
Appendix B

Impacts and Mitigation of the Preferred Alternative

Impacts and Mitigation of the Preferred Alternative

Preferred Alternative	
Impacts	Mitigation
Environmental Resources	
Social Impacts and Community Facilities	
<p>Direct Impacts</p> <p>No direct impacts to neighborhoods or community facilities.</p> <p>Population changes would be consistent with local and regional plans, which encourage TOD near the proposed transit stations.</p> <p>Benefit of an improved transit system and decreased congestion.</p>	<p>No mitigation required.</p>
<p>Indirect Impacts</p> <p>Probable shift of some population to the transit station areas due to TOD.</p>	<p>No mitigation required.</p>
<p>Temporary Construction Impacts</p> <p>During the 36 to 48 month construction schedule, approximately 95 acres would be exposed, about half in the railroad ROW and half for stations.</p> <p>Residences most affected by the inconveniences of construction (noise, dust, construction traffic) would be within 300 feet of the ROW. A total of 354 single-family and 12 multi-family properties are located in this area. The majority of the impacts would be in Arvada, between Lamar Street and Kipling Street.</p> <p>The construction of the 20 required at-grade crossings would result in temporary impacts to residents living in the vicinity of the at-grade crossing.</p>	<p>Working with the communities, RTD will prepare a Construction Mitigation Plan (CMP) that specifies public communications, and construction means and methods to reduce or mitigate the inconveniences of construction such as noise, dust, visual blight, construction traffic, and preservation of access to homes, businesses, and community facilities.</p> <p>RTD will coordinate with the impacted neighborhoods prior to and during construction activities.</p> <p>See mitigation in this table for Visual and Aesthetic Qualities.</p> <p>See mitigation in this table for Air Quality.</p> <p>See mitigation in this table for Noise and Vibration.</p> <p>See mitigation in this table for Transportation Systems.</p>

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<p>Cumulative Impacts</p> <p>The Preferred Alternative would encourage compact urban development because “in-fill” development would result adjacent to transit stations, reducing urban sprawl in the outskirts of the Gold Line study area. Neighborhoods would be revitalized as a result of the project action, increasing the use of community facilities and population densities around stations. The Preferred Alternative would help to shape the direction of future growth and strengthen neighborhoods.</p>	No mitigation required
<p>CRMF</p> <p>The construction of the CRMF would not result in any direct or indirect impacts to neighborhoods, community facilities, or population.</p> <p>The construction of the CRMF site would result in a temporary increase in construction traffic and localized dust. Because the site is located within an industrial area and the nearest residential area is located approximately a half-mile away, these impacts would be minimal to residential areas.</p>	No mitigation required.
Environmental Justice	
<p>Direct Impacts</p> <p>No disproportionate impacts as compared to the general population for all environmental resources.</p> <p>Benefit of access to the new transit system and the entire RTD network, and increased mobility for 2,084 low-income households, 5,547 minority populations, and 493 zero-auto households.</p>	No mitigation required.
<p>Indirect Impacts</p> <p>Increased property values and taxes around stations, which could result in minority and low-income persons moving to more affordable neighborhoods.</p> <p>General benefit of economic stimulus from TOD.</p>	No mitigation required.

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<p>Temporary Construction Impacts No disproportionate construction impacts as compared to the general population for all environmental resources.</p>	No mitigation required.
<p>Cumulative Impacts The Preferred Alternative would provide alternative transportation options throughout the Gold Line study area. In the Denver metropolitan region, 25 percent of the population will be over age 60 in 2030 (DRCOG, 2005a). The Preferred Alternative would improve the mobility of minority and traditional transit users in the Gold Line study area and access to DUS and the rest of the RTD system. Stations would be located near major job sites, which would provide better and more convenient access to minority, low-income and traditional transit users (RTD, 2007b).</p>	No mitigation required.
<p>CRMF The CRMF would not result in any disproportionate impacts to minority or low-income communities.</p>	No mitigation required
Land Use	
<p>Direct Impacts All stations for the Preferred Alternative are compatible with implemented land use plans in Denver, Adams County, Arvada, and Wheat Ridge. The Preferred Alternative is compatible with existing local transportation plans. Concerns that proposed surface parking at the transit stations would require land that could be better used for TOD.</p>	<p>Provision of phased parking and allowing modification of parking facilities after 2015, if warranted. Monitoring parking demand after 2015 and adjusting supply (as necessary).</p>
<p>Indirect Impacts Planned increase in urban density within 0.5 mile of stations as a result of TOD, increasing employment and real estate values, and slightly reducing urban sprawl. The transformation from low density to higher density is likely to increase employment and real estate values and, to some extent, reduce urban sprawl.</p>	No mitigation required.

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<p>Temporary Construction Impacts No impacts.</p>	No mitigation required.
<p>Cumulative Impacts With the implementation of the Preferred Alternative, future development is anticipated to be more concentrated at planned TODs along the proposed alignment, resulting in slightly less sprawl in the Gold Line study area. Acreage not developed would be available until 2030 for other uses, such as wildlife habitat and groundwater recharge. Similar effects are expected for the region as the East, Northwest Rail, North Metro, I-225, and other FasTracks transit projects and their respective TODs are implemented. These trends have been verified by RTD through the Transit Oriented Status Report completed in 2007 (RTD, 2007d). In this report, RTD compared the estimates for TOD at the stations for the Southwest, Southeast, and Central Platte Valley included in environmental documents associated with each project. All of these environmental documents predicted increased development around the proposed stations. RTD's findings are that these predictions were met or in most cases exceeded (RTD, 2007b).</p>	No mitigation required.
<p>CRMF The CRMF would be consistent with City and County of Denver and Adams County zoning and adopted land use and transportation plans.</p>	No mitigation required.
Farmlands	
<p>Direct, Indirect, and Temporary Construction Impacts No impacts because there is no farmland within 0.5 mile of the Preferred Alternative, including both the alignment and stations.</p>	No mitigation required.
<p>Cumulative Impacts The implementation of the Preferred Alternative would result in increased densities around the seven transit stations, possibly delaying the development of existing farmland in the fringes of the Gold Line study area.</p>	No mitigation required.

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<p>CRMF No impacts because there is no farmland located within the study area.</p>	No mitigation required.
Economic Considerations	
<p>Direct Impacts Economic stimuli of improved access to communities in the study area especially compared to communities without rail transit. Loss of annual property tax: \$722,000 to \$732,000 Acquisition of businesses: 16 businesses, estimated possible relocation of 317 jobs. Benefit of approximately 100 jobs associated with operations and maintenance of the new transit system. It is estimated that the new operational jobs would create another 153 indirect jobs.</p>	See mitigation in this table for Land Acquisitions, Displacements, and Relocations of Existing Facilities.
<p>Indirect Impacts Benefit of indirect jobs as a result of future TOD. Benefit of high-density, mixed-use development as a result of TOD. Increased property values around stations as a result of TOD.</p>	No mitigation required.
<p>Temporary Construction Impacts Temporary construction impacts including noise, dust, visual degradation, and traffic congestion. Short-term possible impeded access to 31 businesses in Olde Town, potentially resulting in loss of business due to construction. Construction through the Olde Town area will take between 6 and 8 weeks to install the alignment and an additional 8 weeks to construct the Olde Town Station. These impacts are compounded against the current (2007) Wadsworth Bypass project currently occurring adjacent to Olde Town. Benefit of 4,290 total jobs, or 1,075 to 1,425 jobs per year (48 or 36-month construction schedule). Each dollar spent on a FasTracks projects results in two</p>	<p>Create CMPs and work with local communities and businesses. Provide clear signage and direction for alternate access. Coordinate with local groups, business districts, and jurisdictions using a variety of media (for example radio, flyers, advertisements, and Web site), where appropriate. Provide temporary access during normal business hours, where possible. Ensure contractors obtain all necessary local permits. Develop traffic maintenance plans to maintain access and circulation. See mitigation in this table for Visual and Aesthetic Qualities. See mitigation in this table for Air Quality. See mitigation in this table for Noise and Vibration. See mitigation in this table for Transportation Systems.</p>

