4.9 PARKS AND OPEN SPACE

Summary

This section identifies the park and open space resources in the project area; describes the direct and indirect impacts to those resources by segment; identifies the mitigation and avoidance measures that were used during the development of the packages; and finally, identifies additional mitigation measures for further consideration during final design and engineering. Parkland resources are those neighborhood, community, regional, and state lands preserved for open space, recreation, and tourism activities. This section describes impacts to park, open space, and recreation area resources caused either by the acquisition of lands for a build package or impacts that may result from construction, increased noise, visual intrusion, or some reduction in the functioning of the park resource.

Parkland resources are those neighborhood, community, regional, and state lands preserved for open space, recreation, and tourism activities.

Protection of some of these public resources is afforded by Section 4(f) of the Department of Transportation Act of 1966 and currently found at 49 United States Code (USC) 303, but still commonly referred to as Section 4(f). The implementing regulations are found in 23 Code of Federal Regulations (CFR) 774. Section 4(f) applies to publicly-owned lands that are managed as parks and recreation areas, wildlife or waterfowl refuges, and to all historic sites regardless of ownership. For information on the detailed Section 4(f) analysis refer to Chapter 7, Final Section 4(f) Evaluation.

Section 6(f) of the 1965 Land and Water Conservation Fund (LWCF) Act (16 USC 4601-4) provides funding for acquiring property and developing public recreational facilities, and also protects the loss of that property to other uses. Section 6(f) of the Department of Transportation Act states:

No property acquired or developed with assistance under this section shall, without the approval of the secretary, be converted to other than public outdoor recreation uses.

The Act requires that any Section 6(f) property affected by this proposed project be replaced by recreation property of equal value and usefulness. Identification of Section 6(f) resources and evaluation of impacts to these resources are presented in this section.

Affected Environment

Parks, Open Space, and Conservation Easements

Numerous park and open space resources exist within the project area. Figure 4.9-1, Parks, Open Space, and Conservation Easements Within the Project Area, shows the extent of these resources throughout the project area.

Park resource information was collected from the cities and counties within the corridor. Information describing the park resources was collected within a 0.5-mile buffer of United States Highway 36 (US 36), and is presented in the *Parks and Open Space Resources Technical Memorandum* (US 36 Mobility Partnership 2005).

Approximately 338 recreational parks, open spaces, and trail crossings lie within 0.5 mile of US 36. For purposes of unique identification of properties on this project, all parklands and open space were assigned a specific identification number. A full list of identification numbers is available in the *Parks and Open Space Resources Technical Memorandum* (US 36 Mobility Partnership 2005).

Approximately 338 recreational parks, open spaces, and trail crossings lie within 0.5 mile of US 36.

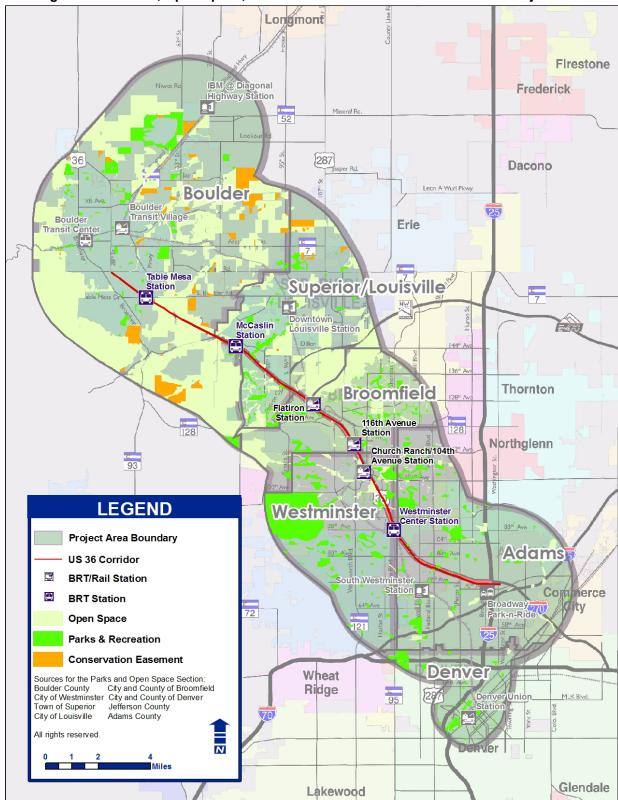


Figure 4.9-1: Parks, Open Space, and Conservation Easements Within the Project Area

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.

This section focuses on park resources within a study area of 150 feet on either side of US 36. A broad range of parklands and open spaces was considered in this analysis, including pocket parks, town squares, natural waterway corridors, and large regional or state parks. A table showing all of the resources, as well as the plans and policies from local jurisdictions that were reviewed for this analysis, is included in the *Parks and Open Space Resources Technical Memorandum* (US 36 Mobility Partnership 2005).

Parklands provide several passive and active recreational opportunities. Those parks, defined as active recreational areas, include sports parks, playgrounds, boating facilities, and trails. Open spaces are publicly reserved lands that generally provide passive opportunities such as wildlife viewing, preservation of habitats and native vegetation, and preservation of historical cultural heritage. Open spaces also provide important community value.

A broad range of parklands and open spaces was considered in this analysis, including pocket parks, town squares, natural waterway corridors, and large regional or state parks.

The only open spaces not discussed in this section are publicly-owned schoolyards and private agricultural lands. Schoolyards offer some recreational uses, such as ball fields, track lanes, tennis courts, and playgrounds. Publicly-owned schoolyards were mapped for this analysis; the US 36 corridor project would not affect any of these schoolyards. Private agricultural lands are not included in this discussion because they are privately held. However, public entities have acquired lands to preserve open space through conservation easements and have subsequently leased back some land as operational farms. These lands are included in this analysis.

Table 4.9-1, Park and Open Space Resources Adjacent to US 36, lists the existing park and open space resources in the study area by segment. The table does not include resources in the Denver Segment, because construction on US 36 would have no effect on these resources. This table also does not include future parks, trails, and open space. Applicable parks, trails, and open space plans were reviewed to identify future planned improvements potentially impacted by the build packages. Three planned facilities are located adjacent to US 36: Farmers Highline Canal Trail Crossing, Westcliff Future Park (Trendwood), and the Rock Creek Trail extension. Information received from the local jurisdiction clarified that the Farmers Highline Canal Trail Crossing would not be implemented.

Table 4.9-1: Park and Open Space Resources Adjacent to US 36

Segment	ID No.	Resource Name	Resource Description
Adams	578	Commissioners Park	Recreational park, including basketball, picnic tables, and barbecue facilities
	205	Waddell Park	Four ballfields
	260	Municipal Park	Senior center and park
	1219	Westminster Open Space	Open space property
	257	Westminster Hills Park	Recreational park, including basketball, baseball, tennis facilities, picnic tables, playgrounds, fitness center
	554	Oakwood Park	Recreational park and picnic facilities
	123	Rotary Park (Section 6(f) Resource)	Recreational park, including baseball fields, picnic tables, and a playground facility
1276		Westminster Open Space	Drainage and open space property
Westminster	552	Westcliff Future Park (Trendwood)	Planned recreational park development as part of Trendwood Park with multi-use facilities and fields
	1198	Westminster Open Space	Open space property
	1209	Westminster Open Space	Open space property
	1197	Westminster Open Space	Open space property
	1195	Westminster Open Space	Open space property
	1187	Westminster Open Space	Open space property
	1185	Big Dry Creek Open Space	Open space property
	1184	Westminster Open Space	Open space property
	1186	Westminster Open Space	Open space property

