

EXHIBIT A

3.6 Other Right of Way Design Elements

3.6.1 Sidewalk

The City of Bend in association with the transition plan for City of Bend Americans with Disabilities Act (ADA) Transition Plan for Curb Ramps and Sidewalks in the Public Rights-of-way August 2013 and the 2016 – 2018 ADA Transition Plan for Curb Ramps in Public Rights-of-Way update. The City has developed the following design guidelines and policy in association with the United States Code of Federal Regulations (CFR) (See 28 CFR 35). The 2010 ADA Accessibility Standards are guidelines for helping meet Federal ADA requirements set forth in PROWAG. Curb ramps are required for both new construction and most reconstruction projects. Additionally, maintenance operations or approved privately funded (public) improvements may require upgrades, roadway surface alterations or addition of ADA facilities.

Sidewalk construction and location details shall be as shown on the Standard Details. Asphalt sidewalks are not permitted. Asphalt trails may be used in place of sidewalks as planned in the City's Transportation System Plan. It is not desirable to have two parallel facilities (sidewalk and trail) therefore, when replacing the sidewalk, the trail shall conform and meet all sidewalk requirements as outlined herein.

Sidewalks shall be located within the right-of-way. If design deviations to this location are desired then a request shall be made of the City Engineer. Deviation considerations shall include the review criteria from Chapter 2.2 as well as these specific criteria:

- The centerline of the sidewalk shall not meander more than 35 feet from the street curb line; and
- Where topographical or vegetation limitations require, 15' public access easements (7.5' each side of centerline) shall be provided.
- Sidewalk shall be 5-6 feet in width as required by the Bend Development Code.

3.6.1.1 Obstructions

Structures and obstructions including but not limited to fire hydrants, street signs, utilities, utility poles, signal poles, central delivery mailboxes, and individual mailboxes shall not be located in the accessible path of travel portion of the sidewalk.

3.6.1.2 Horizontal Alignment

Sidewalks shall be constructed abutting the property line (back of walk at 6 inches from property line). Designers may meander the sidewalk from the property line when necessary due to topographical or vegetation issues, rather than economical or other design issues.

The sidewalk shall generally follow a smooth and gradual alignment free of sharp angles or bends; horizontal curves shall not be less than 20' radius.

3.6.1.3 Vertical Alignment

Sidewalk grades shall comply with PROWAG guidelines. Changes in vertical elevation of the sidewalk with respect to the roadway's running curb elevation can lead to difficulties in achieving ADA compliance with running slopes and ramp slopes.

The total vertical separation between the top of curb and the top of the sidewalk influences roadside grades and cross-slopes of planter strips.

When curb tight sidewalk is constructed, the total vertical separation between the top of curb and the top of sidewalk shall be zero feet – the sidewalk shall be flush with the curb.

3.6.1.4 Surface alterations

A roadway **alteration** includes activities such as reconstruction, rehabilitation, resurfacing, widening, and projects of similar scale and effect (See 2010 ADA Accessibility Standards, section 106.5). Maintenance activities such as filling potholes, minor pavement patching, and limited trench cuts for utilities are not typically considered alterations. However, any of these activities that occur within a street level pedestrian walkway (a marked or unmarked crosswalk) may not reduce the path's accessibility (See 28 CFR 35.133(a)). A street level pedestrian walkway (e.g. marked or unmarked crosswalk) is where the pedestrian would cross an intersecting road, regardless if curb ramps are currently present.

3.6.1.5 Sidewalks Through Driveways

Sidewalks shall travel through City Standard driveway aprons at sidewalk grade, with the driveway being segmented by the sidewalk. To maintain their effectiveness, detectable warning surfaces should not typically be used where an accessible route of travel intersects a residential or commercial driveway entrance or within a parking lot. However, the City reserves the right to require detectable warning surfaces at certain high volume commercial entrances that may function like a roadway. The minimum sidewalk width through driveways is 4 feet, zero inches.

3.6.2 Curb Ramps and Crosswalks

All required curb ramps must meet the Public Rights-of-Way Accessibility Guidelines (PROWAG) published by the U.S. Access Board. The City, by this reference adopts PROWAG into its standards.

