

3.10 VEGETATION

3.10.1 Affected Environment

The North I-25 regional study area is within the High Plains Ecoregion with the western portion located in the Front Range Fans sub-ecoregion and the eastern portion in the Flat to Rolling Plains and Rolling Sand Plains sub-ecoregions (USGS, 2006).

The High Plains Ecoregion is characterized as a dry grassland, receiving 12 to 20 inches of annual precipitation. Smooth, irregular plains are the dominant

characteristic of the High Plains Ecoregion, with a high percentage of land cover converted to cropland. The dominant native vegetation within the ecoregion are various grasses, such as blue grama (*Bouteloua gracilis*), little bluestem (*Schizachyrium scoparium*), buffalograss (*Bouteloua dactyloides*), and western wheatgrass (*Pascopyrum smithii*).

Biological resource data for the regional study area were collected from maps, databases, GIS data, aerial photography, publications (Weber, 2001), and agency information. This information was used to provide context of the resource in the region and to assist in assessing direct, indirect, and cumulative effects in the project area. Field studies were conducted in the project area and provide the basis for assessing common species present. Upland plant species common to the regional study area are listed in **Table 3.10-1**. Due to the geographical size of the regional study area and the scope of the vegetation assessments, impacts to general vegetation communities are described. Impact acreages were calculated using existing CDOT right-of-way construction footprints, and evaluation of aerial photography.

The regional study area consists primarily of urban, agricultural, and developed habitats. Native, undisturbed habitats in the regional study area are primarily fragmented areas of remnant native prairie and riparian corridors, which typically have an abundance of non-native plant species. There are also areas classified as ponderosa pine forests (*Pinus ponderosa*), xeric shrublands, and mountain grasslands. The distribution of vegetation communities in the regional study area is presented in **Table 3.10-2**.

Most of the regional study area consists of agricultural land (irrigated or dryland) and urban and developed areas. Affected by rapid development, drought, and weed infestations, vegetation is dominated by non-native plants (noxious weeds are discussed in **Section 3.11**). Weedy kochia (*Bassia scoparia*) and various species of native and non-native grasses such as barnyard grass (*Echinochloa crus-galli*) and western wheatgrass are the dominant species of roadsides. Many fields along project alignments appear to be fallow and dominated by kochia. Landscaped vegetation comprised of bluegrass lawns with ornamental trees and shrubs is present in many residential and business areas.

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1 Table 3.10-1 Common Plant Species of the North I-25 Regional Study Area

Common Name	Scientific Name	Native/Non-native
GRASSES AND GRASS-LIKES		
Alkali sacaton	<i>Sporobolus airoides</i>	Native
Barnyard grass	<i>Echinochloa crus-galli</i>	Non-native
Blue grama	<i>Bouteloua gracilis</i>	Native
Bluegrass	<i>Poa pratensis</i>	Non-native
Buffalograss	<i>Bouteloua dactyloides</i>	Native
Cattail	<i>Typha angustifolia, T. latifolia</i>	Native
Crested wheatgrass	<i>Agropyron cristatum</i>	Non-native
Needle and thread grass	<i>Hesperostipa comata</i>	Native
Redtop	<i>Agrostis gigantea</i>	Non-native
Rush	<i>Juncus sp.</i>	Native
Saltgrass	<i>Distichlis spicata</i>	Native
Sedge	<i>Carex sp.</i>	Native
Sideoats grama	<i>Bouteloua curtipendula</i>	Native
Slender wheatgrass	<i>Elymus trachycaulus</i>	Native
Smooth brome	<i>Bromus inermis</i>	Native
Western wheatgrass	<i>Agropyron smithii</i>	Native
Feather fingergrass	<i>Chloris virgata</i>	Non-native
FORBS (BROAD-LEAVED FLOWERING PLANTS)		
Blueflax	<i>Linum perenne</i>	Native
Canada thistle	<i>Cirsium arvense</i>	Non-native
Clover	<i>Trifolium sp.</i>	Native
Common mullein	<i>Verbascum thapsus</i>	Non-native
Common sunflower	<i>Helianthus annuus</i>	Native
Curly dock	<i>Rumex crispus</i>	Non-native
Field bindweed	<i>Convolvulus arvensis</i>	Non-native
Golden aster	<i>Heterotheca sp.</i>	Native
Kochia (burningbush)	<i>Bassia scoparia</i>	Non-native
Leafy spurge	<i>Euphorbia esula</i>	Non-native
Prostrate pigweed	<i>Amaranthus albus</i>	Non-native
Prickly lettuce	<i>Lactuca serriola</i>	Non-native
Puncture vine	<i>Tribulus terrestris</i>	Non-native
Scotch thistle	<i>Onopordum acanthium</i>	Non-native
Little sunflower	<i>Helianthus pumilus</i>	Native
Yellow sweetclover	<i>Melilotus officinalis</i>	Non-native
SHRUBS		
Sandbar willow	<i>Salix exigua</i>	Native
Tamarisk	<i>Tamarix sp.</i>	Non-native
TREES		
Chinese elm	<i>Ulmus pumila</i>	Non-native
Plains cottonwood	<i>Populus deltoides subsp. monilifera</i>	Native
Russian olive	<i>Elaeagnus angustifolia</i>	Non-native

Source: Nomenclature follows USDA Plants database, accessed at <http://plants.usda.gov>.

1 **Table 3.10-2 Distribution of Vegetation Types**

County	Primary Upland Vegetation Types	Primary Riparian Areas
Adams	Urban	Clear Creek
Broomfield	Urban, some irrigated and dryland agriculture	None
Boulder	Mostly urban, irrigated agriculture, and native prairie; ponderosa pine, foothills and mountain grassland	None
Denver	Urban	South Platte River
Larimer	Urban, some irrigated and dryland agriculture	Cache la Poudre, Big Thompson River, Little Thompson River
Weld	Urban, some irrigated and dryland agriculture	Big Thompson River, South Platte River, St. Vrain Creek

2 Narrow bands of riparian vegetation are present along many streams and some irrigation
3 canals. Wetlands also occur in many areas and the vegetation that exists in these areas is
4 described in further detail in **Section 3.8 Wetlands**. Common trees along fence lines and
5 upper riparian areas are native plains cottonwood (*Populus deltoides*) as well as non-native
6 Chinese elm (*Ulmus pumila*) and Russian olive (*Elaeagnus angustifolia*). Wetland species
7 typically include native sandbar willow (*Salix exigua*), cattail (*Typha sp.*), sedges (*Carex sp.*),
8 and rushes (*Juncus sp.*), as well as non-native redtop (*Agrostis stolonifera*), and curly dock
9 (*Rumex crispus*).

10 The following descriptions of vegetation types were primarily derived from the Colorado
11 Natural Diversity Information Source (NDIS) data (CDOW, 2001), combined with field
12 observations.

13 **Urban.** These areas are characterized by high density commercial or high density residential
14 development. Urban environments generally lack natural vegetative habitats, and vegetation
15 present in these areas is comprised of landscaped and cultivated plants.

16 **Dryland/Irrigated Agriculture.** These areas are characterized by row crops, irrigated pasture
17 and hay fields, and dry farm crops.

18 **Native Prairie.** Prairie habitat is dominated by grasses and forbs such as crested wheatgrass
19 (*Agropyron cristatum*), buffalograss, sideoats grama (*Bouteloua curtipendula*), blueflax (*Linum*
20 *perenne*), and golden aster (*Heterotheca sp.*). Prairie habitat in eastern Colorado is a valuable
21 resource for wildlife, and is home to several endangered species of plants and animals (see
22 **Section 3.12 Wildlife** and **Section 3.13 Threatened, Endangered, and State Sensitive Species**
23 for further discussion). Two such endangered plant species are the Colorado butterfly plant
24 (*Gaura neomexicana* subsp. *coloradensis*) and Ute ladies'-tresses orchid (*Spiranthes*
25 *diluvialis*). Much of this habitat has been converted to agricultural land or has been converted
26 to residential and commercial areas. Native prairie habitat within the regional study area is
27 fragmented and sparse.

28

1 **Ponderosa Pine.** Stands of Ponderosa pine are found along the western edge of the regional
2 study area, and provide various important ecological functions. Ponderosa pines are a
3 valuable food resource to a variety of animals and provide shelter. Grasses like slender
4 wheatgrass (*Elymus trachycaulus*), needle and thread (*Hesperostipa comata*), and other
5 wildflower species cover the floor of these forests.

6 **Mountain Grassland.** Mountain grasslands exist along the western edge of the regional study
7 area along the Front Range and are dominated by native grasses such as western wheatgrass
8 and blue grama. Mountain grasslands provide important habitat for grazing and serve as
9 movement corridors for mountain wildlife.

10 **Riparian Woodland.** Riparian habitats are those areas associated with streams and other water
11 bodies that have distinctly different vegetation due to the presence of surface water or
12 groundwater. Riparian habitat supports a higher diversity of resident wildlife than any other
13 habitat in the Front Range and many of the species that occur exclusively inhabit wetlands or
14 riparian environments. Riparian habitats provide various important ecological functions for
15 resident and migratory wildlife species, such as nesting opportunities and travel corridors for
16 populations of breeding and migratory avian species. Riparian corridors also link wildlife
17 populations in areas of high quality habitat, allowing movement through the urban environment.
18 Amphibians and many reptile species occur most frequently in riparian habitats and corridors as
19 well. Representative species include plains cottonwood, sandbar willow, cattail, and various
20 rushes and sedges.

21 **3.10.2 Environmental Consequences**

22 This section addresses vegetation communities along North I-25 that could be affected by the
23 No-Action Alternative or build packages. Native vegetation and riparian habitat along
24 streambanks are protected under conditions of the Senate Bill (SB) 40 permit, regulated by the
25 Colorado Division of Wildlife (CDOW). Special concern species that are listed as federally
26 threatened and endangered are regulated by the US Fish and Wildlife Service (USFWS) and
27 are documented in **Section 3.13 Threatened, Endangered, and State Sensitive Species** of
28 special concern in the State of Colorado are listed in a database maintained by the Colorado
29 Natural Heritage Program at Colorado State University (CDOW, 2001). Coordination with the
30 USFWS would be necessary if any species of special concern were identified within the project
31 area.

32 Because of the large geographical size of the regional study area and the scope of the
33 vegetation assessments, impacts to vegetation communities are generalized. To determine
34 general vegetation impacts, GIS tools were employed to calculate the acres of NDIS defined
35 vegetation communities located outside of CDOT existing right-of-way and inside of alternative
36 construction footprints. To further clarify the extent of impacts, urban areas and bare ground
37 were eliminated from impact acreages, and an average acreage was deducted from the total
38 area of impacts to account for areas of existing impervious surface outside of CDOT right-of-
39 way but within alternative construction footprints. The purpose of the impact assessment is to
40 provide a repeatable method of comparative analysis between the alternatives.

41

3.10.2.1 NO-ACTION ALTERNATIVE

The No-Action Alternative includes major and minor structure rehabilitation, replacement or rehabilitation of existing pavement, and minor safety modifications by 2030. These actions would take place regardless of any proposed improvements. The No-Action Alternative is described in detail in **Chapter 2 Alternatives**.

The No-Action Alternative generally would have only a minimal effect on existing vegetation resources. Existing conditions described in **Section 3.10.1** would continue. With increasing traffic volumes and continuing commercial and residential development in the project area, some effects to vegetation would be expected. Effects from existing or 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 (further discussed in **Section 3.11 Noxious Weeds**).

3.10.2.2 PACKAGE A

Package A includes safety improvements, construction of additional general purpose lanes on I-25, structure upgrades, and the implementation of commuter rail and bus service. This alternative is described in detail in **Chapter 2 Alternatives**.

Safety Improvements

Under Package A, improvements would occur between SH 1 and SH 14 (A-H1). Safety improvements for Package A would generally affect agricultural and urban landscape vegetation communities.

Direct Impacts – Implementation of safety improvements between SH 1 and SH 14 (A-H1) would result in the removal of approximately 78 acres of vegetation in areas of irrigated and dryland pasture.

Indirect Impacts – Soil disturbance from construction equipment could create favorable conditions for weedy species to establish. Other indirect impacts would include the reduction or elimination of upland tree and/or shrub buffers between areas of construction and vegetation areas adjacent to perennial and intermittent waterways. Buffers filter pollutants before they reach wetlands, streams, and lakes and also provide habitat for wildlife. Temporary impacts could include ground and soil disturbance allowing for potential germination and invasion of noxious weed species.

General Purpose Lanes

Under Package A, one additional northbound general purpose lane and one additional southbound general purpose lane would be constructed between SH 14 and SH 60 plus auxiliary lanes between Harmony Road and SH 60 (A-H2) and between SH 60 and E-470 (A-H3). Implementation of the general purpose lanes for Package A would generally affect riparian woodlands, emergent and scrub/shrub wetlands, and agricultural areas. Wetland impacts are further discussed in **Section 3.8 Wetlands**.

Direct Impacts – Anticipated direct impacts from the development of general purpose and auxiliary lanes would include the removal of approximately 522 acres of riparian, woodland, agricultural, and various wetland vegetation communities. Impacts would be expected from fill

1 placement during construction of transportation improvements and damage by construction
2 equipment. These areas contain large trees along the roadside and various bodies of open
3 water that lie within the alignment with associated emergent wetland habitat.

4 **Indirect Impacts** – The addition of a highway lane on either side of the roadway would
5 increase impervious surfaces, thereby increasing runoff and exposing the surrounding
6 vegetation to higher levels of pollutants. Soil disturbance from construction equipment could
7 also create favorable conditions for weedy species to establish. Other indirect impacts would
8 include the reduction or elimination of upland tree and/or shrub buffers between the proposed
9 roadway and vegetation areas adjacent to perennial and intermittent waterways. Buffers filter
10 pollutants before they reach wetlands, streams, and lakes and also provide habitat for wildlife.

11 **Structure Upgrades**

12 Package A would provide structural upgrades between E-470 and US 36 (A-H4). Upgrades
13 under Package A would generally affect agricultural vegetation communities.

14 **Direct Impacts** – Construction equipment and installation of upgrades would result in the
15 removal of approximately 2 acres of vegetation in agricultural areas. Direct impacts could
16 occur in the form of clearing and grading within the proximity of the structure being improved.

17 **Indirect Impacts** – Soil disturbance from construction equipment could create favorable
18 conditions for weedy species to establish. Other indirect impacts could include the reduction or
19 elimination of upland tree and/or shrub buffers between areas of construction and vegetation
20 areas adjacent to perennial and intermittent waterways. Buffers filter pollutants before they
21 reach wetlands, streams, and lakes and also provide habitat for wildlife. Temporary impacts
22 could include ground and soil disturbance allowing for potential germination and invasion of
23 noxious weed species.

24 **Commuter Rail**

25 Package A includes the construction of a double-tracked commuter rail line using the existing
26 BNSF railroad track plus one new track from Fort Collins to downtown Longmont (A-T1). Also
27 included would be a new double-tracked commuter rail line that connects this point to the
28 FasTracks North Metro end-of-line station in Thornton (A-T2). Commuter rail development
29 would generally affect native prairie, and agricultural areas.

30 **Direct Impacts** – Development of the proposed commuter rail would result in the removal of
31 approximately 309 acres of vegetation in fragmented parcels of native prairie, some of which is
32 inhabited by prairie dogs. Native and non-native grasses, along with several species of
33 flowering plants, would be affected, although these areas contain a larger amount of non-
34 native and weedy species due to past and present land use practices. Vegetation most
35 affected along this component would be that of landscaped trees in developed residential
36 areas and agricultural lands that lie within the alignment.

37 **Indirect Impacts** – Soil disturbance from construction equipment could also create favorable
38 conditions for weedy species to establish. Other indirect impacts would include the reduction
39 or elimination of upland tree and/or shrub buffers between the proposed alignment and
40 vegetation areas adjacent to perennial and intermittent waterways and the potential
41 introduction of weed species. Buffers filter pollutants before they reach wetlands, streams, and
42 lakes and also provide habitat for wildlife.

1 Indirect impacts resulting from project induced growth, transit oriented development, and
2 carpool lots are discussed within **Section 3.1 Land Use**.

3 **Commuter Bus**

4 Package A includes the addition of commuter bus service between Greeley, Denver, and
5 Denver International Airport (DIA) (A-T3 & A-T4), which would generally affect agricultural
6 vegetation communities

7 **Direct Impacts** – Development of the proposed commuter bus and associated facilities would
8 result in the removal of approximately 16 acres of vegetation in agricultural lands that lie within
9 the alignment.

10 **Indirect Impacts** – Soil disturbance from construction equipment could create favorable
11 conditions for weedy species to establish. Other indirect impacts would include the reduction
12 or elimination of upland tree and/or shrub buffers between the proposed alignment and
13 vegetation areas adjacent to perennial and intermittent waterways and the potential
14 introduction of weed species. Buffers filter pollutants before they reach wetlands, streams, and
15 lakes and also provide habitat for wildlife.

16 **3.10.2.3 PACKAGE B**

17 Package B includes safety improvements, construction of tolled express lanes on I-25, and the
18 implementation of bus rapid transit service. This alternative is described in detail in **Chapter 2**
19 *Alternatives*.

20 **Safety Improvements**

21 Under Package B, improvements would occur between SH 1 and SH 14 (B-H1). Safety
22 improvements for Package B would generally affect agricultural and urban landscape
23 vegetation communities.

24 **Direct Impacts** – Implementation of safety improvements between SH 1 and SH 14 (B-H1)
25 would result in the removal of approximately 75 acres of vegetation in areas of irrigated and
26 dryland pasture.

27 **Indirect Impacts** – Soil disturbance from construction equipment could create favorable conditions
28 for weedy species to establish. Other indirect impacts would include the reduction or elimination of
29 upland tree and/or shrub buffers between areas of construction and vegetation areas adjacent to
30 perennial and intermittent waterways. Buffers filter pollutants before they reach wetlands, streams,
31 and lakes and also provide habitat for wildlife. Temporary impacts could include ground and soil
32 disturbance allowing for potential germination and invasion of noxious weed species.

33 **Tolled Express Lanes**

34 Under Package B, a northbound and southbound tolled express lane would be constructed
35 from SH 14 to SH 60 (B-H2), SH 60 to E-470 (B-H3), and E-470 to US 36 (B-H4); the
36 exception being the section between Harmony Road and SH 60, which would include two
37 tolled express lanes in each direction. Construction of tolled express lanes would generally
38 affect riparian woodlands, emergent and scrub/shrub wetlands, and agricultural areas.
39 Wetland impacts are further discussed in **Section 3.8 Wetlands**.

1 **Direct Impacts** – Anticipated direct impacts to this area include removal of approximately
2 729 acres of riparian woodland, agricultural, and various wetland vegetation communities.
3 Impacts would be expected as a result of fill placement caused by construction of
4 transportation improvements and damage by construction equipment. These areas contain
5 some trees along the roadside and various bodies of open water that lie within the alignment
6 with associated emergent wetland habitat.

7 **Indirect Impacts** – The addition of a highway lane on either side of the roadway would
8 increase impervious surfaces, thereby increasing runoff and exposing the surrounding
9 vegetation to higher levels of pollutants. Soil disturbance from construction equipment could
10 also create favorable conditions for weedy species to establish. Other indirect impacts would
11 include the reduction or elimination of upland tree and/or shrub buffers between the proposed
12 roadway and vegetation areas adjacent to perennial and intermittent waterways. Buffers filter
13 pollutants before they reach wetlands, streams, and lakes and also provide habitat for wildlife.

14 **Bus Rapid Transit**

15 Package B includes the addition of bus rapid transit and associated facilities from Fort Collins
16 and Greeley to Denver and to DIA (B-T1 & B-T2). Bus rapid transit would generally affect
17 agricultural vegetation communities.

18 **Direct Impacts** – Development of the proposed bus rapid transit and associated facilities
19 would result in the removal of approximately 15 acres of vegetation in agricultural lands that lie
20 within the alignment.

21 **Indirect Impacts** – Soil disturbance from construction equipment could create favorable
22 conditions for weedy species to establish. Other indirect impacts would include the reduction
23 or elimination of upland tree and/or shrub buffers between the proposed alignment and
24 vegetation areas adjacent to perennial and intermittent waterways and the potential
25 introduction of weed species. Buffers filter pollutants before they reach wetlands, streams, and
26 lakes and also provide habitat for wildlife.

27 **3.10.2.4 PREFERRED ALTERNATIVE**

28 The Preferred Alternative includes construction of additional general purpose lanes on I-25,
29 the implementation of commuter rail, I-25 express bus improvements and a commuter bus
30 service. This alternative is described in detail in **Chapter 2 Alternatives**.

31 **I-25 Highway Improvements**

32 The Preferred Alternative includes buffer-separated tolled express lanes in each direction of
33 I-25. One general purpose lane would be added in each direction of I-25 from SH 14 to SH 66,
34 and 16 existing interchanges would be upgraded.

35 **Direct Impacts** – Direct impacts from the development of general purpose and tolled express
36 lanes would include the removal of approximately 600 acres of riparian, woodland, agricultural,
37 and various wetland vegetation communities. Wetland impacts are further discussed in
38 **Section 3.8 Wetlands**. Impacts would be expected from fill placement during construction of
39 transportation improvements and damage by construction equipment. These areas contain
40 large trees along the roadside and various bodies of open water that lie within the alignment
41 with associated emergent wetland habitat.

1 **Indirect Impacts** – The addition of a highway lane on either side of the roadway would
2 increase impervious surfaces, thereby increasing runoff and exposing the surrounding
3 vegetation to higher levels of pollutants. Soil disturbance from construction equipment could
4 also create favorable conditions for weedy species to establish. Other indirect impacts would
5 include the reduction or elimination of upland tree and/or shrub buffers between the proposed
6 roadway and vegetation areas adjacent to perennial and intermittent waterways. Buffers filter
7 pollutants before they reach wetlands, streams, and lakes and also provide habitat for wildlife.

8 ***Commuter Rail Improvements***

9 The Preferred Alternative includes commuter rail transit service from Fort Collins to the
10 anticipated FasTracks North Metro end-of-line in Thornton. The rail line would be largely
11 single-track with passing tracks at four locations and would include a maintenance road along
12 part of the rail.

13 **Direct Impacts** – Commuter rail development would generally affect native prairie, agricultural
14 and urban landscape vegetation. Development of the proposed commuter rail would result in
15 the removal of approximately 168 acres of vegetation in fragmented parcels of native prairie,
16 some of which is inhabited by prairie dogs. Native and non-native grasses, along with several
17 species of flowering plants, would be affected, although these areas contain a larger amount of
18 non-native and weedy species due to past and present land use practices. Vegetation most
19 affected along this component would be that of landscaped trees in developed residential
20 areas and agricultural lands that lie within the alignment.

21 **Indirect Impacts** – The additional commuter rail stations, a maintenance road, and commuter
22 rail maintenance facility would increase impervious surfaces, thereby increasing runoff and
23 exposing the surrounding vegetation to higher levels of pollutants. Soil disturbance from
24 construction equipment could also create favorable conditions for weedy species to establish.
25 Other indirect impacts would include the reduction or elimination of upland tree and/or shrub
26 buffers between the proposed alignment and vegetation areas adjacent to perennial and
27 intermittent waterways and the potential introduction of weed species. Buffers filter pollutants
28 before they reach wetlands, streams, and lakes and also provide habitat for wildlife.

29 ***I-25 Express Bus Improvements***

30 The Preferred Alternative includes express bus service from the northern communities of Fort
31 Collins and Greeley to downtown Denver and to DIA. The bus routes would use the proposed
32 tolled express lanes along I-25. The impacts from the construction of tolled express lanes that
33 would be used for the express bus service are discussed above under I-25 highway
34 improvements.

35 The construction of the express bus stations would result in approximately 41 acres of impact
36 to agricultural vegetation communities.

37 ***Commuter Bus Improvements***

38 The Preferred Alternative includes commuter bus service along US 85 connecting Greeley to
39 downtown Denver. In general, the proposed bus routes would run along existing roadways and
40 thus would not result in direct or indirect impacts on existing vegetation communities. The
41 construction of the commuter bus stations would result in approximately 9 acres of impact to
42 agricultural vegetation communities.

1 **3.10.2.5 SUMMARY OF DIRECT IMPACTS**

2 **Table 3.10-3** summarizes direct impacts associated with the No-Action and build alternatives.

3 **Table 3.10-3 Summary of Direct Impacts**

Alternative	Vegetation Direct Impacts
No-Action Alternative	0.0 acre
Package A	927 acres
Package B	819 acres
Preferred Alternative	818 acres

4 **3.10.2.6 IMPACTS FROM INDUCED GROWTH**

5 Impacts to environmental resources as a result of induced growth caused by the construction of
6 either build package including transit oriented development, and carpool lots are discussed
7 within **Section 3.1 Land Use**.

8 **3.10.3 Mitigation Measures**

9 CDOT revegetation best management practices (BMP) and guidelines will be followed to
10 ensure adequate revegetation of the project area. All disturbed areas will be seeded in phases
11 throughout construction. Although specific BMPs to be used will not be determined until final
12 design, mitigation measures will include:

- 13 ▶ Minimize the amount of disturbance and limit the amount of time that disturbed locations
14 are allowed to be non-vegetated. The project will follow CDOT standard specifications for
15 the amount of time that disturbed areas are allowed to be non-vegetated.
- 16 ▶ Avoid existing trees, shrubs, and vegetation to the maximum extent possible, especially
17 wetlands and riparian plant communities. The project team will coordinate with the CDOT
18 landscape architect before construction to determine the types of vegetation that will be
19 protected during construction.
- 20 ▶ Salvage weed-free topsoil for use in seeding.
- 21 ▶ Implement temporary and permanent erosion control measures to limit erosion and soil
22 loss. Erosion control blankets will be used on steep, newly seeded slopes to control
23 erosion and to promote the establishment of vegetation. Slopes will be roughened at all
24 times.
- 25 ▶ Revegetate all disturbed areas with native grass and forb species. Seed, mulch, and mulch
26 tackifier will be applied in phases throughout construction.

27

- 1 ▶ Develop an acceptable revegetation plan with the CDOT landscape architect and with
2 county personnel in Adams, Boulder, Broomfield, Denver, Larimer, and Weld counties. The
3 revegetation plan must also be acceptable to municipalities, such as Fort Collins and
4 Longmont, within their jurisdictional areas.
- 5 ▶ Senate Bill 40 (33-5-101-107, CRS 1973 as amended) requires any agency of the state to
6 obtain wildlife certification from the CDOW when the agency plans construction in "...any
7 stream or its bank tributaries...". In these areas, trees and shrubs are recommended to be
8 replaced on a 1:1 basis (trees) and square-foot basis (shrubs).
- 9 ▶ The proposed project area falls within the Shortgrass Prairie Initiative, an agreement
10 between CDOT, CDOW, FHWA, and USFWS. The initiative included a BA and mitigation
11 measures for FHWA funding of CDOT's routine maintenance and upgrade of existing
12 transportation corridors in eastern Colorado for a 20-year period beginning in 2003. The
13 BA includes all of I-25 within Colorado. A BO was issued by the USFWS, which covers the
14 bald eagle and 29 species of concern (USFWS, 2003). Further information regarding
15 impacts to shortgrass prairie species and species-specific habitat mitigation measures is
16 included in **Section 3.13 Threatened, Endangered, and State Sensitive Species**.

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