Table 4.9-1: Park and Open Space Resources Adjacent to US 36

Segment	ID No.	Resource Name	Resource Description
Westminster (continued)	TC2	Big Dry Creek Trail Crossing (Section 6(f) Resource)	Recreational trail crossing
	1205	Westminster Open Space	Open space property
Broomfield	521	Broomfield Open Space	Open space property
	522	Broomfield Open Space	Open space property
	523	Broomfield Open Space	Open space property
	411	Broomfield Open Space	Open space property
	308	East Interlocken Park	Recreational park, including trails, picnic tables, fields, and greenbelt
	TC16	East Interlocken Trail Crossing	Recreational trail crossing
	309	Interlocken Golf Course	Golf course
Superior/Louisville	380	Frank Varra Park	Recreational park, including open space and trails
	381	Miners Open Space	Open space property
	1124	Hodgson-Harris Reservoir	Open space, reservoir
	1134	Scriffiny (Carlson) Open Space	Open space property
	268	Coal Creek Golf Course	Golf course
	TC5	Coal Creek Trail Crossing	Recreational trail crossing
Boulder	1039	Carlson Lot	Conservation easement
	1147	Cowdery County RR ROW	Open space property
	987	Louisville Open Space	Multiple open space properties
	978	Louisville Community Park	Park, trails, picnic area, community facilities
	909	City on the Hill Open Space	Open space property
	903	Gallucci Open Space	Open space property, refuge
	906	Jirkovsky Open Space	Open space property
	898	Yunker Open Space	Open space property, refuge
	897	Yunker Open Space	Open space property, refuge
	889	Short Open Space	Open space property, refuge
	892	Yunker Open Space	Open space property, refuge
	893	Yunker Open Space	Open space property, refuge
	885	Van Vleet Open Space	Open space property, refuge
	887	Van Vleet Open Space	Open space property, refuge
	886	Van Vleet Open Space	Open space property, refuge
	TC12	South Boulder Creek Trail Crossing	Recreational trail crossing
	882	Clyncke Open Space	Open space property
	883	Clyncke Open Space	Open space property
	873	Gebhard Open Space	Open space property

Notes:

ID No. = identification number

ROW = right-of-way
RR = railroad
TC = Trail Crossing

The following describes the character of the park and open space resources in the study area.

Denver Segment

Park and open space resources in the Denver Segment are not analyzed because US 36 physical improvements would not extend into this segment. Additional buses would be added to US 36 and Interstate 25 (I-25) but this would have no impact on park and open space resources.

Adams Segment

The Adams Segment includes park resources that are the most traditional of all of the segments in the project area. The Westminster Hills, Oakwood, Rotary, Commissioners, and Waddell parks all have urban-type parkland amenities, including sports fields and picnic facilities.

Westminster Segment

Numerous open space and recreational areas are within the study area in the Westminster Segment. Jefferson County and the City of Westminster work collaboratively to acquire and maintain large areas of open space within this segment. Many of the regional trails (Big Dry Creek and Walnut Creek trails) link the park, open space, and recreational areas. The Big Dry Creek trail crosses under US 36, providing easy pedestrian and bicycle access to residential, park, and commercial lands.

Numerous open space and recreational areas are within the study area in the Westminster Segment.

Broomfield Segment

In this segment, East Interlocken Park includes trails, a trail crossing under US 36, picnic tables, fields, and a greenbelt. The Interlocken Golf Course includes trails, water, and open space, in addition to the golf course. The citizens in the City and County of Broomfield have approved a tax dedicated to the acquisition of open space and parks and open space maintenance.

Superior/Louisville Segment

The Town of Superior and City of Louisville are located within Boulder County.

The citizens in Boulder County have approved taxes to purchase and preserve open space. Louisville residents have also passed a sales tax to fund parks and open space acquisition. The open space planning emphasizes preserving sensitive ecosystems, such as hillsides, riparian/wetlands, and watersheds, while providing connections for pedestrians and bicyclists. For example, the Carolyn Holmberg Preserve at Rock Creek Farm is a preserve, which is still being used primarily for agricultural purposes, while other portions are used for prairie dog habitat, and wetland and wildlife habitat preservation. Day users are invited to use trails, fish at Stearns Lake, enjoy wildlife viewing, and observe a historic homestead still in agricultural use.

The open space planning emphasizes preserving sensitive ecosystems.

The Town of Superior is bordered to the west by Boulder County Open Space. Originating from this large open space, both Rock Creek and Coal Creek are the spines along which the town's parks are connected via trail networks. These trails branch off and meander through the community residential areas. Ballparks, exercise routes, mountain bike trails, bird-watching areas, horseshoe pits, and a frisbee golf course occur along Rock Creek. Currently, the Rock Creek Trail is located south and north of US 36. In the future, Boulder County plans to connect these segments together, and the connection under US 36 would be completed as part of the US 36 bikeway. A leg of the Rock Creek trail system parallels US 36 through Frank Varra Park, which is owned by the City of Broomfield.

Just west of the Avista Adventist (Centura Health) Hospital, the Coal Creek Golf Course follows the Coal Creek drainage and buffers a residential development from US 36 and the office/commercial development around the McCaslin Boulevard interchange. The Coal Creek Trail crosses under US 36 west of the golf course.

Boulder Segment

Almost the entire US 36 corridor in the Boulder Segment is surrounded by City of Boulder and Boulder County open space areas, which collectively follow South Boulder Creek and the creek's associated tributaries. The uses associated with City of Boulder and Boulder County Open Space properties vary from passive recreation and wildlife viewing, to properties managed as wildlife refuges.

Section 6(f) Resources

One recreational park in the study area, Rotary Park in the Adams Segment, has used LWCF/Section 6(f) monies for development. In addition, a portion of the Big Dry Creek Trail in the Westminster Segment used LWCF/Section 6(f) monies. However, this portion would not be impacted by any of the build packages.

Impact Evaluation

This section describes impacts to park and open space resources for each of the three build packages. As many as 31 parks or open spaces and four trail crossings would be impacted by the build packages.

Table 4.9-2, Summary of Total Impacted Parks and Open Space by Package, summarizes the potential impacts on parks, open space, trails, and Section 6(f) resources funded with LWCF grants by package. More detailed descriptions of these impacts and location maps are provided later in this section.

Table 4.9-2: Summary of Total Impacted Parks and Open Space by Package

	Package 2		Package 4		Combined	
Resources	Option A	Option B	Option A	Option B	Alternative Package (Preferred Alternative)	
Parks ¹						
Number of Parks	7	7	6	6	6	
Acres of Parks	5.5	5.5	3.0	3.0	2.1	
Open Space	Open Space					
Number of Open Space Properties	24	24	24	24	23	
Acres of Open Space Properties	37.2	46.1	40.1	48.7	40.5	
Total Parks and Open Space						
Total Number of Parks and Open Space	31	31	30	30	29	
Total Acres of Parks and Open Space	42.7	51.6	43.1	51.7	42.6	
Trail Crossings	4	4	4	4	4	

Source: US 36 Mobility Partnership, 2006; Colorado State Parks and Recreation, 2007.

Notes:

The Cherryvale Road/South Boulder Road bikeway option would add a net of 1.25 acres of impact to open space.

Both Package 2 and Package 4 would have direct impacts to one park that used LWCF monies, Rotary Park (123) (see Figure 4.9-2, Parks and Open Space in the Adams Segment — Packages 2 and 4). The Combined Alternative Package (Preferred Alternative) would not impact Rotary Park.

Measures to avoid impacts to parks and open space, such as shifting the highway alignment and building retaining walls, were considered and used where applicable.

¹One park is a Section 6(f) resource.



