AESTHETICS AND URBAN DESIGN REPORT ADDENDUM FOR THE VALLEY HIGHWAY EIS DENVER, COLORADO

Prepared for:

Federal Highway Administration
Colorado Department of Transportation

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Introduction and Purpose

The Colorado Department of Transportation (CDOT) and the Federal Highway Administration (FHWA) have been evaluating alternatives and have recently identified a Preferred Alternative for the I-25 Valley Highway Project, in south central Denver. The Preferred Alternative is described in detail in the Valley Highway Logan to 6th Avenue Final Environmental Impact Statement (EIS) expected to be released in late 2006 and includes improvements to I-25, US 6 and associated roadways.

In conjunction with the Draft EIS released in April 2005, an Aesthetics and Urban Design Report completed in February 2005 was prepared to provide recommendations for various highway elements. This addendum updates the recommendation to reflect the Preferred Alternative, and is intended to serve as a reference for Agencies and the public during future design phases. It is not intended to provide specific design solutions, rather as a tool for the development of designs for each of the features in the corridor.

This document serves as an addendum to the original February 2005 Aesthetics and Urban Design Report. While the original report presents analysis and identifies opportunities for aesthetic improvement for all three system alternatives, this addendum presents the Preferred Alternative that is the outcome of the I-25 Valley Highway EIS process.

The original Aesthetics and Urban Design Report can be referred to for the following information:

- Description of public input process
- Summary of existing conditions, including land use and views
- Identification of opportunities for aesthetic improvements of all three system alternatives
- Analysis of locations where visual mprovements would have the greatest effect in increasing visual interest and sense of place in the corridor and its adjacent neighborhoods
- Key conclusions and recommendations
- Highway kit of parts with general recommendations for creating a distinct character along the corridor and enhancing the identity and recognition of neighboring districts through which the highway passes

Corridor Nodes as Recommended Locations for Aesthetic Improvements

Experiences of highways are often characterized by long stretches of undifferentiated roadway and crossings of the corridor that lack distinction. Instead of merely serving a purely functional purpose, opportunities exist for large-scale highway infrastructure to exhibit character, identity and continuity.

The analysis outlined in more detail in the Aesthetics and Urban Design Report defined areas where I-25 crosses another highway or arterial road as nodes. Nodes are defined by the intersection itself, the ramps associated with the interchange, and the neighboring areas that extend out from the crossing. The roads that cross the highway connect to adjacent neighborhoods and districts, and this connection brings with it the opportunity for distinct characteristics, such as development patterns, land uses, landmarks, and neighborhoods that can be identified as having a distinct identity within the corridor.

The five nodes that exist in the corridor under examination are:

- I-25/Broadway Interchange
- I-25/Santa Fe Drive Interchange
- I-25/Alameda Avenue Interchange, including Santa Fe/ Kalamath configuration
- I-25/US 6 Interchange
- US 6/Federal Boulevard Interchange