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<p>dollars to the local economy due to multiplier effects. Additionally, each construction job is estimated to create 2.4 indirect jobs for the duration of construction.</p>	
<p>Cumulative Impacts</p> <p>The Preferred Alternative would improve the traffic conditions and reduce congestion, thereby slightly decreasing the cost of congestion on individuals and businesses. FasTracks is expected to save individuals \$210 annually in 2030, as compared to the cost of congestion without FasTracks (RTD, 2007b). This would increase the livability of the area, thereby increasing its attractiveness for businesses and employees. The improved transit service would result in a wider draw area for candidate employees, providing employers with a more diverse pool of candidates.</p> <p>Construction of FasTracks would result in additional employment and economic activity. For every dollar spent on construction capital costs, more than \$2 of additional economic activity would be generated in the Denver region. In addition, every dollar spent on capital costs would translate directly into \$0.72 in new wages and salary for jobs outside the construction field. FasTracks would also create long-term operations, maintenance, and general administration jobs. Based upon the current employment figures for RTD light rail operations, it is estimated that FasTracks would create employment for approximately 1,100 workers. The long-term employment benefits will also have a multiplier effect on the regional economy, resulting in an additional 1,533 jobs for every 1,000 jobs created (employment multiplier of 1.53) by FasTracks operations. Thus, the number of new permanent jobs created during FasTracks operations is approximately 2,500. (RTD, 2007b).</p> <p>The estimated average number of jobs directly related to construction of the FasTracks system would be 2,171 jobs per year, representing about \$217 million per year in wages and benefits per year, assuming 7-year construction</p>	<p>No mitigation required.</p>

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<p>duration. The 2,171 direct employment jobs per year would generate approximately 5,000 additional indirect jobs (economic construction job multiplier of 2.42) per year in the Denver region for all industries not directly involved with construction of the FasTracks system. In total, the construction effort would employ over 7,000 people per year including direct and indirect jobs (RTD, 2007b).</p>	
<p>CRMF</p> <p>Approximately 300 jobs would be created by the CRMF.</p> <p>An additional 459 jobs would be created as a result of these long-term employment benefits with the operation of the CRMF (employment multiplier of 1.53). Conversely, additional jobs could be lost if second tier companies do not relocate within the Denver metro area.</p> <p>Loss of annual property tax: \$7,000.</p> <p>No business acquisitions.</p> <p>Other businesses along Fox Street and 48th Avenue would be temporarily impacted by construction-related vehicle traffic, and adjacent businesses could experience temporary disruptions as a result of construction related noise and dust. The construction of the CRMF at the Fox North Site would provide a benefit by generating a total of 990 construction jobs, or approximately 495 construction jobs per year for 2 years.</p> <p>These temporary construction jobs are estimated to create additional indirect employment of over 2,300 jobs for the two year construction period.</p>	<p>Mitigation for the CRMF will be the same as those measures identified for the temporary construction impacts above.</p>
Land Acquisitions, Displacements and Relocations of Existing Uses	
<p>Direct Impacts</p> <p>The Preferred Alternative would result in the following impacts:</p> <ul style="list-style-type: none"> - Acquisition of businesses: 16 businesses - No full residential acquisitions and eight partial 	<p>Acquisition: The acquisition of real property interests will comply fully with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act) and the Fifth Amendment of the United States Constitution. The Uniform Act applies to all acquisitions of real property or displacements of people resulting from federal or federally assisted programs or projects. All impacted owners will be provided notification of the acquiring agency's intent to acquire an interest in their property, including a written offer letter</p>

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residential acquisitions – Acquisition of private property: 127.50 to 128.08 acres (mostly for stations) – Acquisition of railroad property: 26.91 acres – Acquisition of municipal owned ROW: 14.96 acres	of just compensation specifically describing those property interests. Relocation Analysis: RTD will prepare a relocation analysis to enable relocation activities to be planned in such a manner that the problems associated with the displacement of businesses are recognized and solutions are developed to minimize the adverse impacts of displacement. The Relocation Study will estimate the number, type, and size of businesses and non-profit organizations to be displaced and the approximate number of employees that may be affected; and consider any special advisory services that may be necessary from RTD and other cooperating agencies. Relocation Assistance Advisory Services: Relocation assistance will include determining the relocation needs and preferences of each business to be displaced and explaining the relocation payments and other assistance for which the business owner is eligible; providing current and continuing information on the availability, purchase prices, and rental costs of comparable replacement commercial properties, and other programs administered by the Small Business Administration and other federal, state, and local programs offering assistance to the displaced businesses. Payments: The relocation payments provided to displaced businesses are determined by federal eligibility guidelines.
Indirect Impacts Property acquisitions would indirectly result in job losses.	No mitigation required. See mitigation in this table for Economic Considerations.
Temporary Construction Impacts Temporary construction easements are included in the direct impacts calculated for the Preferred Alternative.	No mitigation required.
Cumulative Impacts Private property acquisition required for the Preferred Alternative (up to 128.08 acres) would be additive to the property required for three roadway projects and the Northwest Rail project committed under the No Action Alternative, plus the additional land needed for new public infrastructure to serve the 2030 population in the Gold Line study area, estimated at approximately 700 acres. This compares to the 20,000+/- acres that would be required for public infrastructure to accommodate the 2030 population estimated for the Denver metropolitan area.	No mitigation required.

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<p>CRMF</p> <p>The CRMF would result in the acquisition of approximately 3.33 acres of property and would not result in the relocation of any businesses.</p>	<p>Acquisition: The acquisition of real property interests will comply fully with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act) and the Fifth Amendment of the United States Constitution. The Uniform Act applies to all acquisitions of real property or displacements of people resulting from federal or federally assisted programs or projects. All impacted owners will be provided notification of the acquiring agency's intent to acquire an interest in their property, including a written offer letter of just compensation specifically describing those property interests.</p>
Cultural Resources	
<p>Direct Impacts</p> <p>The Preferred Alternative would result in the following impacts:</p> <ul style="list-style-type: none"> - Adverse Effect to two historic properties: the Denver West Side Line (5DV3512.3) as a result of the 41st Avenue East Station and the Allan-Rand Ditch (5JF4454.1) as a result of the trackway. - Potential impacts to archaeological resources 	<p>A Memorandum of Agreement (MOA) has been completed between FTA and the SHPO (July 2009) and is included in Appendix A.</p> <p>Where known archaeological sites are present, ground-disturbing activities will be avoided, where possible. RTD may complete archaeological monitoring during construction activities. In the event that cultural deposits are discovered during construction, work would cease in the area of discovery and the SHPO would be notified. The designated representative would evaluate any such discovery, and in consultation with SHPO, complete appropriate mitigation measures, if necessary, before construction activities resume.</p>
<p>Indirect Impacts</p> <p>The project would result in indirect noise and visual impacts to five historic resources. However, the incremental increase in the noise level would not be considered an Adverse Effect to the individual historic properties, nor to the project's historic districts as a whole. The districts have been associated with the rail line since the early 20th century, thus the setting, association, and feeling of the historic properties along the rail line would not be adversely affected by proposed noise levels.</p>	<ul style="list-style-type: none"> • See mitigation in this table for Visual and Aesthetic Qualities. • See mitigation in this table for, Noise and Vibration. • See mitigation in this table for Air Quality. • See mitigation in this table for Transportation Systems
<p>Temporary Construction Impacts</p> <p>Historic properties within the APE could be subject to temporary impacts due to the noise, air quality, visual, and traffic-diverting effects of construction. These impacts would result in No Adverse Effect to the historic resources.</p>	<p>See mitigation in this table for Visual and Aesthetic Resources.</p> <p>See mitigation in this table for Air Quality.</p> <p>See mitigation in this table for, Noise and Vibration.</p> <p>See mitigation in this table for Transportation Systems.</p>

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<p>Cumulative Impacts</p> <p>Archeological Resources: There would be no known cumulative impacts to NRHP-eligible archaeological resources from the Preferred Alternative.</p> <p>Historic Resources: There would be no cumulative impacts to historic properties from the Preferred Alternative. Many of the neighborhoods in the project area developed due to their proximity to the railroad and the availability of public transportation and commercial goods. Considering the railroad corridor has existed in these historic neighborhoods for more than a century, there should be no cumulative impacts from the addition of commuter rail. Cumulative impacts could become a factor from potential transportation-oriented development that may cluster around the station areas in the future.</p>	<p>No mitigation required.</p>
<p>CRMF</p> <p>Archeological Resource: No direct, indirect, or temporary construction impacts from the implementation of the CRMF.</p> <p>Historic Resources: Adverse effect to the Denver Utah Pacific Railroad, Chicago Burlington Quincy Siding & Spur (Waterworks Sales Co, J.M. Warner Co, & Richardson lumber Spur) (5AM1888.5 and 5DV6243.7).</p>	<p>A MOA has been completed between FTA and the SHPO (July 2009) and is included in Appendix A.</p> <p>Where known archaeological sites are present, ground-disturbing activities will be avoided, where possible. RTD may complete archaeological monitoring during construction activities. In the event that cultural deposits are discovered during construction, work would cease in the area of discovery and the SHPO would be notified. The designated representative would evaluate any such discovery, and in consultation with SHPO, complete appropriate mitigation measures, if necessary, before construction activities resume.</p>

