Streetscape Standards Fort Collins

LARIMER COUNTY URBAN AREA STREET STANDARDS | APPENDIX C

City of Fort Collins

LARIMER COUNTY
COMMITTED TO EXCELLENCE

Streetscape Standards

Larimer County Urban Area Street Standards Appendix C: City of Fort Collins Streetscape Design Standards and Guidelines
~~February 26, 2013~~
Updated 2025

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This 2025 Streetscape Standards update represents Phase One of a two phase process. Comments on this document may be sent to Dana Hornkohl at dhornkohl@fcgov.com.

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SECTION 1

Purpose and Intent

Based on the City of Fort Collins's vision to foster a thriving and engaged community through operational excellence and a culture of innovation and mission to ~~create a vibrant, world class~~deliver exceptional service for an exceptional community, these standards set forth a coordinated approach to the design and management of streets as visually appealing public spaces that contribute to Fort Collins's distinct identity. These standards intend to further one or more of the following City policies:

- Strategic Plan, Transportation and Mobility Objective #1 to make significant progress toward the City's Vision Zero goal to have no serious injury or fatal crashes for people walking, biking, rolling or driving in Fort Collins
- Our Climate Future, Big Move #3 for a climate resilient community
- Water Efficiency Plan goal to improve efficiency and resilience on public landscapes

The plans and policies set forth in this Section are not intended to be interpreted or applied as binding standards, terms, conditions, requirements, or procedures. These plans and policies are solely intended to provide guidance in the interpretation and application of the Streetscape Standards that have been adopted to implement the plans and policies referred to herein.

The term "streetscape" generally encompasses the visual and pedestrian environment of a street. These streetscape standards involve parameters for tree-lined streets and sidewalks, parkways, other landscaping along street edges, and landscaped medians in ~~arterial~~ streets.

In addition to plantings, streetscapes may also encompass various urban design elements in certain settings. Examples include special curb treatments and median edges, low planter ~~walls~~ and landscape walls, railings, bollards, planter pots, stone features, public art, pylons, specialty lighting, signal and light pole treatments, specialty paving, transit stops and furnishings, and the like.

Streetscape elements such as parkways and medians offer solutions to many engineering challenges of the urban environment. Tree-lined parkways provide a buffer between pedestrians and vehicular traffic, increasing pedestrian safety and comfort. Parkways also provide space for streetlights, signs, underground utilities, and snow storage. Medians create opportunities for pedestrian refuge islands at crossing locations, and they also provide access control by limiting the number of full-movement driveways and intersections along a street. Parkways and medians both provide physical barriers along travel lanes, which encourages drivers to slow down. While serving many functional purposes, parkways and medians also provide opportunities to cultivate a particular aesthetic through landscaping and other visual features. The utilitarian and aesthetic purposes of these public spaces should coexist harmoniously.

Every streetscape project involves its own context and constraints. Still, there is a need for standards to set the bar for level of quality and investment. These

standards provide a framework for programming, budgeting, designing, maintaining, and renovating various incremental projects as part of a whole approach.

Exact details must then be adapted to fit and function with the unique context and constraints which exist in every project. The context and constraints include existing conditions that are expected to remain for the long term, and future change planned or envisioned by the City.

SECTION 2

Applicability ~~&~~and Use

These standards apply to all projects involving streetscapes in the City right-of-way including:

- Private development projects for which an application is submitted on or after January 1, 2026.
- City capital projects installed on and after January 1, 2026.
- Any other ~~miscellaneous maintenance and~~ renovation projects and efforts for which an application is submitted on or after January 1, 2026.

Private development and public capital projects may involve construction of new streets, and/or changes to existing streets.

The standards are intended to be used by:

- Staff, in the design and management of ~~C~~city streetscapes over time.
- Landscape architects and designers.
- Developers and decision makers in the development review process.
- Property owners, where plans and activities involve streetscapes.
- Citizens, City Councils, and staff, in discussions involving streetscape issues.

SECTION 3

Project Plan Submittal and Review

Streetscape projects that are part of development applications follow a standard City development review process, which will include collaboration with staff on streetscape design.

City capital projects involving streetscapes are reviewed administratively by interested City departments in an internal process of collaboration and routing of plans.

3.1 SAFETY PROCEDURES

In addition to public safety, streetscape projects must consider safety concerns for people working within the right-of-way in the design, installation, and maintenance of streetscapes. Safety plans are created on a case-by-case basis for streetscapes, and design teams are encouraged to coordinate directly with the City Parks Department to discuss safety issues and strategies for minimizing potential hazards.

General safety procedures include:

- Strategic vehicular pullout area(s) for maintenance vehicles to park directly within a median
- Locations for vehicles to temporarily park directly within lanes of traffic or left turn bays
- Designing plant groupings, mulch, and boulders to allow people to walk freely through a median
- Offsetting plants from median curblines
- Locating irrigation infrastructure within parkways when possible, or within wider portions of medians when the infrastructure cannot be placed in a parkway

For more information on City Parks Department safety procedures, please contact the City Parks Department for additional information about medians safety procedures.

3.2~~1~~ STREETSCAPE PROJECT DESCRIPTION REQUIRED

For streetscapes to be successful, it is important for City staff in multiple departments to have a clear understanding of the design intent, assumptions, and the needs for maintenance, monitoring, and replacements of plants or other components.

A project description is needed to supplement technical project plans. The purpose is to prompt designers and staff to record the whole story of the streetsc~~s~~ape project.

3.2~~1~~.1 Streetscape Project Description required.

All streetscape projects involving landscaping and urban design elements ~~shall~~ must include a Streetscape Project Description developed by the project consultant(s) or City staff, as applicable, ~~in collaboration with any~~

~~project consultants,~~ upon completion of design. The description ~~shall~~ must:

- Be concise and avoid technical jargon.
- Include relevant commentary in addition to objective facts and information.
- Describe the design intent, assumptions, and maintenance and renovations that will be needed over time to realize the design intent.
- Note all aspects of the project from initial grading and soil preparation, to irrigation systems, to planting and establishment procedures, to management and maintenance.
- Explain how the project complies with applicable provisions under these Streetscape Standards.
- Note outstanding issues that need to be monitored over time.

Examples of topics to be addressed include:

- Reasons and concepts for all project decisions including planting, irrigation, mulches, boulders, hardscape, and urban design elements.
- Plant species needing pruning or trimming, frequency and timing for pruning or trimming, specific weeding control practices, annual clean-up, and dividing or periodic replacing to achieve the intent.
- Water requirements of plant species.
- Plant species with a limited track record in streetscapes that warrant monitoring.
- Mulches that need replenishing or clean-up.
- Long-term maintenance needs regarding silt build-up.
- Urban design features that may need touch ups, replacements, stocking of parts, or other maintenance and renovations.
- For arterial street medians and parkways, a typical traffic control plan for maintenance.
- Any other information useful for future understanding and management of the streetscape.

~~3.1.2 Project Statement File.~~

~~Staff shall maintain Project Statements for streetscapes on file.~~

3.2.2 Landscape Plan Required; Required Elements for Landscape Plans.

Every Streetscape Project Description must include a landscape plan. Streetscape landscape plans may be included with a larger development landscape plan provided the plan meets Streetscape Standards as applied to the streetscapes within the landscape plan. All landscape plans must include, at a minimum:

- The items required by the City for Development Review applications.

- Survey of existing trees, tree inventory and mitigation table provided by the Forestry Division, tree protection notes, and a legend showing trees to be preserved and protected in place and trees to be removed.
- A plant list: quantity, species (common and scientific names), species diversity percentage, water demand, caliper, and method of transplant. There must be unique symbols for each species, and all species must be labeled with abbreviations to match the legend. Mitigation trees must be identified and labeled.
- Hydrozones or plants with similar water demands should be grouped within irrigation zones.
- Calculations for streetscape water use, which may not exceed an average of 11 gallons per square foot per year, must be calculated separately from any larger development landscape plan. Water use calculations do not include water for streetscape trees.
- Separate sheet/layer for ground cover (mulches and boulders)
- Ditch easements, top of embankment, access easements, utility easements, sight triangles, and other maintenance easements must be identified.
- Existing irrigation infrastructure including point of connection, backflow, controller, valve boxes, and approximate location of the mainline must be identified.

SECTION 4

~~All~~ ~~Streets~~Landscape Standards

The following standards apply to all street classifications city-wide, except where specific areas have applicable planning documents that set forth alternative standards tailored to the area~~.~~ and except that no parkway or median landscaping will be allowed on bridges (note that potted planting, which is not landscaping, is allowed on bridges).

The City of Fort Collins maintains a recommended plant list. Designers are encouraged to select plants from this list. On a case-by-case basis, designers may propose plants not on the list based on the design intent for the particular project.

4.1 STREET TREES

~~Rows~~ Groupings of street trees along street edges are the fundamental, unifying element of continuity in city streetscapes.

Street trees can be considered as multi-functional public infrastructure that:

- Defines the street as distinct space, providing a unifying framework for abutting developments.
- Provides canopy shading and stormwater interception along streets and sidewalks to reduce glare and ~~summer~~ urban heat island effect~~build-up~~.
- Provides a buffer between pedestrians on the sidewalk and vehicles in the roadway, which increases pedestrian safety and comfort.
- ~~Provides space for streetlights and signs, and for snow storage in winter.~~

4.1.1 Tree planting in parkways.

Where~~ver the~~ a sidewalk is separated from the curb in accordance with the *Larimer County Urban Area Street Standards*, ~~rows~~groupings of canopy shade trees ~~shall~~ must be planted in the parkway spaced at an average interval not exceeding 430 ~~foot intervals~~ feet, and centered between the curb and the sidewalk.

Design teams and applicants must coordinate with the Forestry Division for field locating trees, approving and tagging trees at nurseries, issuing a permit for planting, and inspections after planting.

4.1.2 Species groupings within tree ~~rows~~groupings.

To the extent reasonably feasible, street tree ~~rows~~ groupings in landscape areas, whether inside or outside of the sidewalk, ~~shall~~ must be in groupings ~~of~~ in which no more than three trees in the grouping are~~, five, or more~~ of ~~a single~~the same species. The intent is to provide a degree of species diversity

within a deliberate, repeating design pattern.

Designers are encouraged to arrange changes in species to reflect roadway conditions, such as open stretches of roadway between access points, stretches approaching intersections and driveways, and/or changes in adjoining land use.

4.1.3 Street trees in sidewalk cutouts.

If a project involves a new sidewalk that must be attached to the curb due to unique constraints or context, then the sidewalk width ~~shall~~ must be wide enough to incorporate planting cutouts with tree grates to the maximum extent feasible.

- ~~To the maximum extent feasible,~~ ~~s~~Such sidewalks ~~shall~~ must be at least 12~~-~~ to 15 feet wide with cutouts at least ~~25~~32 square feet at ~~3~~20~~-~~ to ~~5~~30-foot spacing. Larger cutouts with more than ~~25~~32 square feet are encouraged. The distance from the back of the tree grate to the back of the sidewalk must be a minimum of 4.5 feet.

- In all cases, trees in sidewalk cutouts ~~shall~~ must be located at least 8 feet away from buildings and offset from building entrances.

- If such an attached sidewalk has an abutting landscape area, then 8 feet ~~shall~~ must be the minimum width in which canopy trees shall be provided in sidewalk cutouts.

- The minimum area of any sidewalk cutouts ~~shall~~ must be 32~~16~~ square feet, using 4~~8~~x4-foot tree grates. Larger cutouts with more than 32~~16~~ square feet of area are encouraged, for example 4x12~~6~~-foot or 4x16~~9~~-foot tree grates, to support tree health.

- The soil surface in a sidewalk cutout ~~shall~~ must be level with the bottom of the sidewalk slab. Trees ~~shall~~ must then be planted with the top of the root flare~~ball~~ 1~~-~~ to 2 inches above the soil surface.

- Cutouts are preferred over trees grates. Where tree grates are allowed, ~~A~~all tree grates ~~shall~~ must be installed per manufacturer's instructions. Tree grate ~~F~~frames ~~shall~~ must be set in a true, flat plane to prevent rocking of the grate. ~~The grate or a template shall be set in the frame before concrete is poured to ensure the final installation is square and flat.~~

- Tree grates must be able to withstand the loads of snow clearing equipment without breaking.

- Grates ~~shall~~ must be of a pedestrian-safe ADA-compliant style with slot openings 3/8-inch or less.

- A spacing interval up to ~~5~~40 feet ~~shall be permitted~~is allowed for street trees in grates where abutting commercial buildings face the street with no intervening vehicle use area

between the street and the building.

4.1.4 Tree planting outside of sidewalks where existing constraints preclude parkway tree planting or sidewalk cutouts.

Where a sidewalk is attached to the curb and is less than 8 feet in width, canopy shade trees shall, to the extent reasonably feasible, be established in an area ranging from ~~3~~4 to 7 feet behind the sidewalk at ~~3~~20 to 4~~3~~0 foot intervals. This standard shall also apply where unusual constraints preclude tree planting in a parkway.

Any such planting will typically require coordination with abutting property owners.

4.1.5 Adjustment of spacing intervals.

The ~~Director or the~~ City Forester may approve or require larger or smaller spacing intervals to better fit the growth habits of different street tree species, for safe use of the street or sidewalk, for a stretch of shade intolerant xeric landscaping, and to better fit with existing trees or other existing conditions unique to the location.

4.1.6 Overhead power line conflicts.

Ornamental trees may be planted in substitution of the canopy shade trees where overhead lines and fixtures prevent normal growth and maturity.

