6. GLOSSARY

AMENITY ZONE

A hardscaped extension of the sidewalk to the back-of-curb, typically used instead of, or alternating with, a planting strip.

Purpose/Benefits:

- Provides space for street furnishings (benches, trashcans, etc.) and street trees outside of the unobstructed walking space for pedestrians.
- In areas with on-street parking, provides a hard surface for passengers exiting parked cars.
- Street furnishings help to create a more active pedestrian environment in dense areas.

Design Considerations:

Inclusion of an amenity zone depends upon a variety of factors, including:

- Higher intensity pedestrian-oriented uses, such as retail, office, high-density residential, and mixed uses are more likely to require the amenity zone. This is a more "urban" treatment than is a planting strip.
- The amenity zone can help to extend the sidewalk area when there are right-of-way constraints to the preferred sidewalk width. In most cases, however, the amenity zone should **not** be considered part of the unobstructed pedestrian pathway.
- The amenity zone should include intermittent landscaping and street trees, using appropriate planting techniques (in grates or planters, e.g.).

Two examples of amenity zones. The amenity zone above is ample and, in conjunction with the wide sidewalk, provides a substantial pedestrian area. The amenity zone shown below is small, but helps to extend the pedestrian area in a very constrained environment. Benches, lighting, and shade are important components of the walking environment.

BICYCLE DETECTOR

A device at a signalized intersection used to detect bicycles for traffic actuated signals.

Purpose/Benefits:

- Activates the traffic signal in the absence of motor vehicle traffic, thereby keeping the cyclist from having to wait for another vehicle to "trip" the signal or, after a prolonged wait, to run the signal.

Design Considerations:

- Detectors should be located in the bicyclists' expected path, whether the intersection includes bike lanes, a bike box, or a wide outside lane.
- Bicycle detectors are most important on the less traveled leg of a signalized intersection, because the wait for another vehicle to "trip" the light will be longer. However, a strong case can be made for using detectors on all legs, as the time of day can make a difference even on the more traveled legs.
- Markings on the roadway surface can be used to indicate the optimum location for bicycle detection.

BICYCLE LANE

The portion of the street specifically designated for the use of bicyclists by pavement markings or other means of delineation on the street.

A bike lane in a residential area. The back-of-curb sidewalk is not the preferred treatment, but the bike lane helps to provide a buffer between the pedestrians and motor vehicles.

Purpose/Benefits:

- Provides a clearly marked area of the street for bicycle travel and separates cyclists from motor vehicles.
- Help reduce conflicts between motor vehicles and bicycles.
- Provides an additional buffer between pedestrians and motor vehicles.
- Gives motorists more confidence about passing cyclists, because they know where the cyclist's "space" is and *they know that the cyclist knows where his/her space is, as well.* The uncertainty about passing in the absence of bike lanes can create unnecessary backups or dangerous passing conditions.

Design Considerations:

Placement and width of bicycle lanes is dependent on:

- Right-of-way width, traffic speed and volume, signalization, turn lanes and parking.
- A marked bicycle lane should be a minimum of four feet wide (not including gutter), with 5' generally preferred.
- Wider lanes are preferred next to on-street parking (to avoid opening car doors) and on steep hills (to allow room for weaving caused by pedaling uphill).
- If there is a right turn lane at an intersection, the bicycle lane should be placed to the left of the right turn lane, to clearly separate the bicycle's through movement from the motor vehicles' turning movements.

Example of a bike box in Vancouver, B.C. Note the short bike lane, which allows cyclists to safely advance to the box.

BIKE BOX

A marked, designated area at a signalized intersection that places bicyclists at the front of the traffic queue when the signal is red.

Purpose/Benefits:

- Puts bicyclists at the head of the queue, allowing them to enter and clear an intersection before motor vehicles.
- Bicyclists are more visible to motorists at the front of the queue.
- Provides a storage area for bikes at an intersection where there is heavy bicycle traffic and left turn movements.
- Stores vehicles further back from the crosswalk, providing a better crossing environment for pedestrians.

Design Considerations:

- Should only be used at signalized intersections where there is no right turn on red.
- May require additional signage to inform motorists and cyclists how to correctly use the bike box.
- Must be accessed via a bike lane, which allows cyclists to safely move ahead of motor vehicles in the intersection.

BLOCK LENGTH

The longest dimension of a block, from intersection to intersection. Charlotte's Street Design Guidelines recommend relatively short block lengths for most street types.