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Impacts	Mitigation
Visual and Aesthetic Resources	
<p>Direct Impacts</p> <p>Project features that present the potential for visual change include:</p> <ul style="list-style-type: none"> - Structures - Numerous retaining walls located throughout the length of the alignment - Up to four pedestrian bridges - Seven transit stations and pnR facilities - 11.2 miles of overhead catenary - 11.2 miles of trackway - Electric substation - Fencing along the alignment - Crash walls where the alignment is less than 50 feet from the UP alignment between I-76 and the Federal Station and between the Sheridan Station and Sheridan boulevard <p>No adverse impacts in the Denver, Adams, and Wheat Ridge Sections due to the industrial and rail-oriented character of the alignment.</p> <p>Anticipated sensitivities in the Arvada Section from Lamar Street to Kipling Street.</p>	<p>Station aesthetics will be coordinated with local agencies and the public during final design. Station designs must be approved by the appropriate design review committee by each local jurisdiction.</p> <p>Final designs for stations will follow and build from the Preliminary Engineering design. The architecture of new transit structures will match existing designs where two structures are parallel, where appropriate.</p> <p>Architectural catenary poles in Olde Town, Arvada.</p> <p>Station canopies will be based on the topologies selected at the station IFT meetings held during the FEIS:</p> <ul style="list-style-type: none"> - 41st Avenue East Station: Industrial Loft Modern - Pecos Station: Industrial Loft Modern - Federal Station: Town Center Contemporary - Sheridan Station: Neighborhood Craftsman - Olde Town Station: Main Street Historic - Arvada Ridge Station: Neighborhood Craftsman - Ward Road Station: Town Center Contemporary <p>Fencing types, excluding station areas, will be provided, including:</p> <ul style="list-style-type: none"> - Denver Section <ul style="list-style-type: none"> ▪ Post and cable on emergency walkways on the South Platte River and 38th Avenue Bridges and adjacent to the 41st Avenue East Station ▪ Chain link through other areas - Adams Section <ul style="list-style-type: none"> ▪ Guardrail along I-76, where necessary ▪ Post and cable on emergency walkways on the Clear Creek Bridge, along the cantilever walkway between Clear Creek and Tennyson Street and adjacent to the Pecos and Federal Stations ▪ Chain link through other areas - Arvada <ul style="list-style-type: none"> ▪ Post and cable on emergency walkways on the Ralston Creek Bridge, between Lamar Street and Carr Street and adjacent to the Sheridan Boulevard and Arvada Ridge Stations ▪ Chain link through other areas - Wheat Ridge <ul style="list-style-type: none"> ▪ Post and cable adjacent to the Ward Road Station ▪ Chain link through other areas

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Impacts	Mitigation
	<p>Railings/fencing at station areas will be designed consistent with the station canopy typologies as identified above.</p> <p>The electric substation will be screened.</p>
<p>Indirect Impacts</p> <p>Planned increase in urban density as a result of TOD planning including taller buildings, and a higher level of urban design.</p>	<p>No mitigation required.</p>
<p>Temporary Construction Impacts</p> <p>Temporary visual degradation due to the presence of equipment, staging areas, machinery, vehicles, construction materials, construction workers, and excavated material piles.</p> <p>Temporary construction would create the biggest impact when adjacent to the open space areas where vegetation would be disturbed and take time to reestablish.</p>	<p>Construction material staging areas will be fenced and screened.</p> <p>After project construction, the ground surfaces outside of the trackway will be restored to the original condition, and any vegetation that had been removed during the construction process will be replaced with like-kind vegetation, where feasible. Vegetation will not be replaced in the immediate trackway.</p>
<p>Cumulative Impacts</p> <p>The Gold Line study area has gone from being partially developed in the 1950s to almost entirely developed today. Over this period, the visual quality of the area has changed from rural and industrial to urban and industrial.</p> <p>The cumulative impacts to the visual quality of the Gold Line study area resulting from the construction of bridges, walls, tracks, the catenary system, and platforms are comparatively low when compared to the infrastructure improvements needed to support existing and future populations. Most of these built elements are located within the existing BNSF Railway Company/UP ROW, have minimal to low impacts to the surrounding area, and result in only a small component of potential overall visual change for the Gold Line study area.</p> <p>The greatest potential impact to the Gold Line's future visual quality would be determined by what type of growth occurs at and around the stations. Currently, the majority of land surrounding the proposed stations is industrial, vacant,</p>	<p>No mitigation required.</p>

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<p>or open space with low densities. Land use plans, which are adopted by individual cities, would determine if and how these areas transform to higher densities and how that development is allowed to occur. Ultimately, the development and build out of TOD stations, which is guided by local policy, would have the greatest cumulative effect on the future visual quality of the corridor.</p> <p>Regionally, the visual affect of FasTracks would be to add 119 miles of rail and supporting stations, the majority of which are anticipated to encourage TOD and the potentially higher architectural standards that accompany this type of development. Assuming that the remaining FasTracks projects require approximately 10 acres per mile for trackway and stations, approximately 1,190 acres would be converted to transit uses and the associated visual change. By comparison, accommodating increased 2030 populations would require more than 100,000 acres of new development, assuming a density of 10 persons per acre.</p>	
<p>CRMF</p> <p>The CRMF would replace existing industrial land uses with a new industrial land use, resulting in no change to the existing visual character of the site. Appropriate fencing and buffering would be designed consistent with local jurisdictions' development standards. With development of the CRMF, the immediate view and edge along Fox Street would likely improve over the existing conditions.</p> <p>The CRMF would not result in indirect or construction impacts.</p>	No mitigation required.
Parklands, Open Space, and Recreational Resources	
<p>Direct Impacts</p> <p>Acquisition of 0.11 acre of a natural landscaped area at Jim Baker Reservoir.</p>	RTD will be responsible for maintaining the retaining wall.
<p>Indirect Impacts</p> <p>No indirect impacts.</p>	No mitigation required.

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<p>Temporary Construction Impacts</p> <p>Re-grading of the access road to Jim Baker Reservoir.</p> <p>Detour of the South Platte River, Clear Creek and Ralston Creek Trails.</p> <p>Temporary construction impacts to McIlvoy Park (access, noise, visual, and traffic congestion).</p>	<p>Provide temporary parking on the west side of Tennyson Street during grading activities.</p> <p>Provide adequate trail detours and advanced notice and signing prior to beginning construction, if possible.</p> <p>Create CMPs and coordinate with local communities.</p> <p>South Platte River Trail</p> <ul style="list-style-type: none"> - Temporary trail detour during pier construction and girder placement. - West on Arkins Court, Left on Denargo Street, which turns into Delgany Street and then into Wewatta Street, right on 19th Street, right on Chestnut Place, left on West 20th Avenue, right on Little Raven Street to the trail entrance at the City of Cuernavaca Park - Detour for users of the bridge over the South Platte River (behind the City and County of Denver Park Avenue Municipal Services Complex): Trail users will use the sidewalk of Park Avenue, designated as a D-7 bike route, to the intersection of Park Avenue and Denargo Street (also called Delgany Street or Wewatta Street) where they can follow the previously mentioned detour back to the South Platte River Trail. - Temporary safety structure during construction of the bridge deck. <p>Clear Creek Trail:</p> <ul style="list-style-type: none"> - Temporary trail detour during pier construction and girder placement - Detour west on a temporary trail located to the South of Lake Sangraco, south on Lowell Boulevard to the Lowell Boulevard Trailhead at 55th Avenue and Lowell Boulevard - Temporary safety structure during the construction of the bridge deck <p>Ralston Creek Trail:</p> <ul style="list-style-type: none"> - Detour north on West 56th Avenue to the West 58th Avenue sidewalk <p>Create CMP and work with local communities.</p> <p>Provide clear signage and directions for alternate access points.</p> <p>Coordinate with local groups, neighborhoods, communities, and jurisdictions using a variety of media (for example, radio, flyers, advertisements, and Web site), where appropriate.</p> <p>Provide temporary park access during normal business hours, where feasible, if needed.</p> <p>See mitigation in this table for Visual and Aesthetic Qualities.</p> <p>See mitigation in this table for Noise and Vibration.</p>

Preferred Alternative	
Impacts	Mitigation
	See mitigation in this table for Transportation Systems.
<p>Cumulative Impacts</p> <p>The implementation of the Preferred Alternative would provide a stimulus for the development of land within 0.5 mile of stations, creating higher density mixed-use developments. This would result in a population shift toward the TOD areas. It can be anticipated that additional parkland and recreation areas would be provided as part of these TODs.</p>	No mitigation required.
<p>CRMF</p> <p>The CRMF would not result in direct, indirect, or temporary construction impacts to park or recreation resources.</p>	No mitigation required.
Air Quality	
<p>Direct Impacts</p> <p>Slight decrease in the regional vehicle emissions (carbon monoxide [CO], nitrogen oxide (NO_x), volatile organic compounds (VOC), particulate matter 10 microns in diameter or smaller [PM₁₀]).</p> <p>The Preferred Alternative is listed in the most recently approved <i>2030 Metro Vision Regional Transportation Plan</i>.</p>	No mitigation required.
<p>Indirect Impacts</p> <p>No CO hot-spot violations.</p> <p>Parking facility CO levels below National Ambient Air Quality Standards.</p> <p>For the Gold Line project the Preferred Alternative would, by itself, produce slightly more CO₂ compared to the No Action Alternative. However, the increase associated with the Preferred Alternative is negligible and would be off-set by traffic reduction, and associated lower CO₂ emissions, resulting from the FasTracks system ridership as a whole.</p>	No mitigation required.

