4.11 VISUAL AND AESTHETIC RESOURCES

Summary

Visual resources are the natural and cultural features of the landscape that can be seen and contribute to the public's enjoyment of the environment. Visual resource or aesthetic impacts are generally defined in terms of a project's physical characteristics and visibility, and the extent to which the project's presence would change the perceived visual character and quality of the environment in which it would be located.

Visual resources are the natural and cultural features of the landscape that can be seen and contribute to the public's enjoyment of the environment.

This section was prepared following the guidelines of the Federal Highway Administration's *Visual Impact Assessment for Highway Projects* (U.S. Department of Transportation 1981). The preparation included site visits, examination of aerial mapping, and review of engineering drawings of the packages. A visual inventory was prepared to record sensitive receptors, such as travelers or residents, viewsheds, and the scenic quality of the landscape, both built and natural. In addition, visual simulations were used to complement the analysis.

The results of the impact analysis show that all of the build packages would measurably alter the visual character and quality of existing conditions. Visual impacts would be caused by alterations of highway facilities including widened roadways, walls, modified interchanges, structures, and changes to transit stations. Additional details of the visual resource analysis for Package 2 and Package 4 are provided in the *Visual Technical Appendix* (CH2M Hill 2005). The analysis shows that:

- Visual sensitivity generally increases in the northwestern portions of the project area.
- Wider roadway and new or expanded structures result in the greatest visual change for both the build packages.

Affected Environment

Many factors contribute to the visual environment. The *Visual Impact Assessment for Highway Projects* (U.S. Department of Transportation 1981) defines visual quality according to three key categories:

1. **Vividness** — Memorability of the visual impression received from contrasting landscape elements as they combine to form a striking and distinctive visual pattern.
2. **Intactness** — Integrity of visual order in the natural and man-made landscape, and the extent to which the landscape is free from visual encroachment.
3. **Unity** — Degree to which the visual resources of the landscape join together to form a coherent and harmonious visual pattern. Unity refers to the compositional harmony or intercompatibility between landscape elements.

Visual sensitivity is defined as the level of visual interest for the viewer, both in terms of the value of the resource, and the number of viewers that would be affected by change.

Communities recognize the value of their visual resources and as a result are adopting planning goals and objectives to support the preservation of view corridors and enforce aesthetic guidelines in development projects. Pertinent goals and objectives are included in the *Visual Technical Appendix* (CH2M Hill 2005). Objectives can be characterized by the desire to protect cultural and scenic resources, provide or enhance beautiful settings, and promote and protect the community image.

Communities recognize the value of their visual resources and support the preservation of view corridors.

Site visits, project design documents, and communications with planners and public works personnel were used to develop an understanding of the visual resources and sensitivities for protecting these resources. Section 4.2, Land Use, details the context of the environment along the United States Highway 36 (US 36) corridor. Table 4.11-1, Visual Elements, Rating, and Viewer Types, provides the following information for the corridor by segment:

- Summary of the existing visual elements.
- Numeric ratings (1=low, 7=high quality) of the vividness, intactness, and unity visual factors.
- Types of viewers (residents, drivers, tourists, and recreationists).

This table also documents the assessment of visual quality for the corridor by segment.

Table 4.11-1: Visual Elements, Rating, and Viewer Types

Segment	Visual Elements	Vividness[1]	Intactness[1]	Unity[1]	Visual Quality Score (Average)	Viewer Types
Adams	Solid sound walls and fences, golf courses, suburban office complexes, some views of natural mesa terrain, and occasional views of the Flatirons.	2	3	3	2.6	Travelers on US 36, residents, and recreational users
Westminster	West end of segment is open and natural with views of the Flatirons with new residential. East end of segment is mixed residential and commercial use.	6	5	6	5.6	Travelers on US 36, residents, and recreational users
Broomfield	Suburban residential and industrial uses to the east and natural rolling hills and mesa plateaus.	5	6	6	5.6	Travelers on US 36, residents, and recreational users
Superior/ Louisville	Open space framed by residential and the former Sun Microsystems facility, now owned by ConocoPhillips. Groomed landscaping and golf course.	6	6	5	5.6	Travelers on US 36, residents, office workers, and recreational users
Boulder	Views of the Flatirons large open space to Table Mesa, which includes office and residential uses.	7	6	6	6.6	Tourists, travelers on US 36, residents, office workers, and recreational users

Source: US 36 Mobility Partnership, 2006.
Notes:
[1]low quality = 1 and high quality = 7
US 36 = United States Highway 36

Information from Table 4.11-1, Visual Elements, Rating, and Viewer Types, was assessed and translated into the summary of visual quality ratings for the US 36 corridor. This is presented in Table 4.11-2, Summary of Overall Visual Quality. As described later in this section, conditions at specific locations within the segments will vary.

Table 4.11-2: Summary of Overall Visual Quality

Segment	Visual Quality
Adams	Low
Westminster	Medium to High
Broomfield	Medium to High
Superior/Louisville	Medium to High
Boulder	High

Source: US 36 Mobility Partnership, 2006.

The visual sensitivity evaluation involves the viewers' visual interest level toward the resource, including the value of the resource and the number of viewers. Table 4.11-3, Summary of Overall Visual Sensitivity, summarizes the overall evaluation of visual sensitivity by segment. As described later in this section, conditions at specific locations within the segments will vary.

Table 4.11-3: Summary of Overall Visual Sensitivity

Segment	Visual Sensitivity
Adams	High
Westminster	High
Broomfield	Medium to High
Superior/Louisville	High
Boulder	High

Source: US 36 Mobility Partnership, 2006.

Denver Segment

The visual characteristics of the Denver Segment are not discussed in this section because there would be no changes under the proposed packages.

Adams Segment

Highway sound walls currently parallel the road in the Adams Segment. These walls offer some unifying features, although they are low in visual quality when viewed from US 36. Views of US 36 from adjacent, low rise, residential properties are blocked by the highway sound walls. Multi-story structures, including some townhomes and apartments rising above the existing sound walls, have direct views of US 36.

Highway sound walls currently parallel the road in the Adams Segment.

Westminster Segment

This segment is moderately vivid with undulating terrain and occasional views to distant mountains. This setting's degree of visual intactness is being eroded with rapid development that is varied in nature and somewhat typical of mixed urban development. However, the new development has incorporated unifying aesthetic entries and unobtrusive signs, and has extended these details to the adjacent overpass structures. As shown in Table 4.11-3, Summary of Overall Visual Sensitivity, the overall visual sensitivity for the Westminster Segment is medium to high.

The Westminster Segment is moderately vivid with undulating terrain and occasional views to distant mountains.

Westminster Center Station (near Sheridan Boulevard and US 36)

Changes for all build packages at the existing Westminster Center park-n-Ride would include modifying the facility to serve as a bus rapid transit (BRT) station. (Detailed descriptions of the BRT station modifications are provided in Chapter 2, Alternatives Considered.) This area is surrounded by hotels, large parking lots, residential development, and other land uses. There are no visually unifying features or particular points of interest surrounding the station. Viewer sensitivity at this station is medium-low. The BRT station would be designed to have unifying architecture and landscaping elements.

Church Ranch/104th Avenue Station

Changes for the build packages at the Church Ranch/104th Avenue park-n-Ride would include modifying the facility to serve as a BRT station. Views from this station include a mix of office and commercial buildings, Lower Church Lake, the distant Front Range, and residential homes. This station has high visual sensitivity. The BRT station would be designed to have unifying architecture and landscaping elements.

Broomfield Segment

The Broomfield Segment is moderately vivid due to undulating terrain, while the existing level of intactness is being modified with rapid development that is changing the landscape from a rural to a suburban commercial landscape along US 36.

Similar to the Westminster Segment, the Broomfield Segment is moderately vivid due to undulating terrain, while the existing level of intactness is being modified with rapid development that is altering the visual landscape. The Interlocken office and industrial development is changing the landscape from a rural to a suburban commercial landscape along US 36. To the east, some of the existing industrial areas have relatively low visual quality, but the open space and unifying architectural elements in the area to the west increase the overall visual quality to medium-high. The overall visual sensitivity was rated medium to high based on the visual resources, and the number of viewers that would be affected by the change.

116th Avenue Station

Changes for all build packages at the 116th Avenue park-n-Ride would include modifying the facility to serve as a BRT station. The station is near relatively open and undeveloped land. However, a nearby power substation and recreational vehicle storage area visually disrupt the surrounding open fields. Southeast of the station area is an industrial area with recreational vehicle and boat storage yards, and an agricultural field. The area is planned for mixed use urban development. Visual quality is medium and viewer sensitivity is medium-high around the station area.

Flatiron Station

Changes for all build packages at the Flatiron park-n-Ride would include modifying the facility to serve as a BRT station. The scenery to the east of this station consists of rural small farms and rolling hills providing both cultural and scenic quality. East of the proposed station is the Rock Creek Farm, which is a Boulder County Open Space. The FlatIron Crossing shopping area is somewhat visible from the station, and contains unifying architectural and landscaping elements. Viewer sensitivity is high for this station. The station is difficult to view from US 36, but can be seen from new residential development near the station.

Superior/Louisville Segment

In this segment, the natural landscape is evolving from one that is vivid and intact to one that consists of large commercial and office park development integrated with trails and open space. Overall this segment contains medium to high quality visual resources.

Large commercial and office park development, integrated with trails and open space, are affecting the vividness and intactness of the Superior/Louisville Segment.

McCaslin Station

Changes for the build packages at the McCaslin park-n-Ride would include modifying the facility to serve as a BRT station. Two large commercial centers are located on either side of the freeway. These centers are characterized by "big box" retail uses, including Home Depot, Costco, Lowe's, and a movie theater. The station is typical of a suburban commercial district with moderate visual quality and viewer sensitivity. The BRT station would be designed to have unifying architecture and landscaping elements.

Boulder Segment

Vivid views and large spans of open space properties ensure a high visual quality and high viewer sensitivity for both the US 36 corridor and the station at Table Mesa Drive. The viewshed is vivid and intact, and development has been integrated to maintain the unity of the landscape. Views to the south of the Table Mesa Station encompass large mesas and residential development. Views from the site are vivid and scenic because this segment of the US 36 corridor is elevated on Davidson Mesa. Views of the site are typical of a well-landscaped suburban office development.

The Boulder Segment viewshed is vivid and intact, and development has been integrated to maintain the unity of the landscape.

Table Mesa Station

Changes for the build packages at the Table Mesa park-n-Ride would include modifying the facility to serve as a BRT station. The existing Table Mesa park-n-Ride structure includes a four-story parking garage located between Table Mesa Drive and Foothills Parkway (State Highway 157).

Options A and B present two different designs for BRT access into this station for Packages 2 and 4. (Refer to Chapter 2, Alternatives Considered, for a detailed description of the two options.) Option A would provide at-grade access for buses, similar to the current access, while Option B would include a new structure for buses to access the station from the special lanes. Option B would provide greater visual impacts to the corridor than Option A. The Combined Alternative Package (Preferred Alternative) does not present different design options; however, the package would provide at-grade access for buses similar to Option A.

Impact Evaluation

Methodology

The visual analysis was based on field observations, review of local planning documents, site visits, photographs of the project area, project drawings, and typical cross-sections of the packages.

Effects to visual resources were categorized as:

- Blocking or impeding views of a scenic value.
- Damaging scenic resources, including, but not limited to, the removal of trees or rock outcroppings, impacts on historic buildings, or altering a state highway.

- Changing the existing visual character or quality of the site and surroundings.
- Creating a new source of substantial light or glare that would adversely affect day or night views in the area.

Three key evaluation steps were used to assess impacts:

1. Determine whether or not the project would be consistent with the visual resource protection policies and goals stated in comprehensive plans and ordinances.
2. Delineate the project elements likely to impact visual quality and what effect they could have.
3. Analyze the actual effect in the context of the visual quality being affected.

To assist in the analysis of the actual effect of particular project elements within the packages, visual simulations were completed at key project locations by the project team. These locations are shown in Figure 4.11-1, Visual Simulation Key Map, and are referenced in the impact analysis that follows.

Consistency with Comprehensive Plan Goals and Objectives

None of the build packages conflict with stated comprehensive plan goals and objectives for visual resources protection.

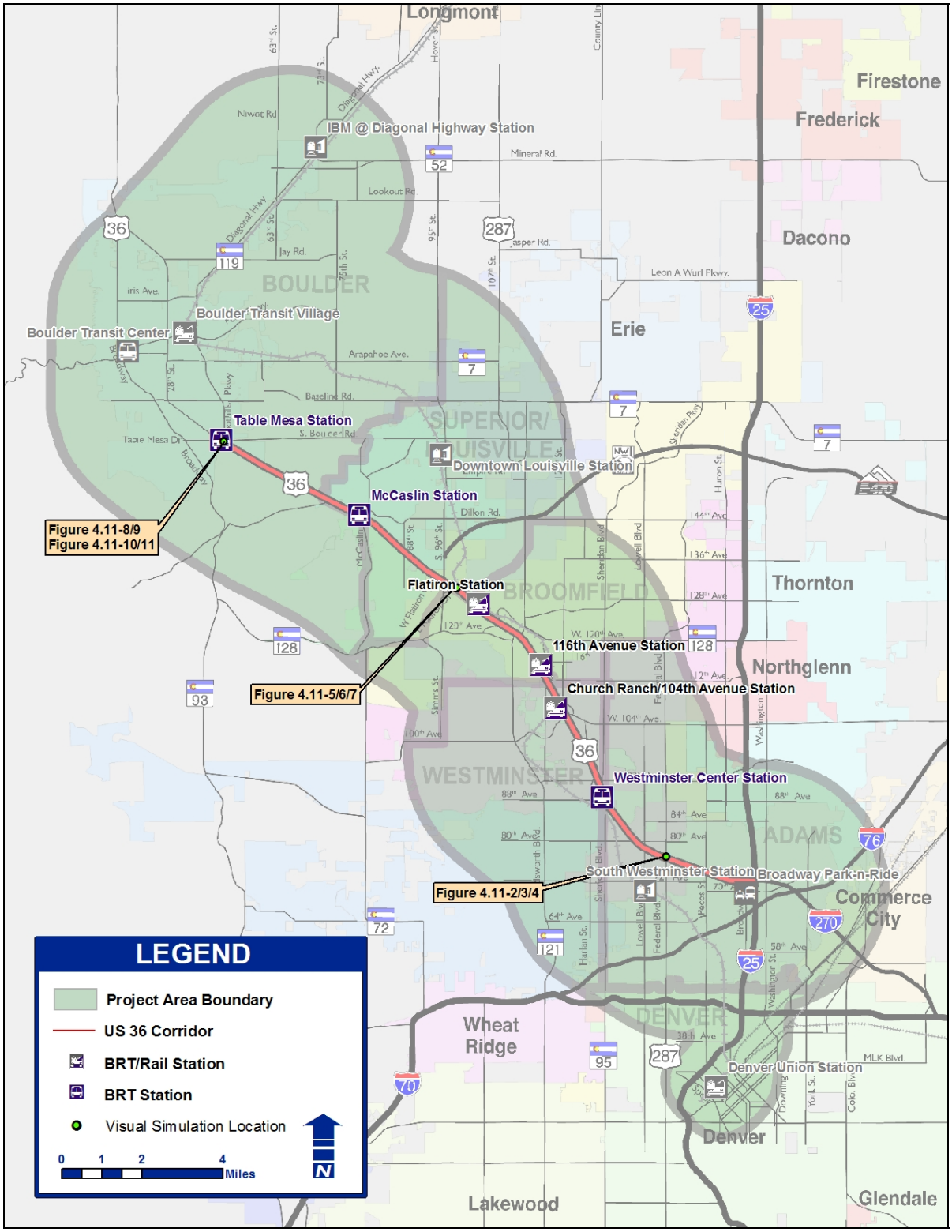
None of the build packages conflict with stated comprehensive plan goals and objectives for visual resources protection. The proposed bikeway would help realize the objectives of several communities' plans. Design elements of the packages would need to be consistent with community goals to reduce glare from lighting and integrate buffers along the highway where possible. Several comprehensive plans mention landscaping and aesthetic treatment on public right-of-way (ROW) and facilities. A review of the comprehensive plan goals and objectives, related to visual quality, can be found in the *Visual Technical Appendix* (CH2M Hill 2005).

Description of Project Elements and Visual Effects

All three build packages would have both short-term construction impacts as well as long-term operational impacts on visual resources. The analysis considers each element of the packages in the following order:

1. Mainline and interchanges — widening the roadway, expanding capacity, noise, retaining walls, and structures.
2. Transit stations — changes for all three build packages would modify six park-n-Rides to serve as BRT stations. Modifications include alterations to parking, changes to pedestrian crossings, and development of BRT platforms.

Figure 4.11-1: Visual Simulation Key Map



Source: US 36 Mobility Partnership, 2009.
Note: The 116th Avenue Rail Station is not a part of the 2004 FasTracks Program. Additional stations were added in the early planning stages of the US 36 Environmental Impact Statement. Exact rail station locations and additional stations may be reconsidered in the U.S. Army Corps of Engineers/Regional Transportation District Northwest Rail Environmental Assessment/Environmental Evaluation.

Table 4.11-4, Project Elements That May Affect Visual Quality, describes these project elements and the effect these elements may have on visual resources.

Table 4.11-4: Project Elements That May Affect Visual Quality

Element	Description	Visual Effects
Mainline Widening	Substantial widening along US 36 would accommodate additional general-purpose, BRT, HOV, and managed lanes. This would result in property relocations and removal of landscaping.	High effect: US 36 would increase substantially in width, causing property relocations, removal of some landscaping, and the addition of new or replacement and modification of existing sound walls in some locations, resulting in a visual void and substantially changing the appearance and feel of the road.
Walls	Sound walls would be 15 feet high. Retaining walls would be required leading up to bridge structures and are proposed in specific areas to avoid major cut and fill impacts. Retaining walls would range from less than 5 feet to up to 60 feet tall (proposed for one location). Where topography requires, cut scars could leave a wall-like appearance.	High effect: Where proposed, sound walls would block views and separate adjacent areas, creating visual disruption. Retaining walls in some areas would introduce an urban feel to more rural locations, and could create visual disruption for residents and recreational users.
Increased Traffic	Traffic would increase, leading to more cars and buses on US 36 and connecting arterials.	Moderate effect: Increased traffic from the larger roadway facilities; however, increased light from vehicles and increased traffic flow on adjacent streets would also increase visual effects.
Bikeway	A separated, approximately 12-foot wide bikeway would be located along US 36 from the Westminster Segment to the Boulder Segment.	Moderate effect: Trails are typically a desirable amenity with low visual impact. However, the trail would require additional right-of-way and would appear intrusive within open space properties. Trails would provide additional viewing opportunities into the open space landscape.
Interchanges and Structures	Grade separations or bridges averaging 200 to 300 feet in length and between 25 and 60 feet in height for the highway structures would impact viewsheds.	High effect: Aerial structures would contrast with the existing character and quality of natural and suburban settings. In some situations, bridges would block views from roads, trails, residences, and the upper floor windows of buildings. Areas with many existing structures would experience a lesser effect than areas on the west end of the corridor with fewer existing structures.
Drop-ramps	Major structure rising from center of highway to overpass bridge at two locations in Package 2.	High effect: Elevated structures would contrast with the existing character and quality of natural and urban settings. From some views, drop-ramps would block desirable view corridors.
Stations	Stations would be designed to meet surrounding aesthetic qualities. All build packages would modify six park-n-Rides to serve as BRT stations. Modifications would include alterations to parking, changes to pedestrian crossings, and, in Packages 2 and 4, development of median BRT platforms.	Moderate effect: Facilities associated with BRT stations would impact views from surrounding neighborhoods and on the highway. Compatible aesthetic/architectural design would blend with the surrounding uses to avoid discernable negative visual impacts. Package 2 and Package 4 would have more visual impacts than the Combined Alternative Package (Preferred Alternative) due to the additional pavement and road widening associated with the median BRT stations.
Parking	Two BRT stations, including the expansion of the existing parking facilities. Parking expansion would adhere to local zoning ordinances, with an average of 100 parking spaces per acre of asphalt.	Moderate effect: Expanded parking facilities would result in additional hard surface void of visual interest. Some jurisdictions require landscaping and shade to reduce the visual effect.

Table 4.11-4: Project Elements That May Affect Visual Quality

Element	Description	Visual Effects
Lighting	Lighting would be placed along highways, within parking lots and station areas, and directed at signs for both safety and security purposes. Lighting would include shields that direct light downward, and luminaries would be compatible with local lighting ordinances and the visual character of adjacent development.	Moderate effect: If not properly designed and shielded, project-related lighting would create glare effects, increase the level of ambient light in nearby areas, and increase skyglow, which can adversely affect nighttime views of the stars. This is true of both operational and construction periods.

Source: US 36 Mobility Partnership, 2006.

Notes:

BRT = bus rapid transit

HOV = high-occupancy vehicle

US 36 = United States Highway 36

The impacts associated with lighting along the US 36 corridor are similar for all packages. Lighting along the US 36 corridor would be similar to the lighting scheme that exists today to provide safe function of the roadway. Similar to existing conditions, lighting is necessary at interchange locations and in the urban segments of the corridor. US 36 lighting in more rural segments, such as Boulder, would be minimal and consistent with the existing conditions. All replaced or new fixtures will meet Colorado Department of Transportation requirements for design and location.

All three build packages would modify six park-n-Rides to serve as BRT stations. This would involve additional pavement and access lanes, and extension of or modifications to existing pedestrian crossings. For Package 2 and Package 4, the BRT stations would also include platforms located in the US 36 median. However, only two BRT stations include expansion of existing parking facilities, and one BRT station would result in reduction of a parking area. Expanded parking would introduce new light sources. Most transit stations are in areas with surrounding urban/suburban development and would minimally contribute to light impacts.

Although lighting and expanded traffic are difficult to quantify for visual impacts, Table 4.11-5, Quantification of Project Elements that Would Affect Visual Change, highlights the physical elements that would cause visual change in the US 36 corridor.

Table 4.11-5: Quantification of Project Elements that Would Affect Visual Change

Element	Package 2	Package 4	Combined Alternative Package (Preferred Alternative)
New linear feet of sound walls (approximately 15 feet high)	10,300 linear feet	10,300 linear feet	10,900 linear feet
Reconstructed linear feet of sound walls (approximately 15 feet high)	35,800 linear feet	34,000 linear feet	35,800 linear feet
Linear feet of retaining walls	107,300 linear feet	97,300 linear feet	104,400 linear feet
Linear feet of bikeway (beginning at West 80th Avenue)	68,500 linear feet	73,100 linear feet	77,900 linear feet
Number of new roadway structures	14	10	10
Number of widenings of existing structures	9	8	8
Number of bridge replacements	19	19	17
Number of total structures impacted	42	37	35
Number of drop-ramps	2	0	0

Table 4.11-5: Quantification of Project Elements that Would Affect Visual Change

Element	Package 2	Package 4	Combined Alternative Package (Preferred Alternative)
Number of park-n-Ride stations modified to serve as BRT stations	6	6	6
Of the six stations noted above, number of BRT stations including expanded parking areas	*2*	*2*	*2*
Of the six stations noted above, number of BRT stations resulting in a reduction in parking areas	*1*	*1*	*1*

Source: US 36 Mobility Partnership, 2006.
Note:
BRT = bus rapid transit

Construction Phase

Visual effects of construction activities would include the acquisition of existing homes, businesses, and landscaping to widen the ROW, the presence of large equipment causing congestion and backup in the traffic flow, modifications and replacement of interchanges, construction lighting, and dust from construction. These activities would cause temporary visual effects along the US 36 corridor in all three build packages.

Package 1: No Action

Direct Impacts

All Segments

Under Package 1, growing traffic congestion would increase nighttime light levels in the vicinity and change the character of the environment.

Package 1 would change the visual character in the corridor due to park-n-Ride improvements under the FasTracks Program, commuter rail along the Northwest Rail line, and other planned development in the area. It is expected that open areas would be fewer, and more suburban offices would develop that would block views of the Front Range and change the rural open space character in the northern portion of the project area. Growing traffic congestion would increase nighttime light levels in the vicinity and change the character of the environment.

Indirect Impacts

All Segments

Much of the US 36 corridor currently maintains a moderate to high visual quality status due to generous open spaces, undulating terrain, scenic mountain views, and unique mesa plateaus. However, the area is experiencing fast suburban development that is beginning to encroach and affect the visual quality. These views will transform as development in the project area consumes vacant and agricultural lands over the next 20 years.

Package 2: Managed Lanes/Bus Rapid Transit

Direct Impacts

Package 2 would have direct visual effects on moderate to high quality visual areas along the US 36 corridor.

Package 2 would have direct visual effects on moderate to high quality visual areas along the US 36 corridor due to modifications to the mainline, modified interchanges, and the modification of park-n-Rides to serve as BRT stations. In commercial areas of the corridor, Package 2 would not result in a long-term reduction of visual quality because the existing visual quality is low to moderate and the resulting environment would remain commercial.

Table 4.11-6, Existing and Proposed Typical Highway Width for the US 36 Corridor, shows the existing and proposed typical highway widths. Figure 4.11-1, Visual Simulation Key Map, shows the locations of the visual simulations referenced in the analysis.

Table 4.11-6: Existing and Proposed Typical Highway Width for the US 36 Corridor

Segment	Average Right-of-Way Width (feet)	Average Existing Pavement Width (feet)	Proposed Pavement Width by Package (feet)		
		Package 1	Package 2	Package 4	Combined Alternative Package (Preferred Alternative)
Adams	200	90-150	208-247	180-232	156-187
Westminster	200-300	90-100	184-260	180-268	132-156
Broomfield	200-300	90-100	184-335	156-244	132-156
Superior/Louisville	200-300	90-100	132-335	156-244	132-168
Boulder	200-400	90-100	124-132	124-156	104-168

Source: US 36 Mobility Partnership, 2009.

Adams Segment

The US 36 corridor from Adams County to Boulder would be widened, causing displacement of homes, businesses, and commercial establishments. These changes would represent a visual alteration to the local community. Increasing the number of lanes in this segment would affect the visual character as is simulated in Figures 4.11-2 through 4.11-4.

Although the sound walls would require modifications that would reduce the visual effect of the widened highway on residents, the walls create a tunnel effect on vehicle passengers, which reduces view potential and changes the visual experience of vehicle occupants, as well as views from adjacent businesses and residences. Widening in the Adams Segment requires relocation of residences and parkland currently adjacent to the existing sound wall. These walls would be replaced; however, the replacement walls would be located closer to other residences that previously were not directly viewing walls. These residences would experience a visual alteration from existing conditions. From southeast to northeast, the more outstanding impacts would be modifications to interchanges. Bridges and aerial structures complicate the experience of the viewer, add mass, and disrupt viewsheds. Figure 4.11-2, US 36 at Federal Boulevard Looking East (Existing), and Figure 4.11-3, US 36 at Federal Boulevard Looking East (Package 2), show Package 2 as viewed from Federal Boulevard, looking east.

The US 36 to I-25 interchange modifications and the improvements to ramps and interchanges at Broadway, Pecos Street, Federal Boulevard, Lowell Boulevard, and 80th Avenue would not be as visually disruptive as the effects of widening US 36.

Figure 4.11-2: US 36 at Federal Boulevard Looking East (Existing)

Figure 4.11-3: US 36 at Federal Boulevard Looking East (Package 2)

Figure 4.11-4: US 36 at Federal Boulevard Looking East (Combined Alternative Package [Preferred Alternative])

Westminster Segment

Widening US 36 would cause a change in the visual experience of travelers on US 36, as well as views from adjacent businesses and residences.

Widening US 36 would cause a change in the visual experience of vehicle occupants, as well as views from adjacent businesses and residences. The reconfiguration of 88th Avenue and the Sheridan Boulevard interchange would require the acquisition of some commercial or office properties. These changes would represent a visual alteration to the local community, as would the additional mass of infrastructure in a confined area of commercial development. The widening of the Church Ranch Boulevard overpass would blend with the visual impact of widening US 36. The addition of the bikeway would be visually apparent in this segment, but it would not represent a substantial visual disruption.

The development of the BRT platform in the median of US 36, replacement of the existing pedestrian overpass, additional lanes, and expansion of parking associated with the Westminster Center Station would have moderate visual impacts to the area. Stations can be designed to meet surrounding aesthetic qualities. The visual quality is low to moderate, given the existing mix of urban and suburban development styles.

Aesthetic architectural design and landscape improvements in the pedestrian overpass and parking area would improve the visual features of the area. The station modifications are expected to only contribute minimally to lighting impacts.

Package 2 would include drop-ramps connecting to the existing Westminster Boulevard bridge. The drop-ramps would allow vehicles to safely enter and exit the barrier-separated managed lanes. Because the new ramps are connecting to an existing bridge structure, the visual impact is considered minimal. The impact analysis of the drop-ramps was completed in the context of the surrounding visual features for this area. The visual quality for this portion of the Westminster Segment is low to moderate.

Although the immediate effect would be great due to the reconfiguration of the 88th Avenue and Sheridan Boulevard overpasses, Package 2 would not result in a long-term reduction of visual quality because the existing visual quality is low to moderate and the resulting environment would remain commercial.

Broomfield Segment

In addition to the widening of US 36, the City and County of Broomfield is planning several roadway improvements affecting the view for vehicle passengers along US 36 including plans to reconfigure 112th Avenue, 116th Avenue, 120th Avenue, and Wadsworth Parkway. The bikeway would take advantage of some existing trails in the Broomfield Segment and, therefore would have little effect on the visual quality of the area.

Package 2 would include a new structure passing over US 36 at Midway Boulevard with drop-ramps for entering and exiting the barrier-separated managed lanes. This new structure impacts visual resources by introducing visual change to an area of the corridor with medium to high visual quality. The new bridge structure would noticeably affect the existing view to the west. The impact analysis of the drop-ramp was completed in the context of the surrounding visual features for this area. This portion of the Broomfield Segment includes multiple business developments, roadways, a rail corridor, and parkland. The drop-ramps are categorized as an impact, but would not be considered a severe impact given the surrounding context.

The 116th Avenue Station would be modified from a park-n-Ride to serve as a BRT station including median BRT platforms, elevator towers, pavement, and access lanes. Additional parking would be created during the modifications and would increase the level of visual complexity in an area with moderate visual qualities. The BRT stations modifications would have moderate visual impacts to this area. The pedestrian overpass at this location would be extended to access the BRT platform, but would

not change substantially. The viewer sensitivity is high due to the number of viewers on US 36, but the views of a few residents would be impacted.

The park-n-Ride at the Flatiron Station would be modified to serve as a BRT station. This site is well integrated into the existing commercial fabric. No new parking would be added to this station. The existing pedestrian underpass would be extended in order to access the platform, resulting in minimal change. The 96th Street/Interlocken Loop bridge would be lengthened to accommodate the wider roadway. Figures 4.11-5 through 4.11-7 show the views from US 36 looking west toward the reconstructed South 96th Street interchange and East Flatiron Circle overpass. The medium visual character of this station would be diminished by widening US 36 and by future development plans. The visual effects of highway widening at the station would be moderate.

Package 2 would include reconstruction of the Wadsworth Boulevard interchange north in to Broomfield. The widened roadway would require a high (20 to 30 feet tall) retaining wall in the northwest quadrant of the interchange. The wall would face a car dealership, moderately changing the views from that business.

Superior/Louisville Segment

Views from offices would change, as would landscaping adjacent to commercial and office complexes.

Similar to the Broomfield Segment, the Superior/Louisville Segment is proposed to be widened. The vicinity around US 36 is developing into a combination of office and commercial development with less open space. While the widening and addition of retaining walls would change the character in the short term, the surrounding area is also in the process of changing. Views from offices would change, as would landscaping adjacent to commercial and office complexes. The bikeway would be a new element to the landscape in the Superior/Louisville Segment. It would add pavement surface, but the visual impacts would be minimal as compared with the widening of US 36.

As the project approaches the McCaslin Boulevard interchange, the proposed structure widening would be consistent with the overall widening of US 36. Although this would be a greater change than roadway widening alone, it would not further disrupt the visual quality beyond that of the widening of US 36, nor would it block views of the station and US 36 more than the current crossing. Package 2 also includes a new structure rising from the managed lanes, moving this traffic over the general-purpose lanes to allow traffic in the managed lanes to exit at McCaslin Boulevard. This structure introduces a new visual element in an area with medium to high visual quality.

The park-n-Ride at the McCaslin Station would be modified to serve as a BRT station with additional lanes and a platform in the median of US 36. The site is well integrated into the existing commercial fabric. The existing pedestrian overpass would be extended in order to accommodate the widening of US 36 underneath. Changes to the McCaslin Boulevard interchange would result in removing parking from this station location.

The medium visual character of this segment would be diminished by widening US 36 and by future development plans. The visual effects of adding the median BRT platforms and highway widening at the station would be moderate.

Figure 4.11-5: US 36 at South 96th Street/Interlocken Loop Looking West (Existing)

Figure 4.11-6: US 36 at South 96th Street/Interlocken Loop Looking West (Package 2)

Figure 4.11-7: US 36 at South 96th Street/Interlocken Loop Looking West (Combined Alternative Package [Preferred Alternative])

Boulder Segment

US 36 would be widened between the McCaslin Boulevard and Table Mesa Drive interchanges. Preliminary designs include the installation of retaining walls to avoid impacting open space properties outside of the US 36 ROW. The effect of substantial widening and adding retaining walls would modify the entrance into Boulder from a relaxed rural setting to a more urban structure. Areas of large cuts and retaining walls would extend high above the driver. Retaining walls were used in this segment to minimize the cut and fill along multiple open space properties. However, these retaining walls, ranging from approximately 5 feet to a maximum of 60 feet in height (proposed in one location), result in a substantial visual change in the corridor.

To avoid impacting open space properties outside of the US 36 ROW, preliminary designs include the installation of retaining walls.

The US 36 bikeway could be interpreted as consistent with the open space preserves, but to some viewers it could represent a visual disruption to a seemingly pristine environment. In any case, the bikeway would not be consistently visible from residences or by travelers on US 36. The visual quality of the open space and mountains would not be reduced by the addition of a bikeway.

Highway widening at the top of Davidson Mesa would require a large cut in to the side of the hill to the south (see Figure 4.11-8, US 36 View East Towards Davidson Mesa [Existing]), similar to the cut shown for Package 4 and the Combined Alternative Package (Preferred Alternative) (see Figure 4.11-9, US 36 View East Towards Davidson Mesa [Package 4 and the Combined Alternative Package {Preferred Alternative}]). Because of this cut, which could be as high as 50 to 60 feet, a series of steps or terraces would be used to provide differentiation and add visual interest. Regardless, the larger slope would have a noticeable visual impact.

The bikeway option that is along South Boulder Road and Cherryvale Road could also be interpreted as a visual disruption, although, since there is an existing bikepath along South Boulder Road, any perception of disruption would be minimized. The visual quality of the open space and mountains would not be reduced by the bikeway in this area.

Changes to structures would include widening the crossing at South Boulder Creek. The City of Boulder and Boulder County have sought to preserve thousands of acres of open space to help maintain views of the Front Range. Therefore, additional cut-and-fill, US 36 widening, and new bikeway development would all have initial visual impacts. The scale of the structures would not change the views afforded for the traveler on US 36. At the Table Mesa Drive interchange, the modifications would replace the existing overpasses, and after construction the visual impacts would be moderate.

Options A and B present two different designs for BRT access into the Table Mesa Station. (Refer to Chapter 2, Alternatives Considered, for a detailed description of the two options.) Option A would result in no new structures and no additional visual impact to the area. In Option B, the addition of a BRT structure would allow bus access directly to the Table Mesa park-n-Ride.

Option B would also entail a flyover bridge at the Table Mesa Drive and Foothills Parkway interchange. This flyover would impact views to a highly, visually-sensitive corridor with scenic views. Figure 4.11-10, US 36 Near Table Mesa Drive and Foothills Parkway Looking West (Existing), shows the existing view near this interchange. Figure 4.11-11, Option B Flyover Bridge US 36 View Near Table Mesa Drive and Foothills Parkway Looking West (Packages 2 and 4), shows a visual perspective of the flyover bridge. This flyover would impact views into Boulder and towards the Flatirons from areas to the east, south, and north along US 36, and would be a major visual change. The major visual change would result in a high level of effects to views and sight lines.

Figure 4.11-8: US 36 View East Towards Davidson Mesa (Existing)

Figure 4.11-9: US 36 View East Towards Davidson Mesa (Package 4 and the Combined Alternative Package [Preferred Alternative])

Figure 4.11-10: US 36 Near Table Mesa Drive and Foothills Parkway Looking West (Existing)

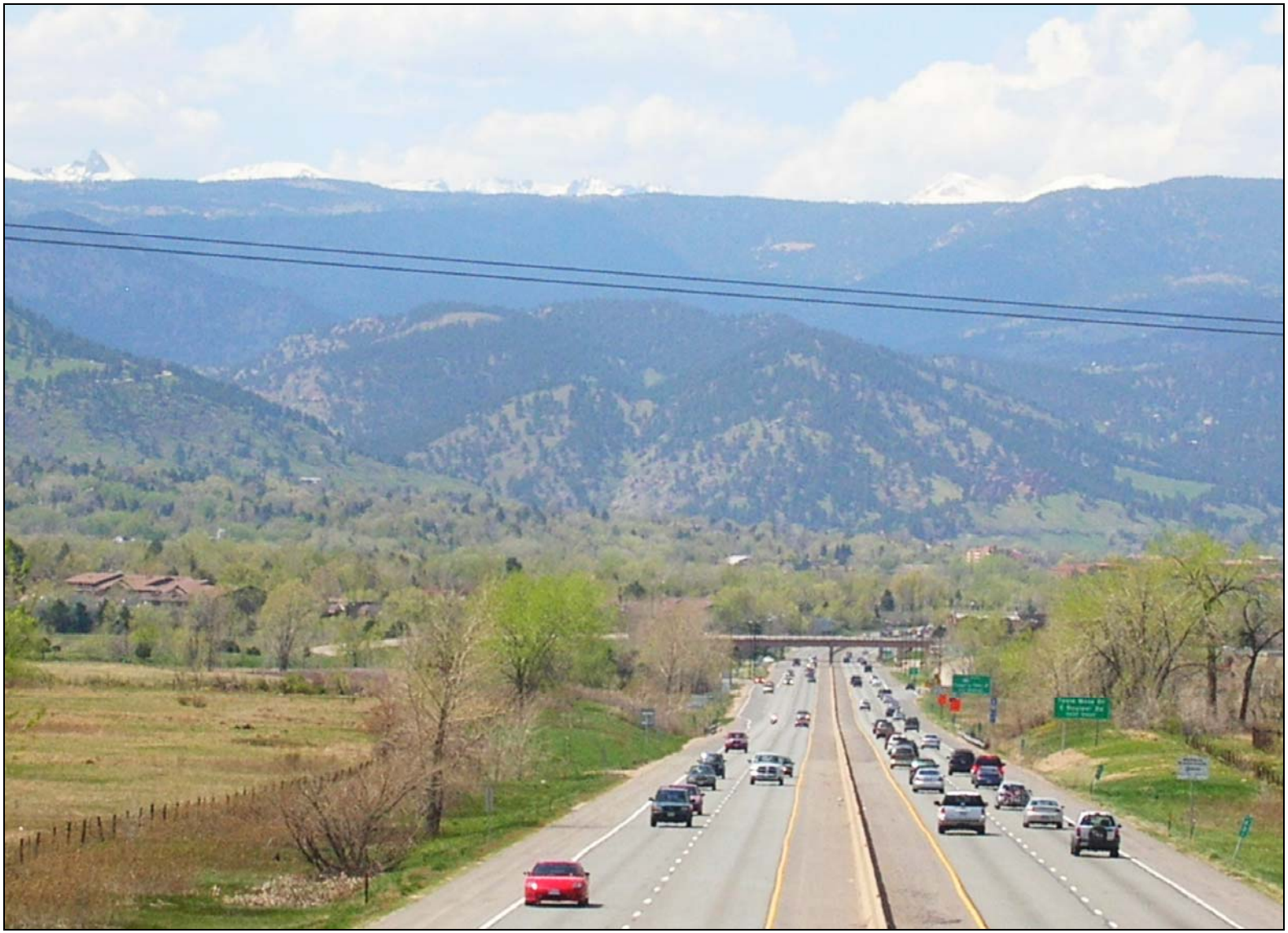


Figure 4.11-11: US 36 Near Table Mesa Drive and Foothills Parkway Looking West (Packages 2 and 4)

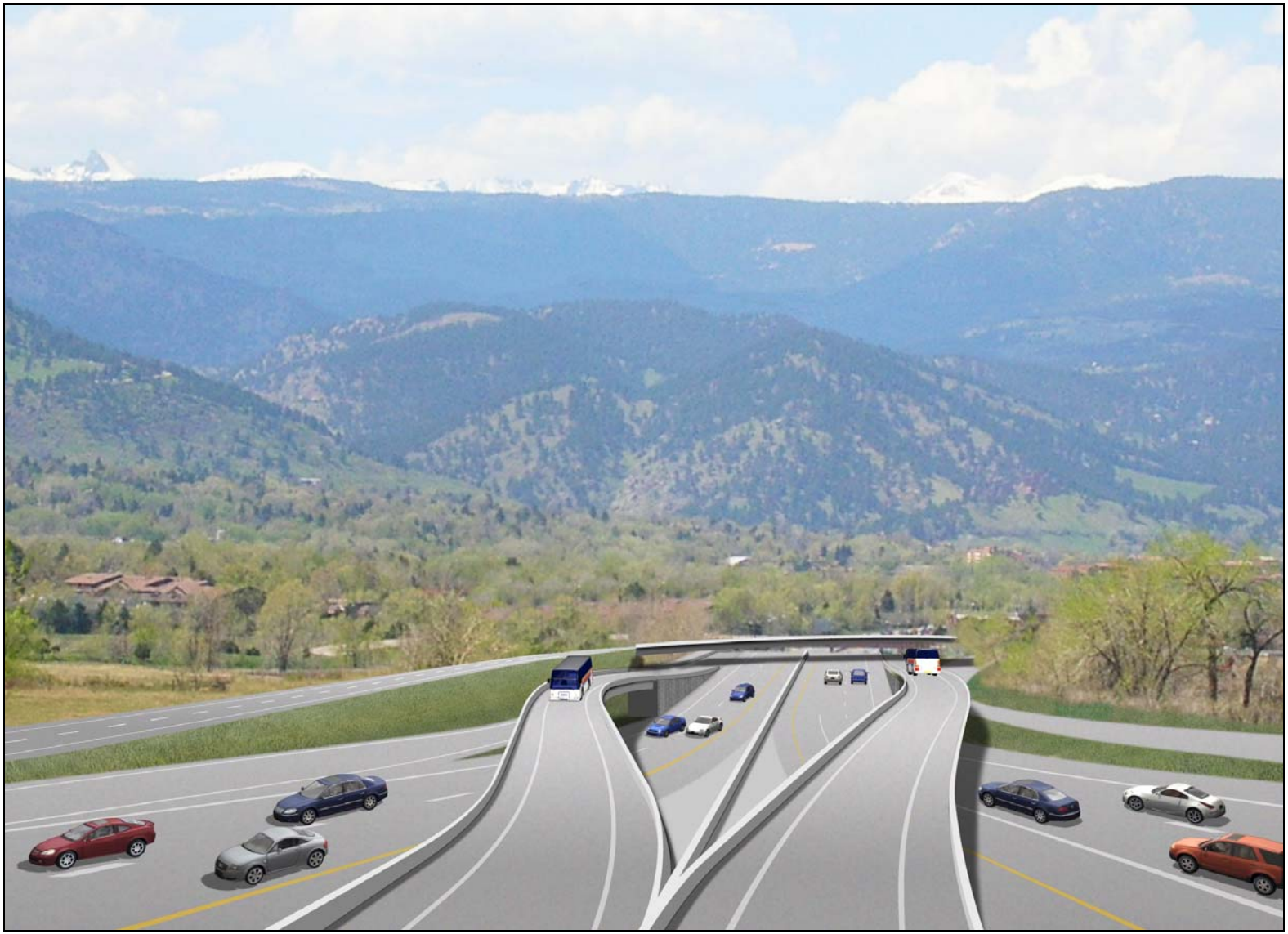


Figure 4.11-12, US 36 from Boulder Open Space, West of the South Boulder Creek Crossing (Existing), and Figure 4.11-13, Option B, US 36 Retained Filled Wall, West of South Boulder Creek Crossing (Packages 2 and 4), provides a visual perspective of the large retaining walls that support the BRT/high-occupancy vehicle (HOV) lanes in Option B for Packages 2 and 4. The wall would extend high above the driver, creating a confined atmosphere. This would result in blocking existing expansive views, north and south, across the open space.

The project noise analysis indicates that new sound walls would be needed as noise mitigation along the south side of US 36 from the Foothills Parkway/Table Mesa Drive interchange along Moorhead Avenue. The analysis also shows the need for sound walls on the north side of US 36, roughly parallel to Apache Road from the Foothills Parkway/Table Mesa Drive interchange to approximately Fox Drive. The implementation of sound walls would require consultation with the local jurisdiction and the local community. If sound barriers were to be constructed in these locations, this would result in a visual change over existing conditions. Currently, homes along Apache Drive face US 36 with a grassy buffer/berm separation. Homes on the south side of US 36 face Moorhead Avenue, with their back yards bordering a buffer/berm separation. Views of residences and a grassy berm would change to hardscape views of a sound wall.

Given the high quality views and high viewer sensitivity, the build alternatives would impact the Boulder Segment through the change in pavement width of the alignment, large retaining walls, introduction of new sound walls, and volume of construction earthwork. Although removal of vegetation would create scars in the landscape, revegetation would occur and the views to the existing open spaces would generally remain. While area views would be degraded from their existing condition, the visual quality would continue to remain high.

Indirect Impacts

All Segments

There are no indirect impacts associated with visual and aesthetic resources.

Package 4: General-Purpose Lanes, High-Occupancy Vehicle, and Bus Rapid Transit

Direct Impacts

All Segments

Transportation improvements to the US 36 corridor for Package 4 would have similar visual effects to Package 2. Package 4 would be similar to Package 2 in terms of widening and transit stations along US 36. Package 4 proposes four fewer new structures than Package 2. The primary differences, and the resulting visual differences, between the two packages are described below.

Package 2 contains barrier-separated managed lanes, while Package 4 includes BRT/HOV lanes that are buffer-separated. Both packages would include retaining walls along the corridor to minimize impacts to adjacent properties and open space. Fewer retaining walls would be required in Package 4 (97,300 linear feet) as compared to Package 2 (107,300 linear feet). Retaining walls in Package 4 would be slightly lower in height, ranging from 5 to 50 feet. As proposed in Package 2, highway widening at the top of Davidson Mesa would require a large cut in the side of the hill to the south. This cut would have a noticeable visual impact, as shown in Figure 4.11-9, US 36 View East Towards Davidson Mesa (Package 4 and the Combined Alternative Package [Preferred Alternative]). A series of steps or terraces would be used to provide differentiation and add to visual interest.

Figure 4.11-12: US 36 from Boulder Open Space, West of the South Boulder Creek Crossing (Existing)

Figure 4.11-13: Option B: US 36 Retained Filled Wall, West of South Boulder Creek Crossing (Packages 2 and 4)

Package 2 includes new structures over US 36 at Midway Boulevard and Westminster Boulevard with drop-ramps for entering and exiting the barrier-separated managed lanes. These structures would not be built under Package 4. Therefore, Package 4 would not create the additional visual impact associated with these structures, as compared to Package 2.

Indirect Impacts

All Segments

Indirect impacts under Package 4 would be the same as those described under Package 2.

Combined Alternative Package (Preferred Alternative): Managed Lanes, Auxiliary Lanes, and Bus Rapid Transit

Direct Impacts

Transportation improvements to the US 36 corridor for the Combined Alternative Package (Preferred Alternative) would have similar visual effects to Package 2 and Package 4. The primary differences and the resulting visual differences among the packages are described below.

The Combined Alternative Package (Preferred Alternative) would result in less roadway widening and a smaller cross-section width, in most locations, than Package 2 and Package 4. The managed lanes in the center of the highway would be buffer-separated instead of barrier-separated, resulting in a narrower roadway width than Package 2. No new general-purpose lanes would be added, resulting in a narrower roadway width than Package 4. Figure 4.11-4, US 36 at Federal Boulevard Looking East (Combined Alternative Package [Preferred Alternative]), illustrates the appearance and lesser visual impact of the narrower highway when compared to Figure 4.11-3, US 36 at Federal Boulevard Looking East (Package 2).

BRT stations would be located on interchange on-ramps and off-ramps instead of in the US 36 median, resulting in a narrower roadway width at all bus stations than in Package 2 and Package 4. The narrower roadway width would result in less visual impact for travelers on US 36 than Package 2 and Package 4, due to both the highway width itself, and the need for fewer modifications to existing bridge structures.

The substantially narrower roadway width can be seen when comparing the views from Flatiron Station, shown in Figure 4.11-7, US 36 at South 96th Street/Interlocken Loop Looking West (Combined Alternative Package [Preferred Alternative]), and Figure 4.11-6, US 36 at South 96th Street/Interlocken Loop Looking West (Package 2). The 96th Street/Interlocken Loop bridge, which would be lengthened under Package 2, would be able to accommodate the widened highway in the Combined Alternative Package (Preferred Alternative) without reconstruction, as shown in the same figures.

The Combined Alternative Package (Preferred Alternative) would require fewer retaining walls than Package 2 and more than Package 4. Retaining walls would range in height from 5 to 55 feet. As proposed in Package 2 and Package 4, highway widening at the top of Davidson Mesa would require a large cut in the side of the hill to the south. This cut would have a noticeable visual impact, as shown in Figure 4.11-9, US 36 View East Towards Davidson Mesa (Package 4 and the Combined Alternative Package [Preferred Alternative]). A series of steps or terraces would be used to provide differentiation and add visual interest.

The Combined Alternative Package (Preferred Alternative) would not include the structures proposed in Package 2 that would extend over US 36 at Midway Boulevard and Westminster Boulevard with drop-ramps for entering and exiting the barrier-separated managed lanes. As a result, the Combined Alternative Package (Preferred Alternative) would not create the additional visual impact associated with these structures, as compared to Package 2. The Combined Alternative Package (Preferred Alternative)

also would not construct the Option B flyover bridge near Table Mesa Drive and Foothills Parkway (shown in Figure 4.11-11, Option B Flyover Bridge US 36 View Near Table Mesa Drive and Foothills Parkway Looking West [Packages 2 and 4]) and, therefore, would not create the additional visual impacts of this flyover.

Indirect Impacts

All Segments

There are no indirect impacts associated with visual and aesthetic resources.

Mitigation

Table 4.11-7, Mitigation Measures — Visual and Aesthetic Resources, presents proposed mitigation measures for visual impacts. The mitigation measures will become more refined as the project develops.

Table 4.11-7: Mitigation Measures — Visual and Aesthetic Resources

Visual Impact	Impact Type	Mitigation Measures
Construction staging materials	Construction	Staging areas along US 36 will be fenced and/or screened.
Construction staging areas	Construction	Staging areas will be rehabilitated to enhance the surrounding setting; vegetation will be replaced with native grass, forbs, shrubs, or trees, as appropriate. Staging area rehabilitation will reflect the original setting. For example, if native grass field areas are disturbed for staging, they will be replaced with similar native vegetation.
Construction lighting and illumination	Construction	Lighting will be limited to that required for safety and security. Lighting will be shielded and directed at working areas to minimize glare and ambient light conditions in nearby areas including adjacent travel lanes.
Removal of residences and business	Construction	Structure removal and area improvements will be expedited to reduce impact on remaining neighbors. The contractor will be required to adhere to the agreed-upon schedule.
Freeway and transit station visual nuisance to adjacent property owners	Operations	In coordination with local government entities, visual buffers (such as stamped patterns in sound wall, Boston ivy, trees, or other landscaping) will be provided, whenever possible. Coordination will determine which entity will maintain the improvements.
Retaining walls	Operations	Retaining walls will reflect natural appearance in textures, and colors and be graffiti-resistant. Walls will be tiered, where feasible.
Sound walls	Operations	Aesthetics of sound walls will be coordinated with local jurisdictions and will be graffiti resistant.
Landscaping removal	Operations	All landscaping, such as trees, shrubs, lawn, and perennials, and in some cases native grasses, will be replaced where it was removed or where the property owner/public entity selects. Where tree diameters are greater than 10 inches measured breast height off the ground, the replacement ratio will be two trees, unless tree ordinances direct otherwise. Typical replacement materials will include 4- to 6-foot evergreens, 1.5- to 2-inch deciduous trees, or 5-gallon shrubs. CDOT Region 6 tree replacement policy will be followed.
Replacing or adding a new bridge structure	Operations	Corridor design guidelines will be applied using materials and colors similar to existing structures in the area. It is recommended that the design elements from existing bridge designs located at Interlocken Loop and other similar examples be used. When possible, widenings will match existing aesthetic materials and design elements.
Transit stations	Operations	Although BRT station designs will be reviewed and approved by the local jurisdictions, it is recommended these sites be integrated into the landscape. Parking at transit stations will adhere to local parking ordinances regarding shading, landscaping, lighting, and visibility. Entries to parking and transit stations will be designed using local materials and colors.

Table 4.11-7: Mitigation Measures — Visual and Aesthetic Resources

Visual Impact	Impact Type	Mitigation Measures
Lighting	Operations	Lights will be directional and shielded, and timers and sensors will be used to minimize the time that lights are on in areas where lighting is not normally needed for safety, security, or operation. Lights at the transit stations will be directional and shielded to reduce off-site light scatter and glare.

Source: US 36 Mobility Partnership, 2006.

Notes:

BRT = bus rapid transit

CDOT = Colorado Department of Transportation

US 36 = United States Highway 36