Figure 4.9-2: Parks and Open Space in the Adams Segment — Packages 2 and 4

Note

Commissioners Park (578) impacted in Package 2 only.

<u>Methodology</u>

Park or recreational resources may be affected by a project directly or indirectly. The following defines these types of impacts.

- **Direct Impacts** impacts that alter or eliminate the original use of the park or open space when property is acquired.
- **Indirect Impacts** impacts that are caused by the action but occur later in time or are farther removed in distance (40 CFR 1508.8).

Indirect impacts are not immediately or directly caused by the project, but result from the project in combination with other external factors later in time. Examples of indirect effects would include induced changes in land use patterns and population densities within the project area. However, these changes are not solely the result of project-related influences, but result from the combination of factors such as market conditions, availability of land, local long-range planning efforts, local zoning codes, etc.

Additionally, impacts are identified for both construction (temporary) and operation phases of the packages based on the definitions above, and the current use of the park and/or open space resource.

Chapter 4 — Affected Environment and Environmental Consequences Section 4.9 — Parks and Open Space

All packages were analyzed for overall consistency with park, recreational, and open space goals, and objectives of comprehensive plans for represented entities.

Impacts were determined by overlaying the construction footprint for each package on a geographic information system-mapped park and open space resources, and calculating the acres impacted.

In addition, all packages were analyzed for overall consistency with park, recreational, and open space goals, and objectives of comprehensive plans for represented entities. A summary of park, open space, and recreational resources by plan is included in the *Parks and Open Space Resources Technical Memorandum* (US 36 Mobility Partnership 2005). Chapter 7, Final Section 4(f) Evaluation, discusses effects to park and recreation areas meeting the definition of Section 4(f) resources.

Package 1: No Action

Direct Impacts

All Segments

Package 1 would not conflict with, nor would it promote, park and recreational policies and goals within the study area. The Boulder Valley and Town of Superior comprehensive plans encourage the development of both multi-modal access to park and recreational resources, which Package 1 does not support.

Package 1 projects would have direct impacts to park and open space resources, but these are being addressed by other National Environmental Policy Act of 1969 documents. However, more suburban offices would be developed, blocking views, causing more congestion and noise, and changing the rural character of open spaces in the northern portions of the project area.

Indirect Impacts

All Segments

Under Package 1, the planned project area population increase of 28 percent would place additional demands on vacant properties and open space. Population increases result in the need for development of new housing and businesses on vacant lands, as well as increased use of existing parks and open space by more users. Over time, less property would be available to utilize as parkland and open space. Additionally, pressure would increase to convert current open space properties to developable lands.

Package 2: Managed Lanes/Bus Rapid Transit

Direct Impacts

Package 2 would be consistent with some parks and open space goals and policies as a result of increasing accessibility to these resources.

Package 2 would be consistent with some parks and open space goals and policies as a result of increasing accessibility to these resources. However, this package would be inconsistent with other goals and policies because improvements to US 36 would involve acquiring portions of parks and open space lands.

Noise impacts associated with park and open space resources are the same for Packages 2 and 4. Increased noise impacts would be noticed in all segments where park and open space acquisitions would occur. Existing sound walls located in park and open space resources would be replaced, keeping those noise impacts similar to existing conditions. Noise impacts would increase in areas where there are no existing sound walls, such as East Interlocken Park (308), and

Westminster Open Space (1195, 1198, and 1205). Mitigations for these areas would be determined during final design with direct input from local jurisdictions. Typically, noise mitigation is not provided

for golf courses. While golf courses include active outdoor uses, this use is for a short duration in one location. Refer to Section 4.13, Noise, for detailed information on noise impacts and mitigations.

Impacts to park and open space resources are displayed by segment for Package 2 in Table 4.9-3, Impacts to Park and Open Space Resources — Package 2. Thirty-one parks and open space resources and four trail crossings would be impacted in Package 2.

Table 4.9-3: Impacts to Park and Open Space Resources — Package 2

Segment	ID No.	Park/Open Space Resource	Original Size (acres)	Package 2: Area of Impact (acres) Options A and B	
Adams	578	Commissioners Park	3.2		.1
	1219	Westminster Open Space	2.3	2	.3
	257	Westminster Hills Park	2.5	C	.3
	554	Oakwood Park	2.7		.8
	123	Rotary Park (Section 6(f) Resource)	6.0		.6
	1276	Westminster Open Space	0.9		.8
	T		Subtotal		5.9
Westminster					
	1198	Westminster Open Space	8.4		.6
	1209	Westminster Open Space	2.1		.2
	1197	Westminster Open Space	3.1		.8
	1195	Westminster Open Space	2.6		.7
	1187	Westminster Open Space	16.9		.0
	1185	Big Dry Creek Open Space Westminster Open Space	89.0		.6
	1184 1186	Westminster Open Space	12.6 9.7		i.9 i.2
	TC2	Big Dry Creek Trail Crossing	N/A		
	1205	Westminster Open Space	28.6	N/A 1.7	
	1203	Westiminster Open Space	Subtotal		3.7
Broomfield	523	Broomfield Open Space	3.9	0.5	
Diodifficia	411	Broomfield Open Space	4.6	4.1	
	308	East Interlocken Park	12.9	1.0	
	TC16	East Interlocken Trail Crossing	N/A	N/A	
	309	Interlocken Golf Course	19.5	1.1	
	·		Subtotal	ć	5.7
Superior/	380	Frank Varra Park	16.9	0.6	
Louisville	1134	Scriffiny (Carlson) Open Space	16.8	0.8	
	TC5	Coal Creek Trail Crossing	N/A	N/A	
			Subtotal		1.4
Boulder				Option A	Option B
	909	City on the Hill Open Space	12.0	0.4	0.4
	903	Gallucci Open Space	49.0	0.5	0.5
	906	Jirkovsky Open Space	11.2	0.2	0.2
	898	Yunker Open Space	115.8	1.8	1.8
	897	Yunker Open Space	16.5	0.1	0.1
	892	Yunker Open Space	16.5	0.3	0.3
	893	Yunker Open Space	40.3	0.8	0.8
	885	Van Vleet Open Space	225.3	1.2	1.2
	887	Van Vleet Open Space	356.9	3.9	10.3
	886	Van Vleet Open Space	185.7	5.8	8.3
	TC12	South Boulder Creek Trail Crossing	N/A	N/A	N/A
			Subtotal	15.0	23.9
		rehin 2006	Total	42.7	51.6

Source: US 36 Mobility Partnership, 2006.

Notes:

ID No. = identification number N/A = not applicable TC = trail crossing

Chapter 4 — Affected Environment and Environmental Consequences Section 4.9 — Parks and Open Space

The following discussion summarizes impacts by segment for Package 2.

Denver Segment

There would be no physical improvements in this segment of the project area and, therefore, no direct impacts to parks, trails, or open space resources.

Adams Segment

The acquisition of approximately 5.9 acres of park resources for Package 2 would be required for widening US 36 and interchange improvements in the Adams Segment.

Figure 4.9-2, Parks and Open Space in the Adams Segment — Packages 2 and 4, displays the resources that would be impacted in the Adams Segment.

Impacts in the Adams Segment would result from the need to acquire approximately 5.9 acres of park resources. These impacts would be due to widening US 36 and constructing interchange improvements.

The Highland Hills Metro Park and Recreation District received LWCF funds (Grant No. 177) for the development of Rotary Park (123). Therefore, this property is characterized as a Section 6(f) resource. Package 2 would require the acquisition of approximately 0.6 acre of Rotary Park, which would remove a portion of the sloped, grassy drainage area on the far end of the park. The remaining 5.4 acres would not be diminished in utility. The existing ballfields

would not be impacted. As a Section 6(f) resource, the impacted 0.6 acre of parkland must be replaced with lands of equal value, location, and usefulness.