Purpose/Benefits:

- Block lengths help determine the overall "density" of the street network, with shorter blocks generally creating a denser network.
- Shorter blocks (and a denser network) can help disperse traffic through the network, rather than focusing it on a few routes. The fewer route choices, the greater the likelihood that the routes will become congested.
- A denser network provides more route choices for all travelers by all modes.
- Shorter block lengths and a denser network can allow more direct (and therefore, shorter) routes, a particularly important factor for pedestrians and cyclists.
- Shorter blocks (and a denser network) allow for more flexibility as a city grows.

Design Considerations:

- Block length will vary according to street type and surrounding land uses. Charlotte's Urban Street Design Guidelines recommend that most street types have blocks no longer than 650'.
- Pedestrian, vehicular, and bicycle network connections should be considered when laying out the block structure.

The relatively flat, treeless area to the right of the travel lanes on Harris Boulevard (a Parkway) is an example of a clear zone.

CLEAR ZONE

A zone (adjacent to the street) that is kept clear of significant obstructions, such as trees. The clear zone is measured from the edge of the travel lane.

Purpose/Benefits:

- Provides a margin of error for vehicles that might run off the road, potentially allowing the driver to avoid a crash.
- Can reduce the severity of crashes for vehicles that do run off the road.

Design Considerations:

- Clear zones are typically used for high-speed streets and roadways. The Urban Street Design Guidelines only recommend a clear zone for the Parkway classification.
- The shoulder is included as part of the measured clear zone.

CORNER ISLAND

A raised triangular or semi-triangular island used to direct traffic in a particular direction, described herein to separate a right-turn lane from the through lanes at an intersection. Also referred to as a "Channelization Island".

Purpose/Benefits:

- Helps to separate the turning traffic from the through traffic, potentially enhancing flow.
- If properly designed, a corner island can be used for pedestrian refuge at large intersections.

Design Considerations:

- Consider the use of well-designed corner islands to "break up" the distance and conflicting turning movements that must be traversed by pedestrians at wide intersections.
- The safest design for pedestrians is when the corner island is designed to bring the turn lane into the receiving lane at an angle, rather than as a sweeping curve. Otherwise, the turning driver is likely to be looking over his/her left shoulder at oncoming traffic, rather than at pedestrians trying to cross the turn lane.
- The use of corner islands (and their design) should be based upon the intersection volume and the surrounding land use and design characteristics. The potential "pedestrian refuge" benefit should also be weighed against the additional right-of-way requirements and overall dimensions of the intersection.

Two views of the same landscaped corner island. Note, in top photo, that the crosswalk extends to and across the island to clearly delineate the safest pedestrian path. Below, the right-turn lane could approach the receiving lane at a sharper angle to ensure that turning cars actually look both directions. As it is, there is some tendency to treat it more as a merge than a turn. Pulling the crosswalk away from the receiving lane (toward the camera, in this picture) reduces the risk to pedestrians, but also makes for a less direct pedestrian connection.

Two types of crosswalks at signalized intersections. The crosswalk at the bottom, located in a higher-volume pedestrian location, includes enhanced paving.

CROSSWALKS

The crosswalk generally refers to the most direct pedestrian pathway across a given leg of an intersection, whether marked or unmarked. For the purposes of these Guidelines, however, "crosswalk" refers to the *marked* portion of the street that is specifically designated for pedestrian crossing, whether at an intersection or a mid-block crossing.

Purpose/Benefits:

- Crosswalks clearly define the pedestrian space, enhancing safety and comfort for all users.
- Crosswalks are an important part of the pedestrian network - they form a continuation of the pedestrian's travel path and enhance pedestrian connectivity.
- Crosswalks support the overall transportation system because other users, such as motorists, bicyclists and transit users will be pedestrians at some point during their trip and may need to cross the street.

Design Considerations:

- Can be installed at intersections or designated mid-block crossing locations (see CDOT's Mid-Block Crossing Policy for more information).
- The crosswalk location should be highly visible, so the pedestrian can see and be seen by traffic while crossing.
- Signalized intersections will typically have crosswalks on all approaches.
- Installation at unsignalized intersections and mid-block locations may be affected by a number of factors, including: street classification, width of street, traffic speed and volume, use of traffic control devices such as stop signs, and surrounding land uses.
- Pedestrian crossing distance should be minimized; on some streets this may require the use of other street design elements (see Curb Extension, Pedestrian Refuge).