4.1.7 Spacing from driveways.

No tree shall be planted closer than ~~4~~8 feet from any driveway or alley.

4.1.8 Tree separation from utilities.

Landscape and utility plans ~~shall~~ must be coordinated. Utility separations must meet the minimum standards of the Fort Collins Land Use Code. ~~Following are the minimum dimension requirements for the most common tree/utility separations.~~ The specified distance is measured as the horizontal separation from the center of the proposed tree to the edge of the existing or proposed utility.

- ~~40 feet between canopy shade trees and streetlights. Fifteen (15) feet between ornamental trees and streetlights.~~
- ~~10 feet between trees and water or sewer lines.~~
- ~~4 feet between trees and gas lines.~~

- ~~4 feet between trees and underground electric lines shall be provided to the extent reasonably feasible.~~

Exceptions to these requirements may occur where utilities are not located in their standard designated locations, as approved by the City Forester ~~or the Director~~. Tree-~~/~~utility separations shall not be used as a means of avoiding the planting of required street trees.

4.1.9 Irrigation provided to trees.

Irrigation must be provided to new and existing trees if applicable. Irrigation to trees must be on a separate zone from other plant material.

4.2

~~PARKWAY LANDSCAPING -~~ TURF-TYPE GRASS

Turf-type grass in parkways provides a multi-functional solution for landscaped edges along city streets of all classifications. The term "turf-type grass" as used throughout these Streetscape Standards means continuous plant coverage that is native or hybridized for arid conditions, with a low water requirement. Once established, such low-water turf-type grass typically requires approximately one watering per week during the average growing season. Turf-type grasses allowed in Fort Collins streetscapes must not exceed an average of 11 gallons of water per square foot per year. Any turf-type grass installed must meet hydrozone requirements in the Fort Collins Land Use Code.~~Two main types of t~~Turf-type grasses may be used in Fort Collins streetscapes.~~: cool-season turfgrasses, and warm-season native shortgrasses. Cool-season turfgrasses include improved varieties of Kentucky Bluegrass, Tall Fescue, Perennial Ryegrass, and Wheatgrasses. Warm-season native shortgrasses include improved varieties of Buffalograss and Blue Grama.~~

Efficiently irrigated, mowed ~~cool-season~~ turf-type grass provides a uniform and resilient living ~~green~~ edge to city streets over a long growing season. The ~~green~~ living edge, along with street trees, is a unifying element that helps define ~~C~~city streets as continuous spaces~~, in conjunction with street trees~~.

~~Cool-season turfgrass can be a sustainable, functional landscape solution consistent with "xeriscape" and "water-wise" landscaping principles. These principles recognize cool-season turfgrass as an appropriate use of water in high visibility, multi-functional, high-use areas, and parkways typically fit that description. Cool-season turf grass can be reasonably drought tolerant, depending on the species and improved variety. Problems resulting from periods of neglect are relatively easy to correct, and the turf rarely, if ever, needs replacement.~~

~~Non-gardeners and typical commercial crews can readily maintain cool-season turf grass. It naturally inhibits weeds, and mowing is an efficient way to control weeds that do occur. It works well in conjunction with street trees with tolerance for shading. In winter, dormant turf is easy to keep tidy and trash-free. It tolerates foot traffic better than any other living ground cover.~~

~~Blue Grama and Buffalograss have very low irrigation and mowing needs. They are active and green for a shorter season than cool-season turf grasses, but have an attractive straw color when dormant. They can offer a beautiful alternative to cool-season turf grasses with their fine textures and soft gray-green color. They require full sun and significant weed control to maintain a high quality appearance in city landscapes. They do not tolerate shady spots, high levels of foot traffic, or overwatering. They are not as competitive with weeds, and weeds stand out in contrast to the texture and color of the grasses.~~

4.2.1 Requirements.

Section 5 includes parkway landscaping standards for ~~A~~arterial ~~S~~streets. Section 6 includes parkway landscaping standards for ~~C~~collector and ~~L~~local Streets.

4.2.2 Prohibitions.

No artificial turf or artificial plants may be included in any streetscape. Turf or grass that is not hybridized for arid conditions or has a high water requirement, or both, may not be included in any streetscape.

4.3

~~PARKWAY LANDSCAPING -~~ ALTERNATIVES TO TURF-TYPE GRASS

Alternatives to irrigated turf-type grass can be an appropriate choice for property owners abutting collector and local streets. Alternatives to turf-type grass must meet the same watering restrictions as turf-type grass. Alternatives can also be appropriate for arterial street projects in special plan areas where such alternatives are recommended.

Mulched planting beds can be an acceptable alternative solution to turf-type grass for parkway landscaping in some situations. With appropriate plant selection and proper maintenance, it can offer seasonal interest and add character.

This alternative ~~typically requires~~can require less water than ~~cool-season~~some turf-type grass. ~~With appropriate plant selection and proper maintenance it can offer seasonal interest and add character.~~ While maintenance needs can be less frequent than a cool-season turf-type grass mowing regime, they can be more complex and occasionally more time-consuming, as weeding, trimming, mulching and replacing materials are important to keep the plantings healthy and attractive. Mulched planting beds are not suited for heavy foot traffic, so incorporating footpaths may help guide pedestrians to preferred crossing points.

~~4.3.1 Where Appropriate.~~

~~Alternatives to irrigated turf grass can be an appropriate choice for property owners abutting collector and local streets, depending on whether the parkway is governed by an approved Development Plan. Alternatives can also be appropriate for arterial street projects in special plan areas that have recommended alternatives.~~

4.3.1~~2~~ Requirements.

Section 5 includes parkway landscaping requirements for ~~A~~arterial ~~S~~streets. Section 6 includes parkway landscaping requirements for ~~C~~collector and ~~L~~local Streets.

4.4

SIGHT DISTANCE TRIANGLES AT INTERSECTIONS

Sight distance generally refers to the line of sight from a driver at an unsignalized intersection to approaching vehicles that the driver needs to see in order to safely enter traffic.

4.4.1 Requirements.

A visual sight distance triangle, free of any structures or landscape elements ~~shall~~ must be maintained at street intersections and driveways, as required in Figure 7-16 in the *Larimer County Urban Area Street Standards*. Sight distance triangles must be shown on plans, and plants and boulders within the sight distance triangles must meet height restrictions. The following note should be included on applicable plan sheets: "SIGHT DISTANCE TRIANGLE: BOULDERS AND ULTIMATE PLANTS HEIGHTS MUST NOT BE TALLER THAN 24 INCHES ABOVE FLOWLINE WITHIN SIGHT DISTANCE TRIANGLE." The note may also refer to Section 4.4 of these Standards and Figure 7-16 of the *Larimer County Urban Area Street Standards*.

Deciduous trees may be ~~permitted~~ allowed to encroach into the clearance triangle provided that the lowest leaves ~~shall~~ must be at least ~~six (6)~~8 feet from grade and are spaced so that they do not obstruct line of sight. For trees less than 10 feet tall, the lowest leaves must be at least 6 feet from grade.

4.5 LOW IMPACT DEVELOPMENT – STORMWATER MANAGEMENT

In a "Low Impact Development" (LID) approach to streetscapes, landscaped parkways and medians are depressed rather than raised, to help manage stormwater runoff closer to the source. Depressed landscape areas are designed with special soil mixes, corresponding plantings, and other design techniques to infiltrate and filter runoff, instead of concentrating and conveying all runoff to centralized detention and treatment facilities.

The City's Stormwater Criteria Manual, which governs the management of stormwater in the city, describes design~~, plant selection,~~ and maintenance techniques applicable to streetscapes.

4.5.1 LID in Public Right-of-Way~~encouraged~~.

LID techniques and technologies are ~~encouraged~~allowed on a case-by-case basis within public right-of-way, ~~whenever~~ provided the drainage patterns and the infrastructure allow~~s~~ for such measures to be used. LID will not be allowed near bus stops or other roadway areas carrying heavy (weighty) vehicle loads. No infiltration systems will be allowed within or under pavement in public right-of-way.

4.5.2 ~~Low Impact Development~~LID streetscape projects.

In any streetscape where a ~~Low Impact Development~~LID approach is used, Streetscape ~~Standards~~ requirements under this manual shall be adapted or modified as needed per the Stormwater Criteria Manual. The project description must include expected lifespan and any remediation needs for the LID based on silt load. LID maintenance must be defined by the development agreement for the project, if applicable.

SECTION 5

Arterial Streets

The city's arterial streets are complex and expensive public infrastructure, combining virtually all utility and transportation systems of the city. Arterial streets have a functional purpose in addressing~~Besides the functional~~ needs for traffic and utilities~~,~~. ~~a pervasive theme throughout t~~The City's Comprehensive Plan also recognizes the less tangible~~is the importance~~ purpose of streets as public space. As high-visibility public space, arterials create first impressions, are experienced by all residents on a daily basis, and play a large role in determining the character and conveying the civic intention of the City of Fort Collins.

Arterial streetscapes vary widely~~,~~: from the Downtown core, to suburban residential areas, to the Natural Areas in the Poudre River valley.

Some arterials~~s~~ streets feature ~~are distinguished by the inclusion of~~ medians ~~along~~ within street corridors and ~~in~~ roundabouts. ~~Besides~~In addition to managing traffic, medians provide ~~very~~ high-visibility space for landscaping~~,~~ and provide a refuge for pedestrians crossing the road. Medians can humanize the scale of a wide street~~,~~ and add beauty and civic identity. ~~They~~Medians are a highly visible mainstay of urban design, and thus are a major aspect of the City's streetscape efforts.

5.1 ARTERIAL STREETSCAPES MAP

The Arterial Streetscapes Map recognizes differences between various ~~arterials~~ roadways throughout the city. It indicates where a "Standard Arterial Streetscape" approach should apply, and where other corridor segments and gateway intersections warrant their own tailored approach to streetscape design and management.

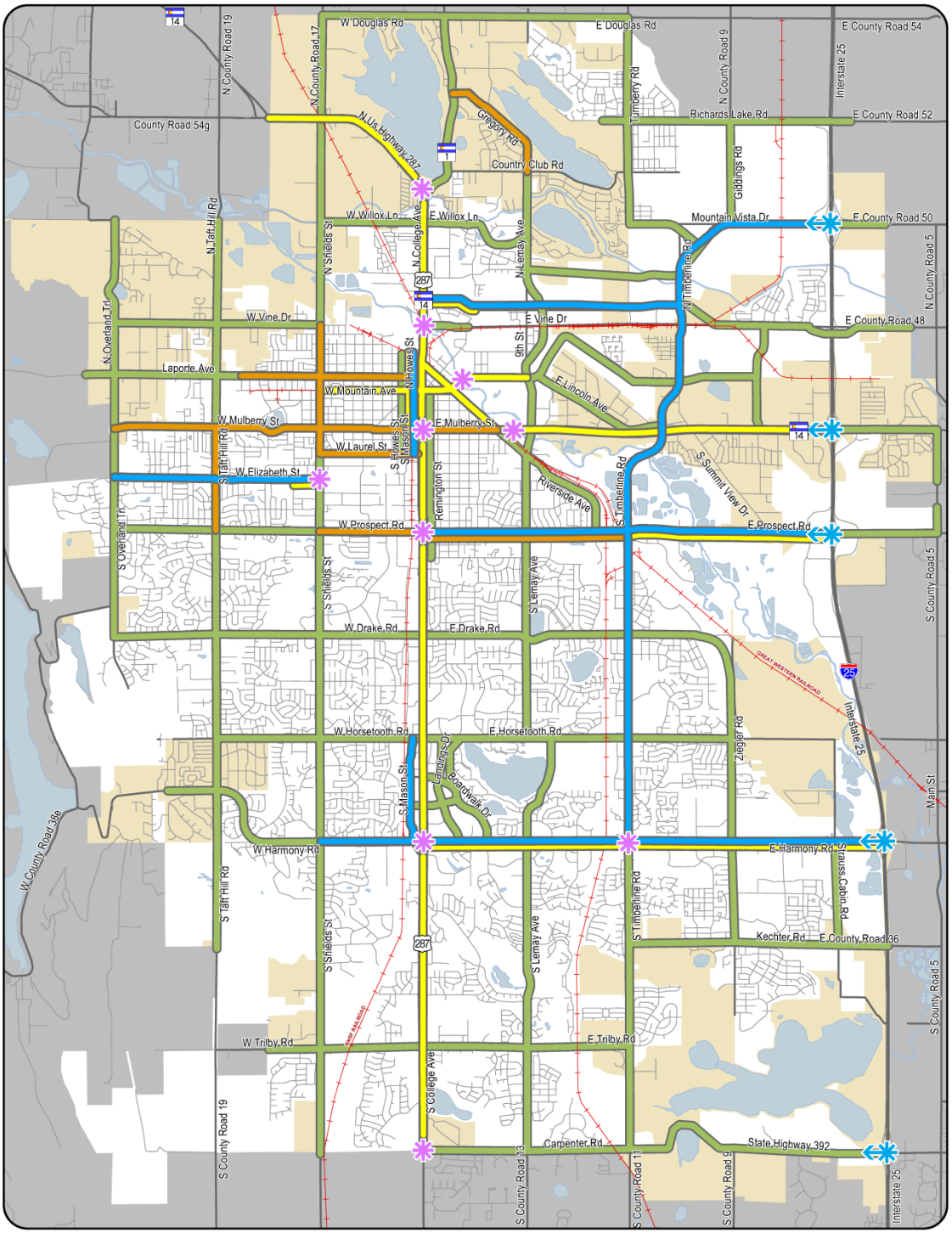
The ~~m~~Map works in conjunction with design standards in the following chapters to guide investment in streetscapes throughout the city.