Retaining walls were added to Package 2 in areas to minimize impacts to Westminster Hills Park (257) and Oakwood Park (554). However, construction requires acquisition of more than half of these parks' acreage to accommodate the US 36 improvements. Oakwood Park currently serves more as a buffer between homes and the sound wall adjacent to US 36, as opposed to an active recreation park. However, impacts to Oakwood Park would remove most of the usable space, including an informal path through the park.

Westminster Segment

Figure 4.9-3, Parks and Open Space in the Westminster Segment — Packages 2 and 4, displays the resources that would be impacted in the Westminster Segment.

Highway widening, interchange improvements, and the parking expansion at the Westminster Center Transit Station would result in impacts to nine parks or open space resources, and one trail crossing. Package 2 would acquire approximately 13.7 acres of park resources and open space. No trails or developed recreational fields would be diminished in utility.

Package 2 improvements would not result in permanent impacts to the Big Dry Creek Trail Crossing (TC2), requiring only temporary use during construction. Adequate trail detours, advanced notice, and detour signage throughout construction would be provided. The Big Dry Creek Trail would be returned to its comparable, former state following construction.

The resources that would be affected in the Westminster Segment would be primarily open space and wildlife viewing areas, rather than developed recreational parks. For this reason, impacts would be minimal, except for lengthening of the pedestrian trail crossing under US 36. Lengthening underpasses changes the visibility for the trail user with a longer, shadowed section of the trail.

During construction, vegetation removal, dust, and limits to trail access would cause temporary impacts to the trails and open spaces adjacent to US 36. Many of the open space properties are populated with prairie dogs; therefore, construction would affect wildlife viewing as well.

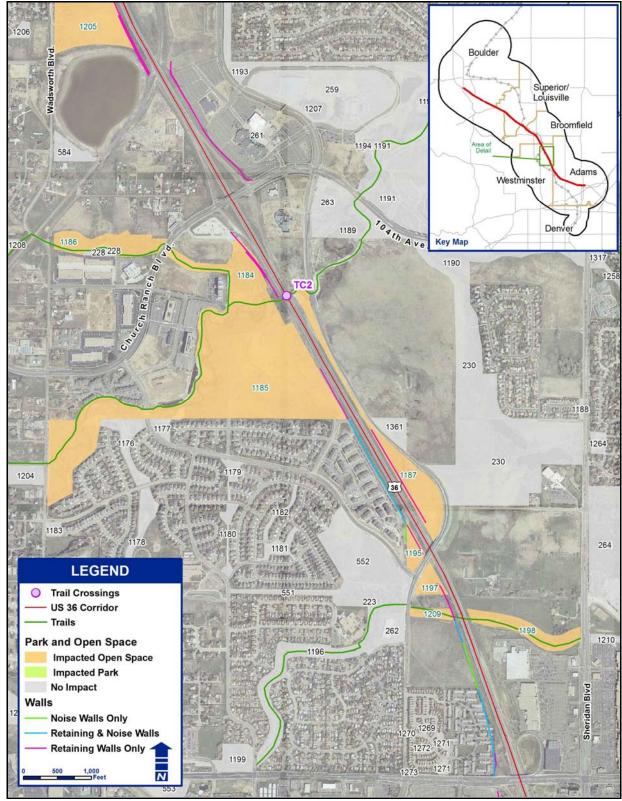


Figure 4.9-3: Parks and Open Space in the Westminster Segment — Packages 2 and 4

Note: Westminster Open Space (1209) impacted in Package 2 only.

Broomfield Segment

Figure 4.9-4, Parks and Open Space in the Broomfield Segment — Packages 2 and 4, displays the resources that would be impacted in the Broomfield Segment.

Impacts in the Broomfield Segment in Package 2 would include acquisition of approximately 6.7 acres of parks and open space. The Wadsworth Parkway/120th Avenue interchange would require the acquisition of 4.1 acres of Broomfield Open Space property (411), leaving 0.5 acre of open space. There are currently no additional open space properties adjacent to this resource. Package 2 would impact 0.5 acre of Broomfield Open Space (523) with construction of the 112th Avenue structure over US 36. Broomfield Open Space (523) is directly adjacent to other open space properties and the remaining 3.4 acres would be viable open space.

Adjusting slopes to accommodate highway widening and the bikeway would affect Broomfield Open Space (411), Interlocken Golf Course (309), East Interlocken Park (308), and East Interlocken Trail Crossing (TC16). This adjustment would alter portions of the trail and groomed lawn areas. A retaining wall would be included along East Interlocken Park (308) to minimize direct impacts to the park. However, a linear portion of the northeast side of East Interlocken Park would be acquired, including mature vegetation and trees.

The highway widening creates a more urban environment directly adjacent to the park and open space properties. Noise or change in wildlife habitat value adjacent to an expanded highway would impact wildlife viewing at Broomfield Open Space properties (523, 522). Increased noise levels would also result in impacts to East Interlocken Park (308).

Superior/Louisville Segment

Figure 4.9-5, Parks and Open Space in the Superior/Louisville Segment — Packages 2 and 4, displays the park and open space resources that would be impacted in the Superior/Louisville Segment due to the widening of US 36 and construction of the bikeway.

Most of the impacts to open space resources in the Superior/Louisville Segment would be attributable to the bikeway.

The extent of impact is estimated to be 1.4 acres for Package 2. Currently, the use of land between the bikeway and US 36 is included in the total acreage impacted, but most of this would be returned to functional open space upon completion of construction.

Most of the impacts to open space resources in this segment would be attributable to the bikeway. The bikeway is planned to be located on the south side of US 36 from the Westminster Segment to West Flatiron Circle, where the trail moves to the north side of US 36. Trail construction impacts Scriffiny (Carlson) Open Space (1134). Widening US 36 would require land from Frank

Varra Park (380). The Coal Creek Trail Crossing (TC5) would be temporarily impacted, but the utility of this crossing would not be impaired once construction is completed.

Coal Creek Golf Course (268) would not be directly impacted by Packages 2 or 4. However, based on the available Colorado Department of Transportation (CDOT) right-of-way (ROW) information, some golf course improvements have been developed within CDOT ROW (i.e., golf cart path), and would require relocation to the golf course's property. Therefore, some construction impacts would occur for the Coal Creek Golf Course, but would not require property acquisition.

