
1 **3.28 SUMMARY OF DIRECT AND INDIRECT IMPACTS**

2 This section summarizes the social and environmental consequences that would result from
3 the No-Action Alternative and the three build packages (Package A, Package B, and the
4 Preferred Alternative). Measures to mitigate these consequences are summarized in
5 **Section 3.29 Mitigation Summary**.

6 This section focuses on impacts to the social and environmental resources discussed earlier in
7 this chapter. Transportation improvements and impacts are presented in **Chapter 4**
8 *Transportation Impacts*.

1 Table 3.28-1 Summary of Direct and Indirect Impacts

No-Action Alternative	Package A	Package B	Preferred Alternative
Land Use and Zoning			
<p>Growth would continue to occur largely on undeveloped agricultural land at the fringe of the regional study area's urbanized areas</p> <p>Development would likely be pushed towards outlying areas to avoid I-25 congestion, which would hasten the conversion of agricultural land</p> <p>The more dispersed development pattern would result in greater land consumption and a broader potential impact to the regional study area's environmental resources</p> <p>Continuation of leap-frog type growth practices in southern portions of the regional study area east of I-25 would further fragment remaining agricultural lands</p>	<p>Under Package A, commuter rail would shift growth towards urban centers, especially in Fort Collins</p> <p>Longmont would increase in density and size</p> <p>Feeder bus routes along east-west corridors designed to serve commuter rail stations could also stimulate increased levels of development</p> <p>Improvements to existing interchanges could stimulate some growth, but not as would be the case if completely new interchanges were proposed</p>	<p>BRT along I-25 would provide less incentive for transit-oriented development than commuter rail</p> <p>Market-driven growth would continue to be focused along I-25</p> <p>Communities west of I-25 would continue to expand towards the east</p> <p>Some concentration of growth could occur near BRT stations along I-25</p> <p>Improvements to existing interchanges would have the same impacts as Package A</p>	<p>Commuter rail would facilitate the intensification of existing urban centers, supporting municipal plans for development, especially in Fort Collins</p> <p>Commuter rail connections would reinforce Longmont's role as a major hub for the region</p> <p>Feeder bus routes may shift the number of people who live and work in different communities, allowing for increased development</p> <p>Improvements to existing interchanges would have the same indirect impacts as Package A and Package B</p> <p>Because they are off to one side of the interstate, the express bus stations are more likely to attract new development to that side of the interstate</p> <p>Non-urban stations would help realize plans for more urban development that otherwise would not occur</p>

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1 Table 3.28-1 Summary of Direct and Indirect Impacts (cont'd.)

No-Action Alternative	Package A	Package B	Preferred Alternative
Social Conditions			
<p>Potential direct and indirect impacts on communities caused by traffic congestion and impaired mobility would include:</p> <ul style="list-style-type: none"> ▶ Increased air emissions and noise ▶ Longer travel times ▶ Traffic queues at key interchanges ▶ Neighborhood traffic intrusion ▶ Deteriorating safety conditions ▶ Lengthened emergency response times 	<p>Adverse impacts associated with Package A would include:</p> <p>Relocation of 59 residences</p> <p>Increased noise and vibration, out-of-direction travel, and travel time delays associated with commuter rail</p> <p>Air emissions and visual impacts to residents near carpool lots, commuter rail, transit stations, bus stations, and maintenance facilities</p> <p>Exacerbated “barrier effect” in Fort Collins, Loveland, Berthoud, and Longmont</p> <p>Temporary construction-related impacts such as noise, dust, out-of-direction travel, and travel-time delays</p> <p>Potential re-distribution of population in response to highway capacity or transit improvements</p> <p>Beneficial impacts associated with Package A would include:</p> <p>Regional connections between communities</p> <p>Improvements in mobility, safety, and emergency response</p> <p>Improved mobility for transportation-disadvantaged populations</p>	<p>Adverse impacts associated with Package B would include:</p> <p>Relocation of 24 residences</p> <p>Increased noise, air emissions, and visual impacts to residents near frontage roads, parking lots, bus routes, transit stations, and maintenance facilities</p> <p>Temporary construction-related impacts such as noise, dust, out-of-direction travel, travel-time delays, and access revisions</p> <p>Beneficial impacts associated with Package B would include:</p> <p>Regional connections between communities</p> <p>Overall improvements in safety, mobility, and emergency response, but no improvements in emergency response where toll lanes are barrier-separated</p> <p>Moderate improvements in mobility for transportation-disadvantaged populations</p>	<p>Adverse impacts associated with the Preferred Alternative would include:</p> <p>Relocation of 51 residences</p> <p>Increased noise and visual impacts</p> <p>An increase in air emissions (thought below National Ambient Air Quality Standards)</p> <p>An exacerbated (yet non-significant) barrier effect for communities located along the commuter rail alignment (although, to a lesser degree than Package A).</p> <p>Beneficial impacts associated with the Preferred Alternative would include:</p> <p>Enhanced regional connections between communities</p> <p>Improvements in mobility, safety, and emergency response</p> <p>Improved mobility for transportation-disadvantaged populations</p>

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1 Table 3.28-1 Summary of Direct and Indirect Impacts (cont'd.)

