional modal choices can also help in improving air quality and reducing greenhouse gas emissions by reducing private motor vehicle trips and miles traveled. In addition, Rockville is committed to serving its residents – children, elderly, and persons with disabilities – by providing safe and accessible transportation facilities in the public right-of-way.

Complete Streets concepts have already been articulated in some of Rockville's plans and policies. For instance, the Bikeway Master Plan provides guidance for bicycle lane placement, the Sidewalk Prioritization Policy provides priority for sidewalk installation, and the Pedestrian Policy addresses pedestrian network connectivity and sets forth a pedestrian walking speed to calculate crossing times. Furthermore, the Comprehensive Transportation Review requires developers to assess all multimodal features of a development site and make improvements accordingly, and the Guidelines for Neighborhood Traffic Management provides guidance for traffic calming projects. The Comprehensive Master Plan also encourages the provision of transportation facilities

that accommodate all users. The intent of Rockville's Complete Streets policy is to bring all of these policies together and address their mutual concerns. It accomplishes this by both applying the transportation policies in prioritizing Complete Streets projects and by using the guidelines of these policies during the design and construction of projects.

II. Policy Statement

The Complete Streets policy of the "City of Rockville" is developed to provide guidance for its residents, decision makers, planners and designers to ensure that multimodal elements are incorporated into all transportation improvement projects.

- New construction and re-construction roadway projects in the City shall accommodate users of all ages and abilities including pedestrians, bicyclists, transit users, motorists and adjacent land users.
- Roadway projects shall adhere to the most recent City approved:
    - Comprehensive Master Plan,
    - Standards and Details for Construction,
    - Guidelines for Neighborhood Traffic Management,
    - Bikeway Master Plan,
    - Pedestrian Policies,
    - Comprehensive Transportation Review,
    - Sidewalk Prioritization Policy, and
    - Other applicable transportation policies.
- Roadway projects shall respect the character of the community it is serving and preserve the environmental, scenic, aesthetic, and historic resources of the area.
- Roadway projects shall include a project description that provides information about the City right-of-way, public support for the improvement, and the potential environmental impacts of improvements.
- Roadway projects shall follow an open and transparent public engagement process during the planning, design and development of complete street projects.
- Roadway projects shall be funded through the City's Capital Improvements Program, through developer projects and contributions, through federal and state grants, and through revenues generated through the City's speed camera program.

- Exceptions to the policy or exemptions from the policy shall be approved by the City Manager and must be documented with supporting data that indicates the basis for the decision.

III. Potential Complete Streets Outcomes

Example 1: East Gude Drive. Modifications include widening a shared pedestrian and bicycle path, widening the sidewalk, adding landscaped buffers, and narrowing and landscaping the median.

Example 2: South Stonestreet. Modifications include adding bicycle lanes and markings, a sidewalk with buffer, and pavement markings.

Example 3: Park Road. Modifications include adding sidewalks with buffers, "Share the Road" signs, and "sharrow" markings, and landscaping the median.

IV. Implementation

To ensure that Complete Streets are successfully implemented in Rockville, roadway projects shall be prioritized by gauging the latent multimodal demand and the following criteria:

Priority A Streets

- Streets in the City's three transit oriented zones
- Streets in the Twinbrook Metro Performance District
- Streets in the Town Center Planning Area
- Streets in the Rockville Pike Corridor Area and MD 355 from the northern border of the Corridor Area to the Rockville City limit
- Streets included in the Bikeway Master Plan through-city orange and yellow routes
- Street segments or intersections on the top-ten list of pedestrian/bicycle accidents
- Streets adjacent to schools

Priority B Streets

- Streets containing a high proportion of bus ridership
- Streets within Comprehensive Planned Developments and linking Comprehensive Planned Developments to Metro Rail Stations
- Streets adjacent to high density residential areas zones

Priority C Streets

- Streets linking neighborhoods to schools
- Streets adjacent to Millennium Trail
- Streets linking neighborhoods to parks
- Streets linking neighborhoods to community centers

When balancing competing interests, design decisions should be made to provide the safe, convenient and comfortable choices for all users. The objectives while making these design decisions are (1) to develop a transportation infrastructure that provides

access for all appropriate modes of transportation and safety in equal measure for each mode of travel and (2) to ensure that transportation facilities fit their physical setting and preserve scenic, historic, aesthetic, community, and environmental resources to the extent possible.