CURB EXTENSION

A feature that extends from the sidewalk into the pavement at an intersection or at a mid-block crossing (also sometimes called a "curb bulb", "neckdown" or "bulbout"). A curb extension can be hardscape, landscaped, or a mix of both.

Purpose/Benefits:

- Reduces street width both physically and visually, thereby shortening pedestrian crossing distance at crosswalks and potentially helping to reduce traffic speeds.
- Provides increased visibility for pedestrians and motorists.
- Moves parked vehicles away from street corners, improving visibility.

Design Considerations:

- Should be used whenever possible in pedestrian-oriented areas.
- Should also be used for transit stops, where full-time, on-street parking exists.
- Should only be used where there is a permanent parking lane.
- Should not encroach into the bike lane.
- Street furniture or plants on the curb extension should not impede motorist or pedestrian sightlines.
- Should be designed to accommodate both large and small vehicles; tight curb radii can accommodate low speed turning movements by large vehicles if the intersection is designed properly.

Curb extensions can be installed as a retro-fit, such as in the photo at the top, or, preferably, as part of the original design. They can also occur at intersections or mid-block, as shown below.

Two radically different curb radii. The radius at the top is very small (or "tight"), which helps to slow turning vehicles. The radius below is very large (or "wide"), allowing vehicles to turn more easily and quickly. Note the location of the crosswalk relative to the curve. The radius above is more conducive to pedestrian travel. Note also the different traffic characteristics - the intersection below must handle a much larger volume of traffic.

CURB RADIUS

The curved section of the curb connecting the curb lines of two intersecting streets. The curb radius measurement is taken from the back of the curb.

Purpose/Benefits:

- Defines the space for (and helps direct) vehicle turning movements at intersections.
- The curb radius dimension can affect ease and speeds of vehicular turning movements.

Design Considerations:

- Radii should be minimized, to allow the necessary dimension for traffic, while minimizing impacts on pedestrians, cyclists, and the adjacent land uses.
- Smaller curb radii narrow the overall dimensions of the intersection, shortening pedestrian crossing distance and reducing right-of-way requirements.
- A smaller curb radius provides a more visible pedestrian waiting space at the intersection.
- Smaller radii help reduce the turning speeds of vehicles.
- A smaller radius allows for more flexibility in placement of curb ramps. With a larger radius, the ramp(s) may need to be located in the radius or will be too far from the corner for good visibility.
- Larger radii may be required on streets that carry a high percentage of truck traffic, because they allow easier turning movements for large vehicles.
- The presence of a bike lane or parking lane creates an "effective radius" that allows a smaller curb radius than might otherwise be required for some motor vehicles, because they provide extra maneuvering space for the turning vehicles.

ENHANCED PAVEMENT

Refers to the installation of materials other than the typical smooth concrete or asphalt surface within the right-of-way.

Purpose/Benefits:

- Improves intersection and crosswalk visibility.
- Use of different paving materials can be used to better define pedestrian, bicycle and vehicular areas in the right-of-way.
- Materials can be used for aesthetic enhancement and for defining public space in general.

Design Considerations:

- Function is an important factor when utilizing different materials, including cobblestone, brick, stamped concrete, colored concrete, and pavers. Heavily traveled truck routes, for example, may require a different surface than a lightly traveled local street.
- When choosing the type, location, and design of enhanced pavement, be sure that all potential users are considered, including those with disabilities or pushing strollers.
- Visibility during the day, at night, and in inclement weather is important in selecting the design and location of enhanced pavement.
- Avoid the use of slippery surfaces such as smooth granite in primary pedestrian areas.
- Materials such as cobblestones and brick may increase construction and maintenance costs.

Stamped and painted asphalt is one type of enhanced pavement used to highlight a pedestrian area.

HIGH-INTENSITY ACTIVATED CROSSWALK (continued)

A traffic control beacon for pedestrians used to warn and control vehicular traffic at mid-block locations. Also referred to as a "pedestrian beacon." The design is unique because the device is dark until activated by a pedestrian. A yellow beacon flashes, turns to solid yellow, and then to a red indication. After a period of time, the red indication "wig-wags," to allow drivers to proceed if the pedestrian has cleared the crossing.