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<p>Temporary Construction Impacts</p> <p>Fugitive dust (PM₁₀) emissions of 100 pounds per day based on the assumption of a maximum disturbed area of 10 acres per day.</p>	<p>For winter construction, the contractor shall install engine pre-heater devices to eliminate unnecessary idling.</p> <p>The contractor shall be prohibited from tampering with equipment to increase horsepower or to defeat emissions control device effectiveness.</p> <p>Construction vehicles and equipment used by the contractor shall be properly tuned and maintained.</p> <p>Construction vehicles and equipment, used by the contractor, shall be equipped with the minimum practical engine size for the intended job requirement.</p> <p>All construction equipment used by the contractor will be equipped to burn ultra low sulfur diesel fuel.</p> <p>The contractor shall use water or wetting agents to manage dust.</p> <p>The contractor shall use wind barriers and wind screens to minimize the spreading of dust in areas where large amounts of materials are stored.</p> <p>The contractor shall use a wheel wash station and/or large-diameter cobble apron at egress/ingress areas to minimize dirt being tracked onto public streets.</p> <p>The contractor shall use vacuum powered street sweepers to control dirt tracked onto streets.</p> <p>The contractor shall cover all dump trucks leaving the site.</p> <p>The contractor shall cover or wet temporary excavated materials.</p> <p>The contractor shall use a binding agent for long-term excavated materials.</p>
<p>Cumulative Impacts</p> <p>The cumulative impact of FasTracks is projected to result in a modest improvement in regional air quality due to reductions in vehicle miles traveled and more compact urbanization due to TOD.</p>	<p>No mitigation is required.</p>

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<p>CRMF</p> <p>The rail operations associated with the CRMF are included in the FasTracks Plan, which is included in the 2012 Transportation Improvement Plan and the Metro Vision Plan.</p> <p>Emissions of criteria pollutants (PM₁₀, VOCs, NO_x, and CO) would be below the National Ambient Air Quality Standards (NAAQS).</p> <p>The project meets the conformity hot spot requirements in 40 CFR §93.116 and §93.123 for PM₁₀.</p> <p>The MSAT emission levels for the CRMF are similar to the No Action Alternative for the Tier 1 and Tier 2 study areas.</p> <p>Fugitive dust (PM₁₀) emissions of 100 pounds per day based on the assumption of a maximum disturbed area of 10 acres per day.</p>	<p>Mitigation for the CRMF will be the same as those measures identified earlier in this table for the Air Quality temporary construction impacts.</p>
Energy	
<p>Direct Impacts</p> <p>Energy impacts are not a discriminator between the No Action and Preferred Alternatives.</p> <p>166,733,285 million British thermal unit (Btus) in 2015, increase of 110,560 million Btus or 0.0007 percent as compared to the No Action Alternative in the region.</p> <p>207,858,217 million Btus in 2030, increase of 89,623 million Btus or 0.0004 percent as compared to the No Action Alternative in the region.</p>	<p>No mitigation required.</p>
<p>Indirect Impacts</p> <p>Energy use associated with TOD potentially less than the No Action Alternative because of smaller residences, decreased dependence on automobiles, and increase in transit use.</p>	<p>No mitigation required.</p>
<p>Temporary Construction Impacts</p> <p>Energy usage of 1,132,998 million Btus with the Preferred</p>	<p>Design efforts to reduce energy consumption and overall VMT including:</p> <ul style="list-style-type: none"> - Creating multiple access points for parking lots, where possible.

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Impacts	Mitigation
Alternative.	<ul style="list-style-type: none"> - Carefully designing “kiss-n-Ride” drop-offs to maximize efficiency and minimize number of vehicles idling. - Positioning stations to be more easily accessible by pedestrians and bicyclists. - Park-and-Ride improvements to decrease energy consumption consistent with RTD’s sustainability policy.
<p>Cumulative Impacts</p> <p>Possible TOD associated with the Preferred Alternative may result in smaller average home sizes and more efficient use of public infrastructure, both of which would reverse the past trends of energy consumption increasing faster than population. Although the Preferred Alternative would result in a negligible increase in energy, the entire FasTracks Plan would result in an overall energy reduction (RTD, 2007b).</p>	No mitigation required.
<p>CRMF</p> <p>The non-revenue movements to and from the Fox North Site would result in a per day energy usage of approximately 10,174,698 Btus in 2015 and 12,217,039 Btus in 2030.</p> <p>The operation of the buildings at the CRMF would result in the use of approximately 36,925,942 Btus per day.</p> <p>The construction of the tracks associated with the CRMF would result in the use of approximately 157,185 million Btus. Energy would also be required to construct the buildings associated with the new facility.</p> <p>The CRMF would have no indirect energy impacts.</p>	<p>BMPs will be incorporated into the project to reduce energy usage during site construction.</p> <p>RTD will investigate the use of energy efficient design and Leadership in Energy and Environmental Design certification for the CRMF; this is consistent with the goals of the RTD adopted Sustainability Policy.</p>
Noise	
<p>Direct Impacts</p> <p>No noise impacts assuming the implementation of a Quiet Zone.</p> <p>With no Quiet Zone:</p> <ul style="list-style-type: none"> - Severe Noise Impacts – Adams County, Arvada, and Wheat Ridge: 	<p>Quiet Zones will be implemented prior to operation. (Quiet Zones near the proposed grade crossings from Lowell Boulevard to Tabor Street [Adams County to Wheat Ridge] will mitigate all noise impacts except at one museum.)</p> <p>RTD will assist local jurisdictions with their applications to the railroads and the FRA. Applications for Quiet Zones must be submitted by the local jurisdictions.</p> <p>Should Quiet Zones not be implemented prior to operations, alternate methods of noise mitigation, such as wayside horns and sound insulation, will be used. (Wayside horns at all</p>

Preferred Alternative	
Impacts	Mitigation
<ul style="list-style-type: none"> - 356 residences - One park - Two schools - One institutional building - One museum - Moderate Noise Impacts – Adams County, Arvada, and Wheat Ridge: <ul style="list-style-type: none"> - 529 residences 	grade crossings from Lamar Street in Arvada to Tabor Street in Wheat Ridge will mitigate all noise impacts except at 58 residences, one institutional facility, one school and one museum.)
<p>Indirect Impacts No indirect impacts.</p>	No mitigation required.
<p>Temporary Construction Impacts Noise related to construction activities.</p>	<p>All mitigation measures will be implemented at start of construction.</p> <p>Minimize nighttime construction in residential neighborhoods.</p> <p>Locate stationary construction equipment as far as possible from noise-sensitive sites.</p> <p>Construct noise barriers, such as temporary walls or piles of excavated material, between noisy activities and noise-sensitive receivers.</p> <p>Re-route construction-related truck traffic along roadways that will cause the least disturbance to residents.</p>
<p>Cumulative Impacts There would be no cumulative noise impacts for the Preferred Alternative.</p>	No mitigation required.
<p>CRMF No direct or indirect noise impacts. Noise related to construction activities.</p>	No mitigation required.
Vibration	
<p>Direct Impacts No direct impacts.</p>	No mitigation is required.
<p>Indirect Impacts No indirect impacts.</p>	No mitigation is required.
<p>Temporary Construction Impacts Temporary vibration related to construction activities.</p>	<p>Use alternative construction methods to minimize the use of impact and vibratory equipment (pile drivers and compactors).</p> <p>Re-routing construction-related truck traffic along roadways that will cause the least disturbance</p>