In some cases, these design objectives can be achieved within the available right-of-way. In other cases, the cost-benefit of acquiring additional right-of-way needs to be analyzed. Sometimes, tradeoffs in user accommodation need to be made to preserve environmental or community resources located within or adjacent to the right-of-way. In these situations, the challenge is to provide access and safety for each mode of travel. In other situations, it will be necessary to modify environmental characteristics in order to provide a safe and accommodating facility.

V. Design Guidance

Once the purpose and need for a project is defined, determination should be made to provide the safe, convenient and comfortable accommodation of all users within the context of the project. This process should be aided by the input from the various stakeholders involved to achieve the goals of a "Complete Street". There are several different scenarios for providing Complete Streets within the City.

The first three cases describe roadway sections bounded by curb and sidewalk. These cases are most likely to be found in the more densely developed areas. The fourth case is for sparsely developed areas or some residential areas where pedestrians and bicycle activity may be infrequent or purely recreational. All four descriptive cases are not intended to be "typical sections" applied to roadways without regard for travel speeds, vehicle mix, adjacent land use, traffic volumes, and other factors since application of "typical sections" can lead to inadequate user accommodation (underdesign) or superfluous width (overdesign). Typical sections also leave little room for judgment reflecting the purpose and context of individual projects and can oversimplify the range of values that may be selected for each element of the cross-section.

Case 1: Separate Accommodation for All Users

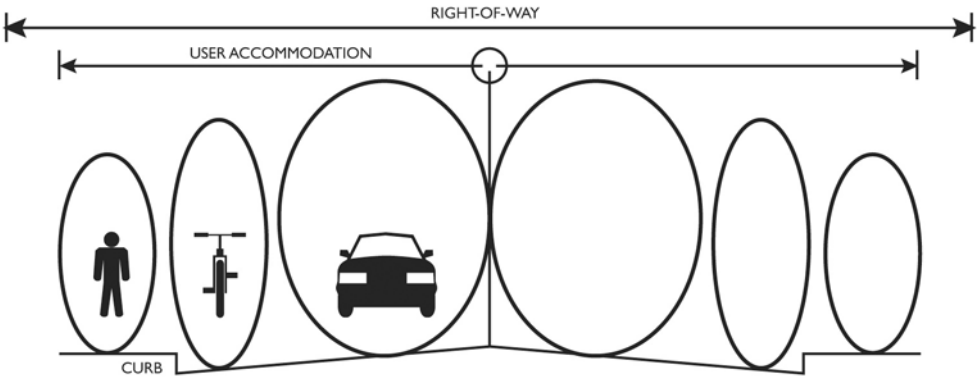
Case 1 provides the maximum separate accommodation for all modes of travel, as illustrated in Exhibit 1. This is often the preferred option in terms of providing safe, convenient, and comfortable travel for all users. It is usually found in areas of moderate to high density with curbed roadways.

Case 1 provides for the maximum separation of users, which can provide the highest level of safety and comfort for all users in areas with high levels of activity or where large speed differentials between the motorized and non-motorized modes are present. Case 1 usually

requires the most width. In locations where the speed differential between different roadway users is small, or overall activity is low, Case 1 may not be necessary to safely accommodate all users. However, in some instances, this case might be achieved by reallocating space within an existing roadway, thus eliminating potential impacts to the roadside environment.

This case might be considered in a wide variety of conditions including: areas with moderate to high pedestrian and bicycle volumes; areas with moderate to high motor vehicle speeds and traffic volumes; and areas without substantial environmental or right-of-way constraints.

Exhibit 1 - Case 1: Separate Accommodation For All Users



In Case 1, pedestrians are provided with a sidewalk separated from the roadway by a raised curb and preferably a landscaped buffer. The clear width of the sidewalk should be sufficient to allow pedestrians or wheelchair users to pass without interfering with each other's movement (preferred 5 feet sidewalk width excluding the curb and clear from items along the sidewalk such as fire hydrants, signs, trees and utility poles). It should be noted that the City's preferred width for sidewalks is 5 feet, however, in certain circumstances where 5 feet is not available, the City will refer to the American with Disabilities Act guidelines. Sidewalks should be provided on both sides of the street unless there is a condition that suggests that a sidewalk is not needed on one side of the street. This might happen, for example, if there is physical impediment that would preclude development on one side of the street, such as a stream or mature old trees.