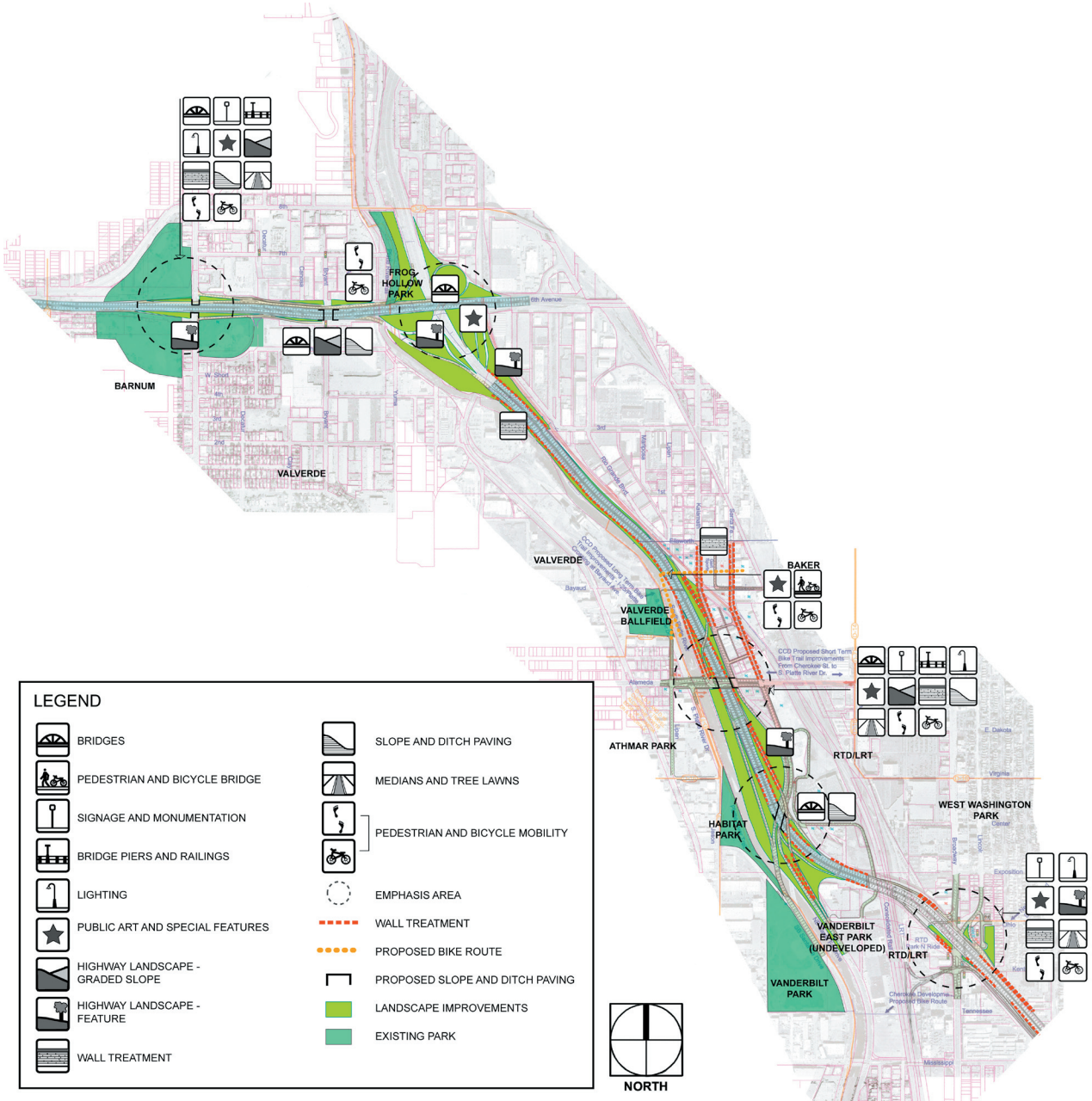
Evaluation of the system alternatives discussed in the Draft EIS generated clear conclusions about the recommended locations for aesthetic treatments of the highway improvements. Where analysis indicated an emphasis on pedestrian activity, a mix of land uses, connections to transit and access to open spaces and trail systems, application of highway elements that will enhance these inherent qualities of the node is recommended. Where the analysis indicated an emphasis on vehicular activity only, application of highway elements that are more appropriate to the scale of transportation infrastructure and effective for the speed of cars on the highway is recommended.

The Preferred Alternative is made up of elements of each of the system alternatives analyzed in the Draft EIS. For this addendum, the recommendations previously developed for the system alternatives for each corridor node have been updated to reflect the Preferred Alternative. The Preferred Alternative recommendations are shown on Figure 1.

Phased Project Implementation

As described in the Final EIS, CDOT intends to construct the Preferred Alternative in phases. Implementation will be based on the availability of funding and the timing of implementation of the phases is currently uncertain. It is likely that the implementation of the entire Preferred Alternative will extend over many years, and there may be gaps in time between phases.

It is recommended that the overall concept for urban design and aesthetics be further developed during the design for Phase 1. This concept can then be used and refined as subsequent phases are designed and implemented.