Note: The HAWK is currently approved for use on city-maintained streets as an experimental application. The new edition of the Manual on Uniform Traffic Control Devices (MUTCD) will include provisions for a pedestrian beacon.

Purpose/Benefits:

- Assists pedestrians in crossing a street or highway at a marked crosswalk.
- Assigns right-of-way to the pedestrians, with the use of red indications for vehicles and a walk indication for pedestrians.
- Useful in locations where pedestrians have a difficult time finding gaps to cross multi-lane roads.
- This type of beacon has been found to have higher compliance rates in some applications than other types of pedestrian signals.

Design Considerations:

- Typically pedestrian beacons are used on higher volume, higher speed streets.
- Signs and pavement marking must be used in conjunction with the pedestrian beacon.
- Installation will typically be mid-block, away from an intersection, to avoid confusion with side street traffic.
- Countdown pedestrian signals and APS devices should be used when possible.

HIGH-INTENSITY ACTIVATED CROSSWALK (continued)

- When possible, pedestrian beacon should be coordinated with adjacent traffic signals.
- The location should be highly visible, so the pedestrian can see and be seen while crossing the street.

photo courtesy of Richard Nassi, City of Tucson, AZ

LEADING PEDESTRIAN INTERVAL

Used at signalized intersections, the Leading Pedestrian Interval (LPI) is a signal phase that provides a pedestrian crossing signal a few seconds before the green signal for vehicles.

Purpose/Benefits:

- Allows pedestrians to enter the crosswalk ahead of turning vehicles, thereby establishing their right-of-way.
- Improves visibility of pedestrians by providing them with a "head start" before vehicles are allowed to move.
- Reduces potential conflicts with turning vehicles.

Design Considerations:

- LPI should typically have an equivalent audible signal for vision-impaired pedestrians.
- The Street Design Guidelines encourage the use of LPI at many different types of locations. They are often included where there are large numbers of pedestrians crossing the street, for example, but are also important where there are fewer pedestrians. This is because it is sometimes easier for large groups of pedestrians to "take" their right-of-way, than for a lone pedestrian to do so. Lone pedestrians are also less visible to motorists.

MEDIAN

A raised barrier that separates traffic flows. Generally used to control access and reduce vehicular turning movements.

Purpose/Benefits:

- Separates opposing traffic flows, reducing or eliminating vehicular conflicts.
- Can be used for access management, by restricting turning movements into driveways or side streets.
- If properly designed, can provide a pedestrian and bicycle refuge on wider streets.
- If properly designed, can provide a landscaped element to the streetscape.

Design Considerations:

- Design and installation of a median will vary according to street type and right-of-way width.
- The Street Design Guidelines generally recommend that, if a median is used, it should be wide enough for landscaping and pedestrian refuge.
- In the absence of other design elements such as landscaping, street trees, and on-street parking, a median may encourage higher traffic speeds. This unintended consequence should be carefully considered when designing streets in residential areas or where there are likely to be many pedestrians.
- Spacing between median openings depends on the street type and land use context. In general, spacing should be longer in areas with higher speeds, fewer driveways, and larger setbacks. Spacing should be more frequent in areas where smaller block lengths and more access are desired.

MEDIAN (continued)

There are a variety of median types. The medians shown above range from minimal to substantial. Functionally, they range from those that simply separate vehicular traffic movements to those that provide fully functional, aesthetic enhancements to the street. The Urban Street Design Guidelines generally discourage minimal, single-function medians.

ON-STREET PARKING

Generally refers to space for parking cars within the street right-of-way (between the curbs), as opposed to off-street parking areas accessed via driveways.

On-street parking on a commercial street.

Purpose/Benefits:

- Provides improved access to nearby land uses, especially in higher density neighborhoods and commercial areas.
- Reduces the need for large, off-street parking areas.
- Provides a buffer between moving vehicles and pedestrians on the sidewalk.
- On-street parking can narrow the perceived right-of-way width and help reduce traffic speed.

Design Considerations:

- On-street parking will be allowed on many local streets, but not necessarily designated with marked spaces. Most of the information here refers to marked on-street parking.
- High-speed street types are not suitable for on-street parking.
- Cars parked in on-street parking spaces should not impede visibility for pedestrians, bicyclists and other vehicles. This means that on-street parking spaces should be located carefully relative to intersections and crosswalks.
- The provision of on-street parking depends on street width as well as traffic speed. Angled or reverse angle parking requires more roadway space than parallel parking, but can accommodate more vehicles per block.
- On-street parking can be allowed at some times of the day and disallowed at peak traffic times. This can allow more efficient use of lane capacity when it is needed.
- Where dedicated, full time on-street parking is provided, curb extensions can make pedestrians more visible at crossing points.