Provision of a striped bicycle lane or shoulder suitable for bicycle use (5 feet preferred) encourages cyclists to use the roadway. The bicycle lane/shoulder also provides for additional separation between motor vehicle traffic and pedestrians. If on-street

parking is present, the bicycle lane should be at least 5 feet wide so that the cyclist is provided with an additional buffer along the parked cars.

Motor vehicles are accommodated within travel lanes wide enough to eliminate encroachment by wider vehicles on either the adjacent bicycle lane or on the opposing motor vehicle travel lane. In addition to providing space for bicycles, shoulders also accommodate emergency stopping, maneuvering, and other functions. Where on-street parking is provided, shoulders or bicycle lanes should be maintained between on-street parking and the travel lane.

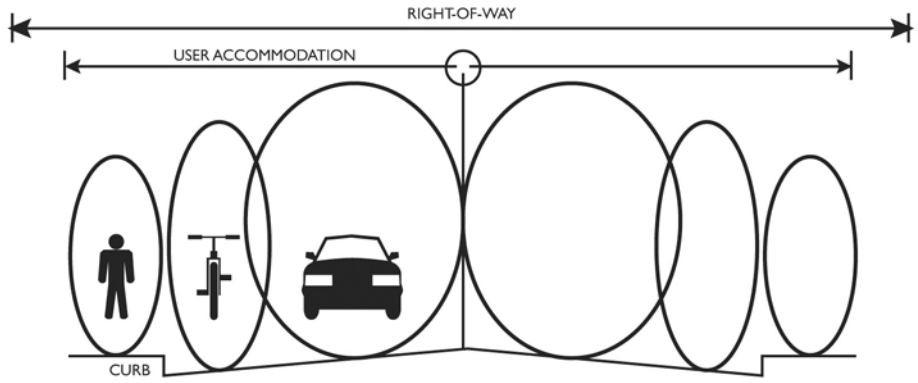
Case 2: Partial Sharing for Bicycles and Motor Vehicles

There are instances in which the width necessary to provide accommodation for case 1 is not available. There are also instances where some sharing and overlap between bicyclists and motor vehicle traffic is acceptable to achieve other environmental or design objectives. Case 2 describes an approach to multimodal accommodation in these situations and is illustrated in Exhibit 2.

Case 2 is common in areas of moderate to high density, where curbed roadway sections and separate sidewalks are provided.

Pedestrians are provided with a sidewalk separated from the roadway by a raised curb and preferably a landscaped buffer, increasing the safety and comfort of the pedestrian. The clear width of the sidewalk should be sufficient to allow pedestrians or wheelchair users to pass without interfering with each other's movement (5 feet preferred excluding the curb and clear of other roadside obstructions).

Exhibit 2 - Case 2: Partial Sharing for Bicycles and Motor Vehicles



In Case 2, there is some overlap between the spaces provided for bicycle use and that provided for motor vehicle travel. Signs or pavement markings indicating that the roadway is shared between cyclists and motor vehicles are appropriate for Case 2 roadways.

This type of accommodation is often used in areas with low motor vehicle speeds, low to moderate motor vehicle traffic volumes, and areas of environmental or right-of-way constraint where a smaller cross-section is necessary.

The designer should carefully consider the allocation of width to travel lanes and bicycle lanes/shoulders to provide the best balance of accommodation between bicycles and motor vehicles. In many instances, on-street parking will also be provided and additional width may be needed to reduce conflicts between bicycles and the adjacent parking. There are different possible configurations of lanes and shoulders possible in Case 2, but all feature some overlap in the space needed by bicyclists and motor vehicles:

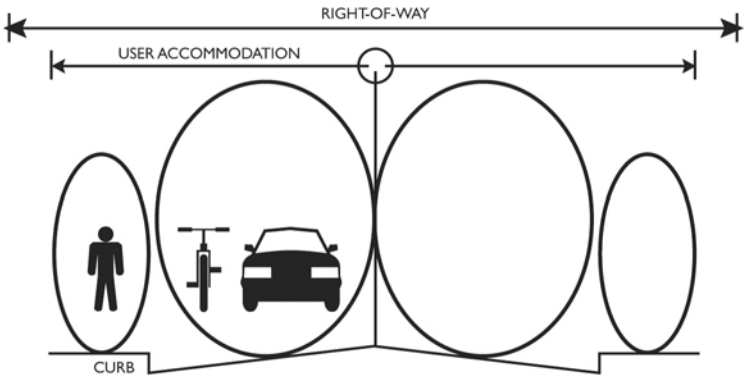
- Typical travel lanes combined with narrow shoulders (i.e. 11 to 12-foot lanes with 2 to 3-foot shoulders) provide maneuvering width for truck and bus traffic within the travel lane; however, bicyclists may be forced to ride along and over the pavement markings.
- Narrow travel lanes combined with wide shoulders (i.e. 10 to 11-foot lanes with 4 to 5-foot shoulders) provide greater separation between motor vehicle and bicycle traffic, but may result in motor vehicle traffic operating closer to the center line or occasionally encroaching into the opposing travel lane.

Wide curb lanes have also been used in Case 2; however, studies have shown that motorists and bicycles are less likely to conflict with each other and motorists are less likely to swerve into oncoming traffic as they pass a bicyclist when shoulder striping is provided.

Case 3: Shared Bicycle/Motor Vehicle Accommodation

In Case 3, the accommodation of bicycles and motor vehicles is shared and separate pedestrian accommodation is maintained as illustrated in Exhibit 3. Case 3 is most likely to be found in the most densely developed areas where right-of-way is most constrained. It is also applicable to most residential streets where speeds and traffic volumes are low.

Exhibit 3 - Case 3: Shared Bicycle/Motor Vehicle Accommodation



Pedestrians are provided with a sidewalk separated from the roadway by a raised curb and preferably a landscaped buffer, increasing the safety and comfort of walking along this roadway. The clear width of the sidewalk should be sufficient to allow pedestrians or wheelchair users to pass without interfering with each other's movement (5 feet preferred excluding the curb and sidewalk clear of other roadside obstructions).

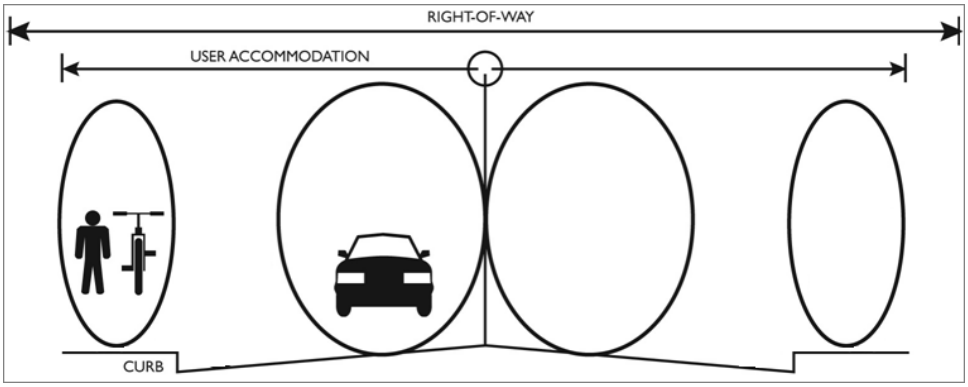
In Case 3, one lane is provided for joint use by motor vehicles and bicycles. This type of accommodation is used in the following conditions: areas with low to moderate motor vehicle traffic volumes; low motor vehicle speeds; and areas of severe right of way constraint where only a minimum pavement section is feasible.

Signs and pavement markings indicating that the roadway is shared between cyclists and motor vehicles should be provided for Case 3 roadways. On-street parking may be provided on these roadways and separate shoulders or bicycle lanes are not available.

Case 4: Shared Bicycle/Pedestrian Accommodation

In sparsely developed areas or some residential areas pedestrians and bicycle activity may be infrequent or purely recreational. This case is illustrated in Exhibit 4.

Exhibit 4 - Case 4: Shared Bicycle/Pedestrian Accommodation



In these areas, pedestrians and cyclists are often accommodated on an off-road shared use path. This type of accommodation may be appropriate for areas with infrequent pedestrian activity. In areas with higher pedestrian volumes (either current or anticipated), the pedestrian accommodation described in Cases 1, 2, and 3 is desirable. The path should provide the same connectivity as the roadway but can be set back from the roadway and its route can deviate around sensitive environmental areas. A shared-use path should be paved and at least be 8-feet wide. If the right-of-way permits, wider shared-use paths should be considered as well as "dual facilities" where roadways have both a shared-use path and an on-road bicycle facility.

