### Project Objectives and Results Summary (1 page only)

*From the inception of the design process, the Carter & Burgess design team recognized both project specific and universal design challenges related to the Highland Bridge. The following are some of these objectives:*

<table>
<thead>
<tr>
<th>Design Objectives</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meet the goals and specifications of each participating agency.</td>
<td>Develop and adhere to design criteria</td>
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<tr>
<td>Provide a safe crossing over the I-25 highway corridor.</td>
<td>Span and provide clearance for the entire length of the highway, while maintaining all American Disabilities Act (ADA) standards.</td>
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<td>Meet and exceed all ADA requirements in an enjoyable setting so as to encourage pedestrian and bicyclist use.</td>
<td>Exceed all ADA standards through aesthetically pleasing and alternative solutions.</td>
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<td>Improve existing pedestrian facilities and circulation through Denver.</td>
<td>Expand on and connect to adjacent urban trail facilities.</td>
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<tr>
<td>Provide a bike friendly crossing.</td>
<td>Design for all alternative modes at commuter and recreational speeds traveling both locally and regionally.</td>
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<tr>
<td>Provide a design solution that serves as a gateway to the City.</td>
<td>Encourage and develop unique, graceful and innovative design solutions.</td>
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<td>Relate to the other two bridges in the “trilogy” of 16th Street pedestrian bridges.</td>
<td>Pursue the civic quality of increasing pedestrian and bicyclist circulation within downtown; provide a technically and aesthetically innovative design while providing a unique facility.</td>
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<td>Relate to the other bridges within the I-25 corridor.</td>
<td>Break through the standard of typical highway structures and provide a unique facility.</td>
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<td>Incorporate an art program into the design.</td>
<td>Coordinate with the Art in Public Places Program director throughout process and offer “canvases” on which to provide art.</td>
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<td>Meet all budget requirements.</td>
<td>Provide multiple cost estimates and prioritize budgets.</td>
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<td>Meet all project deadlines and keep project on schedule.</td>
<td>Provide ample time in the schedule for QA/QC review and agency reviews.</td>
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<td>Create a collaborative design effort.</td>
<td>Collaborate with the designers, client, maintenance and future facility users on design, function and operation. Use computer renderings to facilitate the design process.</td>
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<tr>
<td>Incorporate stakeholder and neighborhood input in the process.</td>
<td>Collaborate with adjacent property owners, council people, neighborhood groups and City and Mayor agencies on a regular basis.</td>
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Background
The City and County of Denver, the Colorado Department of Transportation and Regional Transportation District formed a partnership in 2000, and issued a public Request for Proposals for the design of a pedestrian/bike bridge over I-25. The City and County of Denver, representing the partnership, hired Carter & Burgess in December of 2001 to complete the conceptual design and construction documents for the pedestrian bridge over I-25, completing the 16th Street Pedestrian Mall extension from Downtown Denver to the Highland neighborhood.

The Highland Bridge project is one of many revitalization efforts within the Central Platte Valley (CPV). The CPV is an area located just west of the Downtown district neighborhood and east of the Highland neighborhood, characterized by the Platte River, a railroad corridor and I-25, the major north/south highway through Denver. In 1986, in an effort to reinvest in the Central Platte Valley, the City and County of Denver adopted a Comprehensive Plan calling for consolidating mainline railroad tracks, and razing existing viaducts that connected the two neighborhoods on either side of the CPV. As the 16th Street viaduct was torn down in 1994, the city made plans to improve the economic viability of the CPV. One major component of economic development was to extend the 16th Street Pedestrian Mall into the CPV. This extension included three pedestrian bridges.
that would over the CPV rail lines, the Platte River and I-25. During the design process of
the Highland Bridge, the bridge over the Railroad, the Millennium Bridge, was under
construction and the Platte River Bridge was in design. The Highland Bridge over I-25
was to be the third of three structures necessary to complete the connection.

The Carter & Burgess design team organized an integrated design team to achieve a
comprehensive design. Structural components were designed in unison with all other
components: urban design, drainage, traffic engineering, construction methods, civil
engineering, safety measures and maintenance issues. By working so collaboratively, the
design team considered each design solution from a multiplicity of angles such as,
structural loads, the experiential quality, constructibility, and maintenance issues.

Costs
The Partnership initiated the Highland Bridge project with construction and design fees
not to exceed 4.2 million dollars. Within this requirement, Carter & Burgess, Inc.
prepared design alternatives allowing for contingency and escalation for a year of
construction. Design fees include coordination with the construction industry to confirm
the project could be built within the specified budget.

Design Objectives
The Carter & Burgess design team prioritized public input to ensure a successful design
both functionally and aesthetically. As neighbors and future users of the Highland Bridge,
the public gave input at all levels of the design, from the proposed land-use of the plaza
space to the aesthetic character of the structure.

During the design development and construction documents phases, several objectives
were presented and, in turn, resolved. The following is a list of these design objectives:
Meet the goals and specifications of each participating agency

Upon notice to proceed, the design team organized a Criteria Document. This document highlighted issues anticipated to arise during the design process, the agency or group that dictated this requirement and the specific requirement. Specific issues and requirements included: view shed ordinances, lighting/Dark Sky Ordinance, Loading capacities, design vehicle, clearance, fencing, and bridge span and cross section requirements. The design team and each agency participated in and reached consensus on this document before beginning conceptual design.