The types of Arterial Streetscapes and Gateways are:

- Standard Arterial Streetscapes.
- Enhanced Travel Corridors.
- Special Planning Areas.
- Streetscapes ~~c~~Constrained by Existing Development.
- Gateway Intersections.
- Community Entrance Gateways (at Interstate 25).

Streetscape Design Standards and Guidelines

Arterial Streetscapes



Streetscape Types

- Standard Arterial Streetscape
- Enhanced Travel Corridor
- Special Planning Area
- Constrained by Existing Development

- Gateway Intersections
- Community Entrance Gateway (Interstate)
- Unincorporated Land in GMA
- City Limits

0 1 2 3 Miles

N W E S

City of Fort Collins

CITY OF FORT COLLINS
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Printed: December 10, 2012

5.2

ARTERIAL STREETSCAPE DESIGN: STANDARD ARTERIAL STREETSCAPES - MEDIANS

The primary focus of "Standard Arterial Streetscapes" is on medians, including ~~the medians in~~those within roundabouts. While m~~M~~any arterial~~s~~ streets have medians, some do not.

Median standards emphasize ~~mixed plantings of~~a mix of perennials, grasses, shrubs, and tree groupings, with a mulched ground surface. These standards aim to reflect Fort Collins's western regional character by using plants with low water requirements that are adapted to the harsh roadway environment.~~The intent of these standards is to reflect Fort Collins' western regional character with regionally-specific plants suited to the harsh roadway environment.~~

Planting compositions must include:

- Varied plant forms, textures, and foliage in addition to flowers that provide ~~a long season of~~ interest throughout changing seasons.
- Coordinated, repeating groupings of plants to form an overall pattern.
- Accent groupings to add detail and variation within the overall pattern.
- Related elements such as mulches and boulders.

When designing arterial streetscapes, strong consideration should be given to the safety of maintenance crews and the traffic impact of the necessary safety protocols used during maintenance.

5.2.1 Median width measurements.

All references to median widths are from ~~face~~back of curb to ~~face~~back of curb.

5.2.2 Median grading.

The ground surface in landscaped medians shall be crowned with a high point in the center, with slopes not to exceed ~~7~~12:1 or approximately 8.3~~14~~ percent. This standard shall not apply where a median has a cross slope due to opposing traffic lanes and curbs having different elevations, such that a crown may not be feasible; nor shall this standard apply where a LID approach has been approved.

5.2.3 Median grading in roundabouts.

The ground surface in center medians in roundabouts shall be crowned with slopes not to exceed ~~7~~12:1 or approximately 8.3~~14~~ percent. The intent of this standard is to increase the visual prominence of landscaping, and work in conjunction with planting and hardscape elements to achieve year-round screening of visibility across the roundabout to a height of at least 4 feet.

5.2.4 Median planting general approach.

Tree groupings and mixed plantings of other plant types ~~shall~~ must be established and maintained in medians that are at least 6 feet wide, except where safety or sight distances would be impacted. Medians less than 6 feet

wide must be paved rather than planted. Paving options are discussed in section 5.2.14.

~~This standard shall not apply in the following situations:~~

- ~~Trees shall not be planted in medians less than seven feet wide.~~
- ~~Medians less than three feet wide shall be paved rather than planted.~~

5.2.5 Median tree groupings:

- Canopy shade trees, ornamental trees, and evergreen trees ~~shall~~ must be planted in groups of three, five, or more to the extent reasonably feasible, and grouped so that no more than three trees in the grouping are of a single species. Open intervals ~~shall~~ must be provided between the groups.
- Open intervals between tree groups ~~shall~~ must constitute 30-60% of the length of a given median. These percentages are intended to convey a general proportion rather than a precisely measured formula.
- Determination of the open intervals ~~shall~~ must be based on the design intent and growth assumptions for trees over a given time frame.
- Where median length allows, repetition of tree groupings is encouraged.
- Tree species diversity must meet requirements in the Fort Collins Municipal Code and Land Use Code.

5.2.6 Tree separation from median edges.

~~Separation of t~~Trees must be separated from concrete edges ~~shall be provided by designers~~ as ~~needed~~ required in this Subsection based on assumptions for growth and pruning over a given time frame. The following minimum separations ~~shall~~ must be provided ~~for tree types as listed in Exhibit List of Recommended Plants~~:

~~Large canopy trees – 2.5 feet.~~

~~Ornamental trees – 1.5 feet.~~

~~Large evergreen trees – 7 feet.~~

~~Small evergreen trees – 5 feet.~~

- Ornamental trees – 2.5 feet from back of curb
- Large evergreen trees – 9 feet from back of curb
- Small evergreen trees – 7 feet from back of curb
- No columnar or low-branched trees are allowed unless there is safe clearance (18 inches) between the back of curb and the tree at mature size
- No columnar or low-branched trees are allowed in sight distance triangles
- No trees are allowed in medians less than 6 feet wide

5.2.7 ~~Evergreen tree setbacks from face of curbs~~Street widening.

~~Evergreen trees shall be set back from the face of curbs:~~

~~Large evergreen trees - 9 feet.~~

~~Small evergreen trees - 7 feet.~~

- Wherever roads are widened, retain existing trees to the extent reasonably feasible. Land Use Code Tree Preservation and Mitigation sections should be applied.
- The Landscape Plan should include tree protection guidelines that refer to parkway width (10 feet minimum on arterials, 8 feet minimum on all other streets), or median size, installation of irrigation, and who maintains irrigation.

5.2.8 Staggered median tree groupings if space permits.

Tree groupings may~~shall~~ be staggered rather than aligned in straight rows, where median width permits a stagger of at least 2 feet. In narrower medians with inadequate space for staggered groupings, trees may be required to be planted in straight rows.

5.2.9 Mixed plantings.

Mixed plantings of perennials, ornamental grasses, shrubs, and shrubby trees ~~shall~~ must be ~~planted~~installed and maintained to cover approximately 50%~~at least 75%~~ of the median area with living material within 5 years of initial planting, based on ~~assumptions for~~ growth and maintenance assumptions made ~~of plants~~ by the designer. No more than 50% of the median area may be covered by nonliving material.

- Mixed plantings ~~shall~~ must be composed of groups of at least 3 plants per group, with each group composed of a single species.
- ~~Mixed plantings shall be composed for understory conditions at tree groupings, and open conditions in intervals between tree groupings.~~
- Mixed plantings ~~shall~~ must be arranged in an informal pattern rather than formal rows or geometrically-shaped groupings. The informal pattern ~~shall~~ must include coordinated, repeating groupings of plants in an overall composition, rather than random placement. ~~Plantings shall be designed and maintained to span the full width of the median at maturity.~~
- Mixed planting standards apply to all medians ~~3~~6 feet wide or wider.
- Perennials must be planted no closer than 12 inches from the back of curb. Shrubs must be planted so that they are no closer than 12 inches from the back of curb at mature size.
- Ornamental grasses must be limited to large groupings. The proportion of ornamental grass must be limited to no more than 10% of the total number of plants.
- There must be no understory plantings within a 5-foot diameter of existing or proposed tree trunks.
- Plantings and plant groupings must be spaced or arranged to allow safe passage for

maintenance workers through medians.

- Plant symbols depicted on the Landscape Plan must represent full growth habit of plants. Height and width of plants at full maturity must be included in the plant table.

- Every plant must be identified with a unique symbol that includes the first two letters of the genus and species, e.g. Quercus macrocarpa (QU MA).

- The use of perennial groundcover plants is encouraged to help with weed control, erosion, and loss of mulch to wind and water events.

5.2.10 Mixed plantings – two options for intensity.

Two options for mixed plantings ~~shall be permitted~~are allowed:

- Perennial Garden Style.
- Shrub Garden Style.

Perennial Garden Style: This option emphasizes the maximum degree of planting intensity, color, and variety, with perennials used for the full length of a median. This results in a higher number of different plant groupings and a higher total number of plants to achieve ~~the required~~approximately ~~75~~50% plant coverage.

Shrub Garden Style: This option allows the use of larger shrubs and shrubby trees to achieve ~~the required~~approximately ~~75~~50% plant coverage with a lower number of different plant groupings, ~~and~~ lower total number of plants, and decreased maintenance needs.

5.2.11 Perennial Garden Style requirements.

~~An average of at least~~At least 4 groupings of perennials or ornamental grasses, and up to 3 groupings of shrubs per 250 square feet ~~shall~~ must be planted and maintained, with emphasis on providing color and/or texture over a long growing season. Groupings ~~shall~~ must be composed of a single species with at least 3 plants.

5.2.12 Shrub Garden Style requirements.

~~An average of at least~~Up to 3 groupings of shrubs per 250 square feet ~~shall~~ must be planted and maintained, with emphasis on color and/or texture over a long growing season. Groupings ~~shall~~ must be composed of single species with at least 3 plants.

~~In open areas at the ends of medians at intersections, at least 4 perennial or ornamental grass groupings and 3 shrub groupings shall be planted and maintained, with emphasis on color and/or texture over a long growing season.~~

5.2.13 Decision on options.

The garden style option to be used in any project ~~shall~~ must be approved by the Director based on consideration of the relative importance of a given median to community image, intensity of adjacent land uses, the width and length of the median, traffic control requirements for maintenance, and City budget considerations. In general, the Perennial Garden Style is more appropriate in higher-activity, mixed-

use areas. The Shrub Garden Style is generally more appropriate in residential and other lower-activity areas. The garden styles can also be combined, such as Perennial Garden Style at the ends of a median and Shrub Garden Style in the middle of the same median.

5.2.14 Median noses ~~and narrow ribbons~~ - planting.

Median nosesareas ~~3-7~~ that are 6 feet wide mayshall be planted with low mixed planting under 30 inches in height from the flowline. Median noses with a width of 6 feet or less must be paved with concrete. On a case-by-case basis, it may be an option to embed boulders or cobbles in the concrete, stamp a pattern, or use pavers for visual interest.

5.2.15 Plants and mulches in conjunction.

Plant groupings ~~shall~~ must be designed in association with either cobble/stone mulch or organic mulch. Plants selected to feature green leaves and flowers are generally complemented by organic mulch, while stone mulch can detract from their effects. Stone mulch can complement evergreens, other plants selected to feature distinct forms or textures, and xeric plants with grey-green foliage.

When mulches are mixed, the patterns ~~shall~~ must be in sweeping curves, and not rectangular blocks or strips along the edge.

5.2.16 Mulches.

~~Organic mulch shall be used, either solely or in combination with stone mulch to add visual interest with a design pattern. Organic mulch shall be undyed shredded woody material. If a combination is used, the pattern shall be designed in conjunction with plant groupings, and the pattern shall span the full width of the median rather than dividing the median lengthwise into linear strips or lining the edge of the median.~~

Organic mulch, consisting of undyed shredded woody material, must be used either alone or in combination with stone mulch to enhance visual interest. When combined, the mulch pattern must be designed in coordination with plant groupings and extend across the full width of the median. These patterns should flow in sweeping curves rather than forming rectangular blocks, linear strips, or edging along the median.

Stone mulch, if used, ~~shall~~ must consist of 2~~-~~to 4-inch stone combined with groupings of 4~~-~~ to 12 inch ~~or larger~~ stone that is hand placed as accents for visual interest and to separate abutting organic and stone mulches. Larger stone ~~shall~~ should be placed first, to be embedded, mingled, and settled with the smaller stone rather than loosely dumped.

5.2.17 Boulders.

Boulders may be used in medians with a curb height of at least 12 inches, to structure and complement plant groupings. Boulders must be set back at least 12 inches from back of curb and must have a maximum height of 18 inches above curb. They ~~shall~~ must be designed and placed in deliberate groupings ~~in association~~to be embedded and mingled with the planting and mulch design pattern, and any low walls or slopes. They ~~shall~~ must be placed prior to planting and mulching, and

slightly sunk into the ground~~, to be embedded and mingled with mulches and plantings~~. ~~Permitted b~~Boulders ~~shall~~ must be tan Masonville sandstone quarry blocks, rounded river boulders, or weathered moss rock boulders. Boulder selection ~~shall~~ must be based on continuing an established theme, or establishing a theme where none exists.

5.2.18 Median hardscape – edges and paving.

Hardscape treatments depend on different median widths and different contexts throughout the city, ~~shall~~ must comply with the following requirements:

A. In median areas that are at least ~~7~~6 feet wide, a barrier~~double~~ curb edge ~~shall~~ must be installed where a project includes 1) a new median, or 2) an existing median that lacks splash blocks or has splash blocks that warrant replacement. The barrier curb must be at least 8 inches tall as measured from the flowline, and the top of curb must be at least 12 inches wide with a maximum slope of 8.3 percent. The purpose of this standard is to provide additional depth for planting areas, space for maintenance personnel, an additional correction barrier for vehicles leaving the roadway, and a visual design that complements the curb and gutter. Where a median tapers to less than ~~7~~6 feet, the ~~upper~~ curb ~~shall~~ must return across the median to enclose the upper landscape area.

The following exceptions to the barrier~~double~~ curb shall apply:

1) Sloped concrete splash blocks with integral tan tint and exposed aggregate finish ~~shall be permitted~~may be used in lieu of a barrier~~double~~ curb if a median project is located in a street segment or area of the city where existing splash blocks have a previously established theme and are expected to remain for a long term.