VI. Design Elements

Sidewalks

Pedestrian accommodation should be consistent with the project context, including current or anticipated development density, roadway characteristics, right-of-way dimensions and availability, and community plans. The preferred width for sidewalks is 5 feet, however, in certain circumstances where 5 feet is not available, the City will refer to the American with Disabilities Act guidelines. Wider sidewalks are desirable where there are high pedestrian volumes and where there is no buffer between high speed and high volume roadways. Sidewalks commonly accommodate street furniture, which includes items such as, trees, utilities, streetlights, parking meters, bicycle parking, benches, and refuse barrels. Additionally, sidewalks often abut fences, building edges, or vegetation along their outside edge. These elements influence the required width

necessary to accommodate pedestrians, as pedestrians tend to "shy" from these obstructions. The designer should consider the desired location for these sidewalk features and, where they exist, the designer should provide appropriate offsets (or shy distances) to the pedestrian path.

Sidewalk widths of 6 -10 feet are preferred and should be considered in *Priority Areas A* where higher pedestrian activity is anticipated. In the town center areas and areas where very high pedestrian activity is anticipated, designers should try to provide wider sidewalks. If possible, a landscape buffer should also be provided between vehicular traffic and sidewalk to create a separation from motor vehicles and increase the comfort and safety of pedestrians. Landscape buffers are usually 4-8 feet wide. On-street parking, shoulders or bike lanes can also act as buffers. One way to achieve additional width for the sidewalk area is by paving the landscape area with tree pits, especially where on-street parking is provided. Narrowing travel lanes or reducing the number of through lanes where possible can also provide additional width.

Priority Areas B consists of streets with higher bus ridership and high-density residential areas where moderate pedestrian activity is anticipated. Sidewalk widths of 5-8 feet are preferred in these areas to accommodate for group walking and also to provide waiting areas near bus stops. Landscape buffers of 4-6 feet should be provided in these areas.

Low to moderate pedestrian activity is anticipated in *Priority Areas C* and the preferred width for sidewalks is 5 feet.

Bicycles

Bicycle accommodation should also be consistent with the project's context, roadway characteristics, right-of-way, community plans, and the level of service provided for the bicyclist. The designer should ensure that bicycle accommodation is based on anticipated development and community plans.

In addition to determining the type of accommodation for bicyclists, the designer should include other design features that improve the safety and comfort of the roadway for bicyclists. For example, if motor vehicle speeds are too high, the designer should consider selecting a lower motor vehicle design speed to increase the comfort and safety of the facility for bicycles. Additionally, the designer could consider narrowing motor vehicle lanes to provide wider shoulders. Some bicyclists feel more comfortable riding on the roadway surface, while others feel more comfortable separated from traffic on a shared-use path. As a result, the designer should consider a variety of configurations, both on- and off-road so that different levels of bicyclists are accommodated.

Bicycle lanes are typically 5-6 feet wide. A 5-foot bicycle lane is preferred for most conditions. On roadways with higher speeds or higher volumes of trucks and buses (30 or more per hour) the desirable bicycle lane width is 6 feet. Bicycle lanes wider than 6 feet are generally not used since they may encourage inappropriate use by motor vehicles. Designers should avoid combining minimum travel lane widths and minimum bike lane widths.

Bicycle lanes should be provided consistent with the Bikeway Master Plan. In areas where right-of-way is constrained and high bicycle usage is anticipated such as in *Priority Areas A*, it is prudent to provide bicycle facilities by eliminating non-critical design elements. For example, it may be desirable to convert a four-lane undivided street to a three-lane street with left-turn lanes to provide bicycle lanes rather than narrowing all of the other design elements to retain four lanes, if traffic capacity allows. For streets that have parking on both sides of the street, it may be desirable to eliminate parking on one side of the street and use that space to provide bicycle lanes in both directions.

For streets in *Priority Areas B* where moderate to high speeds and volumes are expected, shared-use paths may be provided to accommodate both pedestrians and bicycles.

Streets in the *Priority Areas C* are typically in the residential areas. In cases of low speed, low to moderate traffic volumes, and low occurrence of trucks and buses, the shared lanes may be adequate to support bicycling. Before deciding to provide shared lanes as bicycle accommodation, the designer should be certain that the traffic volumes and motor vehicle speeds will be low enough so that all types of bicyclists can comfortably use the roadway.