The situation on the top shows why pedestrian refuges are sometimes needed on multi-lane streets. Below is an example of a simple pedestrian refuge at an intersection crosswalk (photo courtesy of Reid Ewing).

PEDESTRIAN REFUGE

A protected area between traffic lanes that separates a pedestrian crossing into segments and allows pedestrians to wait safely for gaps in traffic (also called a "median refuge", "refuge island" or "pedestrian refuge island").

Purpose/Benefits:

- Reduces pedestrian/vehicular conflict.
- Shortens the distance a pedestrian must cross at one time.
- Allows the pedestrian to consider traffic coming from only one direction at a time, potentially reducing confusion and increasing crossing opportunities.
- Can reduce the time a pedestrian must wait to cross by increasing the number of gaps in traffic, since the pedestrian need only cross traffic coming from one direction.

Design Considerations:

- Typically, would be provided on wider, multi-lane roads, to reduce the effective crossing width.
- Should be signed and illuminated to identify purpose.
- Should be a minimum of 6' wide to provide sufficient space for refuge. Wider is preferable, particularly on higher-speed streets or in areas where there may be many pedestrians crossing at one time.
- Might be used at signalized or unsignalized crosswalks, intersections, and mid-block crossings.
- Landscaping on pedestrian refuges should not impede visibility of pedestrians or drivers.
- The crosswalk should pass through the refuge at grade, for accessibility by all travelers.

PEDESTRIAN REFUGE (continued)

- Should typically include some sort of vertical element, such as landscaping or signs, so that drivers can clearly see and avoid running into the refuge.
- A key tradeoff when providing pedestrian refuge islands is the additional width required. The design team should carefully consider whether the pedestrian and the adjacent land uses are better served by a narrower crossing or by the addition of the refuge. For intersections that are already very wide, with multiple turning movements, the addition of pedestrian refuges may be the only way to improve the pedestrian crossing environment.

This image is an example of a pedestrian refuge without a crosswalk.

The image above is a minimal planting strip, providing little buffering from traffic.

Below, a more substantial planting strip, alternating with on-street parking and curb extensions.

PLANTING STRIP

An unpaved area within the right-of-way that separates the street from the sidewalk.

Purpose/Benefits:

- Serves as a buffer between vehicles and pedestrians.
- Trees in the planting strip provide shade and additional buffering for pedestrians.
- This unpaved area can enhance the stormwater drainage system by helping to reduce run-off.
- If properly designed, the planting strip can soften the appearance of the streetscape, enhance aesthetics, and contribute to an increased sense of safety and identity along the street.

Design Considerations:

- The width of the planting strip will dictate the size and type of landscape materials to be installed.
- Generally, the wider the planting strip, the better the functionality and aesthetic value.
- The planting strip might be replaced by, or alternated with, a hardscaped "amenity zone" in more urban, higher-density contexts.
- The planting strip and its width may need to be considered against the need for other design elements if the right-of-way is limited (in retrofit situations, for example).
- Landscaping and trees in the planting strip should be placed to assure an acceptable sight distance.
- Consider increasing the width of the planting strip as travel speeds increase.

ROAD DIET

A physical conversion of the street, wherein one or more travel lanes is converted to another use, often to support the use of other modes. A "narrowing" of the motor vehicle travelway.

Purpose/Benefits:

- Converts excess vehicle capacity on a street into useable space for other modes. For example, a four-lane street might be narrowed to two lanes, with bike lanes and a median.
- When a street is dieted to two lanes, this helps to calm traffic, in part by eliminating the opportunity for passing.
- Can enhance aesthetics and livability of adjacent land uses.

Design Considerations:

- Consider the street classification and function, along with traffic volumes. Very high-volume streets are not good candidates for road diets.
- Right-of-way width, adjacent land uses and the existing and planned street network should be considered. In some cases, benefits can be gained for other modes without the road diet. On the other hand, in a well-connected network, it may be possible to save right-of-way by using the road diet.
- Consider proper integration of pedestrian, transit and bicycle circulation and related facilities.
- The decision to use a road diet solution should carefully weigh the advantages and disadvantages to all stakeholders, including representatives of the adjacent land uses.