Preferred Alternative	
Impacts	Mitigation
	to residents.
<p>Cumulative Impacts No cumulative vibration impacts are projected for the Preferred Alternative.</p>	No mitigation is required.
<p>CRMF No direct or indirect noise impacts. Temporary vibration related to construction activities.</p>	Mitigation for the CRMF will be the same as those measures identified for the temporary construction impacts above. RTD will minimize nighttime construction in residential neighborhoods and offer hotel vouchers to address potential impacts (if nighttime construction is necessary and results in impacts).
Biological Resources	
<p>Direct Impacts Minimal loss of vegetation and wildlife habitats at stream crossings (approximately 1.5 acre). No additional habitat fragmentation due to wider tracks, retaining walls, security fencing, and bridge design. Benefit of additional shading for fish and aquatic habitats due to new bridges. Potential impacts to animals and bird species from the catenary system.</p>	The catenary system will incorporate appropriate requirements to protect animal and bird species.
<p>Indirect Impacts Planned increase in urban density as due to TOD would result in fewer wildlife habitats around the undeveloped stations in the study area: Pecos and Federal.</p>	No mitigation required.
<p>Temporary Construction Impacts Loss of vegetation. Spread of noxious weeds. Impacts to aquatic habitats. Potential damage or loss of migratory bird nests</p>	<p>Grading plans will be prepared to minimize removal of riparian vegetation.</p> <p>During construction, vehicle operation will be limited to the designated construction area and the limits of the construction area will be fenced where they are adjacent to sensitive habitats including riparian areas, wetlands, and upland trees and shrubs.</p> <p>Areas of temporary disturbance will be seeded with an appropriate mixture of native grasses and forbs; shrubs will be planted where appropriate.</p> <p>Restoration of disturbed riparian habitat will include planting of native trees and shrubs, as well as seeding and regrading. Native grasses, forbs, and shrubs will also be seeded in riparian</p>

Preferred Alternative	
Impacts	Mitigation
	<p>areas.</p> <p>Raptor nest surveys will be conducted annually during construction at an appropriate season (generally May 1 through June 1) to determine presence of active raptor nests. If an active nest is located, season buffers will be established and coordinated with CDOW to prevent disturbance to nesting birds during construction.</p> <p>Impacts to wildlife habitat will comply with Colorado Senate Bill 40 (33-5-101-107, Colorado Revised Statute 1973 as amended), where applicable.</p> <p>An integrated Noxious Weed Management Plan will be developed. This plan will be implemented during construction and will include identification of noxious weeds in the area, weed management goals and objectives, and prevention and control methods. Preventive measures include the following:</p> <ul style="list-style-type: none"> - Contractor vehicles will be inspected before they are used for construction to ensure that they are free of soil and debris capable of transporting noxious weed seeds or roots. - Noxious weeds observed in and near the construction area at the start of construction will be treated with herbicides or physically removed to prevent seeds blowing into disturbed areas during construction. Any noxious weeds identified during construction will be identified and treated. - Potential areas of topsoil salvage will be assessed for presence and abundance of noxious weeds prior to salvage. Topsoil from heavily infested areas will either be treated by spraying, taking offsite, or being buried during construction. - Areas of temporary disturbance will be reclaimed in phases throughout project construction and seeded using permanent native seed mixtures. If areas are complete and permanent seeding cannot occur due to the time of year, mulch and mulch tackifier will be used for temporary erosion control until seeding can occur. - Only certified weed-free mulch and hay bales will be used in the project. - Weed control will use the principles of integrated pest management to treat target weed species by using a combination of two or more management techniques (biological, chemical, mechanical, and 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 weed experts. The presence of important wildlife habitat or threatened and endangered species will be considered. <p>BMPs will be used to control erosion and sedimentation during construction and to protect water quality in streams. BMPs may include berms, brush barriers, check dams, erosion control blankets, filter strips, sandbag barriers, sediment basins, sheet mulching, silt fences, straw-bale</p>

Preferred Alternative	
Impacts	Mitigation
	<p>barriers, surface roughening, and/or diversion channels. A spill prevention and emergency response plan will be prepared and used during construction for storage, handling, and use of chemicals, fuel, and similar products, if required.</p> <p>See mitigation in this table for Water Resources.</p> <ul style="list-style-type: none"> • Under the MBTA, construction activities in grassland, wetland, stream, and woodland habitats, and those that occur on bridges that would otherwise result in the take of migratory birds, eggs, young, and/or active nests, should be avoided. • The provisions of MBTA are applicable year-round; most migratory bird nesting activity in eastern Colorado occurs during the period between April 1 and August 31. However, some migratory birds are known to nest outside of the primary nesting season. Raptors can be expected to nest in woodlands from February 1 through July 15. <p>The USFWS recommends that a qualified biologist conduct a field survey of the affected habitats and structures to determine the absence or presence of nesting migratory birds prior to construction. Surveys should be conducted during the nesting season. Where possible, nesting can be prevented until construction is complete. The results of field surveys for nesting birds, along with information regarding the qualifications of the biologist(s) performing the surveys, should be maintained on file for potential review by the USFWS until such time as construction on the proposed project has been completed.</p> <p>The USFWS Colorado Field Office should be contacted immediately for further guidance if a field survey identifies the existence of one or more active bird nests that cannot be avoided by the planned construction activities. Adherence to these guidelines will help avoid the unnecessary take of migratory birds and the possible need for law enforcement action.</p>
<p>Cumulative Impacts</p> <p>Vacant land that now serves as generally marginal wildlife habitat would continue to be developed as the population increases by the year 2030. However, the TOD stimulated by the Preferred Alternative would slightly modify this trend because some percentage of the new development would occur at higher densities. This would have a modest positive effect on wildlife as some vacant land would not be developed during the planning period.</p>	<p>No mitigation required.</p>
<p>CRMF</p> <p>The CRMF would not result in any direct or indirect impacts to biological resources.</p>	<p>No mitigation is required.</p>

Preferred Alternative	
Impacts	Mitigation
Spread of noxious weeds.	
Mineral Resources, Geology, and Soils	
<p>Direct, Indirect and Temporary Construction Impacts</p> <p>Geotechnical conditions, such as cut, fill and landslide slope stability, erosion, structure foundation construction and integrity, potential for differential settlement, seismic risk, collapsible, shrinking/swelling soils, corrosive soils, in selected areas along the alignment will require engineering designs to avoid possible damage to foundations.</p> <p>None of these issues would prohibit implementation of these projects.</p>	<p>Engineering of slope cuts for stability, shoring of slope cuts and shallow excavations, retaining walls, and dewatering systems where appropriate.</p> <p>Engineering techniques such as drainage systems to direct surface water and runoff, slope design, covering slope during construction, use of engineered fill, and prompt and appropriate revegetation.</p> <p>Mitigation of expansive bedrock, soil, and surficial materials with deep foundations into bedrock below perennial water table; specialized piers and footings; over-excavation with moisture treatment and compaction of backfill; engineered or imported fill; subsurface drainage systems; and surface water diversions.</p> <p>Mitigation of collapsible soils with shoring of excavations; retaining walls; drainage systems; excavation and/or engineered or imported fill; compaction, pre-construction flooding and/or loading; and use of geogrids or geotextiles.</p> <p>Mitigation of corrosive soils with coated and resistant steel and concrete; drainage systems.</p> <p>Mitigation of shallow groundwater with engineered fills and dewatering systems.</p> <p>Coordinating proposed alignment requirements with existing and altered topographies.</p> <p>Engineering techniques and design to conform to anticipated probable maximum seismic events.</p>
<p>Cumulative Impacts</p> <p>The Preferred Alternative is not anticipated to result in any cumulative impacts beyond what has been described above under Direct Impacts.</p>	No mitigation required.
<p>CRMF</p> <p>Geotechnical conditions on the site would be appropriately addressed through the project's engineering design. Once operational, the CRMF would result in no direct, indirect or construction impacts to mineral resources, geology, and soils.</p>	<p>Use of best engineering practices that have been developed for construction in the Front Range and Denver metropolitan area. These include (where needed): removal of unsatisfactory substrate; appropriately engineered fill; compaction, pre-loading, or pre-flooding; corrosive-resistant structural materials; deep foundations, specialized piers, and footings; engineered excavations and slopes; shoring of excavations; prompt and appropriate revegetation; surface water diversions; and subsurface drainage and dewatering systems.</p> <p>Design to conform with anticipated probable maximum seismic event.</p>
Water Resources/Water Quality	
Direct Impacts	41st Avenue East, Federal, Sheridan, Olde Town, and Ward Road Stations: construction of onsite detention for water quality in accordance with municipal and state regulations and