Parking

On-street parking serves several critical needs of adjacent land uses especially in urban town center areas and typically supplements the off-street parking supply. On-street parking also acts as a buffer between the sidewalk and travel lanes and provides additional comfort to pedestrians. 8-foot parking lanes (including the gutter pan) are generally suitable for all conditions. Parking lanes should not be narrower than 7 feet wide. Off-peak use of a curbside travel lane may be permitted on some streets.

Travel Lanes

Travel lanes are the component of the roadway cross-section that serves motor vehicle travel, or in some cases, joint use. In most cases, the travel lanes are the widest component of the roadway cross-section. The number of lanes in each direction should be determined based on the transportation demand estimates and appropriate level

of service determined in the project planning process. In some instances it may be possible to reduce the number of travel lanes to provide sidewalks, landscape buffers, bicycle lanes, and crossing islands.

The width of travel lanes is selected through consideration of the roadway context, approach to multimodal accommodation, and the physical dimensions of vehicles, speeds, and other traffic flow characteristics. The normal range of design lane width is between 10 and 12 feet. Travel lanes of 10 and 11 feet are generally preferred in the *Priority Areas* A where additional width could be used to provide for wider sidewalks and bicycle lanes. Travel lanes between 11 and 12 feet in width are desirable for roadways in the *Priority Areas B and Priority Areas C,* where higher design speeds, higher traffic volumes, or higher truck and bus activity is anticipated.

Travel lanes narrower than 10 feet are generally not recommended. Lanes wider than 12 feet are sometimes used where shoulders are not provided, such as in suburban high-density areas, town centers, and urban areas. Another application of wide lanes is in areas with high driveway density. This application provides more maneuvering room for drivers entering or exiting driveways, or in areas of limited sight distance. In these cases wide lanes are typically 12 to 14 feet wide. However, if more than 12 feet is available, it is often preferable to stripe a shoulder.

Landscape Panel

Landscape panels provide for a defined roadway edge and acts as a buffer between the traveled way and pedestrians in the sidewalk. Landscape panels typically also accommodate street trees, utility poles, street lights, fire hydrants, traffic signs, holding areas for plowed snow, and other appurtenances. This area can also be used to achieve stormwater and air quality benefits and lower operating speeds in some cases. Landscape panels are usually 4-8 feet wide, however, when street trees are provided, a minimum of 6 feet is preferred from the edge of the traveled way. Designers should provide adequate clear zone dimensions, provided by AASHTO, to account for errant vehicles.

Intersections and Transitions

In order to achieve the objectives of the Complete Streets Policy, intersections must be designed to accommodate reasonable expectations and to provide easy transitions for all roadway users including pedestrians, bicycles, cars, transit users, buses, and trucks. Pedestrians and walking bicyclists expect to cross the street safely with minimum delay. Drivers of large vehicles expect to maneuver turns with minimum difficulty. Riding bicyclists and drivers of motor vehicles expect to safely pass through an intersection with minimum delay. Well-designed, multimodal intersections accommodate all users and also meet the community's objectives and priorities.

Smooth roadway transitions and multimodal level of service methods must be used when reviewing intersection designs. Intersection widening for additional turn lanes should be balanced against potential impacts to pedestrians and bicyclists. In addition, as roadway users pass through an intersection, appropriate connections between transportation facilities, such as continuity of bicycle lanes and paths, should be provided. Intersection crossing features for pedestrians and bicyclists, such as pedestrian push buttons, should be designed to allow safe and convenient travel through the intersection, taking into consideration the design of the transportation facilities approaching the intersection. Proper sight triangles must be provided to minimize conflicts between different roadway users. Particular care should be given to ensure that intersections are fully accessible to the disabled and hearing and sight impaired.

Additional Information

In addition to the information provided above, all new construction and reconstruction roadway projects must be compliant to the information provided in:

- Comprehensive Master Plan,
- Standards and Details for Construction,
- Guidelines for Neighborhood Traffic Management,
- Bikeway Master Plan,
- Pedestrian Policies,
- Comprehensive Transportation Review,
- Sidewalk Prioritization Policy, and
- Other applicable transportation policies and ordinances.