2) Where a median is less than ~~7~~6 feet wide, the edge ~~shall~~ must be a standard 6-inch curb with no barrier~~double~~ curb or splash block.

B. Along existing and proposed median corridors with median landscaping and limited vehicular access, a vehicular pull-out must be provided for maintenance vehicle parking.

C. Median areas under ~~3~~6 feet wide ~~shall~~ must be paved rather than planted. Paving ~~shall~~ must be rectangular concrete or brick pavers set on a concrete base. On a case-by-case basis, it may be an option to embed boulders or cobbles in the concrete, stamp a pattern, or use pavers for visual interest.

The following exception to pavers shall apply: where existing tan exposed-aggregate concrete median paving establishes a prevailing theme, ~~it shall be permitted for paving of~~a medians ~~under~~ 6 feet wide may be paved with tan exposed aggregate concrete.

5.2.19 Roundabout planting and hardscape.~~:~~

Roundabout central medians in Standard Arterial Streetscape areas ~~shall~~ must be developed and maintained with tree groupings and mixed plantings in the Perennial ~~Variety~~ Garden Style, with boulders and a mulched ground surface. Landscape walls may be included to reinforce the pattern and provide year-round structure for plantings. Any landscape walls should be built from locally sourced and readily available materials so that replacements can be easily found if necessary.

Apron paving and any special curbs ~~shall~~ must be designed for visual interest with tinted, textured concrete, pavers, or similar material. Aprons must be wide enough for maintenance vehicles to park without restricting the turning movements of oversized vehicles.

Irrigation controllers and backflows must be located in the center of the roundabout or in the parkway to avoid damage from vehicles.

Radial median arms must be paved in single-lane roundabouts. Radial medians arms in double-lane roundabouts may be planted with landscaping with a height of less than 30 inches from flowline. During maintenance, City crews will close one vehicle lane on each side of the radial median arm. Double-lane roundabouts must be designed to allow for normal and oversized traffic flow during maintenance operations.

Design of each individual roundabout ~~shall~~ must be unique unless multiple roundabouts are related in a pair or group as part of a single traffic management project. Design elements include planting themes, plant species, apron paving, and other hardscape details.

5.3

ARTERIAL STREETSCAPE DESIGN: STANDARD ARTERIAL STREETSCAPES - PARKWAYS

The City maintains ~~most~~some arterial street parkways, with exceptions ~~in a limited number of situations~~ where other arrangements are made with another entity. Turf-type grass provides a range of benefits as a solution to arterial street parkways as described in Section 4. The benefits described are relevant for all street classifications, but are particularly relevant for arterials, which form a continuous city-wide framework of public space.

5.3.1 Irrigated Turf-Type ~~g~~Grass.

Parkways in Standard Arterial Streetscapes shall consist of ~~irrigated~~ turf-type grass (or turf-type grass alternatives) and street tree plantings as described in Chapter 4. Appropriate irrigation, including dedicated irrigation for trees ~~shall~~ must be provided to maintain health of plantings with efficient use of water.

5.4

ARTERIAL STREETSCAPE DESIGN: ENHANCED TRAVEL CORRIDORS ~~(ETC'S)~~

Standard Arterial Streetscape standards may or may not be adequate and appropriate for design and maintenance of ~~these~~Enhanced Travel ~~c~~Corridors (ETCs), depending on unique circumstances in each ETC.

~~These arterial corridors~~ETCs are intended to evolve as a framework that incorporates and supports high frequency transit with special emphasis on walkability and bicycling.

5.4.1 Tailored streetscape approach.

For streetscape projects where previous ETC plans do not define a streetscape approach, the Standard Arterial Streetscape standards in Section 5.2 shall be considered as the minimum requirement for the level of quality and investment.

Design and maintenance shall then be adapted to unique circumstances in each corridor as appropriate, based on study of and response to:

~~1.~~ • Guiding policies for ETC~~'~~s.

~~2.~~ • Established precedents in the corridor that are consistent with the vision and policies for ETC~~'~~s.

Examples of permissible design variations include:

~~3.~~ • Planting patterns to reinforce the pattern of transit facilities.

~~4.~~ • Hardscape elements – edge treatments, paving, planters, and the like, particularly where related to transit stops and shelters.

~~5.~~ • Urban design amenities in a coordinated program, particularly including paving, furnishings, and structures at transit stops and shelters.

- Safety considerations for maintenance workers and the impact of safety protocols to the traveling public.

In all cases, design ~~shall~~ must include repeating elements to create a theme for the corridor and avoid clutter of unrelated elements.

5.5

ARTERIAL STREETSCAPE DESIGN: ~~OTHER~~ SPECIAL PLANNING AREAS

Special planning areas have subarea plans, corridor plans, or other planning documents that recognize their unique context and character. The level of specific direction for streetscapes varies among the plans.

These areas warrant their own distinctive streetscapes with tailored design and maintenance characteristics~~, rather than the Standard Arterial Streetcape~~.

5.5.1 Tailored streetscape approach.

For streetscape projects where plan documents are not definitive, the Standard Arterial Streetscape standards in Section 5.2 shall be considered as the minimum requirement for the level of quality and investment, and may be considered as a reference for design.

Design and maintenance shall then be adapted by project designers and staff based on study of and response to the context and any established precedents that are consistent with the vision and policies for the area, and are thus expected to remain.

Examples of permissible design variations on the Standard Arterial Streetscape include:

~~6.~~ • Distinct patterns of trees and other plant groupings.

~~7.~~ • Signature plant species.

~~8.~~ • Hardscape elements - such as edge treatments, paving, low planter walls or landscape walls, and the like.

~~9.~~ • Urban design amenities such as paving, street furnishings, and transit stop shelters or other themed structures in a coordinated program.

In all cases, design ~~shall~~ must include repeating elements to create a theme for the area and avoid clutter.

5.6

ARTERIAL STREETSCAPE DESIGN: CONSTRAINED CORRIDORS AND SEGMENTS

These are arterial corridors and segments where the Standard Arterial Streetscape is not feasible due to physical constraints of existing development. Typically, both parkways and medians are constrained.

5.6.1 Tailored streetscape approach.

Streetscape projects in these areas shall incorporate aspects of a Standard Arterial Streetscape to the extent reasonably feasible. The allocation of available space and the compromises on each component of the ~~street~~ design shall be determined on a project-by-project basis.

The most important aspects to consider in the streetscape approach are safe sidewalks, ~~and~~ street trees as described in Chapter 4, ~~and~~ the safety of maintenance workers, and the impact of safety protocols to the traveling public.

5.7

ARTERIAL STREETSCAPE DESIGN: GATEWAY INTERSECTIONS

~~These~~Gateway intersections are exceptional locations where the Standard Arterial Streetscape should be augmented with additional intensity of streetscape development in any capital projects. These locations warrant the highest level of investment for design, construction and maintenance.

The intent is to highlight entryways into the city~~,~~ and ~~also~~ edges of districts within the city. The locations consist of intersections, whether signalized or roundabouts, extending outward as appropriate to include medians and parkways associated with the intersection.

5.7.~~2~~1 Components.

Streetscape projects at gateway intersections ~~shall~~ must be enhanced with a coordinated program of components including at least four of the following, with consideration given to the likelihood of damage and the ability for easy repairs:

- Plantings of annual flowers in beds or large pots. These should be placed as far as possible from traffic while maintaining truck access for weekly maintenance

and fertilization. Annuals must be on dedicated irrigation zones that are accessible for repair.

- Railings or low walls.
- Bollards.
- Pedestrian lighting/ other specialty lighting.
- Columns, pylons or other urban design structures.
- Signal or light pole treatments.
- Color themes in repeated components.
- Special paving.
- Sculpture or other public art ~~in addition to the components listed above~~.

5.8

ARTERIAL STREETSCAPE DESIGN: COMMUNITY ENTRANCE GATEWAYS (I-25)

Interstate 25 interchanges act as major community entrances, in conjunction with the arterial streets leading into Fort Collins from the interchanges.

Future improvements to the interchanges are expected to include gateway design features to reinforce the community entrance role.

Design and management of any such interchange improvements, and ~~and~~ arterial streetscapes near the interchanges, may present opportunities for coordination.

For example, any interchange gateway features may be appropriate to extend westward along a segment of the arterial streetscape. If such features are not appropriate to be extended, they may still influence, or be influenced by, the character of the arterial streetscape.

SECTION 6

Collector and Local Streets

6.1

PARKWAY LANDSCAPING

Streetscapes ~~on~~ along collector and local streets typically consist of parkways only. The primary purpose of parkway landscaping is to support street trees and complement them in serving multiple functions:~~The primary intent for parkway landscaping is to provide a setting for street trees, and work in conjunction with street trees for a number of purposes:~~

- Define streets as the framework of public space within which individual properties fit.
- Contribute to the attractiveness and visual interest of the street edge.
- Mark the transition from public to private space.
- Blend public interests in street infrastructure with interests of abutting property owners who are required to maintain these parkways by City Code.

6.1.1 Two approaches.

Two main approaches to landscaping parkways are ~~permitted~~ allowed in collector and local streets: turf-type grasses, and mulched planting beds. Pros and cons of each are discussed in Section 4.In both approaches, appropriate irrigation ~~shall~~ must be provided to maintain the health of plantings with efficient use of water.

In ~~developments~~areas where there is no development plan that specifies parkway landscaping, the owner of the property abutting the parkway may select either approach, regardless of any ~~H~~homeowners ~~A~~association (HOA) covenants that may apply to the development, and shall be responsible for the installation and maintenance of the parkway landscaping in accordance with Section 24-42 of the City Code.

6.1.2 Approved development plans govern.

In developments with approved landscape plans, the parkway landscaping must be in accordance with the plan.

A ~~Homeowners Association (~~HOA~~)~~, or a property owner with notice to and opportunity for comment from the HOA, may request a Parkway Landscaping Amendment to an approved plan for parkway landscaping. Such a request by a property owner shall be limited to the parkway strip abutting the lot of the property owner and shall be reviewed by the Director in accordance with Section 6~~2~~.3~~2~~.10(E~~D~~) of the Land Use Code.

6.1.3 New development landscape plans.

Where a developer desires to offer non-turf-type grass options to homeowners, the landscape plan ~~shall~~ must contain notes and drawings specifying options for non-turf ground cover plantings, with consistent mulch and a recommended plant palette. The

landscape plan notes must also recommend a generic irrigation design.

6.1.4 Turf-type grass.

Turf-type grass ~~shall be permitted~~is allowed, ~~including both cool-season turfgrasses and warm-season native shortgrasses~~ as discussed in Section 4. The choice of grass species and variety can make a major difference in water use needs, ease of establishment, survival of the grass, weeding, mowing, and renovation requirements.

6.1.5 Boulders.

Boulders must be set back at least 2 feet from back of curb and at least 2 feet from the edge of the sidewalk. Boulders must have a maximum height of 12 inches above curb.

6.1.6~~5~~ Mulched planting beds.

Non-turf ground cover plantings ~~shall be permitted~~are allowed, including mulched planting beds and ground cover plantings. With an understanding of plant selection and proper irrigation and maintenance, these plantings can provide seasonal interest with little water required.

Property owners are encouraged to incorporate choices that provide a degree of congruence with neighboring properties in terms of mulches and character of plantings.

6.1.7~~6~~ Requirements for non-turf ground cover plantings:

A. Landscaping ~~shall~~ must be designed, installed and maintained so that at least 50% of the area ~~shall be~~is covered with live plant material within 3 years from installation.

B. Plant materials ~~shall~~ must be under 2 feet tall if within 5 feet of a driveway and under 3 feet tall in other areas. Owners are encouraged to select plants that maintain these height limits with little or no pruning.

C. Plant materials must not obscure the line of sight for traffic or obstruct the sidewalk. Plantings of any height that obstruct the line of sight or cause safety concerns may be required to be kept trimmed to a lower height or removed so visibility is provided/maintained.

D. No fences or thorny/prickly plant material are allowed.

E. In mulched planting beds, the soil surface ~~shall~~ must be 2 to ~~-~~3 inches below the curb and sidewalk to allow for mulch to be contained. To avoid clutter, no additional timbers, concrete products, plastic or metal edging, or similar material shall be included.

~~F.~~ Exception: if edging is needed to keep turf-type grass out of mulched areas~~,~~ (perpendicular to the street)~~,~~ such edging ~~shall~~ must be flush or within 1 inch of the ground surface, so it is not a visible element and to prevent exposed sharp edges of the edging.

~~G.~~ F. Plant materials and mulch must be kept off the street and sidewalk.

~~H.~~ G. Avoid cutting tree roots when~~if~~ converting an established turf-type grass parkway to a planting bed.

H. Within a tree's dripline, minimize grade changes to protect the tree roots.

SECTION 7

Maintenance Standards

The purpose of this Section is to foster a consistent, high-quality appearance for all streetscapes, whether maintained by the City~~,~~ or its agents, or by private developers, businesses, or individuals.

Given the high visibility of city streetscapes, the public is able to observe both the maintenance practices ~~in the field as well as~~and the results of that maintenance. ~~The p~~Public perception of a well-maintained landscape is shaped~~promoted~~ by practices that promote~~which benefit~~ the health of ~~the~~ landscape materials~~, and achieve~~ensure a neat~~,~~ and well-cared for appearance, and that contribute to the City's water resource sustainability goals. Quality maintenance is a function of workmanship, funding, ~~knowledge~~expertise, and technique. These standards are designed~~attempt~~ to ensure that ~~all~~ streetscapes are cared for in a manner ~~which~~ that reflects the high ~~esteem~~regard that citizens have for these important public spaces. ~~Generally~~In general, all landscaping ~~shall~~ must be maintained in ~~a~~ healthy condition with a neat and attractive appearance throughout the growing season. ~~A neat and attractive appearance is essential.~~ Irrigation systems, structures, and sidewalks ~~shall~~ must be maintained to represent the original integrity of the design and installation.