PREFERRED ALTERNATIVE

Highway Kit of Parts

The Aesthetics and Urban Design Report described the public involvement process conducted during preparation of the Draft EIS. As part of the public involvement process a Citizen Working Group was convened to generate recommendations, and categories of highway elements—a kit of parts—that could be applied to enhance the aesthetic qualities of the highway corridor improvements. The group agreed on three main goals for the highway kit of parts:

- The kit must enhance the appearance of the corridor and its related structures.
- The kit must improve safety for all users of the corridor and its nodes.
- The kit must address the needs of both the highway user and the residents or workers in adjacent neighborhoods and districts.

The group also determined which elements should have a common appearance and identity throughout the corridor, and which elements should have a unique appearance at each corridor node. These conclusions are listed in the table below:

Element	Common Corridor Identity Preferred	Individual Node Identity Preferred
Highway Landscape (ex: graded slopes)	•	
Wall Treatments	•	•
Vehicular Bridges		•
Pedestrian and Bicycle Bridges		•
Bridge Piers		•
Bridge Railings		•
Lighting		•
Slope and Ditch Paving		•
Medians and Tree Lawns		•
Signage and Monumentation		•
Public Art and Special Features		•

General Recommendations for Improvements

The following pages exhibit images that received a positive response from the Citizen Working Group and provide general recommendations for each element in the highway kit of parts. Citizen Working Group preferences have been consolidated into an ensemble of images and distilled text that describes the qualities considered desirable in each category. These recommendations were presented in the original Aesthetics and Urban Design Report and are reproduced here for easy reference.

The objective for these recommendations is to describe how the general goals of the Citizen Working Group for each category of improvements might be achieved. These recommendations are intended to express Citizen Working Group preferences so that specific designs for each of the features in the corridor can be considered during final design.

Highway Landscape

Landscape design has the capacity to punctuate the continuous linear experience of the highway. The sculptural, textural and colorful qualities of plantings stimulate visual interest for travelers passing through landscape features. Landscape along the highway can have a softening effect on transportation structures and water detention areas, and can frame scenic views as the roadway passes through different areas. The design of highway landscapes can achieve these effects while remaining responsive to the limitations of the Colorado climate by using low-maintenance, drought-tolerant vegetation. The Citizen Working Group expressed the following preferences:

Character
Where possible, highway landscape should possess an open and expansive character with clean lines. Where appropriate, terrace walls should be integrated to break down the scale of landscape slopes.

Views
Vegetation should not interfere with significant views or impede sightlines. Existing undeveloped open spaces adjacent to the corridor should be enhanced by new landscape treatments.

Composition
Where appropriate, terrace walls should be integrated with landscape to enhance scale and texture. A single species used over a large area will provide more visual impact than a mix of many.

Materials
A palette of low-maintenance, drought-tolerant vegetation with appropriate hardiness rating should be used to achieve visual interest and seasonal color, and to be environmentally responsible. Vegetation should be selected based on maintenance, care, irrigation, low-water conditions, drought resistance and all-season attractiveness. Vegetation should be used at locations, such as bridges, where the linear highway experience is interrupted.

Wall Treatments #1

There will be locations along the highway corridor where walls are required to screen, mitigate sound and retain adjacent grade. In some instances, the scale of these walls will be large and will be visible both to drivers and to people walking through adjacent neighborhoods. Therefore, they should be aesthetically pleasing. Walls associated with the highway present design opportunities for distinctive color, texture and material treatments that will help to break down scale and to create a sense of place. The design of wall treatments must consider the scale, speed and context of the viewer, as well as transitions to contiguous sections of the highway. The Citizen Working Group expressed the following preferences:

Style
Repetitive elements such as piers and pier caps should be used to break up large expanses of wall treatments and to establish a pedestrian scale that is appropriate for its neighborhood context.

Scale
Where appropriate, terrace levels and planting should be incorporated in the design of the wall to help break down the scale as well as to enhance visual appeal.

Materials
Where possible, wall treatments should incorporate natural materials that are part of a simple palette to provide color, texture and scale. Materials must demonstrate durability, longevity and permanence; resistance to wear, graffiti and vandalism; ease of installation, maintenance and replacement; and resistance to damage from air pollution and exhaust.