An example of a "road diet". This street was a four-lane street with a wide median. It was converted to a two-lane street, with bike lanes (and with the wide median remaining).

ROUNDABOUT

A circular island located at the convergence of two or more roadways that takes the place of traffic signals or stop signs. Traffic circulates around the island, rather than through the intersection.

A roundabout in a residential neighborhood, where five street segments converge. Note the "apron" that allows larger vehicles to negotiate the roundabout.

Purpose/Benefits:

- Can be used to improve traffic flow, by eliminating the need to come to a complete stop when the intersection is clear and/or reducing the delay if other vehicles are in the intersection.
- May be used as a gateway feature to a neighborhood or a commercial area. This usually entails the use of landscaping or public art in the island.
- Small roundabouts, known as traffic circles, mini circles or mini roundabouts, can also be used for traffic calming because, even though relatively free flow is maintained, the island deflects traffic, requiring that motorists slow before entering the traffic circle.

Design Considerations:

- While single-lane roundabouts are relatively pedestrian friendly, multi-lane roundabouts can be difficult for pedestrians and cyclists to traverse. Multi-lane roundabouts should typically be avoided where pedestrians are likely.
- Consider proper integration of pedestrian and bicycle facilities and emergency vehicle access in roundabout design. Special care should be taken with providing a safe entry and exit for cyclists, for example.
- Roundabouts should typically be landscaped. The landscaping can help make the roundabout more visible to motorists, as well as enhancing its role as a gateway feature.
- Roundabouts should be designed to be major focal point of a streetscape or area.
- Turning movements of larger vehicles can be accommodated by having a paved area with a mountable curb on the outside curb of the roundabout.

SIGHT DISTANCE

The length of roadway that is visible to the driver traveling on a street or approaching (or waiting to enter) an intersection. More generally, sight distance refers to the ability of motorists to see one another as they approach an intersection or enter a street.

An example of a potential sight distance problem – the bushes at the corner of these two streets may make it difficult for a driver to judge whether it is safe to enter the roadway.

Purpose/Benefits:

- Increased sight distance improves safety for motorists, by providing visibility and increasing the amount of time to respond to other vehicles on or entering the street.
- Increased sight distance for motorists entering the street allows the motorist to feel more comfortable and better judge "gaps" in the stream of approaching vehicles.
- Adequate sight distance improves safety for pedestrians and cyclists by making them more visible to drivers and by allowing them to see approaching vehicles, as well.

Design Considerations:

- Sight distance regulations for motor vehicles may conflict with pedestrian friendly objectives such as the desire to have buildings close to the street, especially on Main Streets.
- Sight distance does not need to be as great for motorists approaching a stop sign as it does for motorists approaching an uncontrolled intersection.
- Motorists tend to feel more comfortable traveling at higher speeds when sight distances are very long. Increased safety related to provision of sight distance might, in some circumstances, actually increase speeds. This needs to be considered when designing for streets in different contexts, particularly where there are many pedestrians.

The bus shelter with benches, information kiosks, and trashcan shown here on South Tryon Street are all examples of street furnishings located in an amenity zone.

STREET FURNISHINGS (STREET FURNITURE)

Physical features included as part of the streetscape, e.g. benches, bike racks, lighting, trash receptacles, and banners.

Purpose/Benefits:

- Can improve aesthetics and provide a sense of identity for a neighborhood or commercial area.
- Enhances the functionality of the street for users other than motorists.
- Can enhance safety and protection from vehicular traffic.
- Can provide focal points for street activities.
- Provides short-term parking for bikes.

Design Considerations:

- Street furnishings should be carefully placed so that they do not obstruct the sidewalk. In high pedestrian volume areas, they should be placed in an amenity zone. In no case should street furnishings be placed in the minimal "unobstructed" walking area, as described in Chapter 4 of the Guidelines.
- Placement should be strategic to each type of furnishing's purpose, with appropriate furnishings well-located relative to bus stops, major pedestrian focal points, etc.
- The design and placement of street furnishings should not contribute to visual clutter along the street.
- Street furnishings should be carefully located relative to other features such as street trees, landscaping, adjacent land uses, and signs.

STREET LIGHTING

Refers to the illumination of a street's travel lanes. Other portions of the street right-of-way may also be illuminated by the street lighting and/or by pedestrian-scale lighting, which specifically illuminates the sidewalk or other pedestrian areas.