7.1 TREE MAINTENANCE AND MANAGEMENT REQUIREMENTS

7.1.1 Separate standards document.

A separate document, ~~T~~the *City of Fort Collins Tree Management Standards and Best Management Practices*, contains the City's standards for planting and maintenance for all trees in the public rights-of-way and applies~~y~~ whether the work is performed for the City contractually, by the City, or by private entities or individuals. Exceptions to the standards and practices require written approval of the City Forester.

7.1.2 Permits for tree work.

A permit must be obtained from the City Forester before ~~any~~ planting, pruning, or removing~~al, or destruction of~~ any tree or shrub within the public right-of-way of any street or sidewalk. Businesses performing this work must be licensed by the City. No tree shall be cut back in such a manner that its health will be impaired or it creates an unsafe condition. An exception to this rule may occur to provide emergency relief of an immediate danger to persons or property. Any such emergency procedures must be reported promptly to the City Forester with plans for completion or follow-up work submitted for approval. See the *City of Fort Collins Tree Management Standards and Best Management Practices* for details on acceptable pruning practices.

7.2
MAINTENANCE RESPONSIBILITIES

Maintenance responsibilities vary among different street types, and ~~also~~ with specific circumstances of abutting properties.

7.2.1 Maintenance responsibility~~ies~~ standards and requirements.~~:~~

Unless otherwise specified in a written agreement, the following maintenance responsibilities and requirements apply.

A. Street trees located on the City right-of-way are the responsibility of the City Forestry Division to manage, maintain, and replace ~~on all streets~~, regardless of who maintains the surface.

~~B.~~ Exception: some streetscape projects include a warranty period for establishment of newly planted trees and/or a development agreement in which the project is responsible for maintenance.

B. ~~C.~~ Medians ~~on~~irrigated by a City-owned water source in arterial streets ~~shall~~ will be maintained by the City.

Exception: some streetscape projects include a warranty period for establishment of median landscaping and/or a development agreement in which the project is responsible for maintenance.

C. ~~D.~~ Parkway landscaping on ~~C~~collector and ~~L~~local streets shall be maintained by the adjacent property owner in accordance with City Code.

D. ~~E.~~ Parkway landscaping on arterial streets ~~shall~~ will be the responsibility of the City if there is no developer, individual, organization, or homeowners~~'~~ association that ~~prefers~~ enters into an agreement with the City to maintain them, or that can be fairly assigned~~allocated~~ the maintenance responsibility based on their unique benefit.

E. ~~F.~~ The following ~~four~~ three other different scenarios for planting and continuing maintenance are possible, depending on circumstances:

1) The developer installs the landscape and the City takes responsibility for tree maintenance after a warranty period for full tree establishment during which time specific obligations are met. The landscape ~~surface~~ (turf-type grass, other plantings, mulches, irrigation) ~~must~~ continues to be maintained by the developer, homeowners~~'~~ association, or other responsible party.

2) The developer installs the landscape and, after meeting required obligations during the first two years after installation, the City takes responsibility for both tree and landscape ~~surface~~ maintenance.

3) The landscape is part of a City ~~C~~capital ~~Improvements~~ Pproject, and a contractor does the landscape work. Following final completion, ~~T~~the City is responsible for tree maintenance and may or may not be

responsible for ~~surface~~ landscape maintenance.

4) ~~Adopt A Median -- the City encourages homeowners' associations, business groups, and other civic groups to take part in the Adopt-A-Median program. Contact the City Parks Division at 221-6660 for further information.~~

7.3

ACCEPTANCE OF NEW ARTERIAL STREETSCAPE PROJECTS FOR CITY MAINTENANCE

7.3.1 Streetscape installed to City standards.

Any new streetscape landscaping not designed and installed to these standards may be rejected by the City Parks ~~Division~~ Department for inclusion in its maintenance program. Developers and City capital projects ~~shall~~ must notify the City Parks ~~Division~~ Department and conduct ~~a walk-through~~an inspection with Parks and Forestry Division staff at the end of the warranty period. Any defects in the landscaping or irrigation system ~~shall~~ must be corrected by the project that installed the streetscape.

7.3.2 Inspections.

- Inspections must be completed at major milestones during the installation process. Contact Parks and Forestry Division staff for a list of milestones.
- Parks will inspect plants twice per year, in the spring and late summer of the warranty period to assess plant mortality and replacement needs.
- Replacements must be completed:
  - Early enough in the growing season (no later than September) to allow for establishment of trees and plants before irrigation is turned off.
  - Before the end of the growing season while replacement plants are still readily available. Lack of availability of the correct varieties could delay replacements until the following growing season.
  - Refer to the Forestry Division for optimal tree planting time requirements.

7.4

GENERAL MAINTENANCE STANDARDS

7.4.1 Trash.

Trash ~~shall~~ must be removed on a regular basis and before every mowing.

7.4.2 Turf-type grass.

~~Cool-season t~~Turf-type grasses that can be maintained at 3-inches or less according to best practices for turf-grass maintenance must be maintained at a 3-inch cut during the growing season. Trimming ~~shall~~ must be concurrent with mowing, to match height of open turf-type grass, around mowing obstructions such as trees, curbs, and vacuum breakers. Extra care must be taken to avoid damaging tree and plant material with trimmers and

mowers. Turf-type grass ~~shall~~ must be edged concurrent with mowing ~~when needed~~ to prevent growth over edges. Visible clippings ~~shall~~ must be removed from sidewalks and streets. Any irrigation tree rings damaged by mowing or trimming must be repaired immediately.
~~Buffalograss and Blue grama~~ Turf-type grasses that cannot be maintained at 3-inches or less according to best practices for turf-grass maintenance must be maintained at a maximum height of 12 inches.

7.4.3 Shrubs.

Shrubs ~~shall~~ must be pruned as needed to: ~~1) achieve the design intent; 2~~1) remove dead or diseased branches; and ~~3~~2) support plant health and vigor. Dead shrubs ~~shall~~ must be removed and replaced immediately. Shrubs ~~shall~~ must not extend over the curb or sidewalk. Shrubs that create sight line or access problems must be removed and replaced with a more appropriate plant species.

7.4.4 Perennials.

Perennials ~~shall~~ must be deadheaded and trimmed throughout the growing season as appropriate for the ~~design intent for~~health of each species. Depending upon ~~design intent~~plant needs and seasonal interest, perennials and ornamental grasses shall be cut back in late fall or early spring prior to new growth. Dead perennials ~~shall~~ must be removed immediately and replaced per the design intent.

7.4.5 Annuals.

Planting of annuals in the spring ~~shall~~ must be in designated annual flower beds or pots. Annuals ~~shall~~ must be regularly deadheaded of spent blooms. Annuals ~~shall~~ must be removed in the fall after the first hard ~~freeze~~frost.

7.4.6 Mulch.

Mulch ~~shall~~ must be replenished as needed to maintain complete coverage of the soil surface with a depth of 2- to 4 inches.~~, with~~ In addition to careful placement and reduced depth ~~as needed~~ underneath plants, mulch should be dished away from the base of plant material to avoid burying leaves or tender stems. Contact the Forestry Division for additional mulch requirements specific to trees.

7.4.7 Weeds.

All landscaped areas ~~shall~~ must be kept free of weeds and invasive grasses ~~that are not part of the design intent~~. Weeding may be done manually or by the use of herbicide and/ or pre-emergent. The use of any restricted-use herbicide~~s~~ or soil sterilant~~s~~ is prohibited. In accordance with Best Management Practices, the effectiveness of the herbicide ~~shall~~ must be monitored and the weed management plan adjusted accordingly.

7.4.8 Off-Season Watering.

Early- and late-season watering shall be considered for trees that were planted before irrigation has been turned on for the growing season or after irrigation has been turned off for the growing season. Winter watering must be included for all trees planted late in the season.

7.5

MAINTENANCE ACCEPTANCE MEMORANDUM FOR CITY CAPITAL PROJECTS

When a City capital project involves installing a new streetscape, the project manager should coordinate with other City departments to prepare a maintenance acceptance memorandum. The memorandum should address the ultimate maintenance responsibilities for each streetscape element, including funding or personnel needs that could require a budget offer.

SECTION 8

Irrigation Standards

Proper watering systems help achieve City sustainability goals and citizen expectations for public spaces. Irrigation of parkway and median plant material is necessary to maintain a quality appearance and long-term health of streetscape plantings.

It is the City's intent to be a good steward of water resources consistent with "xeriscape" and "water-wise" principles related to social, environmental, and economic sustainability.

All irrigation systems ~~will~~ must be designed to meet the needs of each unique landscape by following best management practices and up-to-date technology. Without proper irrigation design and maintenance, good stewardship of the landscapes is not achievable.

8.1

IRRIGATION SYSTEM DESIGN~~irrigation system design~~

8.1.1 General design standards.

Irrigation design and installation ~~shall~~ must comply with the following general standards:

- In parkways and medians where the Parks Division will ultimately take over maintenance, irrigation system design should follow the Parks Irrigation Standards. In parkways and medians that will be maintained by an entity other than the City, irrigation system design should follow Section 5.10.1(H) of the Land Use Code.

~~A.~~ • Irrigation design ~~shall~~ must be done by a certified irrigation designer unless otherwise approved by the ~~Parks~~appropriate City ~~D~~department.

~~B.~~ • Irrigation system design and installation ~~shall~~ must be monitored, inspected, and approved through the City Development Review process. If a streetscape is to be maintained by the City Parks Department, ~~by~~ the City Parks Department must monitor, inspect, or approve the design and installation. Irrigation systems ~~shall~~ must be installed and maintained so that irrigation equipment will not spray onto any streets, walkways, or features ~~and~~ or onto structures that could be damaged by water.

~~C.~~ • The irrigation system must comply with the International Plumbing Code and with the City of Fort Collins Electrical Code.

~~D.~~ • Any deviation in taps from the approved construction plans must be approved by City of Fort Collins Utilities or the applicable water provider prior to installation. Any water service line ~~shall~~ must be coordinated with the water provider. ~~City of Fort Collins Utilities.~~

~~E.~~ • Any deviation in layout of the irrigation system from the approved construction plans must be reviewed and approved by the City

Parks ~~Division~~Department before ~~prior to~~ or during installation.

~~F.~~ • The irrigation system ~~shall~~ must be designed to provide full coverage and matched precipitation rates.

~~G. Lateral piping shall be sized based on flow demands in gallons per minute (gpm); with velocities not to exceed 5.5 feet per second.~~

~~H.~~ • Xeriscape principles ~~shall~~ must be utilized in the design of the irrigation system.

~~I.~~ • All designs ~~shall~~ must meet the industry's Best Management Practices from the Irrigation Association and ALCC (Associate Landscape Contractors of Colorado).

~~J.~~ • Newly installed irrigation systems ~~shall be~~are subject to water audits.

~~K. The minimum distribution uniformity for spray heads shall be .55; for rotor heads it shall be .65; for stream rotors it shall be .75; and for impact heads it shall be .65.~~

~~L. Design considerations shall include: 1) shrub and perennial beds are to be zoned separately from turf areas; 2) sloped areas will have separate zoning for heads at the higher elevations from those at the lower elevation; 3) areas with different exposures are to be zoned separately; and 4) In-head check valves are to be used for all areas adjacent to walkways and at the bottom of berms and pond areas.~~

~~M. Xeric irrigation and drip systems come in a wide variety of configurations. The correct application shall be approved for each landscape design by the City Parks Department.~~

~~N. Trees planted in non-turf irrigated landscape areas require short-term and long-term irrigation and should be on individual or separate zones. Supplemental emitters shall be installed on top and around the root ball for short term health. Perimeter irrigation of the root ball shall be installed for long term and permanent irrigation.~~

~~O. The contractor shall install the saddle for the PVC or AC pipe.~~

~~P.~~ • The backflow prevention device and water meter ~~shall~~ must meet the City of Fort Collins standards~~, and the flow meter shall be *Data Industrial*~~.