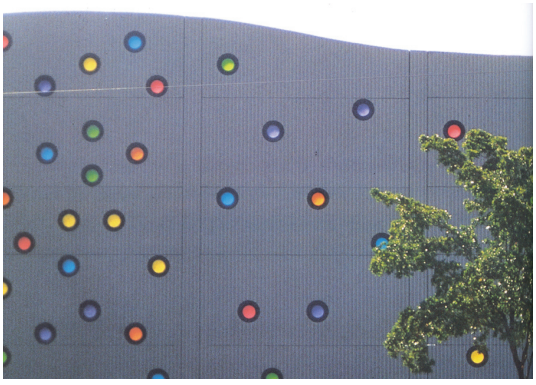
Screening
Where it is not possible to treat walls with materials, textures and colors, or where the extent of the treatment is great and requires another element for diversity, trees should be used as a buffer or screen.

Wall Treatments #2

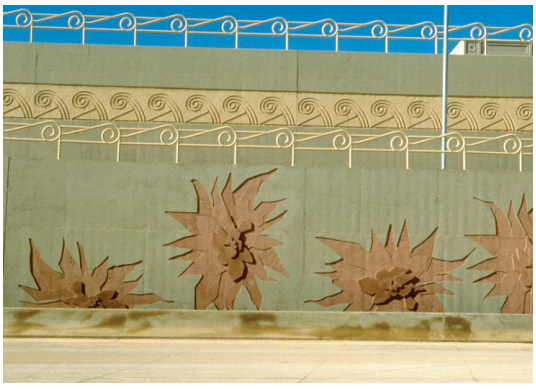
There will be locations along the highway corridor where walls are required to screen, mitigate sound and retain adjacent grade. In some instances, the scale of these walls will be large and will be visible both to drivers and to people walking through adjacent neighborhoods. Therefore, they should be aesthetically pleasing. Walls associated with the highway present design opportunities for distinctive color, texture and material treatments that will help to break down scale and to create a sense of place. The design of wall treatments must consider the scale, speed and context of the viewer, as well as transitions to contiguous sections of the highway. The Citizen Working Group expressed the following preferences:

Relief
Textures and bas-relief patterns should provide visual interest for passersby.

Narrative
Wall treatment should enhance visual interest and sense of place through themes and narratives.



Materials
Efforts should be made to enhance visual interest and to break down the scale of a large expanse of wall through the incorporation of a mix of materials, colors, patterns and textures. Materials must demonstrate durability, longevity and permanence; resistance to wear, graffiti and vandalism; ease of installation, maintenance and replacement; and resistance to damage from air pollution and exhaust.



Pictorial
Wall treatments that border communities where people live and work should operate both at the scale of the automobile and the pedestrian. Their themes and materials should enhance recognition of surrounding contexts.

Vehicular Bridges

Due to the linear nature of highways, most elements experienced by the highway traveler are parallel to the road. Bridges are the only perpendicular elements that interrupt the predominant path of travel. Bridge crossings present opportunities to distinguish neighborhoods and districts adjacent to highways. A series of bridges must share common elements, but also maintain a unique identity. Components that create identity include form, character, detailing, color, and materials. The Citizen Working Group expressed the following preferences:

Identity
Bridges should be unique and strongly identifiable. Visual interest can be achieved through the use of distinctive forms, colors, materials and details.

Character
Vehicular bridges should have open and transparent qualities, and incorporate materials and forms suggestive of place and context.

Form
The form of a vehicular bridge should clearly reflect the purpose of its structure, which will generally result in cleaner lines. Bridges should be scaled appropriately for both passing vehicles and pedestrian use.

Accents
Where appropriate, bridge designs should incorporate distinctive colors and materials with accents, details, lighting and signage. Materials must demonstrate durability, longevity and permanence; resistance to wear, graffiti and vandalism; ease of installation, maintenance and replacement; and resistance to damage from air pollution and exhaust.