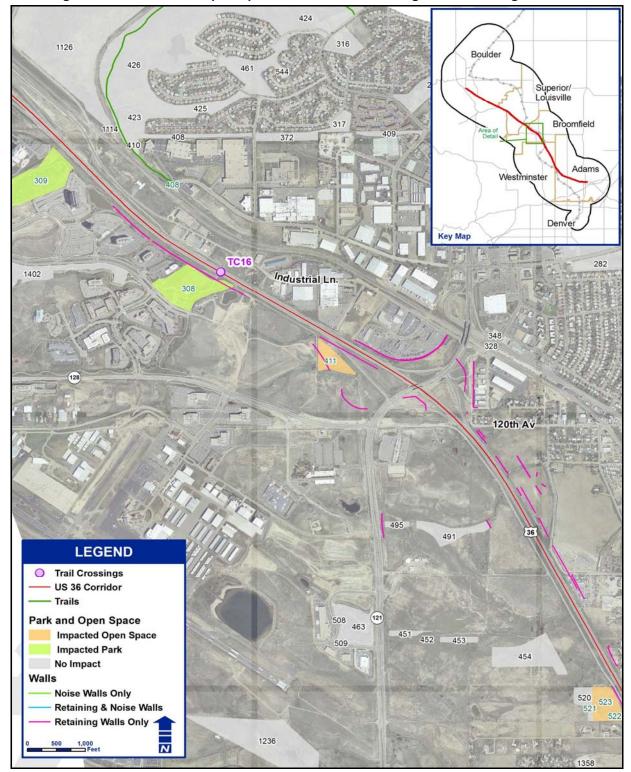


Figure 4.9-4: Parks and Open Space in the Broomfield Segment — Packages 2 and 4

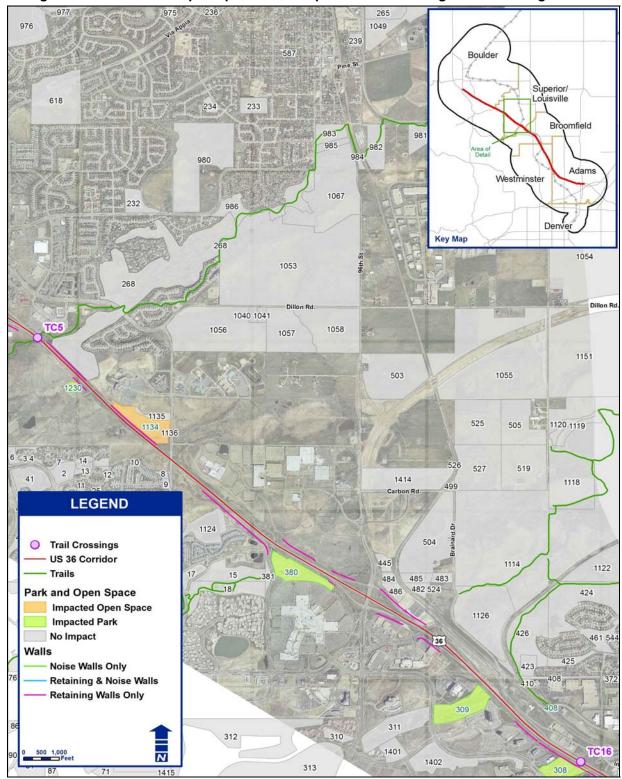


Figure 4.9-5: Parks and Open Space in the Superior/Louisville Segment — Packages 2 and 4

Boulder Segment

Figure 4.9-6, Parks and Open Space in the Boulder Segment — Packages 2 and 4, shows the resources that would be impacted in the Boulder Segment.

In this segment, a large portion of US 36 is bordered by City of Boulder and Boulder County Open Space properties. Options A and B present two different designs for bus rapid transit (BRT) access into Boulder. While both options impact the same park and open space resources, they differ in the total amount of impact. Option A would impact approximately 15.0 acres and Option B would impact 23.9 acres.

Under both options, open space would be impacted by US 36 improvements including the development of stormwater facilities. City on the Hill (909), Gallucci (903), Jirkovsky (906), Yunker (898, 897, 892, 893), and Van Vleet (885, 887, 886) open spaces would all be impacted. These open space properties serve various functions. Some are working agricultural areas, while others are managed as refuges for wildlife or other natural resources. Given the large acreages of contiguous open space properties along the corridor in the Boulder Segment (approximately 1,030 acres), acquisitions would result in minimal impacts relative to the large expanse of the open space present (up to approximately 2.3 percent). However, additional noise and visual impacts would be apparent by introducing more traffic and buses on US 36.

The South Boulder Creek Trail Crossing (TC12) would be temporarily impacted, but the utility of this crossing would not be impaired once construction is complete. The trail, crossing under US 36, would require lengthening by approximately 33 feet.

Visual impacts resulting from implementation of Package 2 would be more evident in the Boulder Segment, where views to and from the adjacent open space are categorized as moderate to high visual quality. This segment of the project would include retaining walls to avoid/minimize physical acquisition of open space properties. The trade-off of the benefit of avoiding acquisitions would be increased visual impacts of the retaining walls to recreational users and those driving on US 36.

The Cherryvale Road/South Boulder Road bikeway option would result in 1.98 acres of impact to the Van Vleet open space parcel. This compares to 0.73 acre of impact to the same open space parcel as a result of the bikeway option along US 36.

Indirect Impacts

All Segments

Similar to Package 1, population increases of 28 percent are expected in all build packages. These increases would place additional demands on vacant properties and open space for conversion to developable land. The increased land consumption results in less property available for park and open space development. Additional population also results in more users of the existing park and open space facilities.

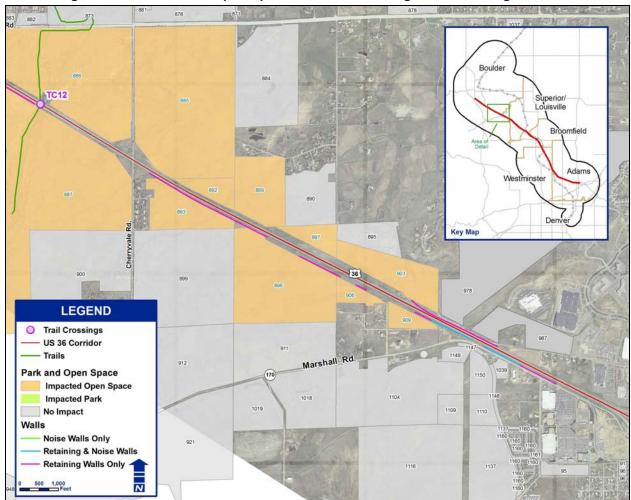


Figure 4.9-6: Parks and Open Space in the Boulder Segment — Packages 2 and 4

Note:

Short open space (889) impacted by Package 4 only.

<u>Package 4: General-Purpose Lanes, High-Occupancy Vehicle, and Bus Rapid</u> <u>Transit</u>

Direct Impacts

Impacts specific to Package 4 are described below, and summarized in Table 4.9-4, Impacts to Park and Open Space Resources — Package 4. Thirty parks and open space resources and four trail crossings would be impacted under Package 4.

Table 4.9-4: Impacts to Park and Open Space Resources — Package 4

Segment	nent ID No. Park/Open Space Resource		Original Size (acres)	Package 4: Area of Impact (acres) Options A and B	
Adams	1219	Westminster Open Space	2.3	2.3	
	257	Westminster Hills Park	2.5	0.3	
	554	Oakwood Park	2.7	1.5	
	123	Rotary Park (Section 6(f) Resource)	6.0	0.5	
	1276	Westminster Open Space	0.9	0.8	
	•		Subtotal	5.4	
Westminster	1198	Westminster Open Space	8.4	0.4	
	1197	Westminster Open Space	3.1	1.7	
	1195	Westminster Open Space	2.6	0.8	
	1187	Westminster Open Space	16.9	6.9	
	1185	Big Dry Creek Open Space	89.0	1.3	
1184	1184	Westminster Open Space	12.6	0.9	
1186 TC2		Westminster Open Space	9.7	0.2	
		Big Dry Creek Trail Crossing	N/A	N/A	
	1205	Westminster Open Space	28.6	1.6	
			Subtotal	13.8	
Broomfield	523	Broomfield Open Space	3.9	0.2	
	411	Broomfield Open Space	4.6	4.0	
	308	East Interlocken Park	12.9	0.3	
	TC16	East Interlocken Trail Crossing	N/A	N/A	
	309	Interlocken Golf Course	19.5	0.1	
			Subtotal	4.6	
Superior/	380	Frank Varra Park	16.9	0.3	
Louisville	1134	Scriffiny (Carlson) Open Space	16.8	1.4	
	TC5	Coal Creek Trail Crossing	N/A	N/A	
			Subtotal	1.7	