Purpose/Benefits:

- Street lighting enhances safety for all travelers, by illuminating hazards, curves, and other travelers in the street.
- Lighting can also improve safety and security around buildings and in parking areas. This may best be accomplished by a mix of street and pedestrian-scale lighting, depending on the context.

Design Considerations:

- The optimal type and number of streetlights depends on street classification, configuration, and adjacent land uses.
- Street lighting that reduces glare or unnecessary uplighting should be considered, to ease localized light pollution. Cobraheads should be avoided.
- Consider whether pedestrian-scale lighting can be used to illuminate or define a curve or other feature and, therefore, reduce the need for streetlights in some spots (on portions of Local Streets or some residential Avenues, for example).
- Areas of high pedestrian activity or primary pedestrian routes should have pedestrian-scale lighting, which is specifically intended to illuminate the sidewalk, as opposed to the travelway. For proper illumination and to avoid glare, pedestrian-scale lighting should typically be no more than 12' in height. Even in parking areas, which may need street lighting, pedestrian-scale lighting can better define and enhance the pedestrian "space".

The lighting at the top is pedestrian-scale lighting, intended to illuminate the sidewalk and adjacent areas. The more conventional street lighting shown on the bottom can also help illuminate the pedestrian areas, but is generally intended to light the travel lanes.

STREETSCAPE

The combination of the physical elements installed within and along the street right-of-way that impact its usability, functionality, appearance and identity. The information contained in the Urban Street Design Guidelines (particularly Chapters 4 and 5) essentially describe how to develop the "streetscape".

Purpose/Benefits:

- Good streetscapes enhance a street's functionality and aesthetics.
- Good streetscapes enhance the community environment by providing access to land uses, locations for social interaction, and sites for locating and maintaining infrastructure and amenities.

Design Considerations:

- The appropriate combination of streetscape elements will vary according to street classification, right-of-way width, traffic volume, land use context, and multi-modal expectations. These variations are described in Chapters 4 and 5 of the Urban Street Design Guidelines.

TRAFFIC CALMING

One or a combination of physical measures installed within the street right-of-way to slow or discourage traffic along a street. Traffic calming tools include curb extensions, chicanes, traffic circles, speed humps (also called "speed tables"), raised crosswalks, landscaping, and paving treatments. See CDOT's Traffic Calming Report for a full discussion of the types and appropriate application of traffic calming devices.

Purpose/Benefits:

- Modifies traffic patterns to reduce traffic speeds.
- Some forms of traffic calming are used to reduce traffic volumes either by eliminating travel options entirely or by discouraging traffic through significant speed reductions. The intent of the tools and applications described in the Urban Street Design Guidelines and CDOT's Traffic Calming Report is to reduce speeds.
- Properly applied, can improve safety for all travelers by reducing speeds.
- Properly applied, can improve liveability for those in the adjacent land uses, by increasing safety and reducing noise, e.g..

Design Considerations:

- The appropriate application of traffic calming devices depends on street type, traffic volumes, current and desired speeds, street width, and existing traffic control facilities and amenities. See CDOT's Traffic Calming Report for more information about which traffic calming tools should be used under which circumstances.
- The placement of traffic calming items such as speed bumps and traffic circles may impact drainage inlets.

Speed "humps" (or tables), such as those shown here, have been the typical approach to traffic calming in Charlotte. The Urban Street Design Guidelines and related Traffic Calming Report include additional options and the conditions under which they would be applied.

Above, a wide-outside-lane in constrained right-of-way.

Below, a wide-outside-lane with sidewalk.

WIDE OUTSIDE LANE

An extra wide traffic lane that provides enough space for motor vehicles and bicycles to use the same lane (also called a shared lane). Typically used where there is not enough space for a separate, marked bicycle lane.

Purpose/Benefits:

- Provides some increase in safety and comfort for both cyclists and motorists, in the absence of a bicycle lane (which is the preferred treatment for bicycle safety).

Design Considerations:

- Should be wide enough to allow a motor vehicle to pass a cyclist without crossing into the next lane (minimum 14' width).
- Extra width is required if the wide-outside-lane is to be used with on-street parking (to reduce the risk to cyclists from opening car doors).
- Wide outside lanes can also make motorists feel more comfortable speeding, so they should be used carefully. Marked bicycle lanes are the preferred option.