Preferred Alternative	
Impacts	Mitigation
<p>Up to 57 acres of new impervious surfaces, largely from parking facilities, would result with the implementation of the Preferred Alternative. However, Driscoll modeling indicates that there would be no water quality impacts as a result of urban runoff from the new parking facilities.</p> <p>Acquisition of monitoring and supply wells</p>	<p>design the parking areas to minimize directly connected impervious areas.</p> <p>Pecos and Arvada Ridge Stations: use of shared detention ponds constructed by adjoining developments in accordance with municipal and state regulations and parking areas designed to minimize directly connected impervious areas.</p> <p>Adhere to and implement designs in compliance with Municipal Separate Storm Sewer (MS4) permit elements.</p> <p>Obtain sewer use and drainage permits (SU&DP's) for all permanent connections.</p> <p>Necessary replacement of existing storm drainage facilities, at a minimum, will provide services equivalent to the existing facilities.</p> <p>Operational monitoring and supply wells will be protected or replaced in the same or similar location depending on the site conditions.</p> <p>Non-operational monitoring and supply wells will be abandoned in accordance with state requirements.</p>
<p>Indirect Impacts</p> <p>There would be no indirect impacts to water quality due to current stormwater controls.</p>	<p>No mitigation required.</p>
<p>Temporary Construction Impacts</p> <p>Destruction of riparian vegetation</p> <p>Dewatering of groundwater or contaminated groundwater</p> <p>Possible temporary erosion and sediment control issues related to earthwork, clearing, and grading of approximately 95 acres.</p> <p>Possible temporary erosion and sedimentation impacts to Clear Creek and Ralston Creek as the result of bridge construction.</p> <p>Erosion is controlled by BMPs.</p>	<p>Temporary BMPs for construction, including re-establishment of native vegetation.</p> <p>Dewatering water will be discharged into the storm sewer in accordance with the Groundwater Discharge Permit (see mitigation in this table for Hazardous Materials).</p> <p>Clear Creek: Use cofferdam in the creek to separate the excavation from the stream flows.</p> <p>Ralston Creek: Use caisson construction to control turbidity levels.</p> <p>Spill, Prevention, Control, Countermeasure Plan (SPCC), if required.</p> <p>BMPs including, if necessary, flow attenuation devices and/or sediment basins.</p> <p>Onsite detentions in accordance with local requirements (see mitigation in this table for Floodplains). This may benefit some areas that currently have no stormwater controls.</p> <p>Clean Water Act (CWA) Section 402 National Pollutant Discharge Elimination System (NPDES) Permits, including a stormwater management plan (SWMP) and a stormwater construction permit, will be followed in accordance with all local and state regulations.</p> <p>Stormwater BMPs in accordance with the standards of the local jurisdictions or with UDFCD if the local jurisdiction does not have applicable standards.</p> <p>Project-specific temporary and permanent water quality plans.</p>

Preferred Alternative	
Impacts	Mitigation
	<p>Project-specific stormwater management plans.</p> <p>Obtain sewer use and drainage permits (SU&DP's) for all temporary connections.</p>
<p>Cumulative Impacts</p> <p>Currently, there are approximately 8,300 acres of impervious surfaces in the study area. As the population increases in 2030, the amount of impervious area would increase by approximately 1,435 acres, assuming an average density of 10 people per acre and 40 percent impervious surfaces (FHWA, 2007). This would bring the total amount of impervious surfaces to 9,735 acres (Gold Line Team, 2007). The amount of landscaped areas would increase by about the same amount (40 percent of the total new developed area). The Preferred Alternative would result in 57 additional acres of impervious surfaces, much less than one percent of the impervious surfaces in 2030 in the study area.</p> <p>Regionally, the implementation of all of the FasTracks projects would have a small effect on the amount of new impervious surfaces. Given existing stormwater controls, water quality is not anticipated to degrade over existing conditions and may improve with adherence to more rigorous water quality controls with or without the FasTracks projects (RTD, 2007b).</p> <p>The implementation of the Preferred Alternative and the other FasTracks projects would be expected to increase the development density around proposed stations, reducing the amount of urban sprawl. As a result, slightly less land would be developed than under the No Action Alternative, possibly preserving more natural pervious surfaces, resulting in a qualitative benefit to water quality.</p>	<p>No mitigation required.</p>

Preferred Alternative	
Impacts	Mitigation
<p>CRMF</p> <p>The total impervious area of the study area would remain relatively unchanged.</p> <p>Water quality improvements including the permanent water quality detention basin would likely improve the overall water quality being released from the site via the detention basin; however, the actual water quality draining into the detention basin would be likely to remain the same.</p> <p>Temporary construction impacts would occur during the demolition of the existing buildings and tracks in the study area, as well as the construction of the CRMF. With BMPs and erosion control devices properly in place, the water quality would not change during demolition or construction processes.</p>	<p>Mitigation from above and onsite detention in accordance with local requirements.</p>
Wetlands and Other Waters	
<p>Direct Impacts</p> <p>Impact to 0.74 acres of wetlands, of which 0.15 acre is jurisdictional.</p> <p>Impact to 0.21 acre of other water features, of which 0.19 is jurisdictional.</p>	<p>All mitigation measures will be implemented prior to construction.</p> <p>Wetland replacement per USACE and USEPA requirements for jurisdictional wetlands.</p> <p>Purchase a credit from a wetland mitigation bank for non-jurisdictional wetlands.</p> <p>RTD will mitigate 1:1 for all impacts to Jurisdictional and Non-jurisdictional wetlands.</p> <p>A Nationwide Permit request has been approved by USACE. The contractor will comply with all requirements of the Nationwide Permit.</p>
<p>Indirect Impacts</p> <p>Potential sedimentation, erosion and noxious weed invasion to wetlands, other water features and established riparian buffers.</p>	<p>BMPs will be implemented.</p> <p>When practicable, construction in waterways will be during low-flow or dry periods.</p> <p>Flowing water will be diverted around active construction areas.</p> <p>See mitigation in this table for Biological Resources.</p>
<p>Temporary Construction Impacts</p> <p>A 1,400 foot section of Kershaw Ditch, a jurisdictional other water feature, would also be affected by construction activities.</p> <p>Temporary construction impacts at Ralston Creek of 0.25 acre of wetlands, of which 0.25 acre is jurisdictional.</p>	<p>All mitigation measures implemented by start of construction.</p> <p>Temporarily impacted wetlands will be restored to their preconstruction conditions.</p> <p>Prior to construction, orange temporary fencing and sediment control measures will be placed to protect existing wetlands that are located outside the planned area of disturbance.</p> <p>Wetland areas designated as areas of temporary disturbance that will be used for construction access will be covered with geotextile, straw, and soil prior to use.</p>

Preferred Alternative	
Impacts	Mitigation
	<p>BMPs will be implemented during all phases of construction to reduce impacts from sedimentation and erosion, including the use of berms, brush barriers, check dams, erosion control blankets, filter strips, sandbag barriers, sediment basins, silt fences, straw-bale barriers, surface roughening, and diversion channels.</p> <p>When practicable, construction in waterways will be during low-flow or dry periods.</p> <p>Flowing water will be diverted around active construction areas.</p> <p>No fill material will be stored in wetlands or other water features.</p> <p>No unpermitted discharges will be allowed.</p> <p>There will be no equipment staging, storage of materials, use of chemicals (such as soil stabilizers, dust inhibitors, and fertilizers), or equipment refueling within 50 feet of wetlands or other water features.</p> <p>Any new or modified bridges will be designed to minimize direct discharge of stormwater runoff into wetlands.</p> <p>Construction equipment moving between watersheds will be washed prior to commencing work within a new area to prevent the spread of aquatic invasive species. This BMP complies with the Colorado Regional Conditions of the Nationwide Program.</p>
<p>Cumulative Impacts</p> <p>The more compact land use possible through TOD would result in fewer acres developed to accommodate the 2030 population in both the Gold Line study area and the larger Denver metropolitan area. However, if municipalities rigorously require developers to protect wetlands, the impacts to wetlands would be minimized under either the No Action Alternative or Preferred Alternative scenarios.</p>	<p>No mitigation required.</p>
<p>CRMF</p> <p>There would be no direct, indirect, or temporary construction impacts to wetlands or other water features as a result of the CRMF.</p>	<p>No mitigation required.</p>

Preferred Alternative	
Impacts	Mitigation
Floodplains/Drainage/Hydrology	
<p>Direct Impacts</p> <p>Additional impervious surfaces associated with the stations, alignment, and substations.</p> <p>South Platte River 100-year floodplain:</p> <ul style="list-style-type: none"> - Two new bridge piers would have a slight impact on the 100-year flood elevation of 0.19 foot, which is below the FEMA criteria. <p>Clear Creek 100-year floodplain:</p> <ul style="list-style-type: none"> - New embankment west of I-76 slightly modifies the water surface elevation - Two new piers would have a slight impact on the 100-year flood elevation of 0.58 feet, which is below the FEMA criteria - A small portion of the Federal Station is located within in the 100-year floodplain, but it would not modify surface elevations <p>Ralston Creek 100-year floodplain:</p> <ul style="list-style-type: none"> - Six new piers would have a slight impact on the 100-year flood elevation of 0.15 feet, which is below the FEMA criteria 	<p>Onsite detention in accordance with UDFCD and local jurisdictions, and BMPs.</p> <p>Obtain a Floodplain Use Permit.</p>
<p>Indirect Impacts</p> <p>Planned increase in urban density due to TOD will result in additional impervious surfaces, which would be controlled by existing onsite detention ordinances.</p>	<p>No mitigation required.</p>
<p>Temporary Construction Impacts</p> <p>Construction would occur within the floodplains of the South Platte River, Clear Creek and Ralston Creek.</p>	<p>UDFCD and local jurisdictional requirements.</p>
<p>Cumulative Impacts</p> <p>The Preferred Alternative would result in increased "in-fill" development and the revitalization of neighborhoods,</p>	<p>No mitigation required.</p>