No-Action Alternative	Package A	Package B	Preferred Alternative
Social Conditions (cont'd.)			
<p>Environmental Justice Adverse effects (highway noise) to minority residents of the Mountain Range Shadows subdivision would exceed those experienced by the general population. However, the increase in noise level would be very small and would not be noticeable to most people. Low-income and minority populations would not receive more severe impacts than non low-income and minority populations.</p> <p>The No-Action Alternative would not provide local communities with the accessibility benefits associated with transit services.</p>	<p>Environmental Justice Adverse effects to minority and low-income residents in Longmont would exceed those experienced by the general population. These impacts would arise from the implementation of Component A-T1 (commuter rail between Fort Collins and Longmont) and would include 16 residential relocations, visual impacts, and the potential for community disruption. However, there is no evidence these impacts would be disproportionately high and adverse due to mitigation commitments.</p> <p>Impacts to minority and low-income populations associated with all other components of Package A would not exceed those experienced by the general population.</p>	<p>Environmental Justice Impacts associated with Package B would include:</p> <ul style="list-style-type: none"> ▶ Relocation of 7 residences in minority and low-income areas. <p>As a result of mitigation commitments and benefits received from Package B, minority and low-income communities would not suffer disproportionately high and adverse effects.</p> <p>Beneficial impacts associated with Package B include:</p> <p>Short-term and long-term employment opportunities would occur during the construction of the facilities as well as their ongoing operation and maintenance.</p> <p>Transit components would result in moderate improvements in mobility and would improve regional connectivity.</p> <p>Minority and low-income populations are concentrated around transit improvements and would benefit from the transit-related components.</p> <p>Shoulders and sidewalks would better accommodate bicycle and pedestrian travel</p>	<p>Environmental Justice Adverse effects to minority and low-income residents include 20 residential displacements. Of the 31 relocations required for the commuter rail component, 14 contain minority and/or low-income populations, all in Longmont.</p> <p>In Longmont there would be noticeable impacts; however, less than Package A and there is no evidence these impacts would be disproportionately high and adverse due to mitigation commitments.</p> <p>Beneficial impacts associated with the Preferred Alternative would include:</p> <p>Commuter rail would improve access to community facilities, provide broader opportunities for employment, facilitate participation in regional social and cultural events, promote interaction between communities, and stimulate business activity</p>

1 Table 3.28-1 Summary of Direct and Indirect Impacts (cont'd.)

No-Action Alternative	Package A	Package B	Preferred Alternative
Social Conditions (cont'd)			
	<p>Beneficial impacts associated with Package A would include:</p> <p>Short-term and long-term employment opportunities would occur during the construction of the facilities as well as their ongoing operation and maintenance.</p> <p>Shoulders and sidewalks would better accommodate bicycle and pedestrian travel</p> <p>Improved safety and emergency response times</p> <p>Minority and low-income populations are concentrated around transit improvements and would benefit from transit-related components</p> <p>Transit components would improve access to community facilities, provide broader opportunities for employment, facilitate participation in regional social and cultural events, promote interaction between communities, and stimulate business activity</p>	<p>Impacts to minority and low-income populations associated with all other components of Package B would not exceed those experienced by the general population.</p>	<p>Express bus and commuter bus transit would result in moderate improvements in mobility and would improve regional connectivity</p> <p>Safety and emergency response time would improve</p> <p>Short-term and long-term employment opportunities would occur during the construction of the facilities as well as their ongoing operation and maintenance.</p> <p>Shoulders and sidewalks would better accommodate bicycle and pedestrian travel</p> <p>Minority and low-income populations are concentrated around transit improvements and would benefit from the transit-related components.</p>

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1 Table 3.28-1 Summary of Direct and Indirect Impacts (cont'd.)

No-Action Alternative	Package A	Package B	Preferred Alternative
Economic Conditions			
<p>Would not require relocation of any existing businesses</p> <p>Would be no loss to property tax base and revenues</p> <p>Would be increasingly difficult to access businesses</p> <p>Future economic growth would most likely concentrate along the I-25 corridor and in the southern end of the regional study area</p>	<p>Adverse impacts associated with Package A would include:</p> <p>Relocation of 33 businesses</p> <p>\$5,079,960 loss in the tax base and \$150,290 loss of tax revenues</p> <p>Temporary construction-related detours, delays, and out-of-direction travel</p> <p>Temporary impacts to existing freight operations during construction</p> <p>Beneficial impacts associated with Package A would include:</p> <p>Potential for long-term growth of property tax base and revenues as a result of transit-oriented development</p> <p>Some access revisions; transit would improve access to businesses and expand employment opportunities</p> <p>Creation of 10,800 temporary jobs over the six-year construction period; permanent employment created by transit operation and maintenance</p>	<p>Adverse impacts associated with Package B would include:</p> <p>Relocation of 16 businesses</p> <p>\$2,814,220 loss in the tax base and \$88,720 loss of tax revenues</p> <p>Temporary construction-related detours, delays, and out-of-direction travel</p> <p>Beneficial impacts associated with Package B would include:</p> <p>Limited potential for long-term growth of property tax base and revenues as a result of transit-oriented development.</p> <p>Creation of 10,200 temporary jobs over the six-year construction period; permanent employment created by transit operation and maintenance</p> <p>Some access revisions; transit would improve access to businesses and expand employment opportunities</p>	<p>Adverse impacts associated with the Preferred Alternative include:</p> <p>Relocation of 23 businesses</p> <p>The loss in tax base would be approximately 17% less than Package A and approximately 1% more than Package B.</p> <p>Temporary construction-related detours, delays, and out-of-direction travel.</p> <p>Temporary impacts to existing freight operations during construction.</p> <p>Beneficial impacts associated with the Preferred Alternative would include:</p> <p>Potential for long-term growth of property tax base and revenues as a result of transit-oriented development.</p> <p>Some access revisions; transit would improve access to businesses and expand employment opportunities.</p> <p>Creation of 11,400 temporary jobs over the construction period; permanent employment created by transit operation and maintenance.</p>

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1 Table 3.28-1 Summary of Direct and Indirect Impacts (cont'd.)

No-Action Alternative	Package A	Package B	Preferred Alternative
Right-of-Way			
Would not require acquisition of property or any relocations	<p>Highway components would require 23 residential relocations and 12 business relocations</p> <p>Transit components would require 36 residential relocations and 21 business relocations</p> <p>All property impacts, including displacements and partial acquisitions, would total 1,068 acres, 719 acres for highway components and 349 acres for transit components</p>	<p>Highway components would require 24 residential relocations and 15 business relocations</p> <p>Transit components would require one additional business relocation and no residential relocations</p> <p>All property impacts, including displacements and partial acquisitions, would require a total of 913 acres, 833 acres for highway components and 80 acres for transit components</p>	<p>Highway components would require 20 residential relocations and 10 business relocations.</p> <p>Transit components would require 31 residential relocations and 13 business relocations.</p> <p>All property impacts, including displacements and partial acquisitions, would require a total of 889 acres, 635 acres for highway components and 254 acres for transit components.</p>
Air Quality			
<p>No substantive impacts</p> <p>Growth and development changes would affect traffic patterns and air quality</p> <p>Benefits include: (1) emissions for all pollutants from mobile sources would be reduced from existing levels; and (2) continued conversion of agricultural land uses would lessen nitrogen deposition effects to Rocky Mountain National Park.</p>	<p>No substantive impacts</p> <p>No exceedances of standards or thresholds due to mobile sources</p> <p>Growth and development changes would affect traffic patterns and air quality. In areas of transit oriented development, air quality could improve due to more efficient travel patterns. This improvement would be more noticeable with Package A than Package B and the Preferred Alternative.</p> <p>Benefits include: (1) emissions for all pollutants from mobile sources would be reduced from existing levels; and (2) continued conversion of agricultural land uses would lessen nitrogen deposition effects to Rocky Mountain National Park.</p>	<p>No substantive impacts</p> <p>No exceedances of standards or thresholds due to mobile sources</p> <p>Growth and development changes would affect traffic patterns and air quality. In areas of transit oriented development, air quality could improve due to more efficient travel patterns.</p> <p>Benefits include: (1) emissions for all pollutants from mobile sources would be reduced from existing levels; and (2) continued conversion of agricultural land uses would lessen nitrogen deposition effects to Rocky Mountain National Park.</p>	<p>No substantive impacts</p> <p>No exceedances of standards or thresholds due to mobile sources</p> <p>Growth and development changes would affect traffic patterns and air quality. In areas of transit oriented development, air quality could improve due to more efficient travel patterns.</p> <p>Benefits include: (1) emissions for all pollutants from mobile sources would be reduced from existing levels; and (2) continued conversion of agricultural land uses would lessen nitrogen deposition effects to Rocky Mountain National Park.</p>

1 Table 3.28-1 Summary of Direct and Indirect Impacts (cont'd.)

No-Action Alternative	Package A	Package B	Preferred Alternative
Noise & Vibration			
An estimated 661 Category B receivers and 155 Category C receivers would be impacted by traffic noise.	An estimated 673 Category B receivers and 153 Category C receivers would be impacted by traffic noise without recommended mitigation measures. 2,192 residences, 15 schools, and 7 churches would experience moderate or severe impacts from rail transit noise. Forty residences would experience vibration impacts due to commuter rail.	An estimated 685 Category B receivers and 163 Category C receivers would be impacted by traffic noise without recommended mitigation measures.	An estimated 679 Category B receivers and 161 Category C receivers would be impacted by traffic noise without recommended mitigation measures. 2,192 residences, 15 schools, and 7 churches would experience moderate or severe impacts from rail transit noise. Forty residences would experience vibration impacts due to commuter rail.
Water Resources			
Highway Impacts: Would result in 1,257 acres of impervious surface area Direct effects on surface water quality from increases in stormwater runoff velocity and volume would be negligible. The majority of stormwater runoff from I-25 would continue not to be treated prior to discharging to water bodies.	Highway Impacts: Would result in 1,946 acres of impervious surface area, with the greatest impacts expected in the Cache la Poudre and St. Vrain Watersheds. Would require relocation of as many as 105 wells within the right-of-way. Modifications to the existing drainage system or a new system could improve drainage compared to the No-Action Alternative	Highway Impacts: Would result in 2,001 acres of impervious surface area, with the greatest impacts expected in the Cache la Poudre River and Big Thompson River watersheds. Would require relocation of as many as 111 wells within the right-of-way Modifications to the existing drainage system or a new system could improve drainage compared to the No-Action Alternative	Highway Impacts: Would result in 1,982 acres of impervious surface area, with the greatest impacts expected in the Cache la Poudre River, Big Thompson River, and St. Vrain River watersheds. Would require relocation of as many as 112 wells within the right-of-way Modifications to the existing drainage system or a new system could improve drainage compared to the No-Action Alternative

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1 Table 3.28-1 Summary of Direct and Indirect Impacts (cont'd.)

No-Action Alternative	Package A	Package B	Preferred Alternative
Wetlands			
<p>Would generally not affect existing wetland resources, except those associated with development activities and rehabilitation of major and minor structures.</p> <p>With continuing development in the project area, some affects to wetlands would be expected</p>	<p>Would result in total direct impacts of: 18.33 acres for wetlands 3.54 acres of jurisdictional open water</p> <p>Indirect wetland effects would result from the increase in impervious surfaces caused by additional lanes or added road shoulders. Effects would be expected to include increased roadway runoff, increased surface flows in adjacent streams, erosion, and the creation of channels in wetlands that were previously free of channelization.</p> <p>New flows could contain pollutants associated with roadway runoff. Sediment from winter sanding operations accumulating in wetlands</p> <p>De-icers, petroleum products, and other chemicals would also likely degrade water quality and impacting wetland plants</p> <p>Additional sediment and erosion would be expected during and after construction until exposed fill and cut slopes could be successfully re-vegetated.</p> <p>Other indirect effects include the decrease or elimination of upland tree and/or shrub buffers between the proposed roadway/rail corridor and wetlands adjacent to other aquatic sites</p>	<p>Would result in total direct impacts of: 19.01 acres for wetlands 2.28 acres of jurisdictional open water</p> <p>Indirect wetland effects would be the same as Package A.</p>	<p>Would result in total direct impacts of: 15.31 acres for wetlands 2.87 acres of jurisdictional open water</p> <p>Indirect wetland effects would be the same as Package A and Package B.</p>

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1 Table 3.28-1 Summary of Direct and Indirect Impacts (cont'd.)

No-Action Alternative	Package A	Package B	Preferred Alternative
Floodplains			
Existing conditions would continue. Floodplain impacts would be addressed during the final design phases of each CDOT project along I-25 within the regional study area, such as rehabilitation of various drainage structures.	<p>Would impact a total of 12.8 acres of floodplains, 10.8 acres from highway components and 2.0 acres from transit components</p> <p>Would result in seven I-25 crossings of floodplains and nine drainage structure replacements</p> <p>Would result in 11 commuter rail crossings of floodplains</p> <p>Would result in two floodplains impacted by queue jumps for commuter buses</p>	<p>Would impact a total of 13.5 acres of floodplains, all from highway components</p> <p>Would result in twelve I-25 crossings of floodplains and 15 drainage structure replacements</p> <p>Would not have any floodplain impacts beyond those for the highway components</p> <p>None of the bus facilities would impact a floodplain</p>	<p>Would impact a total of 13 acres of floodplains, 11 acres from highway components and 2.0 acre from transit components.</p> <p>Would result in twelve I-25 crossings of floodplains and replacement or rehabilitation of 13 drainage structures along I-25.</p> <p>Would result in 10 commuter rail crossings of floodplains.</p>
Vegetation			
<p>Would only have a minimal effect on existing vegetation resources. Effects from increasing development on vegetation could include population fragmentation, reductions in riparian zones, and ground and soil disturbance which could promote increased germination of noxious weed populations.</p> <p>Would not contribute to the spread of noxious weeds.</p>	<p>Results in 927 acres of vegetation impacts.</p> <p>Results in 305 acres of soil disturbance which can result in the potential disturbance to natural resources due to spread and establishment of noxious weeds.</p> <p>Sensitive wildlife species including Preble's meadow jumping mouse will be affected by the spread of noxious weeds in riparian areas</p> <p>The potential for noxious weeds to establish and spread onto public lands such as parks and open spaces, and agricultural areas exists</p>	<p>Results in 819 acres of vegetation impacts.</p> <p>Results in 271 acres of soil disturbance which can result in the potential disturbance to natural resources due to spread and establishment of noxious weeds.</p> <p>Sensitive wildlife species including Preble's meadow jumping mouse will be affected by the spread of noxious weeds in riparian areas</p> <p>The potential for noxious weeds to establish and spread onto public lands such as parks and open spaces, and agricultural areas exists</p>	<p>Results in 818 acres of vegetation impacts.</p> <p>Results in 269 acres of soil disturbance which can result in the potential disturbance to natural resources due to spread and establishment of noxious weeds.</p> <p>Sensitive wildlife species including Preble's meadow jumping mouse will be affected by the spread of noxious weeds in riparian areas</p> <p>The potential for noxious weeds to establish and spread onto public lands such as parks and open spaces, and agricultural areas exists</p>

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1 Table 3.28-1 Summary of Direct and Indirect Impacts (cont'd.)

No-Action Alternative	Package A	Package B	Preferred Alternative
Wildlife			
Existing conditions would continue. Increased traffic on secondary roads would increase mortality of wildlife from collisions.	<p>Would impact 2.01 acres of sensitive wildlife habitat</p> <p>Would impact 1.82 acres of aquatic habitat</p> <p>Would impact 13 wildlife movement corridors and 49 raptor nests</p>	<p>Would impact 2.35 acres of sensitive wildlife habitat</p> <p>Would impact 2.25 acres of aquatic habitat</p> <p>Would impact 7 wildlife movement corridors and 43 raptor nests</p>	<p>Would impact 1.94 acres of sensitive wildlife habitat.</p> <p>Would impact 1.54 acres of aquatic habitat.</p> <p>Would impact 14 wildlife movement corridors and 57 raptor nests</p>
Threatened, Endangered, Other Federally-Protected and State Sensitive Species			
Would not affect threatened and endangered species. Existing conditions would continue.	<p>Direct impact to 0.81 acre of potential Preble's habitat</p> <p>Direct impact to 204 acres of bald eagle foraging habitat</p> <p>Direct impact to 60 acres of black-tailed prairie dog colonies</p> <p>Indirectly affect Western Burrowing Owl habitat associated with prairie dog colonies</p> <p>Direct impact to 20 acres of habitat for northern leopard frogs and common gartersnakes</p> <p>Direct impact to 0.4 acre of habitat for state threatened, endangered, or special concern aquatic species</p> <p>Direct impact to 7 acres of habitat for bald eagle roost sites</p>	<p>Direct impact to 0.80 acre of potential Preble's habitat</p> <p>Direct impact to 231 acres of bald eagle foraging habitat</p> <p>Direct impact to 97 acres of black-tailed prairie dog colonies</p> <p>Indirectly affect Western Burrowing Owl habitat associated with prairie dog colonies</p> <p>Direct impact to 21 acres of habitat for northern leopard frogs and common gartersnakes</p> <p>Direct impact to 0.4 acre of habitat for state threatened, endangered, or special concern aquatic species</p> <p>Direct impact to 2 acres of habitat for bald eagle roost sites</p>	<p>Direct impact to 0.72 acre of potential Preble's habitat</p> <p>Direct impact to 231 acres of bald eagle foraging habitat</p> <p>Direct impact to 86 acres of black-tailed prairie dog colonies</p> <p>Indirectly affect Western Burrowing Owl habitat associated with prairie dog colonies</p> <p>Direct impact to 17 acres of habitat for northern leopard frogs and common gartersnakes</p> <p>Direct impact to 0.4 acre of habitat for state threatened, endangered, or special concern aquatic species</p> <p>Direct impact to 5 acres of habitat for bald eagle roost sites</p>

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1 Table 3.28-1 Summary of Direct and Indirect Impacts (cont'd.)

No-Action Alternative	Package A	Package B	Preferred Alternative
Visual Quality			
<p>Would generally have minimal effect on visual resources. Growth would continue to occur on undeveloped agricultural land. This would change the landscape character along the I-25, BNSF, and US 287 corridors, and alter views and perception of visual character.</p>	<p>Most of the proposed improvements would not have a substantial effect to the visual quality of the corridors.</p> <p>Long-term impacts would include relocation of businesses and residences, rebuilt interchanges, increased right-of-way, additions of station amenities, and changes to the surrounding landscape through the use of overpasses, bridges, retaining walls, medians, as well as alterations to the existing roadway grade.</p> <p>Indirect impacts of the proposed improvements could encourage development that is more compact and denser, especially within walking distance of a commuter rail station.</p> <p>The addition of stations and a maintenance facility would generate lighting that would be seen by motorists, as well as from adjacent businesses and residences.</p> <p>Short-term impacts would include detours, increased roadway congestion in and around the area, the presence of large equipment, and dust from construction.</p>	<p>Most of the proposed improvements would not have a substantial effect to the visual quality of the corridors.</p> <p>Package B would have the same basic visual impacts as described for Package A, except that BRT elements would occur along I-25 instead of the commuter rail and bus elements along other rights-of-way.</p>	<p>Most of the proposed improvements would not have a substantial effect to the visual quality of the corridors.</p> <p>The Preferred Alternative would have the same basic visual impacts as described for Package A and Package B.</p> <p>Many elements of the express bus have the same visual impacts as the BRT associated with Package B.</p>

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1 Table 3.28-1 Summary of Direct and Indirect Impacts (cont'd.)

No-Action Alternative	Package A	Package B	Preferred Alternative
Historic Preservation			
<p>Would generally not affect significant (NRHP-eligible) historic resources. The present trend of conversion of much of the remaining farmsteads (many of which are historic) into residential, industrial and commercial development would continue.</p> <p>No significant (NRHP-eligible) archaeological resources would be affected within the Area of Potential Effect.</p>	<p>Direct Impacts: <i>Adverse effects</i> from direct impacts to seven NRHP –eligible or listed properties.</p> <p>Section 4(f) Use: Seven individual 4(f) uses and 28 <i>de minimis</i> uses</p> <p>No NRHP-eligible archaeological resources would be affected within the Area of Potential Effect</p>	<p>Direct Impacts: One <i>adverse effect</i> from direct impacts to NRHP –eligible or listed properties.</p> <p>Section 4(f) Use: two individual 4(f) uses and 16 <i>de minimis</i> uses</p> <p>No NRHP-eligible archaeological resources would be affected within the Area of Potential Effect</p>	<p>Direct Impacts: <i>Adverse effects</i> from direct impacts to four NRHP –eligible or listed properties.</p> <p>Section 4(f) Use: Four individual 4(f) uses and 24 <i>de minimis</i> uses.</p> <p>No NRHP-eligible archaeological resources would be affected within the Area of Potential Effect</p>
Paleontological Resources			
<p>No impacts</p>	<p>Construction along the existing BNSF rail-line between Fort Collins and Longmont, and along I-25 between E-470 and US 36, especially where cuts are necessary to expand rail alignments, highways, and interchanges, has the highest likelihood of adversely impacting paleontological resources.</p> <p>Ground disturbance associated with the construction of commuter rail lines and facilities is anticipated to be greater than that required for bus rapid transit facilities.</p> <p>Package A would generally require 2,877 acres of ground disturbance and has the lowest potential for impacts on paleontological resources.</p>	<p>Construction along I-25 between E-470 and US 36, especially where cuts are necessary to expand highways and interchanges, has the highest likelihood of adversely impacting paleontological resources.</p> <p>Package B would generally require 2,959 acres of ground disturbance.</p>	<p>Construction along I-25 between E-470 and US 36, especially where cuts are necessary to expand highways and interchanges, has the highest likelihood of adversely impacting paleontological resources.</p> <p>Disturbances associated with the commuter rail facilities would be noticeably less than Package A.</p> <p>The Preferred Alternative would generally require 3,224 acres of ground disturbance and has the highest potential for impacts on paleontological resources.</p>

1 Table 3.28-1 Summary of Direct and Indirect Impacts (cont'd.)

No-Action Alternative	Package A	Package B	Preferred Alternative
Hazardous Materials			
No direct impacts Indirect impacts include the potential to encounter contaminated soil and/or groundwater during structure maintenance activities or during safety improvements that require ramp terminal widening.	38 parcels with potential environmental conditions and 16 parcels with recognized environmental conditions are associated with the highway components. 58 parcels with potential environmental conditions and 2 parcels with recognized environmental conditions are associated with the transit components.	40 parcels with potential environmental conditions and 16 parcels with recognized environmental conditions are associated with the highway components.	67 parcels with potential environmental conditions and 20 parcels with recognized environmental conditions are associated with the Preferred Alternative.
Parks and Recreation			
Portions of three parks, a wildlife area, and one golf course would receive noise impacts.	Direct use of eight properties, seven having minor impacts. McWhinney Hahn Sculpture Park would likely have to be acquired. Indirect effects would include visual impacts at the sculpture park, change in access at one location, and noise impacts at five properties. Benefits would include improved access and mobility to and from these recreational resources.	Direct use of six properties, five having minor impacts. McWhinney Hahn Sculpture Park would have a trail impacted. Indirect effects would include visual impacts at the sculpture park, change in access at one location, and noise impacts at four properties. Benefits would include improved access and mobility to and from these recreational resources.	Direct use of six properties, five having minor impacts. McWhinney Hahn Sculpture Park would have a trail impacted, as well as an area containing a number of sculptures. Indirect effects would include visual impacts at the sculpture park, change in access at one location, and noise impacts at six properties. Benefits would include improved access and mobility to and from these recreational resources.

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1 **Table 3.28-1 Summary of Direct and Indirect Impacts (cont'd.)**

No-Action Alternative	Package A	Package B	Preferred Alternative
Section 6(f)			
Would have no impacts on any of the 6(f) properties	Would have no impacts on any of the 6(f) properties	Would have no impacts on any of the 6(f) properties	Would have no impacts on any of the 6(f) properties
Farmlands			
<p>Would not directly impact prime farmland, farmland of statewide importance, or farmland of local importance.</p> <p>The more dispersed development pattern would further fragment remaining agricultural lands, reducing their long-term viability.</p>	<p>Package A would result in the direct conversion of 977.13 total acres, if certain farming conditions are present. This would include:</p> <ul style="list-style-type: none"> ▶ 1.80 acres of farmland of local importance ▶ 44.52 acres of farmland of statewide importance ▶ 930.81 acres of farmland that would be considered prime if four certain conditions are present <p>No farms would be severed or lose access.</p> <p>As a result of commuter rail, the rate at which environmental resources (including farmlands) would be affected in undeveloped and suburban areas within the regional study area would likely be slowed, especially near I-25.</p>	<p>Package B would result in the direct conversion of 925.36 total acres, if certain farming conditions are present. This would include:</p> <ul style="list-style-type: none"> ▶ 1.66 acres of farmland of local importance ▶ 35.39 acres of farmland of statewide importance ▶ 888.31 acres of farmland that would be considered prime if four certain conditions are present <p>No farms would be severed or lose access.</p> <p>Most of the farmland impact is associated with the widening of I-25 to accommodate additional buffer or barrier separated express lanes in each direction.</p>	<p>The Preferred Alternative would result in the direct conversion of 977.16 total acres, if certain farming conditions are present. This would include:</p> <ul style="list-style-type: none"> ▶ 5.05 acres of farmland of local importance ▶ 46.61 acres of farmland of statewide importance ▶ 925.50 acres of farmland that would be considered prime if four certain conditions are present <p>No farms would be severed or lose access.</p> <p>Most of the farmland impact is associated with the widening of I-25 to accommodate general purpose lanes and buffer separated tolled express lanes in each direction.</p>

2

1 Table 3.28-1 Summary of Direct and Indirect Impacts (cont'd.)

No-Action Alternative	Package A	Package B	Preferred Alternative
Energy			
<p>Annual energy consumption from operations would be 403,220 million BTUs</p> <p>Energy demand would be directly proportionate to the increase in population as land development occurs</p> <p>Population is anticipated to increase at the same rate for all four alternatives</p>	<p>Would use approximately 0.8 percent more energy than the No-Action Alternative, as a result of increase in annual vehicle miles of travel within the project area</p>	<p>Would use approximately 0.4 percent more energy than the No-Action Alternative, as a result of increase in annual vehicle miles of travel within the project area</p>	<p>Would use approximately 0.9 percent more energy than the No-Action Alternative, as a result of increase in annual vehicle miles of travel within the project area</p>
Public Safety and Security			
<p>As congestion increases, there would be a greater likelihood of both highway and railway crashes; and emergency response times would be negatively affected</p> <p>The likely higher number of crashes also could affect the likelihood of a crash involving a transporter of hazardous materials</p>	<p>A 70 percent reduction in accidents associated with trains and other vehicles is predicted</p> <p>An increased security presence would be needed on trains, buses, and at existing and proposed stations and associated existing park-n-Rides.</p> <p>There is a potential for modest increases to police services in response to increases in crime</p> <p>There is a potential for increased theft during the construction phase (a temporary impact)</p>	<p>An increased security presence would be needed on trains, buses, and at existing and proposed stations and associated existing park -n-Rides.</p> <p>There is a potential for modest increases to police services in response to increases in crime</p> <p>There is a potential for increased theft during the construction phase (a temporary impact)</p>	<p>Impacts would be similar to those described for Package A for the commuter rail. The highway and express bus service impacts would be similar to Package B.</p>

2

1 Table 3.28-1 Summary of Direct and Indirect Impacts (cont'd.)

No-Action Alternative	Package A	Package B	Preferred Alternative
Construction			
<p>Would result in no construction or utility impacts aside from those associated with the currently programmed projects</p>	<p>Would have the greatest construction impacts (noise, air quality, transportation) to residential areas since construction of the double-track commuter rail would extend through residential areas. The double-track commuter rail would use the existing BNSF railroad track plus one new track from Fort Collins to downtown Longmont, and a new double-track commuter rail line would connect Longmont to the FasTracks North Metro end-of-line station in Thornton.</p> <p>Construction of all build packages would cause varying temporary impacts to traffic patterns and congestion, noise and vibration, air quality, and visual presence</p> <p>Construction impacts would be short-term and isolated in extent depending upon the types and location of construction</p>	<p>Would have fewer impacts than Package A because there is no rail component, and I-25 widening occurs along a corridor that consists primarily of commercial, industrial, and agricultural development</p> <p>Construction of all build package would cause varying temporary impacts to traffic patterns and congestion, noise and vibration, air quality, and visual presence</p> <p>Construction impacts would be short-term and isolated in extent depending upon the types and location of construction</p>	<p>The Preferred Alternative would have construction impacts greater than Package B because it includes commuter rail, but less than Package A because it has a single track, rather than double track.</p> <p>Construction of all build package would cause varying temporary impacts to traffic patterns and congestion, noise and vibration, air quality, and visual presence</p> <p>Construction impacts would be short-term and isolated in extent depending upon the types and location of construction</p>

2

1 Table 3.28-1 Summary of Direct and Indirect Impacts (cont'd.)

No-Action Alternative	Package A	Package B	Preferred Alternative
Section 4(f) *			
No substantive impacts	<p>Historic</p> <ul style="list-style-type: none"> ▶ 1 ditch: 316 linearfeet— <i>Adverse effect</i> ▶ 1 railroad: 2.9 miles— <i>Adverse effect</i> ▶ 4 properties: 56.04 acres — <i>Adverse effect</i> ▶ 11 properties: 48 .45 acres— <i>De minimis*</i> ▶ 15 ditches: 4,418.5 linear feet— <i>De minimis</i> ▶ 2 railroads: 4.92 miles— <i>De minimis</i> <p>Parks and Recreation</p> <ul style="list-style-type: none"> ▶ 5 parks (8.69 acres)— <i>De minimis.</i> ▶ 1 park: 1.21 acres— <i>Adverse Effect</i> ▶ 1 recreation trail— <i>De minimis</i> <p>Total Uses (not including <i>de minimis</i>) = 7</p>	<p>Historic</p> <ul style="list-style-type: none"> ▶ 1 ditch: 357 linear feet— <i>Adverse effect</i> ▶ 7 Historic properties: 49.09 acres—<i>De minimis</i> ▶ 8 ditches: 4,360.5 linear feet — <i>De minimis</i> ▶ 1 railroad:0.04 miles— <i>De minimis</i> <p>Parks and Recreation</p> <ul style="list-style-type: none"> ▶ 4 parks (7.52 acres)— <i>De minimis.</i> ▶ 1 park: 1.21 acres— <i>Adverse Effect</i> ▶ 3 recreation trail— <i>De minimis</i> <p>Total Uses (not including <i>de minimis</i>) = 2</p>	<p>Historic</p> <ul style="list-style-type: none"> ▶ 1 ditch: 1084 linear feet— <i>Adverse effect</i> ▶ 1 railroad: 2.9 miles— <i>Adverse effect</i> ▶ 2 properties: 14.74 acres— <i>Adverse effect</i> ▶ 9 properties: 32.72 acres— <i>De minimis*</i> ▶ 13 ditches: 4,121 linear feet— <i>De minimis</i> ▶ 2 railroads: 4.92 miles— <i>De minimis</i> <p>Parks and Recreation</p> <ul style="list-style-type: none"> ▶ 3 parks (5.83 acres)— <i>De minimis</i> ▶ 1 park: 1.21 acres— <i>Adverse Effect</i> ▶ 3 recreation trail— <i>De minimis</i> <p>Total Uses (not including <i>de minimis</i>) = 5</p>

2 Note:
3 *Section 4(f) impacts are summarized in this table and explained in detail in **Chapter 5 Section 4(f) Evaluation.**
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