Table 4.9-4: Impacts to Park and Open Space Resources — Package 4

Segment	ID No.	Park/Open Space Resource	Original Size (acres)	Package 4: Area of Impact (acres) Options A and B	
Davida	000	City and the Hill Course Course	10.0		
Boulder	909	City on the Hill Open Space	12.0	0.6	0.6
	903	Gallucci Open Space	49.0	0.6	0.6
	906	Jirkovsky Open Space	11.2	0.3	0.3
	898	Yunker Open Space	115.8	2.0	2.0
897		Yunker Open Space	16.5	0.2	0.2
	892	Yunker Open Space	16.5	1.2	1.2
	893	Yunker Open Space	40.3	1.1	1.1
	889	Short Open Space	50.7	0.3	0.3
	885	Van Vleet Open Space	225.3	1.4	1.4
	887	Van Vleet Open Space	356.9	3.9	10.3
	886	Van Vleet Open Space	185.7	6.0	8.2
	TC12	South Boulder Creek Trail Crossing	N/A	N/A	N/A
			Subtotal	17.6	26.2
			Total	43.1	51.7

Notes:

ID No. = identification number N/A = not applicable TC = trail crossing

Denver Segment

There would be no physical improvements in this segment of the project area and, therefore, no direct impacts to parks, trails, or open space resources.

Adams Segment

Package 4 would impact fewer acres of park and open space resources than Package 2 in the Adams Segment, requiring acquisition of approximately 5.4 acres. These acquisitions would primarily result from widening US 36 and constructing interchange improvements. By implementing avoidance measures during conceptual design, Package 4 was able to avoid impacts to Commissioners Park (578).

Package 4 would require acquisition of about 0.5 acre of Rotary Park (123), which was developed using LWCF funds and is therefore a Section 6(f) resource.

Avoidance measures and construction effects would be the same as described under Package 2.

Westminster Segment

Package 4 would impact slightly fewer resources in this segment than Package 2. Package 4 would require acquisition of 13.8 acres of park and open space resources. The variance between Packages 2 and 4 is caused by different configurations in the interchange designs to accommodate managed lane access. Package 4 would result in construction impacts, similar to Package 2, to the Big Dry Creek Trail crossing (TC2).

Broomfield Segment

Package 4 impacts would be the same as described under Package 2; however, less acreage would be acquired from these resources. Package 4 would require acquisition of 4.6 acres of park and open space resources.

Superior/Louisville Segment

In the Superior/Louisville Segment, Package 4 would impact the same number of park and open space resources as Package 2; however, slightly more acreage would be impacted than Package 2. Package 4 would require acquisition of 1.7 acres of park and open space resources. Package 4 would impact approximately 0.6 acre more of the Scriffiny (Carlson) Open Space (1134) than Package 2. As described under Package 2, the Coal Creek Golf Course (268) would not be directly impacted by Package 4; however, some of the golf course improvements have been developed within CDOT ROW and would require relocation to the golf course property.

Boulder Segment

Package 4 would impact all the same resources in this segment as Package 2, in addition to the Short Open Space (889) property. Package 4 would also impact more total acreage than Package 2 for both Options A and B. These options present two different designs for BRT access into Boulder. While within Package 4 both options would impact the same park and open space resources, they differ in the total amount of impact. Option A would impact approximately 17.6 acres and Option B would impact approximately 26.2 acres.

Visual impacts resulting from implementation of Package 4 would be less in comparison to Package 2. Package 4 includes less linear feet of retaining walls. Retaining walls would impact views in the Boulder Segment, where views to and from the adjacent open space are categorized as moderate to high visual quality. This segment of the project would include retaining walls to avoid/minimize physical acquisition of open space properties. The trade-off of the benefit of avoiding acquisitions would be increased visual impacts of the retaining walls to recreational users and those driving on US 36. Refer to Section 4.11, Visual and Aesthetic Resources, for detailed analysis and mitigations.

The South Boulder Creek Trail Crossing (TC12) would be temporarily impacted, but the utility of this crossing would not be impaired once construction is complete. The trail, crossing under US 36, would require lengthening by 34 to 56 feet.

The Cherryvale Road/South Boulder Road bikeway option would result in 1.98 acres of impact to the Van Vleet open space parcel. This compares to 0.73 acre of impact to the same open space parcel as a result of the bikeway option along US 36.

Indirect Impacts

All Segments

Indirect impacts for Package 4 would be the same as for Package 2.

<u>Combined Alternative Package (Preferred Alternative): Managed Lanes, Auxiliary</u> Lanes, and Bus Rapid Transit

Direct Impacts

Impacts specific to the Combined Alternative Package (Preferred Alternative) are described below, and summarized in Table 4.9-5, Impacts to Park and Open Space Resources — Combined Alternative Package (Preferred Alternative). Twenty-nine parks and open space resources and four trail crossings would be impacted under the Combined Alternative Package (Preferred Alternative).

Table 4.9-5: Impacts to Park and Open Space Resources — Combined Alternative Package (Preferred Alternative)

Segment ID No.		Park/Open Space Resource	Original Size (acres)	Combined Alternative Package (Preferred Alternative) Area of Impact (acres)	
Adams	578	Commissioners Park	3.2	0.1	
	257	Westminster Hills Park	2.5	0.5	
	1276	Westminster Open Space	0.9	<0.1	
	205	Waddell Park	13.6	<0.1	
			Subtotal	0.6	
Westminster	1198	Westminster Open Space	8.4	0.3	
	1209	Westminster Open Space	2.1	0.1	
	1197	Westminster Open Space	3.1	2.0	
	1187	Westminster Open Space	16.9	7.0	
	1185	Big Dry Creek Open Space	89.0	0.6	
	1184	Westminster Open Space	12.6	5.1	
	1205	Westminster Open Space	28.6	1.1	
	TC2	Big Dry Creek Trail Crossing (Section 6[f] Resource)	N/A	N/A	
	-		Subtotal	16.2	
Broomfield	523	Broomfield Open Space	3.9	0.3	
	411	Broomfield Open Space	4.6	3.9	
	308	East Interlocken Park	12.9	0.8	
	309	Interlocken Golf Course	19.5	0.4	
	521	Broomfield Open Space	0.84	<0.1	
	TC16	East Interlocken Trail Crossing	N/A	N/A	
	-	•	Subtotal	5.4	
	380	Frank Varra Park	16.9	0.3	
Superior/ Louisville	1134	Scriffiny (Carlson) Open Space	16.8	1.2	
	TC5	Coal Creek Trail Crossing	N/A	N/A	
		*	Subtotal	1.5	
Boulder	909	City on the Hill Open Space	12.0	1.0	
	903	Gallucci Open Space	49.0	0.8	
	906	Jirkovsky Open Space	11.2	0.3	
	898	Yunker Open Space	115.8	2.8	
	897	Yunker Open Space	16.5	<0.1	
	892	Yunker Open Space	16.5	0.8	
	893	Yunker Open Space	40.3	1.1	
	885	Van Vleet Open Space	225.3	0.9	
	889	Short Open Space	50.7	0.1	
	887	Van Vleet Open Space	356.9	5.3	
	886	Van Vleet Open Space	185.7	5.8	
	TC12	South Boulder Creek Trail Crossing	N/A	N/A	
		, ,	Subtotal	18.9	
			Total	42.6	

Notes:

< = less than

ID No. = identification number N/A = not applicable TC = trail crossing

The following discussion summarizes impacts by segment for the Combined Alternative Package (Preferred Alternative).