~~Q. A curb stop shall be installed between the meter pit and the backflow prevention device for isolation purposes. The curb stop shall be sleeved from the valve to grade and covered with a round valve box.~~

~~R. A blowout tube no larger than ¼" shall be placed between the meter pit-curb stop and the back flow prevention device. The injection port on the blow out tube shall be sweated on, attaching a female adapter with a threaded brass plug.~~

~~S. A blowout tee shall be installed immediately downstream of the backflow prevention device.~~

8.2

~~MATERIALS STANDARDS~~CONTROL SYSTEM

~~8.2.1 Pipe:~~

~~A. Copper shall be type K rigid conforming to *ASTM Standard B88*.~~

~~B. Mainline shall be Class 200 PVC, NSF approved. If 3 inches or larger, use ringtite pipe.~~

~~C. Laterals shall be Class 200 PVC, NSF approved.~~

~~D. No laterals shall be smaller than 1-inch pipe.~~

~~E. Trickle tubing shall be weather and UV resistant material.~~

~~F. Polyethylene drip pipe shall be NSF approved, SDR pressure-rated pipe, only as approved for drip applications.~~

~~G. Funny pipe shall be used only for pop-up spray heads, and shall be compatible with the elbows needed for the sprinkler heads.~~

~~*H*. Lateral fittings shall be Schedule 40, Type 1, PVC solvent-weld, with *ASTM Standards D2466* and *D1784*.~~

~~I. Copper or cast bronze fittings, soldered or threaded per installation details shall be used for all copper pipe.~~

~~J. Mainline fittings shall be ductile iron for 3-inch and larger pipe; and shall be PVC Schedule 80 for smaller pipe.~~

~~K. Sleeving shall be ductile iron or PVC pipe under all paved surfaces. Sizes shall be a minimum of two sizes larger than the pipe being sleeved, but shall in no case be smaller than 2-inch diameter pipe.~~

~~8.2.2 Valves:~~

~~A. Remote control zone valves shall be electrically operated, appropriate for the water supply, with manual bleed device and flow control stem. Valves shall have a slow-opening and slow-closing action for protection against surge pressure. Brand and model shall be Rainbird PE Series Remote Control Valves, scrubber option with self cleaning screen unless City specifies other brand and model.~~

~~B. Valves used for two-wire system shall be properly grounded per manufacturers recommendation.~~

~~C. Drip valves, bubbler valves, and micro-spray valves shall be accompanied by pressure-reducing devices matched with recommended filters to assure proper operation and reduced failure of such equipment.~~

~~D. Isolation gate valves shall be *Kennedy* 1571X or *Matco* #100M, able to withstand a continuous operating pressure of 150 psi. Clear waterway shall be equal to full diameter of pipe. Shall be opened by turning square nut to the left (wheel opening is unacceptable).~~

E. Manual drain valves shall be ¾-inch ball valve with tee handle, *Watts* #B-6000, or approved equal.

Quick coupler valves shall be 1-inch brass, *Rainbird* #5RC units with rubber cover. Supply 1-inch brass key for *Rainbird* 55K.

F. Spears True Union ball valves shall be installed upstream of the remote control zone valve. Equivalent substitutes shall be accepted.

G. Valve boxes shall have matching locking cover which shall be *Carson*, *Pentex* or approved equal. Box sizes shall be as specified to house one valve per box.

8.2.3 Control System:

A. Controllers shall must have smart controller technology, must comply with Land Use Code requirements, and shall must be approved by the City Parks Department. The number of stations shall must include two extra stations for possible future use. The controller box shall must be weather tight and vandal resistant with locking exterior disconnect.

B. The Control System Enclosure shall be Hofman Model A242408LP with A24P24 steel panel, Model A-FK1208 floor stand kit and AL-2BR lock kit, or approved equal.

C. The surge protection shall be an 8-foot copper grounding rod, #4 solid copper wire, grounding buss receptacle, ground terminal strip and Irritrol SPD-587 surge protector per manufacturer's specifications and details.

D. The master valve shall be normally opened.

E. Control wiring shall be #14 solid copper direct burial UF or PE cable, UL approved, or larger, per system design and manufacturer's recommendations.

F. Five-wire systems shall have a consistent color scheme throughout: Red = live; White = ground; Black, Blue and Green = extra.

G. If two-wire systems are used, approved shielded wire or manufacturers recommended wire shall be used.

H. Approved wire connectors and water-proofing sealant shall be used to join control wires to zone valve wires. The wire connectors shall be what each specific manufacturer recommends. Twowire systems shall use manufacturers specified wire per warranty provisions.

8.2.4 Sprinkler heads.

All sprinkler heads shall be of the same manufacturer as specified on the plans, marked with the manufacturer's name and model in such a way that materials can be identified without removal from the system. The City will specify brands and models to match other equipment in use in public systems in the vicinity. Gear driven rotor heads shall be Hunter or approved equal. Pop-up spray heads shall be Hunter, Rainbird, or approved equal. All heads should have pressure regulating device integrated in them to maintain proper

~~operating pressure. They also shall have anti-water draining valves to avoid water waste when not in operation. (Example: Rain Bird 1804 PRS/SAM heads. A minimum of 4" pop-up is required.)~~

8.3 INSTALLATION PREPARATION

8.3.1 Utility locates.

Locate all utilities prior to trenching and protect from damage. ~~Required calls shall include, but are not limited to the following: City Parks Division, 221-6660, for locates and 1-800-922-1987 for utility locates within the City of Fort Collins. Contact other utilities as required.~~

8.3.2 Preliminary inspection.

The Contractor ~~shall~~ must inspect tap and any existing irrigation system, as applicable, prior to work.

8.4 INSTALLATION PROCEDURES

8.4.1 Water service connections (taps).~~:~~

~~A.~~ • Forty-eight hours prior to connection, the contractor ~~shall~~ must contact the City of Fort Collins Water Utilities, at 970-221-6700 to schedule the work for water taps and inspections. A minimum two weeks prior notice shall be given to the Water Meter Shop, 970-221-6759, for installations ~~which~~ that will require meters and/or backflow devices larger than 2 inches.

~~B.~~ • The contractor shall be responsible for excavation, connection to corporation stop at the water main, providing and installing the saddle for the PVC or A.C. pipe, making the connection to the existing water service, backfill and compaction, and pavement / shoulder / surface treatment replacement as needed. Soldered joints or fittings are permissible above grade or inside a vault. No solder, sealants, fluxes, pipe dope, and other materials shall contain any lead. All taps and installations are subject to approval and inspection by the City of Fort Collins Water Utilities or applicable water utility. Install meter as specified in a precast vault. Inspection of service line (where appropriate), vault, water meter and backflow ~~is to~~must be coordinated with the City of Fort Collins Utilities or applicable water provider.

~~C. The contractor shall install a winterization assembly downstream of the meter vault a minimum of 6 feet away from the outside of the meter vault on the copper pipe.~~

~~D. Copper pipe shall be soldered so that a continuous bead shows around the joint circumference. Insert a dielectric union wherever a copper-based metal (copper, brass, bronze) and an iron-based metal (iron, galvanized steel, stainless steel) are joined.~~

~~8.4.2 Pipe trenching:~~

~~A. Install pipe in open-cut trenches of sufficient width to facilitate thorough tamping/ puddling of~~

suitable backfill material under and over pipe.

B. Trenches shall be as straight as possible, but when a bend of 20 degrees or more is necessary, proper fittings shall be used to reduce stress on the pipe.

C. Trench depths for mainlines shall be a minimum of 24 inches deep from top of pipe to finished grade.

D. Trench depths for laterals shall be a minimum of 16 inches deep from top of pipe to finished grade.

8.4.3 Sleeving:

A. Wires shall be in separate sleeves from pipe, and shall be 2-inch minimum size pipe.

B. Sleeves shall have traceable marker tape on upper side and both ends for future locates.

C. Sleeves shall be installed at a depth which permits the encased pipe or wiring to remain at the specified burial depth.

D. Boring for sleeving shall not be permitted unless an obstruction in a pipe path cannot be moved, or pipe cannot be re-routed.

E. Any mainline installed in existing sleeves at a greater depth than adjacent pipe shall have a manual drain valve at each end if the sleeve is longer than 20 feet, or at one end if the sleeve is less than 20 feet.

F. Sleeves shall be installed so ends extend past edge of curb, gutter, sidewalk, bikepath or other obstruction, a minimum of 2 feet.

G. Sleeves shall be marked with an "x" chiseled in walk (or other surface) directly over the sleeve location.

H. Sleeves shall be laid to drain at minimum grade of 5 inches per 100 feet.

I. Sleeves shall be bedded in 2 inches of fill sand and covered by 6 inches of fill sand.

J. Sleeves installed for future use shall be capped at both ends.

K. Sleeving shall not have joints unless necessary due to length of sleeving run. If joints are necessary, only solvent welded joints are allowed.

L. Compaction of backfill for sleeves shall be 95% of *Standard Proctor Density*, *ASTM D698-78*. Use of water (puddling) around sleeves for compaction, is prohibited.

8.4.4 Pipe installation:

A. Teflon tape shall be used on all threaded joints; only Schedule 80 pipe may be threaded.

B. Reducing of pipe size shall be done with reducing insert couplings, at least 6 inches beyond the last tee of the larger pipe.

C. PVC lateral pipe shall be snaked from side to side within the trench.

D. Cut pipe ends shall be cut square and deburred. Pipe ends shall be cleaned before using primer and solvent cement. Pipe ends shall be joined in a manner recommended by manufacturer and in accordance with accepted industry practices. Joints shall cure for 30 minutes before handling, and 24 hours before allowing water in the pipe.

E. Backfill shall be free from rubbish, stones larger than two 2-inch diameter, frozen material and vegetative matter. Backfill shall not be placed in freezing weather. If backfill material is rocky, the pipe shall be bedded in 2 inches of fill sand covered by 6 inches of fill sand.

F. After puddling or tamping, all trenches shall be left slightly mounded to allow for settling.

G. Backfill shall be compacted to proper densities depending on whether the surface area over the line will be paved or landscaped.

8.4.5 Thrust blocks:

A. Thrust blocks shall be installed where PVC mainline 2.5 inches or larger changes direction over 20 degrees.

B. Thrust blocks shall consist of a minimum of one cubic foot of concrete.

C. No concrete shall be allowed to remain on pipe joints.

D. Wiring shall be placed away from thrust blocks to avoid contact with concrete.

8.4.6 Valve installation:

A. Valves shall be installed at least 12 inches from, and aligned with, with adjacent walls or paved edges.

B. Automatic Remote Valves shall be installed so that valves are accessible for repairs. Make electrical connections so as to allow pigtail so solenoids can be removed from the valve with 24 inches (minimum) slack to allow the ends to be pulled 12 inches above ground. The zone wire should be coiled. Flush completely before installing the valve. Thoroughly flush piping system under full head of water for three minutes through furthest valve, before installing heads.

C. The top of the valve box shall be flush with the finish grade.

D. The valve assembly shall include the ball valve and union per detail for ease of maintenance and repair. Valves shall be installed in valve boxes per details.

E. Quick couple valves shall be installed in 10-inch round locking valve boxes. Valves shall be flush completely before installation. Thoroughly flush the piping system under a full head of water for three minutes through the furthest valve.

F. Isolation gate valves shall be installed in the valve box.

G. Valve boxes shall be branded with the following codes: "SV" and the controller valve number per as-built plans for all remote control valves; "DV" for all drain valves; "GV" for all isolation valves; "DRGV" for all drip system isolation valves; "QC" for all quick coupling valves; "WA" for all winterization assemblies; "FM" for all flow meter assemblies; and "MV" for all master valve assemblies. Use a branding iron stamp with 3-inch high letters.

H. Valve boxes shall NOT rest on mainlines. Brick or other non-compressible material shall be used per details.

I. Valves shall be installed in boxes with adequate space to access valves with ease. Valves shall not be too deep to be accessible for repairs. A 3-inch depth of ¾-inch washed gravel shall be placed in the bottom of each valve box with enough space to fully turn valve for removal per detail.

J. Six-inch valve boxes shall be limited to wire splices, drip end caps, and drains.

8.4.7 Head installation:

A. Heads shall be set plumb and level with the finish grade. In sloped areas, heads shall be tilted as necessary to provide the full radius spray pattern.

B. Lateral lines shall be flushed before installing heads. Thoroughly flush the piping system under a full head of water for three minutes through the furthest head, before installing the heads. Cap the risers if a delay of head installation occurs.

C. Pop-up heads along walks and bikeways shall be bedded in a 6 inch layer of sand under the base of the head. Heads that border sidewalks and curbs shall be 1-1 ½ inches from the concrete.

D. Nozzles appropriate for best performance shall be installed.

E. Nozzles and radius of throw shall be adjusted to minimize overspray onto hard surfaces.

8.4.8 Electrical connections:

A. New connections shall be approved through the City of Fort Collins Electric Utilities. Call 221-6700 to obtain power information and request connection. Actual connection to transformer or other power source will be done by the City of Fort Collins Electric Utilities. Work shall be coordinated and scheduled by calling 221-6700.

B. All work other than actual connection, including access to the transformer box where applicable, shall be supplied by the contractor.

C. All materials shall be provided by the contractor. When working near any City electric facility, prior coordination and approval is required.

8.4.9 Controller Installation:

A. Controllers shall be installed in an above-ground location suitable to

~~prevent vandalism and provide protection from adverse weather conditions, and per City direction.~~

~~B. All exposed wiring to and from the controller shall be encased in galvanized metal conduit.~~

~~C. Exterior controllers to be installed on a 6-inch thick concrete pad.~~

~~D. Controllers shall be installed per City direction and manufacturers specifications. Surge protection, grounding rods and other accessory components shall be included as specified.~~

~~E. Wire markers shall be attached to the ends of control wires inside the controller unit. Label wires with the identification number of the remote control valve activated by the wire.~~

~~**8.4.10 Wiring:**~~

~~A. Wiring shall comply with City of Fort Collins Electrical Code.~~

~~B. The power source shall be brought to the controller via a ground fault receptacle installed within the controller casing.~~

~~C. Control wires shall be strung as close as possible to the mainline, consistently along and slightly below one side of the pipe.~~

~~D. A minimum loop of 24 inches shall be left at each valve and controller, and at each splice, at the ends of each sleeve, at 100-foot intervals along continuous runs of wiring, and changes of direction of 90 degrees or more.~~

~~E. Band wires together at ten (10) foot intervals with pipe wrapping tape.~~

~~F. Install common ground wire and one control wire for each remote control valve. Multiple valves on a single control wire are prohibited. Install three extra wires, as specified, to the furthest valve on the system and/or each branch of the system.~~

8.5 TESTING

8.5.1 Testing requirements.~~:~~

~~A.~~ • All tests ~~shall~~ must be run in the presence of staff from the City Parks Department or from such other department that is responsible for accepting the work. Schedule all tests a minimum of forty-eight hours in advance. Repeat any failed tests until full acceptance is obtained.

~~B.~~ • An operational test ~~shall~~ must activate each remote control valve from the controller.

~~C.~~ • The contractor ~~shall~~ must replace, adjust or move heads and nozzles as needed to obtain acceptable performance of the system as directed by staff.

~~D.~~ • The contractor ~~shall~~ must replace defective valves, wiring or other appurtenances to correct operational deficiencies.

8.6
COMPLETION SERVICES

8.6.1 Requirements upon completion of construction.~~:~~

~~A.~~ • When project construction is complete, the contractor ~~shall~~ must request a punchlist inspection for construction acceptance from the City Parks ~~Division~~Department.

~~B.~~ • The system ~~shall~~ must be demonstrated to staff from the City Parks ~~Division~~Department.

~~C.~~ • Product ordering information ~~shall~~ must be provided to City Parks ~~Division~~Department staff including model numbers, sizes and styles for all components.

~~D.~~ • Electronic as-built drawings ~~shall~~ must be provided.

~~E.~~ •Two sets of 11" x 17" as-built drawings ~~shall~~ must be provided, showing the system as installed with each sheet clearly marked **"As-built Drawings,"~~,~~** the name of the project, and all information clearly provided.

~~F. The as-built drawings provided shall consist of one set of reproducible mylars, no larger than 24" x 36", and one set of all sheets reduced to 11" x 17", with each station color coded, and each sheet plastic laminated.~~

~~G.~~ • A completed backflow test for the backflow prevention device ~~shall~~ must be provided by a licensed backflow tester.

~~H.~~ • All excess materials, tools, rubbish and debris ~~shall~~ must be removed to leave a cleaned-up site.

- The system must be maintained in optimal working condition for the duration of time until final acceptance. Periodic adjustments must be made to achieve the most effective and efficient application of water.

8.6.2 Warranty ~~and maintenance~~ period.~~:~~

~~A.~~ A two-year ~~warranty and~~ maintenance guarantee period and a five-year repair guarantee covering all errors or omissions in the design and/or construction provided by the contractor shall begin upon construction acceptance by the City Parks Division.

~~B. The system shall be maintained in optimal working condition for the duration of the period between construction acceptance and final acceptance. Periodic adjustments shall be made to achieve the most effective and efficient application of water.~~

8.6.3 Final acceptance.~~:~~

A. The contractor ~~shall~~ must schedule a final acceptance inspection by the City Parks ~~Division~~Department. at least thirty days before the end of the ~~one~~two-year maintenance period. To schedule the inspection the contractor must contact the

City Parks Department at least thirty days before the requested inspection date.

B. The contractor ~~shall~~ must provide operating keys, servicing tools, test equipment, warranties/guarantees, maintenance manuals, and the contractor's affidavit of release of liens. Submittal of all these items must be accompanied by a transmittal letter and delivered to the City Parks ~~Division~~Department offices (delivery at the project site is not acceptable.)

C. The yearly backflow test report on the backflow device ~~shall~~ must be submitted to the City Parks Division.

8.7 GUARANTEE/WARRANTY AND REPLACEMENT

8.7.1 Requirements.

For a two year ~~the~~ period following construction acceptance notice by the City, and ~~prior to~~ before final acceptance and an additional three-year repair period after final acceptance, all irrigation materials, equipment, workmanship and other appurtenances are to be guaranteed and warranted against defects. Settling of trenches or other depressions, damages to structures or landscaping caused by settling and other defects ~~shall~~ must be corrected by the contractor at no cost to the City. Repairs ~~shall~~ must be made within seven days of notification by the City ~~Parks Division~~. The guarantee and warranty shall apply to all originally installed materials and equipment, and to replacements made during the guarantee/warranty period.

SECTION 9

Fine Grading and Soil Preparation Standards

9.1

GENERAL STANDARDS

Soil preparation is a crucial part of streetscape landscaping success. Individual projects may require specially tailored soil preparation, beyond the scope of these minimum standards, for sustainable health of specialized plantings.

9.1.1 Soil testing.

Soil~~s~~ tests conducted by a soil testing lab ~~the CSU Soils Lab~~ must be completed and submitted to the City for review; and recommendations in the lab reports ~~shall~~ must be followed in all cases. Generally this will include soil amendment and fertilizer recommendations; and in some cases, complete replacement of topsoil may be required.

9.1.2 Topsoil required.

If a landscape area is undisturbed, topsoil ~~shall~~ must be stripped to a 6-inch depth, or to topsoil depth as determined by field inspection. Stockpile and re-spread stripped topsoil over landscape areas after rough grades are established. If the site has been disturbed, or sufficient topsoil is not available, topsoil ~~shall~~ must be imported to achieve ~~six~~ 6-inch depth in all landscaped areas.

9.2

SUBMITTALS

9.2.1 Soil Amendments.

Submit a representative sample and written confirmation from the supplier of soil amendment material composition including: percent organic matter, salts, nutrient composition and trademark.

9.2.2 Topsoil.

Submit a representative sample and written confirmation from supplier of topsoil material composition including: percent organic matter, salts, and nutrient composition.

9.3

MATERIALS STANDARDS

9.3.1 Soil Amendment.

Premium 3, by *A-1 Organics,* or an approved equal high quality composted material containing a minimum of 50% organic matter shall be required for all soil amendment. The mixture ~~shall~~ must be free from clay subsoil, stones, lumps, plants or roots, sticks, weed stolons, seeds, high salt content and other materials harmful to plant life. The compost ~~shall~~ must be coarsely ground with an even composition and have an acidity in the range of pH 5.5 to pH 7.0. All material ~~shall~~ must be sufficiently composted such that no original source material used is recognizable.

9.3.2 Topsoil.

Topsoil must be taken from a well drained, arable site and ~~shall~~ must be reasonably free of subsoil, stones,

clods, sticks, roots and other objectionable extraneous matter or debris. No stones or other materials over 2 inches in size shall be allowed. Topsoil ~~shall~~ must contain no toxic materials and have an acidity in the range of pH 5.5 to pH 8.5.

~~**9.3.3. Fertilizer.**~~

~~Triple superphosphate with a chemical analysis of 0-46-0 shall be incorporated into soil along with soil amendment.~~

9.4 ROUGH GRADING OPERATIONS

9.4.1 Utility locates.

All utilities ~~shall~~ must be located prior to trenching and ~~shall~~ must be protected from damage. Required calls ~~shall~~ include~~,~~ but may~~are~~ not be limited to, Colorado 811 ~~the following: 221-6660 for Parks Division locates and 1-800-922-1987 for utility locates~~.

9.4.2 Acceptance of rough grading by other contractors.

The landscape contractor ~~shall~~ must inspect and confirm that any rough grading from other contractors is per approved plans, and allows for 6-inch minimum depth of topsoil and specified soil amendments.

9.4.3 Clearing and grubbing.

The contractor ~~shall~~ must grub and remove unsuitable woody and rock material present in the surface grade.

9.4.4 Maintain drainage.

The contractor ~~shall~~ must take precautions to accommodate proper drainage and flow during and after grading and soil preparation.

9.4.5 Kill weeds.

Remove all weeds and ~~A~~apply herbicide to areas where noxious weed beds have been established and/or where seed mix is to be planted. Herbicide must be applied by certified contractors at the rate recommended by the manufacturer, after proper notification has been ~~done~~ given, and in accordance with the chemical applicator's standards.

9.4.6 Rip planting areas.

Rip to ~~8~~12-inch depth with agriculture subsoiler in all areas to receive plantings, stopping 6 inches back from any pavement. Remove all objects greater than 2 inches in diameter.

9.5 FINISH GRADING OPERATIONS

9.5.1 Topsoil placement ~~shall include the following~~ procedures.~~:~~

A. Spread 6 inches of topsoil over the entire landscaped area and grade to smooth and even lines. Establish swales and drainage as required per plans.

B. Evenly distribute soil amendment at a rate of 3 cubic yards per 1,000 square feet of area, or 1-inch depth over the entire area to be prepared. Modify the rate if a soil test or approved landscape plan recommends otherwise. Till amendments into the top 6 inches of soil. Compact to a firm, but not hard density (80% of *Standard Proctor Density* at 2% optimum moisture). ~~Evenly distribute triple~~

~~superphosphate fertilizer at the rate of 15 pounds per 1,000 square feet. Modify the type and rate if a soil test recommends otherwise.~~

C. Trim finish grade elevations adjacent to paved areas to one inch below pavement finish grade.

SECTION 10

Grass Seeding Standards

10.1

GRASS SEEDING

10.1.1 Seed Mixes.

Seed mixes ~~shall~~ must be approved by the City Parks ~~Division~~ Department or from such other department that is responsible for approving the work based on the activity to take place, planned irrigation method, and maintenance to be performed in the area being seeded.

~~10.1.2 Pre-approved Dryland Mix.~~

~~For temporary or permanent unmowed and non-irrigated areas, the following mix shall be permitted:~~

~~45% Blue Grama,~~
~~25% Buffalograss (treated), and~~
~~30% Little Bluestem.~~

~~10.1.3 Pre-approved turfgrass mix.~~

~~For irrigated, mowed areas, the following mixes shall be permitted: 1) a blend of five turf type dwarf Tall Fescues, or 2) a mix of Kentucky Bluegrass varieties and up to 15% Perennial Rye.~~

10.1.4~~2~~ Submittals.

Certificates showing State, Federal or other inspection showing source and origin ~~shall~~ must be submitted.

10.1.5~~3~~ Seed quality.

Seed ~~shall~~ must be ~~of~~ fresh, clean, new crop seed composed of the varieties approved by the City with tested minimum percentages of purity and germination clearly labeled on the package. All seed ~~shall~~ must be at least 99.9% free of *Poa annua* and all weeds.

10.1.6~~4~~ Mulch for seeded areas.

Mulch depends on the slope of the seeded area as follows:

A. For slopes 30% and less, native grass straw without weed seed and consisting of grasses as specified for the seeded application ~~shall~~ must be used~~.~~ (See Section 10.1.12) unless Hydromulch is used as provided in subsection B below.

B. For slopes 30% and greater: Hydromulch using *Weyerhauser* "Silva-Fiber" mulch or approved equal ~~shall~~ must be used. The mulch ~~shall~~ must not contain any substance ~~which~~ that might inhibit germination or growth of grass seed. The mulch ~~shall~~ must be dyed a green color to allow metering of its application. See Section 10.1.13.

10.1.7~~5~~ Tackifier.

Teratack III, or approved equal ~~shall~~ must be used.

10.1.8~~6~~ Netting.

For slopes greater than 30%, *Soil Saver* jute netting or approved equal ~~shall~~ must be used. Netting ~~shall~~ must be stapled with No. 11 gauge steel wire forged into a 6-inch long U-shape, and painted for visibility in mowed areas. See Section 10.1.14.

10.1.9~~7~~ Fertilizer.

Fertilizer must be determined and incorporated into the soil based on the results of soil testing. See section 9.1.1 of these standards. ~~Fertilizer with a formula of 18-46-0 shall be used on all areas to be seeded. Apply 8 pounds per 1,000 square foot of seeded area and rake lightly into top 1/8 inch of soil just prior to seeding operation.~~

10.1.1~~0~~8 Inspection.

The contractor ~~shall~~ must (1) inspect finish grade and trim where needed to obtain finish grades of one inch below adjacent pavements. (2) Verify positive drainage away from all structures. (3) Verify or complete removal of rock and debris larger than one inch from all areas to be seeded.

10.1.1~~1~~9 Weather for seeding.

Seed ~~shall~~ must not be sown in windy weather or when ground is frozen or otherwise untillable.

10.1.1~~0~~2 Methods for seeding:

A. A brillion type drill or hydraulic seeding methods may be used. Drill the seed in a manner such that after surface is raked and rolled, the seed has ¼-inch of cover.

B. Hydraulic seeding ~~shall~~ must be used in areas that are not accessible for machine methods. A hydraulic pump capable of being operated at 100 gallons per minute and at 100 pounds per square inch pressure ~~shall~~ must be used. The equipment ~~shall~~ must have an acceptable pressure gauge and a nozzle adaptable to hydraulic seeding requirements. Storage tanks ~~shall~~ must have a means of agitation and a means of estimating the volume used or remaining in the tank. Do not seed and mulch in the same operation.

10.1.1~~3~~3 Seeding rates.

Follow the recommended seeding rate for the specific type of seed.~~The following rates of application shall apply:~~

~~A. Dryland Mix - 12 pounds pure live seed per acre.~~

~~B. Irrigated Mix - 9 pounds pure live seed per acre for the Tall Fescue blend, or 4 pounds pure live seed for the Kentucky Blue/Perennial Rye mix.~~

10.1.1~~2~~4 Mulching operations for native grass ~~mulch~~areas ~~Seed~~.~~:~~

Mulch ~~shall~~ must be applied at a rate of ~~two~~ 2 tons per acre within 24 hours after seeding.

10.1.1~~3~~5 Hydromulching operations.