Pedestrian and Bicycle Bridges

Similar to vehicular bridges, pedestrian and bicycle bridges interrupt the linear passage of the highway corridor. Because they do not need to support the weight and trip-frequency of large vehicles, these bridges present additional design opportunities to create structures with unique, identifiable and interesting forms and detailing. In addition to enhancing the identity of adjacent areas, pedestrian bridges must offer safe and visually interesting passage for pedestrians and bicyclists. There may be instances where there is pedestrian and bicycle access on vehicular bridges. The Citizen Working Group expressed the following preferences:

Form
Bridges should be scaled for pedestrian and bicyclist use, but also offer visual interest for highway drivers. The form of a pedestrian bridge should clearly reflect the purpose of its structure, which will generally result in cleaner lines.

Identity
Pedestrian bridges should be unique and strongly identifiable. Visual interest can be achieved through distinctive forms, colors, materials and details.

Access
Access to pedestrian and bicycle bridges should be choreographed with a careful composition of ramps, stairs, railings, lighting, landscaping and materials.

Public art
Incorporation of public art into pedestrian and bicycle bridges will create unique and visually interesting structures.

Bridge Piers

Bridges consist of multiple parts: Piers support the weight of the structure and anchor the bridge span and also may be used to further enhance neighborhood identity and character. The design of bridge piers should lend scale to the shared pedestrian and vehicular crossing and express bridge structure. Pier form, detailing, color and texture may be used to form identity. The Citizen Working Group expressed the following preferences:

Proportion
The proportions of bridge piers should be aesthetically pleasing and their structure should be expressed by their form in order to achieve a harmony of elements.

Materials
A composition of materials, colors, and forms that are visually interesting should be used to break down scale. Stone and other distinctive high-quality materials should be used wherever possible. Materials must demonstrate durability, longevity and permanence; resistance to wear, graffiti and vandalism; ease of installation, maintenance and replacement; and resistance to damage from air pollution and exhaust.

Details
Landscape and terraces should be used in places to help integrate the bridge with its setting. Where appropriate, detailing should be visually interesting.

Bridge Railings

Bridges consist of multiple parts: Railings serve to protect pedestrians and vehicles from the road edge and what is below the bridge and can enhance neighborhood identity and character. The design of bridge railings should lend scale to the shared pedestrian and vehicular crossing. Railing form, detailing, color and degree of transparency help form identity. The Citizen Working Group expressed the following preferences:

Transparency
Bridge railings should be transparent both to enhance visibility through the bridge from the highway and to create a comfortable open environment for pedestrians and bicyclists.

Elements
Bridge elements, such as railings, piers and lighting, should be distinctive and appropriate both to a pedestrian and vehicular speed and scale.

Separated barrier
Pedestrian and bicycle traffic should be separated from the roadway by a vehicular barrier, and from the bridge edge by a pedestrian-scale railing. Detailing for each railing should be appropriate to the scale and speed of cars versus pedestrians.

Combined barrier
Where a combination of barrier and railings is required, vertical slats should be of a pedestrian scale and horizontal elements should be of material and shape to meet vehicular barrier requirements.

Lighting

Per CDOT standards, high-mast fixtures will be used to light the highway and ramps. Additional opportunities for lighting exist at arterial and local streets that cross the corridor. This lighting should have a neighborhood orientation, although it may be experienced by the highway traveler also. In addition to providing illumination for the purposes of safety, lighting should be used to distinguish commercial and residential districts and to reinforce area image and history. All lighting must meet City of Denver and Xcel Energy fixture and color standards. It should be selected to contribute to district character and identity in addition to its functional attributes. The lighting selection process should consider shields and reflectors to minimize light spill. The fixtures illustrated below meet City of Denver standards.

Globe Luminaire
This type of luminaire is reserved for parks and parkways exclusively.

Acorn Luminaire
Acorn luminaires are recommended for most commercial streets. Single luminaires are highly preferred by the City of Denver guidelines.

Promenade Pedestrian Double Luminaire
In order to maintain consistency throughout the city, avoid selecting different types of lighting for small projects.

Street Lighting
Spacing, location, style and color of street lighting should adhere to City of Denver and Xcel Energy guidelines.

Slope and Ditch Paving

As a bridge structure rises from the ground and begins to span across a roadway or river corridor, slope and ditch paving is used to retain earth or structure underneath. Slope paving is distinguished from vertical wall treatments, although some of the same applications of texture, color and materials can be used to increase visual appeal and to enhance the experience of passing under a highway bridge or other retained areas. The Citizen Working Group expressed the following preferences:

Scale
Vertical walls or terracing should be used to break down the scale of slope and ditch paving treatments.

Texture
Surfaces of sloped pavement and vertical walls should be textured to provide visual interest and to break down large expanses of paving. In addition to hardscape treatment, this can be accomplished through the integration of planting.

Palette
Sloped paving should use a distinctive yet simple palette of materials, colors and textures that are visually stimulating to vehicular traffic. Materials must demonstrate durability, longevity and permanence; resistance to wear, graffiti and vandalism; ease of installation, maintenance and replacement; and resistance to damage from air pollution and exhaust.

Medians and Tree Lawns

Medians generally have two purposes: At an urban design level, they help create a more comfortable scale for vehicles and pedestrians. In terms of safety, they function to separate traffic traveling in different directions. In medians, the incorporation of planting and hardscape materials with distinct color and texture creates visual interest and builds identity for adjacent neighborhoods and districts. Street tree lawns must adhere to City of Denver standards. For the purposes of this project, medians and tree lawns are suitable only for arterial roads that cross the highway corridor. The Citizen Working Group expressed the following preferences:

Width
Medians should be as wide as possible to create maximum separation between lanes, enhanced safety and greater area for landscape treatment.

Height
Medians should offer vertical separation from the roadway to enhance safety and visual appeal.

Character
Where appropriate, medians should be characteristic of residential area parkways. A mix of groundcovers and trees for horizontal coverage and vertical form will contribute to the desired character, as will a mix of hardscape materials. Street tree lawns must adhere to City of Denver standards which stipulate either trees in sod or tress in grates.

Visual interest
Where appropriate, medians and tree lawns should incorporate a simple palette of lawn, grasses, trees, shrubs, planters, hardscape and public art to enhance visual interest and seasonal color. A clean, well-maintained appearance and a mix of vegetation scales is desirable. Vegetation must be low-maintenance, drought-tolerant, and environmentally appropriate.

Signage and Monumentation

All signs located within the highway corridor will meet CDOT standards; all roadway signs along streets will meet City of Denver requirements. Additional opportunities for signs exist along arterial streets, on- and off-ramps, and bridges that cross the corridor. This signage should have a neighborhood orientation and should be used to distinguish and clarify district identity through the use of form, character, detailing, color and materials. While the primary purpose of signs will be for neighborhood or landmark identification, some signs can be scaled or positioned to be readable from the highway. Signage should be used to create a transition from the highway to the local streets, reinforcing change of speed and scale. It should be used for wayfinding, emphasizing connections to downtown as well as directions to neighborhoods and major destinations. The Citizen Working Group expressed the following preferences:

Gateway
Signs should be used to announce arrival at or passage through neighborhoods and districts adjacent to the highway corridor.

Landmark
Signs should play a locational or wayfinding role, identifying an area, neighborhood, arterial road or geographic feature. Some signs may take the form of large-scale monuments.

Identity
Signs associated with neighborhoods and other districts through which the highway passes should distinctively announce and identify specific places.

Character
Signs should be legible and effective both for vehicles and pedestrians. Their design should integrate unique forms, materials, colors, textures and planting.

Public Art and Special Features

Public art and other special features play an important role in the highway corridor. Using placement, scale, distinctive materials, and themes, they have the potential to announce or to define areas along the highway as it passes through neighborhoods and crossings. Such features can enhance a sense of place or act as transitional elements between the highway and neighborhood experiences. The Citizen Working Group expressed the following preferences:

Identity
These features should distinguish themselves from the surrounding context with the use of scale, color, signage, texture and materials. Where appropriate, they may incorporate signage to identify location.

Gateway
Such elements should be placed at highway crossings to signal gateways to distinct areas where people live, work or pass through in large numbers.

Landmark
Public art and special features should contribute to neighborhood identity through the use of scale and be effective both for pedestrian and vehicular viewers.

Visual interest
The visual interest of public art should be extended into the evening with the incorporation of accent lighting.