Curb ramps are only required where there is a pedestrian walkway (e.g. a sidewalk or trail/path) with a *prepared surface* that intersects a roadway. *Prepared surfaces* may include concrete, asphalt, or other compacted materials such as soil and granite. Concrete and asphalt are the two most common *prepared surfaces* found in Bend.

Conditions for curb ramp construction:

1. If any work (new construction or reconstruction) impacts a curb where there is a pedestrian walkway (e.g. a sidewalk or trail/path) intersecting a roadway then a new ramp or replacement of an existing non-compliant curb ramp must be constructed.
2. If any work includes resurfacing through a street level pedestrian walkway (e.g. marked or unmarked crosswalk), even if the work is not the full width of the roadway, curb ramps must be built or reconstructed on both ends of the crosswalk.

3. If any sidewalk work connecting to an existing non-compliant ramp that requires any modification to any portion of the ramp to meet current sidewalk design standards, then the entire ramp shall be reconstructed to current standards.
4. If any utility trench work impacts a curb at a cross walk, with or without a ramp, the replacement of an existing non-compliant curb ramp must be constructed.
5. If utility trench work does not impact a curb ramp but is "limited to a portion of the pavement, including a portion of the cross walk" replacement of an existing non-compliant curb ramp may not be required (dependent on overall project scope and required pavement restoration limits).

Any Land Use application for new development that includes requirements for sidewalk construction or frontage improvements meeting current City Standards, all curb ramps along the property frontages shall be reviewed for compliance with current standards. Any non-compliant curb ramps along the property frontage must be brought into compliance. This requirement must be included as a Condition of Approval in the Land Use Decision.

3.6.2.1 Number and Direction of Curb Ramps

The City prefers each new intersection to be designed with two (paired) curb ramps per corner allowing for all directions of travel, unless site conditions require modification. These are often referred to as **directional** ramps. If site conditions prevent the use of directional ramps, the Design engineer must provide documentation to the City Engineer for review and approval as described in 3.6.2.2.

An example of "all directions of travel" in this case means six curb ramps at a T or three legged intersection. This would be two curb ramps at each corner (one per crosswalk) and two on the "top of the T" allowing for crossing of both roadways.

At a four legged intersection this would be eight curb ramps (two at each corner, one per crosswalk). Each ramp shall run parallel to (in line with) each crosswalk (regardless of if the crossing is marked or unmarked).

3.6.2.2 Type of Ramps Preferred and Documentation

A perpendicular curb ramp for each crosswalk is the City's most preferred design because it does not present unnecessary grade changes in the path of travel for pedestrians that are not crossing the roadway.

If existing site constraints such as the required use of a "curb tight" sidewalk prevent the use of perpendicular curb ramps, the next most preferred and allowable design options include parallel or combined perpendicular/parallel curb ramps which still provide a separate and distinct curb ramp for each crosswalk. Documentation in writing of existing site constraints preventing the use of a perpendicular curb ramp and instead utilizing parallel or combined perpendicular/parallel curb ramp design must be provided to and approved by the City prior to construction.

A single diagonal curb ramp or blended transition (a blended transition in this case is when the entire sidewalk is depressed at the corner and the resulting landing is shared by two crosswalks) at a corner may only be used when significant existing site constraints do not allow two ramps to be installed (one per crosswalk). Documentation in writing of these significant existing site constraints must be provided to and approved by the City prior to construction.

To summarize the City's requirements for selecting an appropriate curb ramp design, the following flow chart is provided:

- Most preferred: **Perpendicular** curb ramp for each crosswalk (two per corner)
- **Parallel** curb ramp for each crosswalk (two per corner)*
- **Combined** perpendicular/parallel curb ramp (this provides a separate and distinct curb ramp for each crosswalk)*
- Least preferred: **Diagonal** curb ramps or blended transitions shared by two crosswalks (only allowed with significant existing site constraints that shall be fully documented, provided in writing to and approved by the City prior to construction)

*Allowable only if constraints dictate, such as the required use of "curb tight sidewalk". Documentation in writing shall be submitted to and must be approved by the City prior to design and construction.