Wood cellulose fibers ~~shall~~ must be evenly dispersed by agita~~ta~~tion in water. When sprayed uniformly on the soil surface, the fibers shall form a blotter-like ground cover that readily absorbs water and allows infiltration to the underlying soil. Cellulose fiber mulch ~~shall~~ must be added with the proportionate quantities of water and other approved materials in the slurry tank. All ingredients ~~shall~~ must be mixed to form a homogenous slurry. Using the color of the mulch as a metering agent, ~~spray~~ apply the slurry mixture uniformly over the seeded area. Apply with tacki~~a~~fier used at a rate of 120 pounds per acre. Unless

otherwise ordered for specific areas, fiber mulch ~~shall~~ must be applied at the rate of 2,000 pounds per acre. Hydraulic mulching ~~shall~~ must not be performed in the presence of free surface water resulting from rains, melting snow or other causes.

10.1.1~~4~~6 Mulch netting operations.

Mulched areas over 30% slope ~~shall~~ must be stabilized with netting. If the contractor fails to net and subsequent soil erosion occurs, the contractor ~~shall~~ must re-establish the finish grade, soil preparation, seed bed, and apply netting at no cost to the City.

10.1.1~~5~~7 Watering.

Immediately after seeding and mulching, water the seeded area ~~slightly~~ to a depth of 2 inches, but with care so that no erosion takes place and no gullies are formed. Water lightly ~~two~~ 2 times per day and keep the seeded area moist until ~~turf~~grass is established. Extreme care must be taken when watering ~~S~~sloped areas ~~shall be hand watered~~ until turf-type grass is established to prevent erosion. Water these areas more often but for shorter periods of time.

10.1.1~~6~~8 Clean up.

All hydromulch and other mulch materials ~~shall~~ must be removed from all plant materials, fences, concrete and other areas except for the seed bed.

10.1.1~~7~~9 Protection of seeded areas for establishment.

The contractor ~~shall~~ must provide and install barriers as required to protect seeded areas from pedestrian and vehicular damage. Signage ~~shall~~ must be provided if needed.

~~EXHIBIT A~~

~~List of Recommended Plants~~

~~The list below contains recommended plant species for streetscapes. This list will be monitored by staff as part of an ongoing program with periodic updates based on evaluation of success of plantings over time.~~

~~Designers of individual streetscape projects may propose plants not on the list based on the design intent for the particular project.~~

List of Recommended Plants

Last Amended 11.8.2012

	Comments
	Key: CO native status as determined by USDA Plants Database
Canopy Shade Trees	
Acer negundo - Boxelder 'Sensation'	-
Catalpa speciosa - Northern Catalpa	Tolerant of alkaline soils; holds a strong dominant leader; male tree so no boxelder bugs
Celtis occidentalis - Northern Hackberry	-
Gleditsia triacanthos v. inermis - Honeylocust 'Imperial,' 'Shademaster', 'Skyline'	Wrap young trees
Gymnocladus dioicus - Kentucky Coffeetree 'Espresso'	-
Quercus buckleyi - Texas Red Oak	Many seed sources, not predictably cold hardy
Quercus macrocarpa - Bur Oak	Slow growing
Quercus muehlenbergii - Chinkapin Oak	-
Quercus robur - English Oak, Skymaster	-
Quercus shumardii - Shumard Oak	From a northern source
Tilia americana - American Linden 'Boulevard', 'Frontyard', 'Legend', 'Sentry'	Do not use in along roads that are treated with deicing salts
Tilia cordata - Littleleaf Linden 'Chancellor', 'Dropmore', 'Greenspire', 'Norlin', 'Olympic', 'Prestige', 'Shamrock'	Do not use in along roads that are treated with deicing salts
Tilia x euchlora - Redmond Linden	Do not use in along roads that are treated with deicing salts
Tilia x flavescens - Glenleven Linden	Do not use in along roads that are treated with deicing salts
Ulmus davidiana - David Elm	-
Ulmus japonica x U. wilsoniana – Elm 'Accolade', 'Triumph'	Use in smaller quantities
Ornamental Trees	-
Acer grandidentatum - Wasatch Maple	-
Acer tataricum - Tatarian maple 'Hot Wings', 'Pattern Perfect'	-
Crataegus crusgalli - Thornless Cockspur Hawthorn	-
Malus sp. - Crabapple 'Adams', 'Profusion', 'Radiant', 'Spring Snow', 'Thunderchild'	Spring Snow' has some limited fireblight problems.
Pyrus calleryana - Flowering Pear 'Aristocrat', 'Capital', 'Chanticleer', 'Cleveland Select', 'Redspire'	-
Quercus gambelli - Gambel Oak	-
Quercus alba x robur – Oak 'Crimson Spire'	-
Syringa reticulata - Japanese Tree Lilac 'Ivory Silk'	-

	Comments
-	-
Large Evergreen Trees	-
Picea Pungens - Blue Spruce 'Fat Albert', 'Baby Blue Eyes'	Sensitive to salt.
Pinus nigra - Austrian Pine	Only use in wide medians.
Small Evergreen Trees	-
Juniperus scopulorum - Rocky Mountain Juniper 'Cologreen', 'Moonglow', 'Wichita Blue'	-
Juniperus monosperma - Oneseed Juniper	Very low water use
Picea pungens - Dwarf Blue Spruce 'Sester', 'Globosa', 'Montgomery'	-
Pinus mugho - Mugo Pine 'Tannenbaum'	-
-	-
Shrubby Trees/Large Shrubs	-
Acer grandidentatum - Bigtooth Maple	-
Quercus gambelli - Gambel Oak	-
Cercocarpus ledifolius - Curlleaf Mountain-Mahogany	-
Xanthoceras sorbifolia - Yellowhorn	-
Rhus glabra, R. glabra cismontana - Smooth Sumac, Rocky Mountain Smooth Sumac	-
Deciduous Shrubs	-
Amelanchier alnifolia - Regent Serviceberry	-
Amorpha canescens - Leadplant	Deadhead
Amorpha nana - Dwarf Leadplant	Deadhead
Aronia arbutifolia - Red Chokeberry	-
Aronia melanocarpa - Chokeberry, Dwarf Iroquois Beauty	-
Artemisia tridentata - Tall Western Sage	-
Atriplex canescens - Fourwing Saltbush	-
Caragana pygmaea - Pygmy Peashrub	-
Caragana rosea - Rose Peashrub	-
Ceratoides lanata - Winterfat	-
Cercocarpus ledifolius - Curl Leaf Mountain Mahogany	Can grow to be quite large with too much water
Cercocarpus ledifolius intricatus - Little Leaf Mountain Mahogany	-
Cercocarpus montanus - True Mountain Mahogany	-
Chamaebatiaria millefolium - Fernbush	Deadhead
Chrysothamnus nauseosus nauseosus - Dwarf Blue Rabbitbrush	Gets large with irrigation

CO native status as determined by USDA Plants Database

	Comments
Chrysothamnus nauseosus albiculatus - Tall Blue Rabbitbrush	- CO native status as determined by USDA Plants Database
Chrysothamnus nauseosus graveolens - Green Rabbitbrush	-
Caryopteris incana - Blue Mist Spirea	Shear back after blooming, prune out dead wood annually
Caryopteris x clandonensis - Dark Knight Spirea	Used on Harmony project
Cotoneaster apiculatus - Cranberry Cotoneaster	-
Cotoneaster horizontalis - Rock Cotoneaster	-
Cytisus scoparius 'Burkwoodii' - Red Burkwoodii Broom	-
Ephedra equisetina - Bluestem Joint Fir	-
Ephedra viridis - Mormon Tea	-
Euonymus alatus 'Compactus' - Dwarf Burning Bush	-
Fallugia paradoxa - Apache Plume	-
Ligustrum vulgare 'Lodense' - Lodense Privet	-
Physocarpus monogynus - Mountain Ninebark	-
Physocarpus opulifolius - Ninebark	-
Potentilla fruticosa - Potentilla	-
Potentilla fruticosa davurica 'Prairie Snow' - Prairie Snow Potentilla	-
Potentilla fruticosa 'Yellow Gem' - Yellow Gem Potentilla	-
Prunus besseyi 'Pawnee Buttes' - Creeping Western Sand Cherry	-
Rhus aromatica'Gro-low' - Fragrant Dwarf Sumac	Needs ample space
Rhus glabra cismontana - Rocky Mountain Sumac	Needs ample space
Rhus trilobata 'Autumn Amber' - Creeping Three-leaf Sumac	-
Ribes aureum - Golden Currant	-
Ribes cereum - Wax Currant	-
Rosa x *var.* - Shrub Rose	Remove deadwood each spring, many will continue blooming if deadheaded.
Spiraea nipponica - Snowmound Spirea	-
Spiraea thunbergii - Mellow Yellow Spirea	-
Spiraea x *vanhouttei* - Vanhoutte Spirea	-
Symphoricarpos occidentalis - Snowberry	-
Symphoricarpos orbiculatus - Red Coralberry	-
Symphoricarpos x *chenaultii* - 'Hancock' Coralberry	-
Syringa meyeri - Dwarf Korean Lilac	Looks best when deadheaded after blooming
Syringa patula 'Miss Kim' - Miss Kim Dwarf Lilac	Looks best when deadheaded after blooming
-	-

	Comments
Evergreen Shrubs	-
Juniperus chinensis - Chinese Juniper	-
Juniperus communis - Common Juniper	-
Juniperus horizontalis - Creeping Juniper	-
Juniperus monosperma - Oneseed Juniper	-
Juniperus scopulorum - Rocky Mountain Juniper	-
Picea pungens - Globe Spruce	-
Pinus mugo - Mugo Pine	-
-	-
Evergreen (Broad-leafed)	-
Arctostaphylos uva-ursi - Kinnikinnick	-
Arctostaphylos x coloradoensis panchito - Panchito Manzanita	-
Euonymus kiautschovicus - Manhattan Euonymus	-
Yucca filamentosa - Adam's needle Yucca	
Yucca glauca - Soapweed	-
Ornamental Grasses	-
Boutelous gracilis - Blue Grama Grass	Winter interest; cut back in spring
Bouteloua gracilis - 'Blonde Ambition' Blue Grama Grass	-
Deschampsia caespitosa - Tufted Hair Grass	-
Festuca ovina glauca - Blue Fescue	-
Pennisetum alopecuroides - Fountain Grass	This acts more like an annual
Schizachyrium scoparium - Little Bluestem	-
Sorghastrum nutans - Indiangrass	-
Perennials	-
Achillea filipendulina 'Parker's Variety' - Tall Yellow Yarrow	Deadhead
Achillea 'Moonshine' - Moonshine Yarrow	Deadhead
Asclepias tuberosa - Butterfly Weed	-
Agastache 'Coronado Red' - Coronado Red Hyssop	Do not cut back until spring to promote overwintering
Agastache cana 'Sonoran Sunset' - Sonoran Sunset Hyssop	Do not cut back until spring to promote overwintering
Agastache rupestris - Sunset Hyssop	Do not cut back until spring to promote overwintering
-	-
Artemisia frigida - Fringed Sage	-
Artemisia schmidtiana - Silver Mound Sage	Cut back in mid-summer when sprawls

CO native status as determined by USDA Plants Database

	Comments
Artemisia versicolor - Sea Foam Sage	-
Coreopsis verticillata 'Zagreb' - Coreopsis	Grows well in rocky, well drained soil
Echinacea purpurea - Purple Coneflower	Deadhead, if too much irrigation, will get root fungus
Echinacea purpurea 'White Swan' - White Coneflower	Deadhead, if too much irrigation, will get root fungus
Erigeron speciosus var. macranthus - Aspen Fleabane, Aspen Daisy	-
Gailardia aristata - Native Blanket Flower	Short lived
Geranium cinereum - 'Ballerina' Cranesbill	-
Geranium dalmaticum - Compact Rose Cranesbill	Alpine and rock gardens, does not seed out
Geranium endressii - 'Wargrave Pink' Pink Cranesbill	Attractive to pollinators
Geranium himalayense 'Plenum' - Birch Double Cranesbill	Very showy
Geranium x 'Johnson's Blue' - Blue Cranesbill	-
Geranium sanguineum - Bloody Cranesbill	-
Hemerocallis spp. - Daylily	Deadhead, cut back in late fall
Hesperaloe parviflora - Red False Yucca	Needs good drainage, don't use bark mulch around crown, marginal hardiness
Lavandula angustifolia - Lavender	Shear back after bloom, can have winter dieback
Liatris punctata - Gayfeather, Dotted Blazing Star	-
Liatris spicata 'Floristan Violet' - Purple Gayfeather	-
Linum flavum 'Compactum' - Yellow Flax	-
Lychnis coronaria - Rose Compion	Bennial, reseeds aggressively
Oenothera macrocarpa - Missouri Primrose	Self sows
Penstemon pinifolius - Pineleaf Penstemon	Shear back after bloom
Penstemon strictus - Rocky Mountain Pentstemon	Deadhead
Persicaria affinis - Himalayan Border Jewel	-
Rudbeckia fulgida 'Goldsturm' - Black-Eyed Susan	Other varieties may live longer
Salvia pachyphylla - Mojave Sage	Marginal hardiness, needs excellent drainage
Sedum 'Autumn Joy' - Stonecrop	-
Groundcovers	-
Alyssum montanum - Mountain Basket of Gold	-
Callirhoe involucrata - Winecups	Self sows. Cut back after first flush of blooms to promote new growth
Ceratostigma plumbaginoides - Plumbago	Can die out in winter
Euonymus fortunei - Euonymus	Invasive in some states
Polygonum reynoutria - Fleeceflower	Considered invasive in many states; plant where it can be contained

CO native status as determined by USDA Plants Database