Provide a safe crossing over the highway.

The bridge’s length is 234 feet to span the entire width of the CDOT right-of-way (ROW) on I-25. By spanning the entire highway ROW width, the Carter & Burgess design team preserves the structure regardless of future highway improvements. The bridge should remain in tact to serve generations to come regardless of the highway’s future. The bridge maintains a minimum of 17’-6” clearance over the highway. Approximately 225’ of ramp provide a 5% ADA slope to catch up the 10’ of grade between the required height of the top of bridge deck and the touchdown to existing grade on the southeast sides’ Platte Street.

Meet and exceed all ADA requirements in an enjoyable setting so as to encourage pedestrian and bicyclist use.

The design team adhered strictly to all ADA requirements and met with the City and County of Denver ADA compliance officers during the design process. To protect users from potentially unsafe areas like the stairs and arch touchdowns, the design team sought out alternatives to the traditional curb and metal railing around the object; concrete tactile tiles warn users of stairs, and benches prevent users from walking into the arch touchdown.
locations. Pathways and ramps are free from obstructions; slopes do not exceed 5%; handrail is provided where necessary; and tree grates and drainage grates have a maximum of 3/8” openings.

- **Improve existing pedestrian facilities and circulation through Denver.**

The bridge provides a conflict-free crossing over I-25 providing wonderful long distant views to downtown Denver, the 16th Street Pedestrian Mall, Commons Park, the Rocky Mountain Foothills skyline, the Highland neighborhood and the I-25 corridor. The quality of materials and attention to detail enhance and promote the pedestrian experience along the way. The project incorporates curb and gutter improvements and provides and aligns accessible ramps and crosswalks to adjacent streets to transition into the adjacent neighborhoods.

- **Provide a bike friendly crossing.**

The design team coordinated with the Mayor’s Bike Advocacy Group to establish details that facilitate multiple recreational modes along the bridge. The design facilitates the separation of separate bicyclists and pedestrians, to provide a path that accommodates leisure bicyclists and commuting bicyclists, tandem bikes, roller bladers, pedestrians and wheelchairs.

- **Provide a design solution that serves as a gateway to the City from I-25.**

The design team researched international, groundbreaking bridge designs as precedents and created a sophisticated, modest and contemporary structure, visible from both adjacent neighborhoods and from the I-25 corridor. The I-25 corridor contains a series of traditional highway bridges. The innovative design of the Highland Bridge adds aesthetic appeal to the I-25 corridor as the final structure to span the highway. Its visibility and uniqueness define the entrance to the Downtown area, the Highland neighborhood and the 16th Street Pedestrian Mall.

- **Relate to the other two bridges in the “trilogy” of pedestrian bridges.**

The Highland Bridge relates to the other two bridges by sharing the same civic quality of
enhancing pedestrian and bicycle mobility throughout the metro area and by using innovative and unique design tools to express the facility. The Highland bridge is architecturally significant to the Denver area. The Highland bridge sets itself apart from the urban fabric by clear spanning the highway to minimize structure depth and heavy structural components. The design team presented seven bridge type alternatives for review. The final design includes three arches, and a single span creating a sinuous bridge that complements the surrounding architecture while providing a significant and distinctive amenity to the area.

- **Incorporate an art program into the design**
  The project’s 1% art budget incorporated the Mayor’s office of Art and Media and the Art in Public Places program in the design process. The design team met with the coordinator of this program to discuss possibilities, advertisement and selection of art opportunities and artists.

- **Meet all budget requirements.**
  Budget was a major concern on this project as similar project. To maintain control of project costs, the design team conducted several cost estimates and conducted value engineering without sacrificing the elegance of the design. Through constant monitoring, the design team was able to prioritize design elements and maximize use of available funds.
Meet all project deadlines and keep project on schedule.
Design deadlines were a priority for City and County staff on this project. The design team conducted weekly coordination meetings to facilitate input providing ample time for QA/QC reviews.

Create a collaborative design effort.
The design team placed equal value on form and function. Structural engineers incorporated a strong urban design emphasis. Coordination meetings included input from roadway, traffic, construction, landscape, structural engineers, and architects, on both the design team and client team. The design team used 3-D computer visual simulation as a tool to communicate design alternatives to each other as well as to the public and the Partnership.

Incorporate stakeholder and neighborhood input in the process.
The design team recognized that the success of the Highland Bridge would be determined by the quantity of users and how pleased they were with the facility and by the positive response from its neighbors who would have to embrace this new defining visible structure into their neighborhood. The design team attended several neighborhood Design Review Board meetings, communicated directly with City council people, published regular updates in local papers, and met with adjacent business and landowners. The public website www.highlandbridgedenver.com relayed project information to the public. The design team used computer visual simulation technology as a tool to assist in the communication and visioning process between the design team and the public. As the future users of the site, the public was, in essence, a priority client in the design process. Through this outreach program, this structure meets the initial project goals while providing the neighborhoods and region with a functional and cost-effective landmark facility.