Preferred Alternative	
Impacts	Mitigation
<p>causing slightly less of an increase in impervious surfaces than the No Action Alternative, which is anticipated to cause more sprawled development. As population increases by 2030, the amount of impervious area in the Gold Line study area would increase by approximately 1,435 acres¹, bringing the total amount of impervious surfaces to 9,735 acres (Gold Line Team, 2007). The Preferred Alternative would result in an additional 57 acres of impervious surfaces or less than 1 percent of the impervious surfaces in 2030. By comparison, the total FasTracks Plan is estimated to increase impervious surfaces by about 280 acres (RTD, 2007b). This is cumulative to the amount of impervious surface required to accommodate the 2030 population, which may be as much as 40,000 acres (assuming that 40 percent of the 100,000 acres of new urbanized land is impervious). Impacts associated with additional impervious surfaces would be managed to predevelopment conditions using jurisdictional detention requirements, which have proven to be effective in minimizing the effects of urban runoff (RTD, 2007b).</p>	
<p>CRMF The CRMF would result in no direct, indirect, or temporary construction impacts.</p>	<p>Onsite detention in accordance with local jurisdictions and BMPs.</p>
Hazardous Materials	
<p>Direct Impacts Possible impacts are all associated with construction, as discussed below. Acquisition of property would require additional site characterization to determine the presence of hazardous wastes. No operational impacts on hazardous waste sites are anticipated.</p>	<p>Evaluate ballast and railroad ties to be removed and disposed of with the proper waste classification. Disposal must be appropriate for the resulting classification. Complete site-specific Phase II Environmental Site Assessments (ESA) with subsurface investigation (soil and groundwater) for sites that may have been contaminated or affect final design, as documented by the Phase I ESA, where appropriate. Prepare a Hazardous and Contaminated Substances Health and Safety Plan (HASP) and a Hazardous Materials Management Plan (HMMP) to address contaminated soil and groundwater.</p>

Preferred Alternative	
Impacts	Mitigation
	<p>Determine engineering controls to minimize quantity of contaminated materials.</p> <p>Conduct an individual site-specific Phase I ESA of properties before acquisition.</p> <p>Prepare an Asbestos Assessment Plan and conduct asbestos surveys for any building planned for acquisition or demolition.</p> <p>Prepare a Lead-Based Paint Assessment Plan and conduct lead-based paint assessments for all structures that would be disturbed or demolished.</p>
<p>Indirect Impacts No impacts.</p>	No mitigation required.
<p>Temporary Construction Impacts Construction could encounter hazardous wastes at the following sites:</p> <ul style="list-style-type: none"> - Alignment: fourteen sites (plus hazardous waste sites associated with the railroad) - Stations: seven sites - Electric Substation: one site 	<p>Implement construction BMPs in accordance with a Stormwater Pollution Prevention Plan. BMPs may include secondary containment areas for refueling construction equipment, berms or ponds to control runoff, and a monitoring program to test stormwater for contaminants prior to discharge from the construction site.</p> <p>Compliance with Occupational Safety and Health Administration requirements for construction workers who may be exposed to hazardous materials, including preparation of Health and Safety and Emergency Response Plans, air monitoring (if necessary), and provision of personal protective equipment.</p> <p>RTD will follow CDOT specification 250 during subsurface excavation in areas on CDOT ROW with known Recognizable Environmental Conditions discovered during the Phase I ESA process.</p>
<p>Cumulative Impacts The construction of the Preferred Alternative would encounter hazardous materials. These materials would be removed from the site and properly disposed. The construction of all other infrastructure required to accommodate the 2030 population, including all the remaining FasTracks projects, would result in the exposure and remediation of unknown quantities of hazardous waste. Therefore, these materials would no longer represent a potential threat to human health and the environment. The operational effects of future projects on hazardous waste generation are well controlled by state and federal regulation, thereby avoiding the impacts of the past</p>	No mitigation required.
<p>CRMF</p>	Mitigation for the CRMF will be the same as those measures identified for the direct and

Preferred Alternative	
Impacts	Mitigation
<p>It is likely that during the construction of the CRMF hazardous materials would be encountered due to historical and current industrial land uses that may have used, handled, or disposed of hazardous materials. Any hazardous materials encountered during construction would be remediated</p> <p>The operation of the CRMF would involve the use of many regulated hazardous materials. RTD's operations are required to adhere to many regulations requiring the safe use and disposal of such materials.</p>	<p>temporary construction impacts above.</p>
Public Safety and Security	
<p>Direct Impact</p> <p>The operation of the Preferred Alternative would not increase or decrease crime in the study area.</p> <p>Police, fire, and emergency services may be slightly affected by increased response times during peak hours due to increased congestion at the 20 at-grade crossings required for the Preferred Alternative. Because RTD would provide a high degree of safety improvements at each grade crossing, including gates and signal improvements, the potential for collisions with emergency vehicles is small. However, it is possible that some additional congestion at these locations would be experienced by emergency vehicles since the gates would cycle every 3.75 minutes during the morning and evening peak periods.</p>	<p>No mitigation required beyond the adherence to RTD's station design standards for safety and security.</p> <p>RTD will convene a Fire and Life Safety Committee that will assist in preparing in an emergency plan and coordinate response to emergency situations.</p>
<p>Indirect Impacts</p> <p>No indirect impacts.</p>	<p>No mitigation required.</p>
<p>Temporary Construction Impacts</p> <p>Lane closure and detours with the Preferred Alternative.</p> <p>Potential impact on emergency response times during construction of the 20 required at-grade crossings.</p>	<p>No mitigation is required because RTD will follow standard operating procedures to minimize traffic disturbances.</p> <p>Traffic detour plans will be provided to address the two week closure of local streets during at-grade crossing construction.</p>
<p>Cumulative Impacts</p> <p>Future safety and security statistics by neighborhood would</p>	<p>No mitigation required.</p>

Preferred Alternative	
Impacts	Mitigation
remain comparable to existing trends with the implementation of the Preferred Alternative.	
<p>CRMF</p> <p>The CRMF would not increase or decrease crime or represent a safety hazard to surrounding neighborhoods.</p> <p>Emergency response times would not be affected by train movements to and from the CRMF because track leading into the CRMF would be constructed under 48th Avenue, where grade separation currently exists.</p> <p>The CRMF would not result in indirect impacts to safety and security.</p>	<p>Development of the CRMF will comply with all applicable laws, regulations, and codes to ensure the protection of public health, safety, and welfare.</p> <p>During construction, the work site will remain fenced and secured to restrict access by trespassers.</p> <p>The RTD design, construction, and operations standards for new transit systems will be implemented. Design will integrate established guidelines for fencing and barriers; emergency access and egress; surveillance; and crime prevention through environmental design (CPTED).</p> <p>RTD will work with local police, fire, and transportation agencies during project design to ensure reliable emergency access is maintained and develop alternate plans or routes to avoid delays in emergency response times.</p>
Utilities	
<p>Direct Impacts</p> <p>All impacts of the Preferred Alternative would occur during construction:</p> <ul style="list-style-type: none"> - 45 major utility realignments for construction of the trackway - 38 major utility realignments for construction of the stations 	<p>Modify design to avoid/minimize conflicts.</p> <p>Encase or protect in place.</p> <p>Early and regular coordination with utility owners.</p> <p>Adjust valve(s)/manhole(s)/fire hydrant(s)/pedestal(s)/inlet(s).</p> <p>Minimize disruption of service with wet tie-in.</p> <p>Leave in place except where inlets conflict with proposed curb and gutter modifications.</p> <p>Extend pipe.</p> <p>Adjust inlet(s).</p> <p>Add encasements or protective cover over utilities.</p> <p>Design new utilities to meet criteria, codes and requirements of the local jurisdictions.</p>
<p>Indirect Impacts</p> <p>As development densities increase around the TODs, some utility expansion may be required.</p>	No mitigation required.
<p>Temporary Construction Impacts</p> <p>All construction impacts to utilities are direct impacts.</p>	See direct impacts.
<p>Cumulative Impacts</p> <p>The construction of the Preferred Alternative or the other</p>	No mitigation required.

Preferred Alternative									
Impacts	Mitigation								
FasTracks project elements would have a slight positive impact on utility investment due to increased population density around the proposed transit stations, resulting on a lower per capita cost for utilities.									
<p>CRMF</p> <p>The CRMF would potentially require relocation or modification of two water mains, five storm sewers, five sanitary sewers, one buried gas line, and multiple fiber optic telecommunication and electric lines.</p> <p>No indirect utility impacts would result from implementation of the CRMF.</p> <p>Most utility impacts can be considered temporary construction impacts.</p>	<ul style="list-style-type: none"> Mitigation from above and RTD will schedule disruption of service for low use period (where possible). 								
Transportation Systems									
	All mitigation measures will be implemented as noted by 2015 or 2030								
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<p>Direct Impacts</p> <p>The Preferred Alternative will provide a transit option that would result in improved travel times. The travel time for the Preferred Alternative is 19 minutes from DUS to Ward Road, while the projected auto travel time would be 27 minutes in 2030.</p> <p>The Preferred Alternative would provide service to 16,800 to 20,100 riders (average weekday) in 2030.</p> <p>The Preferred Alternative would reduce corridor VMT by approximately 18,221 miles per day over the No Action Alternative in 2030.</p> <p>The Preferred Alternative would reduce daily VHT by 1,891 hours in the region and would reduce VHT in the corridor by 1,145 hours in 2030.</p>									

Preferred Alternative		
Impacts	Mitigation	
<p>The Preferred Alternative would add traffic signals at up to four locations and the addition of turn lanes at adjacent station area intersections.</p> <p>The Preferred Alternative would require rail crossing improvements at up to 20 at-grade crossings. These improvements would facilitate the potential implementation of Quiet Zones in areas of the corridor where there are noise impacts and improve safety at all locations. One crossing is proposed to be closed.</p> <p>The Preferred Alternative would have no effects on freight operations or bicycle and pedestrian facilities.</p>	Sheridan	<p>Sheridan Boulevard/60th Avenue:</p> <ul style="list-style-type: none"> - Construct a westbound left-turn lane (convert existing shared thru/left to a thru only lane (2015) - Add a channelized northbound right-turn lane (2015) - Emergency only access would be provided to the station from Zenobia Street
	Olde Town	<p>56th Avenue and Wadsworth Boulevard:</p> <ul style="list-style-type: none"> - Signalize intersection (2015) - Add a northbound left turn lane, and southbound right turn decal lane (2015). - Add eastbound left turn lane with eastbound through/right lane (2015)
	Arvada Ridge	<ul style="list-style-type: none"> - Stop control at Lee Street/Ridge Road intersection (2015). Since this intersection is close to the rail crossing, coordination with the gated crossing design will be necessary. (Note: this crossing is temporarily closed. A formal PUC hearing to reopen this crossing was held on January 8, 2009 and the request was not granted. It is assumed this decision would be appealed. Mitigation is only required if the PUC approves the request to open the crossing.)
	Ward Road	<p>Ward Road/50th Place:</p> <ul style="list-style-type: none"> - Signalize the intersection when a traffic signal is warranted (Coordinate with CDOT) - Construct separate westbound left and right turn lanes (2015) - Provide connection to 52nd Avenue from the station parking area on opening day to allow access to a signalized intersection on Ward Road (2015)
<p>Indirect Impacts</p> <p>Preferred Alternative would encourage TODs and slightly reduce future VMT.</p>	No mitigation required.	
<p>Temporary Construction Impacts</p> <p>Increased construction traffic would occur with the Preferred Alternative.</p>	<p>CMPs.</p> <p>Methods of handling traffic to be identified that could limit times of construction traffic on major routes.</p>	

Preferred Alternative			
Impacts	Mitigation		
Improvements to grade crossings required for safety.	Street	Existing Rail Crossing Treatment	Mitigation (All 2015)
	I-25	Grade Separated	Grade Separated
	BNSF Railway Company Yard	None	At Grade – dual gates
	West 38th Avenue	Grade Separated	Grade Separated
	I-70	Grade Separated	Grade Separated
	West 48th Avenue	Grade Separated	Grade Separated
	West 48th Avenue Frontage	None	Fenced with signal
	Pecos Street	At-Grade – gates	Grade Separated
	Pecos Street	At-Grade – gates	At-Grade – dual gates
	I-76	Grade Separated	Grade Separated
	West 60th Avenue	New Crossing	At-Grade – dual gates
	Federal Boulevard	Grade Separated	Grade Separated
	Lowell Boulevard	At-Grade – gates	At-Grade – quad gates
	Tennyson Street	At-Grade – gates	At-Grade – quad gates
	Sheridan Boulevard	Grade Separated	Grade Separated
	West 58th Avenue	Grade Separated	Grade Separated
	Lamar Street	At-Grade – gates	At-Grade – quad gates
	Reed Street	At-Grade – passive	Closure
	Saulsbury Street	At-Grade – passive	At-Grade – quad gates
	Wadsworth Boulevard	Grade Separated	Grade Separated
	Vance Street	At-Grade – gates	At-Grade – quad gates
	Olde Wadsworth Boulevard	At-Grade – gates	At-Grade – quad gates
	Zephyr Street and Allison Street	At-Grade – gates	At-Grade – quad gates
	Balsam Street	At-Grade – gates	At-Grade – quad gates
	Carr Street	At-Grade – gates	At-Grade – quad gates
	Garrison Street	At-Grade – gates	At-Grade – quad gates
Independence Street	At-Grade – gates	At-Grade – quad gates	

Preferred Alternative			
Impacts	Mitigation		
	Kipling Street	Grade Separated	Grade Separated
	Lee Street and State Home Road	At-Grade – lights (Note: this crossing is temporarily closed. A formal PUC hearing to reopen this crossing was held on January 8, 2009 and the request was not granted. It is assumed this decision would be appealed. Mitigation is only required if the PUC approves the request to open the crossing.)	If approved, At-Grade – quad gates
	Miller Street	At-Grade – passive	At-Grade – quad gates
	Parfet Street	At-Grade – passive	At-Grade – quad gates
	Robb Street	At-Grade – passive	At-Grade – quad gates
	Tabor Street	At-Grade – gates	At-Grade – quad gates
<p>CRMF</p> <p>The Preferred Alternative would assist in providing the commuter rail service component of the FasTracks program by providing the facilities necessary and required by the FRA to operate and maintain commuter rail service in the Denver Metro area.</p> <p>The Preferred Alternative would result in a small increase in traffic flow into and out of the Fox North Site. The proposed CRMF is assumed to have 300 employees, which would generate about 900 trips per day. With implementation of the proposed CRMF, approximately 700 daily trips related to existing private business operations would be displaced. Therefore, the Preferred Alternative would result in an additional 203 trips per day into and out of the Fox North</p>	<p>Mitigation is only required for the impacts to the 48th Avenue/Fox Street intersection. Re-striping 48th Avenue east of Fox Street would mitigate these impacts and bring the southbound left turn LOS back to acceptable levels and improve conditions compared to the No Action Alternative.</p>		

Preferred Alternative	
Impacts	Mitigation
<p>Site.</p> <p>Truck traffic to the North Fox Site would be reduced as a result of the Preferred Alternative. Existing businesses that generate truck traffic would be replaced by the CRMF traffic (primarily employee traffic) that does not typically include heavy truck traffic.</p> <p>One intersection evaluated for the Preferred Alternative is expected to operate beyond an acceptable a.m. peak-hour urban intersection at LOS F for the southbound left turn. The 48th Avenue/Fox Street (unsignalized) intersection is expected to be impacted by the Preferred Alternative for study years 2015 and 2030.</p> <p>The Preferred Alternative is not anticipated to provide enhancements for roadway capacity or add any traffic signals in the study area.</p> <p>The Preferred Alternative would have no effect on existing or future rail freight movements, transit, bicycle, or pedestrian facilities or services.</p>	
Section 4(f)	
<p>Use of the Denver West Side Line (5DV3512.3), the Denver Utah Pacific Railroad, Chicago Burlington Quincy Siding & Spur (Waterworks Sales Co, J.M. Warner Co, & Richardson Lumber Spur) (5AM1888.5 and 5DV6243.7) and the Allan-Rand Ditch (5JF4454.1).</p>	<p>There are no prudent and feasible alternatives to the use of these resources and all possible planning has been completed to avoid/minimize impacts. A MOA has been completed between FTA and the SHPO which includes mitigations for adverse effects to cultural resources and is included in Appendix A.</p>
<p><i>De minimis</i> impact on the Jim Baker Reservoir.</p>	<p>Temporary parking will be provided on the west side of Tennyson Street. RTD will be responsible for maintaining the retaining wall.</p>