Denver Segment

There would be no physical improvements in this segment of the project area and, therefore, no direct impacts to parks, trails, or open space resources.

Adams Segment

The Combined Alternative Package (Preferred Alternative) would impact fewer park and open space resources than Packages 2 and 4, and would require the acquisition of approximately 0.6 acre. By implementing avoidance measures during conceptual design, the Combined Alternative Package (Preferred Alternative) would avoid impacts to Rotary Park (Section 6[f] Resource) (123) and Westminster Open Space (1276). In addition, direct impacts to Oakwood Park (554) would be avoided, but there would be some construction impacts, as discussed in Section 4.22, Construction-Related Impacts. However, the Combined Alternative Package (Preferred Alternative) would require acquisition of 0.03 acre of Waddell Park (205) as a result of the widening of US 36. Figure 4.9-7, Parks and Open Space in the Adams Segment — Combined Alternative Package (Preferred Alternative), displays the resources that would be impacted by the Combined Alternative Package (Preferred Alternative).

Westminster Segment

The Combined Alternative Package (Preferred Alternative) would impact fewer resources in this segment than Packages 2 or 4. There would be no impacts to Westcliff Future Park (552) or Westminster Open Spaces (1186 and 1195). However, this alternative would impact Westminster Open Space (1209), which differs from Package 4. This alternative would impact approximately 16.1 acres of resources in the Westminster Segment. The Combined Alternative Package (Preferred Alternative) would result in construction impacts, similar to Packages 2 and 4, to the Big Dry Creek Trail Crossing (TC2). This trail received LWCF funds for its development and is a Section 6(f) resource. Figure 4.9-8, Parks and Open Space in the Westminster Segment — Combined Alternative Package (Preferred Alternative), displays the resources that would be impacted by the Combined Alternative Package (Preferred Alternative).

Broomfield Segment

The Combined Alternative Package (Preferred Alternative) would impact one more open space resource in this segment than Packages 2 and 4. This alternative would impact approximately 5.4 acres of resources in the Broomfield Segment, which would be slightly less acreage than Package 2, but would be more acreage than Package 4.

The Combined Alternative Package (Preferred Alternative) would result in the acquisition of 0.03 acre of Broomfield Open Space (521), which would not be impacted by Packages 2 or 4; this acquisition would result from the widening of US 36. Figure 4.9-9, Parks and Open Space in the Broomfield Segment — Combined Alternative Package (Preferred Alternative), displays the resources that would be impacted by the Combined Alternative Package (Preferred Alternative).

Superior/Louisville Segment

The Combined Alternative Package (Preferred Alternative) would have similar impacts on parks and open space as the other build packages. This alternative would impact approximately 1.5 acres of resources in the Superior/Louisville Segment, which would be slightly more than Package 2 and slightly less than Package 4. Figure 4.9-10, Parks and Open Space in the Superior/Louisville Segment — Combined Alternative Package (Preferred Alternative), displays the resources that would be impacted by the Combined Alternative Package (Preferred Alternative). The Combined Alternative Package (Preferred Alternative) would avoid impacts to improvements of the Coal Creek Golf Course (268) that are located inside of CDOT ROW and that would be impacted by Packages 2 and 4.

Trail Crossings
US 36 Corridor
Trails
Parks and Open Spaces
Impacted Open Space
Impacted Open Space
Impacted Park
No Impact
Walls
Noise Walls Only
Retaining & Noise Valls
Retaining Walls Only
Retain

Figure 4.9-7: Parks and Open Space in the Adams Segment — Combined Alternative Package (Preferred Alternative)

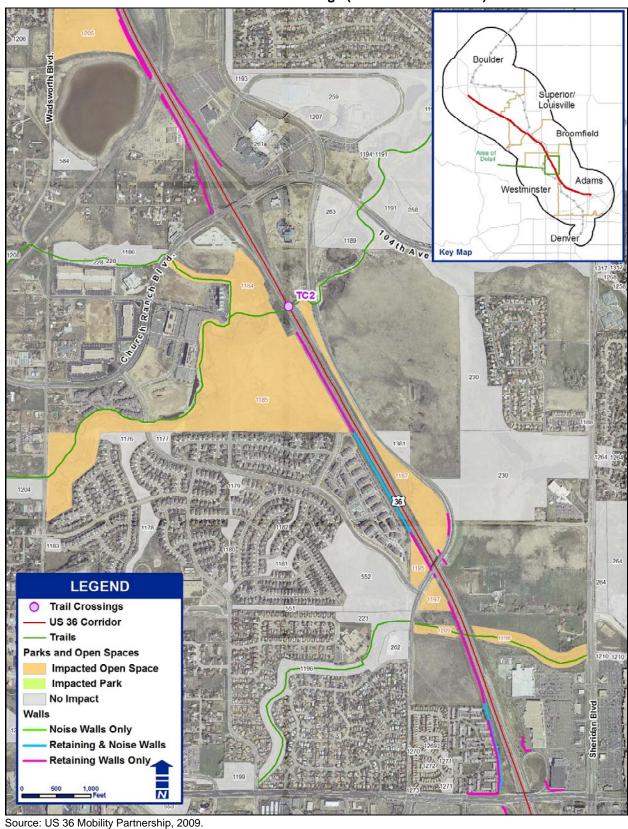


Figure 4.9-8: Parks and Open Space in the Westminster Segment — Combined Alternative Package (Preferred Alternative)

Boulder Superior/ Louisville Broomfield Westminster Key Map Industrial Ln. **LEGEND** Trail Crossings - US 36 Corridor - Trails Parks and Open Spaces Impacted Open Space Impacted Park No Impact Walls Noise Walls Only Retaining & Noise Walls Retaining Walls Only-N

Figure 4.9-9: Parks and Open Space in the Broomfield Segment — Combined Alternative Package (Preferred Alternative)

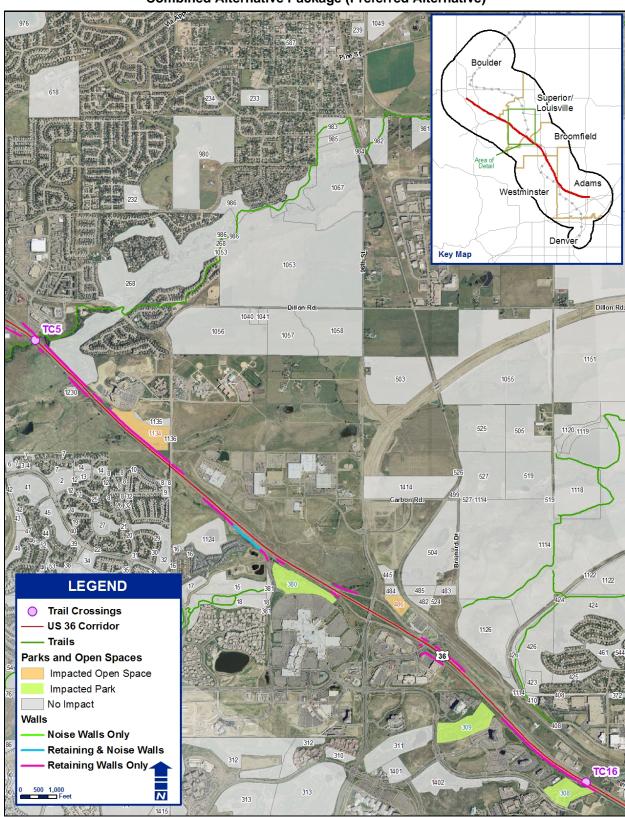


Figure 4.9-10: Parks and Open Space in the Superior/Louisville Segment — Combined Alternative Package (Preferred Alternative)

Boulder Segment

The Combined Alternative Package (Preferred Alternative) would impact fewer park and open space resources than Packages 2 and 4. This alternative would require the acquisition of approximately 18.9 acres of resources, which would be slightly more than Option A of Packages 2 and 4, but less than Option B for Packages 2 and 4.