3.6.2.3 Existing Physical Constraints

Where existing physical constraints make it impracticable for altered elements, spaces, or facilities to fully comply with the requirements for new construction, compliance is required to the extent practical within the scope of the project. If the engineer of record deems the work is not practical due to existing constraints, the City Engineer will decide whether any deviation or claim of impracticality is justified. (For more information on existing physical constraints, see below)

A common example of "within the scope of the project" would be when all work related to a project is restricted to one corner of an intersection. In this case the project would only be responsible for providing two accessible curb ramps at this location (regardless of what was present in the existing conditions). The project would not be responsible for constructing new or altering existing curb ramps on the other corners of the intersection outside of the project limits.

Existing physical constraints can include, but are not limited to, underlying terrain and topography, right-of-way availability, underground structures, adjacent developed facilities, drainage, or the presence of a notable natural or historic feature.

3.6.2.4 Design Details

Curb ramps must be designed to fit the site and ~~must be~~ detailed on construction plans. The design must provide sufficient horizontal and vertical control and the drawings annotated to ensure that ramp conforms to federal, state, and local accessibility standards. Curb ramps with corresponding grades and transitions must be designed to ensure proper drainage of the intersection. Grades including running slopes and cross slopes must be noted on each quarter delta of the curb return.

To assist in the City's review of plans and for contractors and inspection staff to ensure compliant and quality ramp construction, the following information is required to be shown in plans:

- **Running slope** (parallel to path of travel) percentage and direction
- **Cross slope** (perpendicular to path of travel) percentage and direction

- **Control points** with finished grade and top of curb (where applicable) elevation information*
- **Dimensions** of features (e.g. length and widths of ramps and landings)

*Control points may include throats of ramps, top and bottom of ramps and landings, tie-in points to match existing or other proposed features, and any wings or curb returns.

Per PROWAG, the absolute legal maximum constructed slopes allowed are:

- 8.3%* (or 12:1 run/rise) for a **running slope** (parallel to the direction of travel); and
- 2.0% (or 48:1 run/rise) for **cross slope** (perpendicular to the direction of travel)

Because the City recognizes that when curb ramps are constructed in the field some tolerances from the design may occur, designers are directed to use the following maximum design values to ensure the constructed ramps and sidewalks will be below the following PROWAG required absolute legal maximum slopes:

- For **running slope** (parallel to direction of travel) the maximum design value should be 7.5%*
- For **cross slope** (perpendicular to direction of travel) the maximum design value should be 1.5%

*Per PROWAG, if a ramp length of more than 15 feet is needed to achieve the 8.3% maximum **running slope**, then an exception may be permitted. This situation should typically only arise due to topography and terrain constraints and must be documented in writing, submitted to and approved by the City prior to construction.

3.6.2.5 Additional Definitions and Requirements

ORS 801.220 defines crosswalks as any portion of a roadway at an intersection or elsewhere that is distinctly indicated for pedestrian crossing by lines or other markings on the surface of the roadway. Where no marked crosswalk exists, a crosswalk is every crossing of an intersection.

In general, when a feature in the public right-of-way is altered, the requirements for new construction must be applied to the maximum extent feasible. Any design that does not meet the accessibility requirements for new construction must be documented in writing, submitted to and approved by the City prior to construction.

Detectable warning surfaces are required on all accessible curb ramps, and where the pedestrian paths of travel cross intersecting roadways, such as a paved trail intersecting a roadway with no curb. PROWAG refers to this as a blended transition. Detectable warning surfaces must extend for the full width of the curb ramp or blended transition.

3.6.2.6 Planter Strip

The planter strip is that portion of the roadside that is located between the curb and the sidewalk. . Planter strips are required to conform to roadside safety requirements in terms of their slope, landscaping, appurtenances, utilities, etc.

The landscaped portion of the planter strip must be a minimum of 5 feet wide, except where the sidewalk meander returns to be adjacent to the curb. In order to prevent sharp re-entrant angles in the landscaped portion of the planter strip, an edge not less than 8 inches long and squared to the curb must be constructed at the juncture of the sidewalk to the curb.

Planter strips must contain street trees. Street trees shall conform to the City's landscaping requirements found in Chapter 12 and sight distance requirements in Chapter 3.3 of this document. Planter strips may be utilized for on-street parking, wide sidewalks, swales, or landscaping and shall conform to the applicable Bend Development Code provision. When used for landscaping, the landscaping shall conform to the City's xeriscape and landscape provisions found in Chapter 12 of this document.

The cross-slope of the planting strip between the curb and the right-of-way must not be steeper than 4H:1V to provide a recoverable roadside slope. All appurtenances, utilities and structures located within the planter strip that are roadside safety obstacles must comply with roadside safety principles of Chapter 1.6 of this document. Obstacles must be located as far from the roadway as possible and be designed with recoverable slopes or breakaway foundations complying with AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, with interim revisions."

The planter strip must not contain stairs. Stairs are not allowed to be located within the public way. Deviations to this standard may be submitted to the City Engineer for design standard deviation review per the requirements of Chapter 3.2 of this document.

3.6.2.7 Exceptions

This section identifies exceptions to the ADA requirements. The City's Transition plan outlines requirements for operation of the ADA program. This design guideline does not set direction of maintenance activities or operational goals outlined in the transition plan. However, when a ramp upgrade or installation is required, it must meet these requirements unless otherwise stated in a project scope or contract.

3.6.3 Transit Facilities

Bus stop locations, bus pull-out locations and transit facilities located within the public right-of-way shall be approved by the City Engineer.

When evaluating bus stop locations or a corridor of stops, the impact on roadway operations and safety shall also be considered. Analysis inputs should include: dwell time; bike lane and travel lane blockage effects; transit vehicles ability to enter and exit the flow of traffic; convenience and safety of passengers; and convenience and safety of pedestrians accessing the bus stop.

Transit facilities shall be designed to incorporate roadside safety features by locating benches and shelters far away from the traveled edge of the roadway, as close to the right-of-way line as possible. Deviations in sidewalk alignment to facilitate the installation of transit facilities shall be designed to comply with the horizontal alignment requirements of this chapter. Consideration should be given to using breakaway support features to reduce the crash severity of vehicle run off the road events when elements cannot be located with adequate clearance to the traveled way.

3.6.3.1 Bus Stop Locations

A Transit or bus stop is a designated place along a transit route typically in the street right-of-way where a public transit vehicle stops to load and unload passengers. The following are design guidelines for the locations of bus stops:

- Distance between stops is typically 800 feet;

- Stops are located in areas where passengers have a safe and direct access to sidewalks, walkways and waiting areas;
- Passengers have access to an accessible route to and from the bus stop and onto the bus;
- Convenient access for pedestrians;
- Analysis and design of safe pedestrian crossings of the roadways are incorporated into bus stop locations;
- A properly developed and located bus stop allows for safe movement by the bus in to and out of the main traffic flow.

3.6.3.2 Types of bus stop locations

3.6.3.2.1 Far-side

Far-Side bus stop is a stop that is located immediately following an intersection and is recommended when:

- Traffic in the direction the bus is traveling is heavier approaching the intersection than leaving the intersection;
- There is high demand for right turns in the direction the bus is traveling;
- The crossing street is a one-way street where traffic flows from left to right;
- The location is one that offers a clear advantage for transit riders by providing improved access to a major destination or to other intersecting bus routes;
- Priority control at the traffic signal is utilized to maintain bus schedules.

3.6.3.2.2 Near-side

Near-Side bus stop is a stop that is located immediately before an intersection and is recommended when:

- Traffic in the direction the bus is traveling is heavier leaving the intersection than approaching the intersection;
- The cross street is one-way where traffic flows from the right to left;
- The location is one that offers a clear advantage for transit riders by providing improved access to a major destination or to other intersecting bus routes.

3.6.3.2.3 Mid-block

Mid-block bus stop is a stop that is generally located 100 feet or more before or beyond an intersection and is recommended when:

- The distance between intersections far exceed the standard for bus stop spacing;
- Traffic or physical street characteristics prevent siting a stop close to an intersection;
- The bus stop serves large businesses, housing developments, or other significant trip generators.

3.6.3.3 Bus Stop Turnouts

Bus stop turnouts are not standard for arterial and collector roadways. Design standard deviations review shall consider the following criteria:

- Bus dwell time;
- Dwell time impact on bicyclists; and
- Width of roadway and impact of following vehicles passing bus during dwell time on arterial or collector roadway operations and safety.

When approved, bus turnouts shall be designed in accordance with the current standards set forth in AASHTO.

3.6.4 Driveways

The locations of new driveways shall be approved through land use (e.g. part of a master plan, subdivision, or site plan) and through a right-of-way permitting process. Driveways shall be reviewed with the following considerations:

- There is a valid land use approval for the driveway (or it is confirmed that no land use approval is necessary for the driveway in question);
- There is only a single access point to the property;
- The access is to the lowest classified roadway facility abutting the property (alleys are lower classifications than local streets);
- Adequate intersection sight distance for all turning movements in and out of the proposed driveway are provided;
- The driveway meets the following minimum spacing (22 feet apart (bottom of curb drop to bottom of curb drop))
- Maximum distance to an intersection is provided given the lot configuration and site layout.
- Driveways shall not compromise safety and operations

Concrete driveway aprons are required on all new construction or reconstruction. New construction or reconstruction of alleys shall have driveway aprons. The driveway apron shall be designed to ensure that all drainage is contained on-site. Design standards deviation requests to consider a curb return rather than a driveway apron may be considered by the City Engineer in accordance with 4.2 and the following specific driveway review criteria:

- The design vehicle for the site is too large to accommodate turns within the standard driveway apron; and
- All site drainage is still contained on-site.

The minimum sidewalk width through driveways is 4 feet, zero inches, for construction within the City of Bend. The design shall provide sufficient horizontal and vertical control and the drawings annotated to ensure that driveway conforms to federal, state, and local accessibility standards.

3.6.5 BIKE LANES – Under Construction

3.6.6 Signing

No sign shall be designed for or installed within public right-of-way unless it has first been reviewed and approved by the City Engineer or designee.

Street signs and barricades shall be designed and installed according to City of Bend Standards and Specifications, and meet the requirements of the most current edition of the Manual on Uniform Traffic Control Devices (MUTCD) as well as the Oregon Supplements to the MUTCD. This applies to signs and traffic control devices on all streets open to public travel, whether publicly or privately owned or maintained.

To provide appropriate roadside safety, ground-mounted signposts shall be breakaway in compliance with the current AASHTO “Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, with interim revisions.”

New signs shall be installed, and existing signs modified, to reflect new lane configurations and in coordination with existing or revised pavement markings. Remove and replace signs beyond the project limits as necessary to reflect changes implemented with the project.

Existing signs within project limits that are not in compliance with these requirements in terms of offsets, siting, physical condition, and applicability shall be updated to bring them into compliance.

Plans shall reference signs by MUTCD type, and include designs for all non-standard signs. Designs for standard signs are provided in FHWA’s Standard Highway Signs manual; ODOT’s Sign Policy and Guidelines and the City’s Standard Details include designs for Oregon- and City-specific sign designs not found in the federal manual.

Before any new highway, detour, or temporary route is opened to traffic, all necessary signs and barricades shall be in place. Signs necessitated by road conditions or restrictions shall be removed when those conditions cease to exist or the restrictions are withdrawn. Temporary TRAFFIC CONTROL CHANGE AHEAD signs, installed on wood posts, shall be installed on any project that changes traffic control type.

3.6.7.1 Placement

Sign installations shall not block pedestrian paths of travel in the sidewalk; an ADA-compliant pedestrian access route shall be maintained at all times.

For arterial and collector roadways, the signs shall be visible from, at a minimum, the stopping sight distance of the roadway for the design speed (AASHTO). This requires that street name signs not be placed too far around curb returns on side streets to meet the visibility requirements. Existing and proposed site features shall be reviewed to ensure that there are no existing or proposed obstructions to sign visibility within this required sight distance.

Signs for private streets at intersections with public streets (i.e. Stop sign/street name sign installations) shall be installed within public right-of-way.

End-of-Road Markers shall be installed on dead-end or stub streets where the pavement ends. Type III barricades are advisable where a higher level of visual cue is desired, such as where the end of roadway precedes a non-traversable slope or major obstruction.

Type III barricades, with appropriate road closed signage, shall be installed at the end of the traveled way when the pavement continues but travel is restricted beyond a certain point. The barricades shall effectively block traffic. Barricade colors, reflectivity, and design shall conform to the most current edition of the MUTCD with Oregon Supplements.

3.6.7.2 Horizontal and Vertical Clearance

Sign installations shall comply with the most current edition of the MUTCD and City of Bend Standard Details. Vertical and horizontal clearance to the sign face shall be maintained for vehicular and non-motorized traffic.

3.6.7.3 Sign Design

Detailed drawings of standard signs and alphabets are shown in the Federal Highway Administration (FHWA) Standard Highway Signs manual and ODOT Sign Policy and Guidelines, current edition. These guides shall be followed for sign dimensions, colors, messages, letters, numerals, spacing, borders, etc., except as otherwise provided in these City Standards and Specifications.

Drawn-to-scale drawings for nonstandard signs shall be included in the construction plan set for approval prior to fabrication.

Standard post-mounted street name signs are single-sided; signal mast arm-mounted street name signs and central island roundabout street name signs are single-sided.

3.6.7.4 Street Name Signs

Street name signs naming both streets shall be installed at each intersection. The signs shall be mounted with their faces parallel to the streets they name.

In business districts and on collectors and arterials, street name signs shall be placed in at least two locations, on diagonally opposite corners so that they shall be on the far right side of the intersection for traffic on the major street. On local streets and residential areas, street name signs shall be placed in at least one location for each intersection.

Street name signs at signalized intersections shall be mounted overhead on signal pole mast arms for optimal viewing. Such signs shall be included on the Traffic Signal Plans. Maximum sign sizes and placement specifications apply; refer to the Oregon Standard Drawings.

Signs for private streets shall be installed on private property, outside of public right of way. Such sign installations shall incorporate a supplemental PRIVATE DRIVE sign mounted below the standard street name sign.

3.6.7.4.1 Colors and Visibility

Public street name signs shall have a white border along the outside edge of the sign and white lettering. The colored background shall be green.

Private street name signs mounted on private property at locations other than intersections with public streets shall include a background color of retro-reflective green, blue, brown, or black, with white retro-reflective lettering. Private street name signs shall be accompanied by a supplemental black on yellow PRIVATE DRIVE sign when installed at intersections with public streets.

School-related signs shall be fluorescent yellow-green.

3.6.8 Pavement Marking/Striping

Striping and other pavement markings shall be provided on all arterial and collector streets within City limits. Striping of local streets is not required unless deemed necessary by the City Engineer.

Striping designs shall comply with the current edition of the MUTCD with Oregon Supplements, and City Standards and Specifications. Oregon Standard Drawings TM500-TM503 contain pavement marking line and legend details.

Plans shall show and identify a minimum of 300 feet of existing striping beyond the project limits, to ensure proper tie-in to existing striping. Where project limits occur within 500 feet of existing pavement or striping tapers, limits of striping plans shall be extended to include the full taper. Plans shall show and identify all existing striping and include all striping removal necessary to implement new striping as shown.

Plans shall reflect the following City standards:

- Left turn lane transitions - where painted center medians transition to left turn lanes, gaps are preferred over reverse curves.
- Turn lane storage shall reflect 95th-percentile queues as determined in a queuing analysis, which shall be submitted with the striping plan.
- The City does not use raised pavement markers (RPM's) on the roadway surface, due to snow removal operations.
- Leading ends of raised medians and islands shall be painted yellow or white as applicable, in conformance with the MUTCD. Reflective RPM's of the same color shall be placed on the top of the curb around the leading ends of medians and islands. In addition, surface-mounted tubular markers shall be installed as shown in City's Standard Detail for median end treatments.
- Where a fixed obstruction is present within a paved roadway, such as a raised median preceded by a painted median or two-way-left-turn-lane, the approach area shall be marked with Transverse diagonal lines and no passing lines, unless otherwise provided in Section 3 of the MUTCD.
- Marked crosswalks shall be provided at all signalized intersections and at other locations according to the City's Standard Operating Policy. Crosswalks shall not be marked at uncontrolled locations without City Engineer approval..

3.6.9 Mailboxes

Mailboxes located within roadway rights-of-way are subject to these Standards and Specifications. Roadside design safety aspects shall be considered. Fatal crashes have occurred within the City of Bend due to vehicles striking mailbox fixed object hazards that did not provide breakaway supports. Foundations and support structures of individual and cluster postal delivery boxes shall meet the current AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, with interim revisions."

The mailbox shall be firmly secured to the post to ensure that the impact of a vehicle does not loosen the box which could then become a flying object hazard.

Mailboxes shall not require that users cross an arterial or collector roadway. Mailboxes shall be located on the users side of arterial and collector roadways.

For all new and reconstructed roadway projects, rural delivery mailbox styles shall be considered for consolidation into cluster postal delivery boxes.

The location of cluster postal delivery boxes shall be shown on the engineered plan submittal drawings for review and approval.

Cluster postal delivery boxes shall not be located on arterial and collector streets. Their location shall be shifted to nearby and convenient local streets. When locating the cluster postal delivery box care should be taken to locate it in an area that minimizes impact on abutting properties.

An accessible pedestrian path of travel must be designed and constructed to the mailbox.

An accessible pedestrian path of travel must be maintained on sidewalks adjacent to cluster boxes.

Cluster postal delivery boxes may be constructed on arterial and collector street rights-of-way through a design standards deviation process reviewed for the following criteria:

- A parking bay is provided;
- The center of the parking bay is located in the center of a tangent section of the collector. This tangent section shall have a length of not less than two times the stopping sight distance for the design speed;
- The required right-of-way width shall be increased to provide for the parking bay and necessary accessible path of travel from the assigned mailbox user properties;
- The parking bay shall not be located less than the design stopping sight distance from any intersection;
- The length of the turnout bay shall accommodate two vehicles and shall be not less than 7 feet in depth;
- Curb tapers in and out of the parking bay shall be created with two consecutive reversing curves of 20' radius.
- There shall be adequate stopping sight distance on either end of the turnouts into the parking bay;

The back edge of the sidewalk shall smoothly meander back from the central delivery mailbox station to provide a 5-foot wide unobstructed pathway. The edge of the mailbox shall comply with the City's Clear Zone Requirements of this document.

3.6.10 Illumination

Streetlights are required at all street intersections with collectors and arterials, including private street intersections with collectors and arterials. This requirement does not extend to alley intersections. Requests for street lights at other locations shall be reviewed in conformance with the Transportation Division's Standard Operating Procedure and installed only with City Engineer approval.

Separate street lighting plans are not required for most projects although proposed streetlights shall be shown on plan and profile or utility sheets. Plans must include the following:

- Proposed pole locations shall comply with the City's Roadside Safety requirements of this document.
- Power supply shall be provided via underground wiring and conduit systems conforming to power company requirements.
- Fixtures shall be cut-off fixtures to minimize light pollution and up-lighting.
- Light poles and fixtures shall be approved and maintained by the power company.

On private development projects, all costs of installation shall be borne by the developer. The City will pay for ongoing power and maintenance expenses for public street lighting. Ongoing expenses for private street lighting (including power costs) shall be borne by the developer or homeowner's association.

Decorative lighting will not be permitted without special approval and maintenance agreements signed by the City Engineer.

The City encourages the use of energy-conserving luminaire fixtures. Proposed equipment must be approved by the City Engineer and the power company.

3.6.11 Drainage

Roadways shall comply with the storm drainage requirements of Chapter 6 of this document.

The standard drainage inlet feature for arterials and collectors shall be curb inlet when bike lanes are present.

3.6.12 On-Street Parking

On-street parking shall be designed to accommodate parking parallel to the curb. There may be instances when head in or back in angle parking is desirable. The City will consider these instances on a case-by-case basis.

3.6.13 Traffic Calming Devices

Traffic Calming Devices in the context of the standards means specific traffic calming devices designed to restrict travel speeds over or through a specific location. Traffic calming devices include neighborhood traffic circles (which are very specifically not roundabouts), speed humps and raised pedestrian crossings. Within the context of this document, traffic calming devices are not curb extensions, medians, roundabouts, signals, stop signs or cross-walks as these are typical operational or cross-sectional elements of roadway design.

City standards provide for arterial and collector roadway designs that are reflective of their abutting land use zoning and are sensitive to their surrounding context. The installation of traffic calming devices are not allowed on arterial and collector roadways due to their negative impacts on emergency vehicle routing, maintenance issues, and truck circulation issues.

Traffic calming devices are restricted in use to local residential streets or local commercial streets. Requests for traffic calming devices during the land use process may be evaluated for local residential streets. However, their use shall be approved by the City Engineer and shall not be installed without this approval. Consideration shall be given to emergency vehicle routing.

Currently the City allows traffic circles and raised speed tables or raised pedestrian crossings as traffic calming devices on local streets. Their designs shall conform to the standard drawing for these elements.