



III. AESTHETIC APPEARANCE

The aesthetic qualities of a grade-separated structure are as important as the specific design criteria. For example, a structure may be constructed to the exact criteria set forth in Section II; however, if the structure is not attractive, its use will be diminished. Therefore, the provision for landscaping, wall treatments, artwork and other features will be given equal consideration during the design process as would structure width and height, grade or sight distance.

Much of the success of these types of trail connections has to do with the perceptions of the trail users. Some of these perceptions, as in the case of narrow underpasses, can be safety related. These guidelines are intended to create a more positive response from all trail users. Perhaps less critical, but none-the-less important, is if these structures are perceived as foreboding features or, in a more positive light, a sort of gateway to new neighborhoods. If attention is paid to a number of aesthetic details, these perceptions can be positive and contribute to the overall success and connectivity of the surrounding communities.

All of the overpass and underpass features can be described as being nodes of activity for the surrounding communities. They are cross roads where connections to other trail networks and neighborhoods/activity centers are made. These structures are public in nature and are worthy of some of the planning and refinement that are provided for the community's parks and streetscapes. Some aesthetic considerations may include:

- ▶ Structures like bridge girders, abutments, wingwalls, and retaining walls must have texture and color treatments. There may be a corridor theme of materials that is appropriate. Coarse wall textures may also help deter graffiti potential. The use of native materials like stone may also be appropriate for retaining walls and stream channel improvements.
- ▶ Look for "park" opportunities near these areas. While most commuter trail users have more

practical considerations, recreation trail users welcome the opportunity to stop for a break and take in a view of a stream or landscape. Intersections near bridges and underpasses are often good locations for this type of activity. Additional width of trail, a pull-off area, benches, or shade from a tree, are some features worth considering.

- ▶ Tree and shrub planting, and associated landscape elements, particularly if in an urban park area, are important aesthetic considerations.

III.1. Landscaping

While some trails are utilitarian in nature and confined to available right-of-way space, many pass through community open-space corridors. Whether they are protected open-space natural areas or city parks, both deserve a collaborative effort of civil engineering and landscape architecture disciplines for the best results. Park planning begins with carefully planned and designed "hard" features like structures, drainageways and paved trails which are designed to best compliment the park or open space resources.

The next step becomes to give the trail side "soft" area, or landscape area, the appropriate refinement. This may include careful grading of cut and fill slopes so that they are both attractive and easy to maintain, and the planting of trees, shrubs and appropriate grasses. In an urban area this may include irrigation systems and extensive vegetation or reestablishment of stream channel habitat. In the dryer Colorado climate, new tree and shrub plantings require supplemental irrigation water which is often not available in remote natural areas. For these reasons, tree and shrub plantings in these areas is more difficult unless it is a wetland in nature and depends on natural pre-existing soil moisture conditions. The choice of landscape materials shall utilize Xeriscaping techniques and native plantings that have low water demands.

All new tree and shrub plantings should be located with ample clearance from the paved trail surface. Tree clearance over trail surfaces or within sight lines



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is a safety issue much like street trees in an urban sidewalk situation. Likewise, materials associated with a landscape such as boulders and cobble or wood fences should not be placed in such a way to present any visual or physical obstruction to trail traffic or sight lines. Landscape irrigation, if utilized, should avoid spraying onto the trail surface.

Landscaping shall be provided along structure approaches. The designer shall take creative license to develop plans that are both functional and beautiful. Low, groundcover-type vegetation that helps prevent slope erosion as well as shrubs to discourage “short-cutting” is encouraged. The only restrictions are:

1. Landscaping materials shall not interfere with the minimum sight distance requirements of the structure.
2. Landscaping design and/or materials shall include precautions to prohibit small rocks, bark or other materials from progressing onto the traveled pathway or into the structure.
3. Landscaping shall not encroach upon the trail that may constrain circulation such as tree branch height or vegetation overhang.

The designer of a structure shall employ the services of a registered landscape architect to develop landscape plans for the project.

III.2. Wall Treatments

Interior

Interior concrete walls of underpasses shall be provided with a light colored matte finish to promote a light reflectivity of 60% or greater. The finish can be a combination of paint coating, concrete stain or texture coating. The preferred finish is a paint coating or concrete stain since these finishes can also be applied with a graffiti-resistant coating.

Exterior

1. Exterior walls along underpass entrances or along overpass abutments shall be lined with an aesthetically pleasing treatment such as rock or trailing vegetation.

2. Exterior steel surfaces on overpasses shall be finished with a combination primer/urethane or primer/acrylic coating. A graffiti-resistant coating shall be applied to all exterior concrete and steel surfaces.

Color

All painted or stained concrete or steel surfaces shall be finished in light, natural neutral tones. Some of the accepted federal color standards are shown in Table 3. The designer shall consult with the City’s Project Manager to finalize color selection(s) and additional options for accent colors.

Federal Table No.	Federal Color No.
II	31643
II	31667
III	32630
III	32648
IV	33613
IV	33690
VII	36628
VIII	37722
VIII	37769
VIII	37778
VIII	37855
VIII	37875
VIII	37886
VIII	37925

III.3. Rest Benches

Each entry/exit area of an overpass or underpass shall be equipped with a rest bench or seating area. The bench shall be incorporated into the landscaping/streetscape amenities to the extent possible. The rest benches shall be located away from the structure entrances and exits and be located in such a manner that they do not encourage stopping in the

middle of the structure approach and at, or near, path intersections.

III.4. Artwork

Artwork shall be an integral part of any structure and reflect the character of the surrounding area. Refer to Photo Examples of Guideline Intent section of this report found on pages 22-26.

III.5. Street Name, Construction Date and Clearance References

All overpasses and underpasses shall have the cross-street name, construction date and smallest structure clearance height inscribed into the overhead portion of the structure. This information must be a physical part of the structure, not by a painting or embossing method. The shortest structure clearance shall be placed at the point of shortest clearance. The minimum letter height shall be 6". Lettering font and materials can be determined on a project by project basis.



Typical Structure Reference Information

III.6. Vandalism Deterrents

Each overpass and underpass structure shall be designed to reduce the potential for vandalism to the extent possible. Such strategies may include:

- ▶ Limiting the number of structure materials that could be removed
- ▶ Install vandal-resistant luminaries
- ▶ Hanging/clinging vegetation

In each case, all exposed concrete and steel surfaces shall be provided with an anti-graffiti coating.

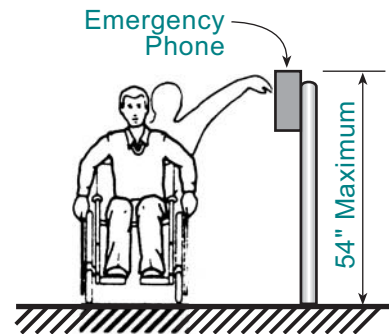
IV. SECURITY

IV.1. Lighting

Interior and exterior lighting shall be designed per the guidelines of Section II.13. Lighting shall be designed to create a pleasant environment while also providing sufficient security so that the facility continues to be used at night.

IV.2. Emergency Phone

An emergency phone shall be placed at one end of each structure (excluding trail bridges over water routes). The phone shall have a direct connection to the local 911 operator for reporting of emergencies. The top mounting height of the highest mechanical part of the phone shall be mounting a maximum of 54 inches from the ground surface¹.



Emergency Phone Mounting

IV.3. Vehicle Restriction

Overpasses and underpasses shall be designed so that maintenance or emergency vehicle can reach either entrance of the structure. Barriers, bollards or other types of restrictive devices that could cause a hazard for pedestrians, cyclists or equestrians, or be a barrier to emergency access shall not be placed at or near structure entrances.



V. CONSTRUCTABILITY ISSUES

The construction of an overpass or underpass must always be conducted in a safe manner and with a minimal disruption of existing vehicle, train, bike and pedestrian traffic. Traffic control plans must be submitted to the City of Fort Collins before permitting to assure the City that accessibility of all users is not disrupted to any great extent during the construction of these facilities.

The designer and contractor must identify and address issues that could impact the constructability of these structures such as:

- ▶ The location of overhead and underground utilities
- ▶ Traffic control, including the necessary road closures or detours
- ▶ Train schedules
- ▶ Water (surface and groundwater) control
- ▶ Use an anti-graffiti protective coating on all concrete and steel surfaces.
- ▶ Use vandal-resistant lighting.
- ▶ Use high-quality paint to reduce re-painting intervals.
- ▶ Use graffiti-resistant coating on all painted surfaces.
- ▶ Keep the growth of trees, shrubs and other vegetation controlled to reduce pavement damage and to provide adequate clearances and sight distance.
- ▶ Trash receptacles should be placed and maintained at convenient locations.
- ▶ Seeded and sodded areas in the vicinity of these structures should be mowed regularly.
- ▶ Inspect signs and pavement markings regularly and replace when necessary.

VI. MAINTENANCE AND OPERATION

Maintenance and operation responsibility for new overpass and underpass structures will be determined during the site/subdivision plan approval process and in all cases, prior to construction. Public access easements shall be conveyed to the City of Fort Collins. The routine maintenance of these structures is necessary to provide a good walking/riding surface for users. Overpass and underpass structures should always be kept clean of debris such as rocks, glass, sand, litter, or landscape materials. Some strategies to reduce maintenance costs include:

- ▶ Structures shall be designed to have a natural draining surface to reduce the buildup of water and/or ice.
- ▶ Incorporate areas into the design for the storage and removal of snow and sediment.
- ▶ Use concrete trails and other washable architecture techniques on underpasses to reduce the potential damage from flooding.



REFERENCES

1. *Americans with Disabilities Act*, 42 U.S.C. 12181, United States Department of Justice, Washington, DC, 1990.
2. *Larimer County Urban Area Street Standards*, Chapter 11, March 2001.
3. *Manual on Uniform Traffic Control Devices for Streets and Highways* (MUTCD), Federal Highway Administration, National Advisory Committee on Uniform Traffic Control Devices, Washington, DC, 1988.
4. *guide for the development of bicycle facilities*, American Association of State Highway and Transportation Officials, Washington, DC, 1999.
5. RP-33-99 *Lighting for Exterior Environments*, Illuminating Engineering Society of North America, New York, NY, 1999.
6. *Guide Specifications for Design of Pedestrian Bridges*, American Association of State Highway and Transportation Officials, Washington, DC, 1997.
7. *Standard Specifications for Highways Bridges*, Sixteenth Edition as amended, American Association of State Highway and Transportation Officials, Washington, DC, 1996.
8. *Colorado Department of Transportation Bridge Design Manual*, Colorado Department of Transportation, Denver, CO.