The South Boulder Creek Trail Crossing (TC12) would be temporarily impacted, but the utility of this crossing would not be impaired once construction is complete. The trail, crossing under US 36, would require lengthening by approximately 33 feet, the same as Package 2.

Visual impacts would be reduced with the implementation of the Combined Alternative Package (Preferred Alternative) in comparison to Packages 2 and 4 since the amount of retaining walls would be reduced and replaced with slopes to minimize visual impacts to open space areas.

While retaining walls are proposed on both sides of the highway from Foothills Parkway to South Boulder Creek, and walls or some other major cut and stabilization feature are proposed at Davidson Mesa, slopes are proposed instead of retaining walls, where feasible, in the areas between South Boulder Creek and the scenic overlook, in order to minimize visual impacts. Figure 4.9-11, Parks and Open Space in the Boulder Segment — Combined Alternative Package (Preferred Alternative), displays the resources that would be impacted by the Combined Alternative Package (Preferred Alternative).

TC12

| Boulder | Brownfield |

Figure 4.9-11: Parks and Open Space in the Boulder Segment — Combined Alternative Package (Preferred Alternative)

Indirect Impacts

All Segments

Indirect impacts for the Combined Alternative Package (Preferred Alternative) would be the same as for Package 2 and Package 4.

Mitigation

During the development of the packages, the build packages were modified to avoid and minimize impacts to parkland wherever possible. These modifications included:

- Water quality ponds were relocated to avoid or minimize conflicts with the following open spaces: Van Vleet, Yunker, Scriffiny (Carlson), and Big Dry Creek.
- Retaining walls were added to avoid or minimize impacts to Westminster Open Space, Broomfield Open Space, Frank Varra Park, Scriffiny (Carlson) Open Space, and Boulder Open Space. For Packages 2 and 4, retaining walls would also be used in Boulder Open Space. Visual impacts would be reduced with the implementation of the Combined Alternative Package (Preferred Alternative), in comparison to Packages 2 and 4, since some retaining walls would be replaced with slopes.
- Retaining walls were also added to Rotary, Oakwood, and Commissioners parks. Shifting the
 alignment to the southwest was also considered; however, this would result in purchasing an
 additional row of homes, as well as have more impacts to Westminster Hills Park. With the
 Combined Alternative Package (Preferred Alternative), impacts to Rotary Park and Oakwood Park
 would be avoided.
- The engineering team was able to avoid impacts to Westcliff Future Park (Trendwood) through context sensitive solutions.
- Impacts to Interlocken Park were minimized with the addition of a retaining wall. Shifting the alignment to the northeast was also considered, but would cause additional environmental impacts (prime and unique farmland to the west), and ROW impacts (large building to the east).

The mitigation measures listed in Table 4.9-6, Mitigation Measures — Parks and Open Space, are recommended pending further evaluation during preliminary and final design. Because of the similarity of impact between the two build alternatives, the proposed mitigation measures apply equally.

Mitigation Measures **Impact** Impact Type Trail crossings Construction • Adequate trail detours and advanced notice and signing prior to beginning construction will be provided. Trail relocations Construction • Trails will be returned to their existing or comparable state following construction. In coordination with local jurisdictions, plans will be prepared and implemented defining Temporary occupancy of Construction parkland during the BMPs for the following: construction • Public safety and security for the project site will be planned. This plan will include all appropriate access, signing, and public information BMPs. • A traffic, pedestrian, and bicycle access management plan will be provided for the project area during construction. Loss of vegetation Construction • Disturbed areas will be seeded with native grasses and forbs. Native shrubs will be added to the mix as appropriate. Trees will be replaced at a 1:1 ratio in locations where soils support the highest probability for re-establishment of vegetation. New trees will be planted near areas that naturally receive adequate water, such as near drainage areas or wetlands. Sapling trees in riparian areas may require initial watering for establishment.

Table 4.9-6: Mitigation Measures — Parks and Open Space

Table 4.9-6: Mitigation Measures — Parks and Open Space

Impact	Impact Type	Mitigation Measures
Spread of noxious weeds	Construction	Weed control will use the principles of integrated pest management to treat target weed species efficiently and effectively by using a combination of two or more management techniques (biological, chemical, mechanical, and/or cultural). Weed control methods will be selected based on the management goal for the species, the nature of the existing environment, and methods recommended by Colorado State University, county weed boards, and other weed experts. The presence of important wildlife habitat or threatened and endangered species will be considered when choosing control methods.
Erosion control	Construction	The following activities will take place: provision of BMPs, in accordance with the CDOT Drainage Design Manual, will be used during construction to control erosion (refer to Section 4.20, Water Resources: Water Quality and Floodplains); protect cultural resources (refer to Section 4.7, Historic and Archaeological Preservation, and Section 4.8, Paleontology); minimize visual degradation (refer to Section 4.11, Visual and Aesthetic Resources); and assure prompt revegetation (refer to Section 4.14, Biological Resources: Wildlife, Vegetation, and Threatened and Endangered Species).
Future planned park, trail, and open space projects	Construction	During final design, coordination will occur with public land's representatives to reasonably address future park, trail, and open space projects included in adopted plans.
Parkland acquisition	Operations	Compensation for parkland acquisition will be negotiated with the public land's representatives. At minimum, compensation will include comparable replacement of parkland and facilities within approximately 2 miles of the affected parkland or adequate compensation, based on fair market appraisals. All acquisition mitigation measures must conform to the Uniform Act.
Section 6(f) resources acquisition (Package 2 and Package 4)	Operations	Compensation for resource acquisitions will be approved by the National Park Service in cooperation with public entities, as appropriate. Section 6(f) requires that any Section 6(f) property affected by this project be replaced by recreation property of equal value and usefulness. All acquisition mitigation measures must conform to the Uniform Act.
Open space acquisition	Operations	Open space acquisition will be reimbursed at fair market value to the owner of the public lands. It should be the responsibility of the project sponsors to identify comparable lands that may be purchased to replace open space lands that are acquired. All acquisition mitigation measures must conform to the Uniform Act.
Impacts to wildlife habitat	Construction/ Operations	See Section 4.14, Biological Resources: Wildlife, Vegetation, and Threatened and Endangered Species.
Trail crossings	Operations	Pedestrian underpasses more than 20 feet in length will be lighted to standards for safety and security.
Trail relocations	Operations	Trailhead and trail connections to residential and commercial developments will be preserved. Alternate trail routes accomplishing a similar connection will be provided, where trails must be adjusted.
		Trails that must be relocated to a public street due to property acquisition will be enhanced with signs and additional plantings (where possible) commensurate with the impact. Vegetation selection will be determined by the owner of the public land's the parks and Recreation Department.
Visual impacts to parkland and open spaces	Construction	Disturbed parkland and open space areas due to construction will be returned to their previous condition. Options include seeding with native grasses and forbs. Native shrubs will be added to the mix as appropriate. Trees will be replaced at a 1:1 ratio in locations where soils support the highest probability for re-establishment of vegetation, such as near riparian resources. For the Combined Alternative Package (Preferred Alternative), visual impacts were mitigated in the Boulder Segment by using slopes instead of retaining walls.

Notes:

BMP = best management practices

CDOT = Colorado Department of Transportation FEIS = Final Environmental Impact Statement

Uniform Act = Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended