

APPENDIX A10

TERRESTRIAL WILDLIFE AND AQUATIC RESOURCES TECHNICAL MEMORANDUM

FOR THE

State Highway 9 Iron Springs Alignment Environmental Assessment

Prepared for

COLORADO DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

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ACRONYMS

CDOT	Colorado Department of Transportation
CPW	Colorado Parks and Wildlife
EA	Environmental Assessment
EIS	Environmental Impact Statement
FHWA	Federal Highway Administration
MBTA	Migratory Bird Treaty Act
ROD	Record of Decision
SH 9	State Highway 9
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
WRNF	White River National Forest

1 INTRODUCTION

2 This technical memorandum has been prepared in support of the State Highway 9 (SH 9) Iron
3 Springs Alignment Environmental Assessment (EA). This memorandum discusses terrestrial
4 wildlife and aquatic resources present or with known habitat in the study area. Federally Listed
5 Species, Colorado Special Status Species, and U.S. Forest Service Sensitive Species are addressed
6 in separate technical memoranda found in Appendices A11, A12, and A13, respectively, in the
7 SH 9 Iron Springs Alignment EA.

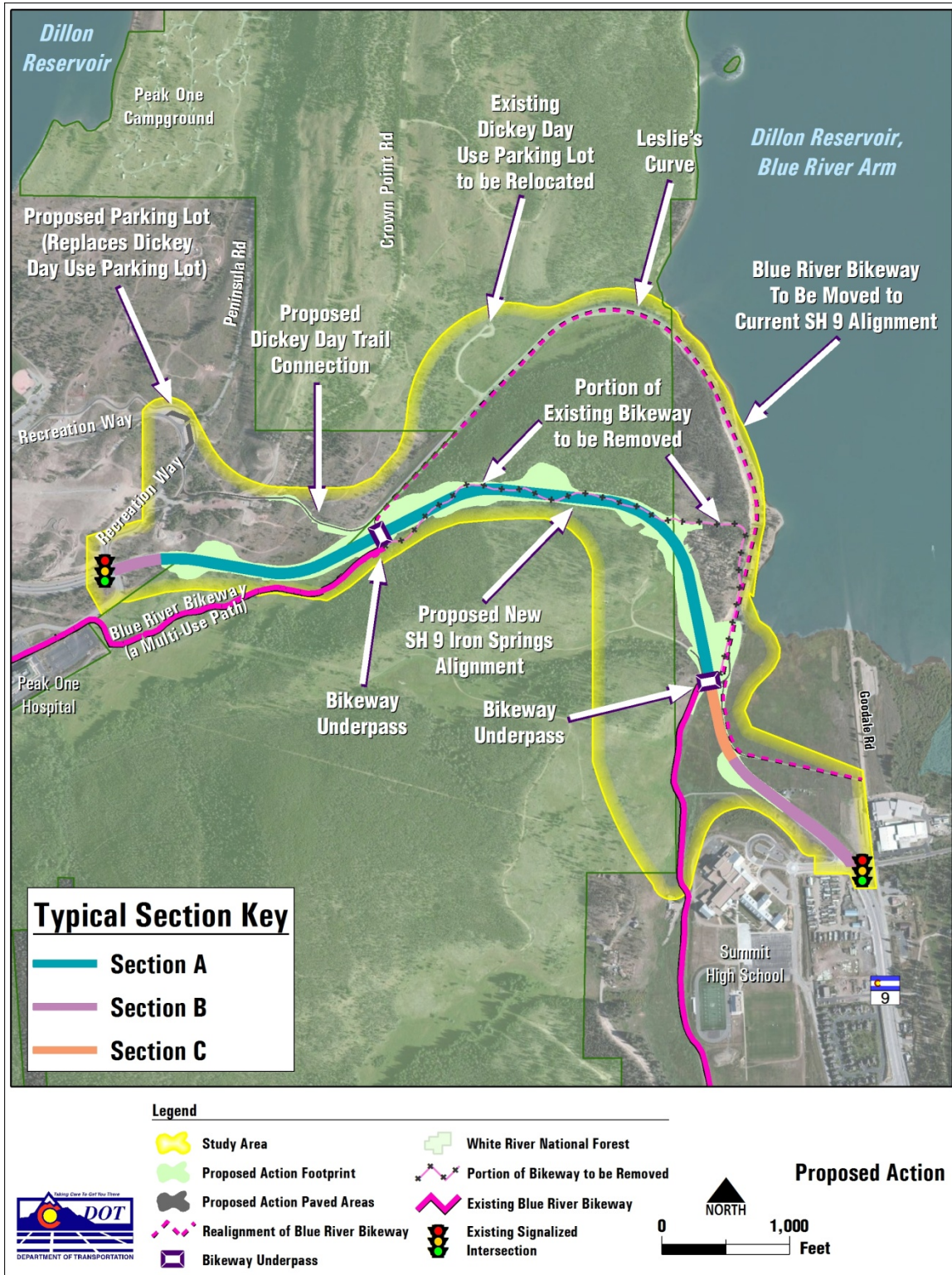
8 PROPOSED ACTION

9 As part of implementation of the SH 9 improvements between Frisco and Breckenridge, the
10 Colorado Department of Transportation (CDOT) and Federal Highway Administration (FHWA)
11 are proposing to realign approximately 1.3 miles of existing SH 9 just south of the Town of
12 Frisco, Colorado (see **Figure 1**). This stretch of SH 9, which falls between mileposts 93 and 95,
13 would be realigned to provide a four-lane reduced section roadway away from Dillon Reservoir.
14 This Proposed Action, also referred to as the Iron Springs Alignment, would shorten SH 9 by
15 approximately 0.4 mile. The Proposed Action would provide roadway safety benefits, as well as
16 water quality and drinking water protection benefits, as a result of straightening the highway to
17 remove a tight, compound curve (known as Leslie's Curve), which is in close proximity to Dillon
18 Reservoir. The existing condition on Leslie's Curve is considered substandard and contributes to
19 accidents in the area.

20 The Proposed Action would include realignment of a portion of the existing Frisco-Farmer's
21 Korner-Blue River Bikeway (also referred to herein for brevity as the Blue River Bikeway or
22 bikeway). This portion of the bikeway would be moved to the alignment currently occupied by
23 SH 9, would be approximately 0.4 mile longer than the existing bikeway, and would be at a
24 gentler grade than the current alignment. In addition, the Dickey Day Use Parking Lot would be
25 moved west to a new parking lot to be constructed as part of the project, with access provided
26 via Recreation Way using the existing signalized intersection at SH 9 and Recreation Way. A new
27 trail connection would be provided to link the proposed parking lot with the realigned bikeway
28 and existing trail, which currently begins at the old Dickey Day Use Parking Lot.

29 Additional detail regarding the Proposed Action, including typical sections, is provided in the EA
30 main text and the project drawings provided in Appendix A1 of the EA.

1 **Figure 1 Proposed Action**



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1 **NO ACTION ALTERNATIVE**

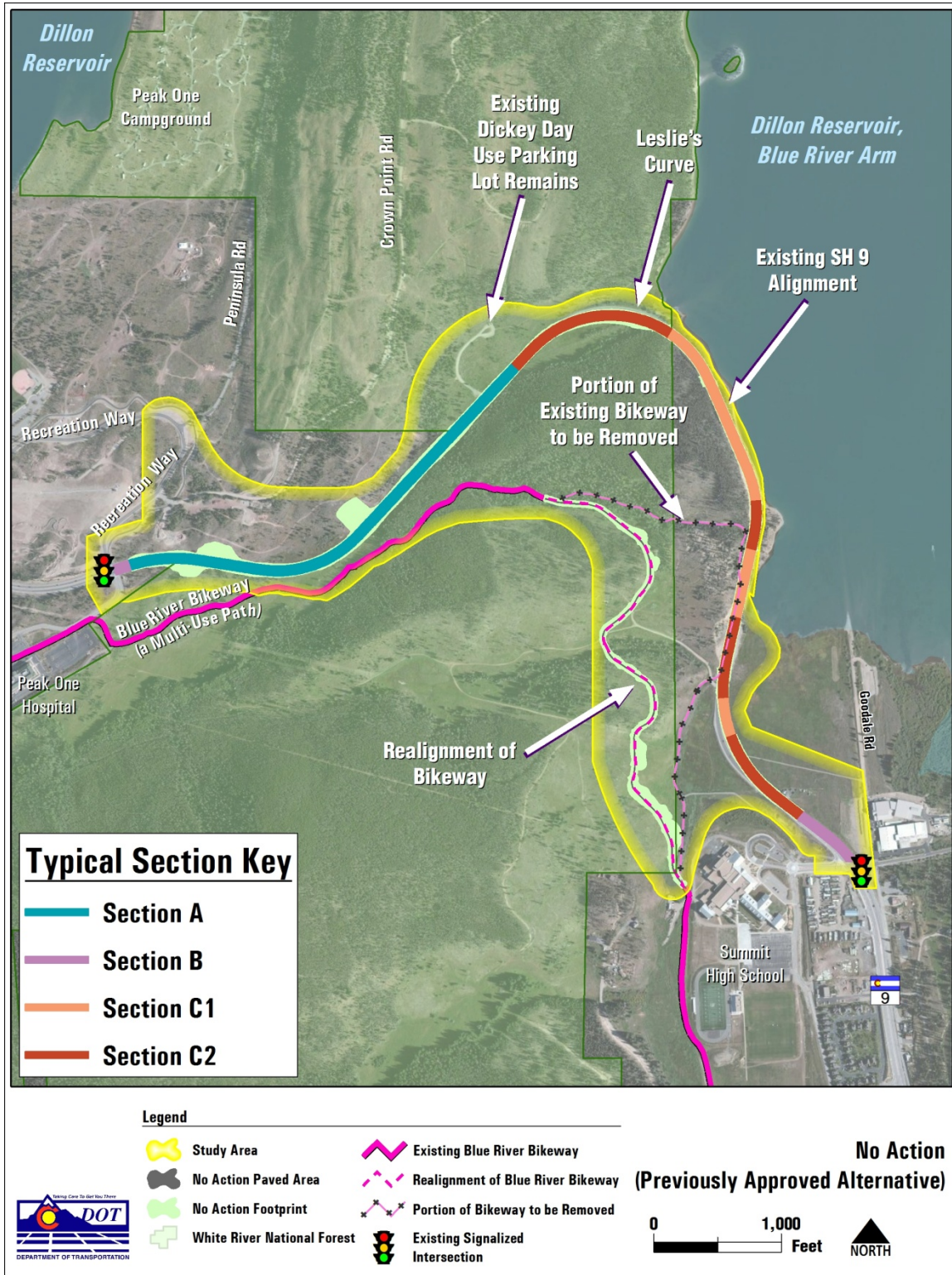
2 If the Proposed Action is not selected for implementation, SH 9 would be widened to provide a
3 four-lane reduced section roadway along the existing alignment as previously approved in the
4 SH 9 Frisco to Breckenridge Environmental Impact Statement (EIS) and Record of Decision (ROD)
5 (CDOT and FHWA, 2004a; 2004b) (**Figure 2**). The 2004 Preferred Alternative is considered the
6 “No Action Alternative” for this EA and is used as a baseline for comparison with the Proposed
7 Action. These improvements would be implemented if the Proposed Action is not selected.

8 Widening along the existing alignment would require large rock cuts and retaining walls
9 (problematic to design and construct), and the highway would remain in close proximity to
10 Dillon Reservoir. The length of SH 9 would remain the same as that of the existing highway. The
11 tight Leslie’s Curve would not be eliminated; however, safety features such as a barrier between
12 opposing lanes would be installed to improve safety.

13 With this alternative, approximately 0.8 mile of the existing Blue River Bikeway would be
14 realigned to allow space for the highway widening. The length of bikeway would not change
15 appreciably and the current relatively steep grades on the path would remain.

16 Additional detail regarding the No Action Alternative, including typical sections, is provided in
17 the EA main text and the project drawings provided in Appendix A1 of the EA.

1 Figure 2 No Action Alternative (Previously Approved)



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1 **STUDY AREA**

2 The Iron Springs study area varies in elevation from approximately 9,050 to 9,205 feet and
3 encompasses Montane Zone vegetation. Habitat within the study area is characterized by
4 lodgepole pine forest intermixed with stands of aspen, mountain sagebrush meadows, wetland,
5 and grass/forb intermixed with mountain sagebrush. The mountain pine beetle epidemic has
6 impacted the lodgepole pine forest community within the study area. As a result, a variety of
7 logging activities have been implemented or are currently planned to lower the existing and
8 accumulating fuel loads and expedite the regeneration of lodgepole pine and aspen forest
9 located within and adjacent to the study area (U.S. Department of Agriculture [USDA], 2011a).

10 A large portion of habitat within the study area has been disturbed to some extent by human
11 activity. In general, the northern portion of the study area (north of the current SH 9 alignment)
12 contains a portion of the Frisco Peninsula, which is extensively used for recreation activities. The
13 U.S. Forest Service (USFS) has classified this area as “managed for developed recreation
14 complexes.” The Frisco Peninsula provides year round recreation activities and contains the
15 Frisco Nordic center, a large tubing hill, campgrounds, picnic facilities, parking areas, and an
16 extensive trails system. The USFS recently completed a project on the Frisco Peninsula to clear
17 thousands of dead lodgepole pine killed by the mountain pine beetle.

18 The southern portion of the study area (south of the current SH 9 alignment) is situated near the
19 base of Ophir Mountain. Habitat on the south side of SH 9 is characterized by denser stands of
20 lodgepole pine forest intermixed with aspen and areas of grass/forb and open canopy lodgepole
21 pine forest where logging activities have already been implemented. The Blue River Bikeway
22 also bisects the southern portion of the study area. Future conditions surrounding the study
23 area will continue to change as the USFS implements the Ophir Mountain Forest Health and
24 Fuels Project, which will consist of additional timber harvest and clear cutting in the immediate
25 vicinity of the proposed Iron Springs alignment.

26 Surface water resources within the study area include Dillon Reservoir, Iron Springs Creek (an
27 intermittent drainage), and two unnamed intermittent drainages. All surface water resources
28 within the study area drain directly into Dillon Reservoir. There are no perennial drainages
29 within the study area.

1 **APPLICABLE STATUTES AND REGULATIONS**

2 *Senate Bill 40*

3 Senate Bill 40; 33-5-101, et seq., Colorado Revised Statutes, 1973, requires any state agency to
4 obtain certification from Colorado Parks and Wildlife (CPW) when the state agency plans
5 construction in any stream, its banks, or tributaries. Emphasis of this legislation is the protection
6 of fishing waters in the state, but it also recognizes the importance of protecting the entire
7 stream ecosystem, including wetlands and riparian areas. These provisions also apply to local
8 agencies using state funds for similar purposes.

9 *Migratory Bird Treaty Act*

10 The Migratory Bird Treaty Act (MBTA), passed in 1918, protects raptors and other migratory
11 birds and their active nest sites. The MBTA provides that it is unlawful to pursue, hunt, take,
12 capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver
13 or cause to be shipped, exported, imported, transported, carried, or received any migratory
14 bird, part, nest, egg, or product, manufactured or not. In Colorado, most birds, except for the
15 European Starling (*Sturnus vulgaris*), House Sparrow (*Passer domesticus*), Rock Dove (*Columbia*
16 *livia*) (Pigeon), Eurasian Collared-Dove (*Streptopelia decaocto*), and common Grouse/Pheasant
17 species (*Order Galliformes*), are protected under the MBTA. The Migratory Bird Permit
18 memorandum issued in April 2003 stipulates that there is no prohibition against destruction of
19 inactive nests. Additionally, any disturbance to these nesting areas must follow the stipulations
20 outlined in the MBTA.

21 In addition to the MBTA, the Bald and Golden Eagle Protection Act (Eagle Act) provides for the
22 protection of the Bald Eagle (*Haliaeetus leucocephalus*) and the Golden Eagle (*Aquila chrysaetos*)
23 by prohibiting the taking, possession, and use of these two species for commerce except under
24 certain specified conditions. The definition of “take” includes the following: pursue, shoot, shoot
25 at, poison, wound, kill, capture, trap, collect, molest, or disturb.

26 **METHOD OF EVALUATION**

27 An existing conditions wildlife assessment for the Iron Springs study area was completed in the
28 fall of 2012. The purpose of this assessment was to evaluate plant communities and other
29 habitat features within the study area to determine the wildlife species likely to occur. Particular
30 attention was focused on culturally/economically important species such as mule deer
31 (*Odocoileus hemionus*) and Rocky Mountain elk (*Cervus elaphus*). In addition, the area was
32 surveyed for the presence of any raptor nests and other special wildlife attributes. Terrestrial
33 wildlife issues were also assessed by performing a review of existing environmental sources
34 (USDA, 2011a; USDA, 2011b).

35 **AGENCY COORDINATION**

36 The lead agencies for the Iron Springs EA, CDOT and FHWA, have coordinated with CPW, the
37 USFS White River National Forest (WRNF), and the U.S. Fish and Wildlife Service (USFWS).
38 Habitat connectivity for species of importance, such as elk and deer, and animal-vehicle
39 collisions are common concerns among stakeholders and agencies and were addressed during
40 agency coordination. In addition, a series of meetings with CPW, USFS, and USFWS were held to
41 discuss specific wildlife concerns and potential avoidance, minimization, and mitigation

1 measures related to wildlife potentially impacted by construction and operation of the Iron
2 Springs Project.

3 During meetings with CPW and the USFS-WRNF (held on November 28, 2012; January 28, 2013;
4 and March 13, 2013), elk and habitat connectivity were the primary issues discussed. In
5 particular, the discussion focused on the need for wildlife crossings structures, such as a wildlife
6 overpass or underpass, to accommodate large mammals such as elk and deer. In early
7 coordination meetings, the possibility of incorporating a wildlife overpass into the proposed
8 project was discussed. CPW provided written comments that an overpass is not recommended
9 because the primary purpose of these structures is to connect large tracts of contiguous habitat
10 associated with frequently used migration corridors. In addition, CPW noted that an overpass
11 structure in the Iron Springs study area would have limited benefits to wildlife because the
12 overpass would allow for connectivity to the Frisco Peninsula, which is managed for developed
13 recreation complexes and already contains a large amount of developed recreation, dispersed
14 recreation, and an extensive trail system. CPW did express support and encouraged the
15 incorporation of a “wildlife only” underpass into the project (such as a steel arch) and
16 recommended onsite and offsite habitat improvements, such as planting mature trees to
17 provide thermal and protective cover for wildlife. It was noted during agency coordination that
18 offsite enhancements or mitigation activities would have more benefits to wildlife (CPW, 2013).

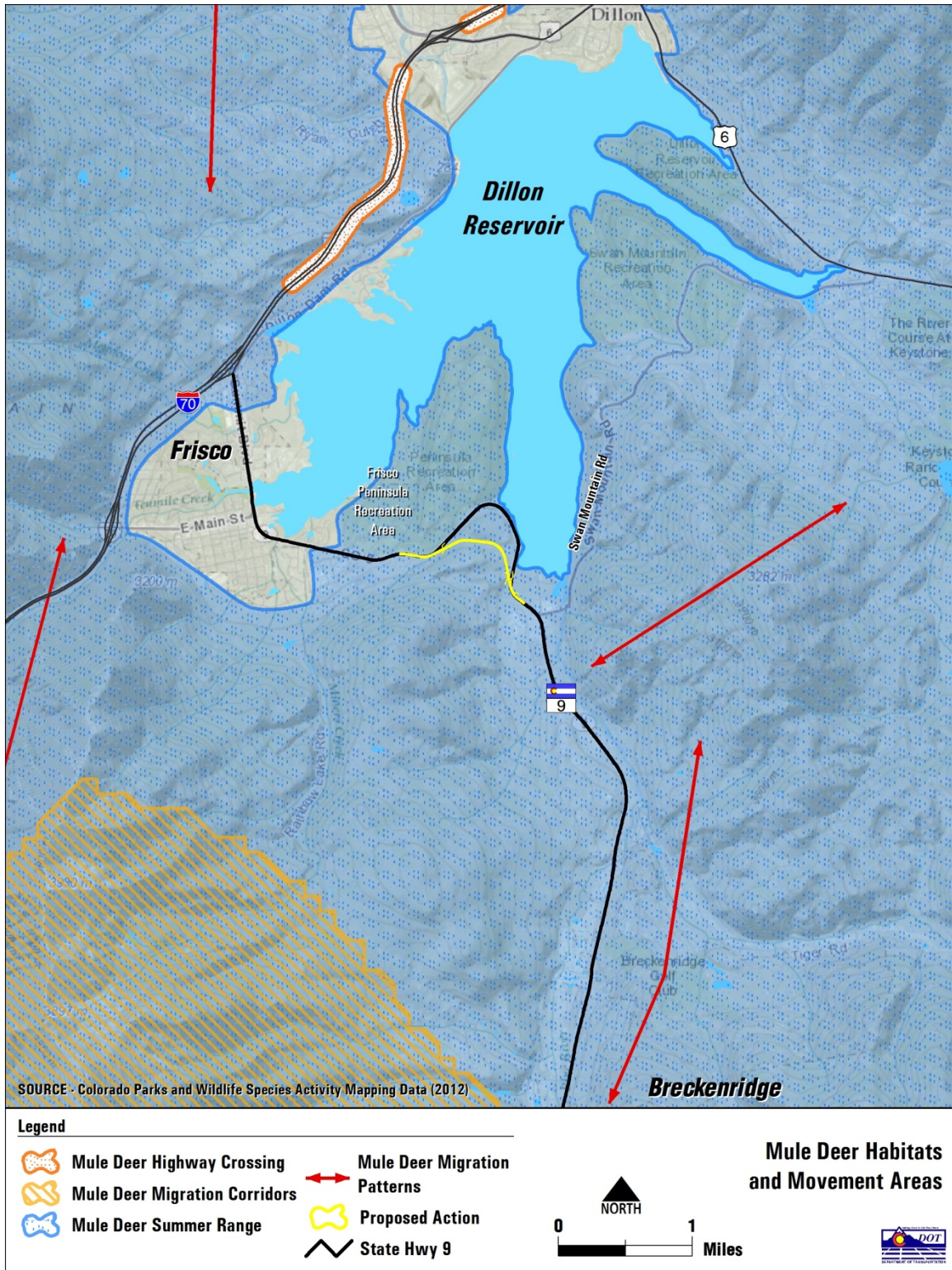
19 WILDLIFE RESOURCES IN THE STUDY AREA

20 Terrestrial wildlife within the study area can be broken into the following categories: big game,
21 predators and other mammals, and migratory birds and raptors. These categories are described
22 below.

23 *Big Game*

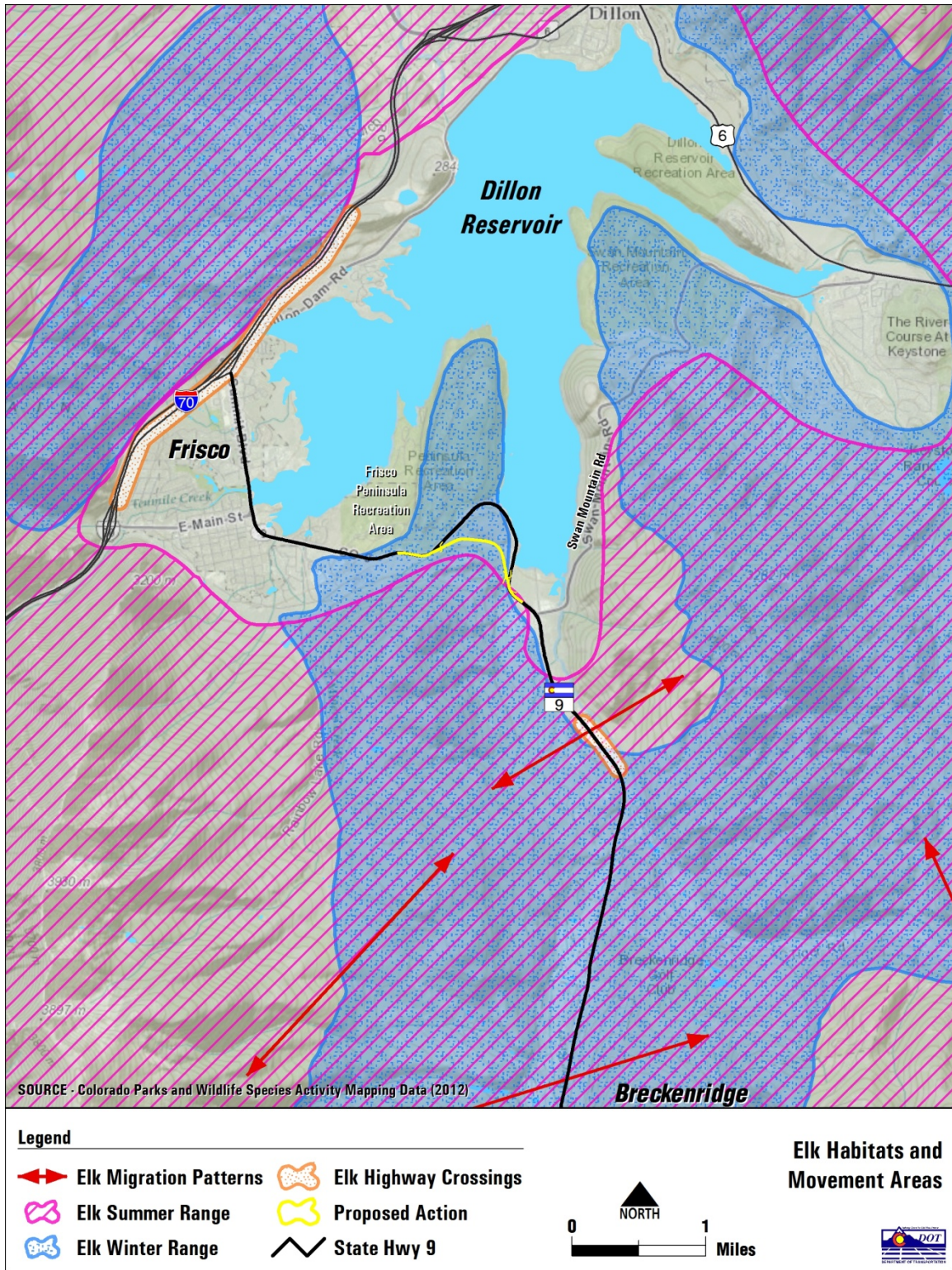
24 Two big game species, mule deer and elk, use suitable habitat within the study area throughout
25 the year. Mule deer and elk typically occupy higher elevations, usually forested habitat during
26 the summer and then migrate to lower elevations and south facing slopes in the winter. Most of
27 the study area is considered overall range for these species (CPW, 2012). One seasonal range,
28 designated by CPW, occurs with the study area for mule deer: summer range. In addition, one
29 seasonal range also occurs within the study area for elk: winter range. Please see **Figure 3 and**
30 **Figure 4** for big game seasonal activity within and adjacent to the study area.

1 **Figure 3 Mule Deer Habitat**



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1 **Figure 4 Elk Habitat**



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1 **Large Mammal Use in the Iron Springs Study Area**

2 The majority of the Iron Springs study area is designated winter range for elk (CPW, 2012) and
3 there is a small resident or local herd in the Ophir Mountain area that accesses suitable habitat
4 in the late fall and winter (USDA, 2011b). In general, elk use forested areas for cover and shelter,
5 and forage in meadow openings. There are isolated winter range movements from habitat on
6 the south side of SH 9 to the Frisco Peninsula, but no migration corridors are located within the
7 study area (CPW, 2013). The elk herd that uses habitat within the study area is isolated (or
8 considered a small resident population) and there is increasing pressure on this small resident
9 herd by recreation, residential development, and ski area expansion (USDA, 2011b). During
10 agency coordination, it was noted that the amount of movement to winter habitat within and
11 adjacent to the study area depends on the climate, and when winters are mild elk generally tend
12 to stay at higher elevations. In more severe winters, habitat within and adjacent to the study
13 area could potentially see more use by elk.

14 Mule deer are found in all ecosystems in Colorado from grasslands to alpine tundra. Spring and
15 summer ranges are typically mosaics of meadows, aspen woodlands, alpine tundra-subalpine
16 forest edges, or montane forest edges (Fitzgerald and others, 1994). Mule deer habitat is
17 present throughout the study area and adjacent lands. In addition, deer occasionally cross the
18 highway in several locations along the existing SH 9 corridor.

19 Moose (*Alces alces*) use dense willow habitat west of Frisco along Meadow Creek and migration
20 patterns for moose have been mapped south of Frisco near Miners Creek and farther south and
21 east (CPW, 2012). There are no migration corridors, moose concentration areas, or high
22 occurrence of highway crossings for moose within the study area (CPW, 2012). In general, the
23 lack of perennial drainages and dense willow habitat within the study area limits habitat
24 suitability for moose and also limits the likelihood that moose would cross the highway within
25 the study area to access suitable habitat. However, moose appear to be expanding their range
26 and moose have been observed recently on the Frisco Peninsula (Nettles, 2014, personnel
27 commun.)

28 **Vehicle-Related Mortality of Big Game Species**

29 Because SH 9 traverses seasonal ranges of mule deer and elk, collisions between vehicles and
30 animals, particularly mule deer, are not uncommon. Based on data collected and summarized by
31 CDOT Maintenance, a minimum of 13 vehicle-mule deer collisions occurred in the study area on
32 SH 9 between 2005 and September 2012 (CDOT, 2012). In addition, CDOT Maintenance
33 recorded a minimum of 4 vehicle-elk collisions during this time. No moose-vehicle collisions
34 have been reported in the study area. It should be noted that animal mortality data collected by
35 CDOT Maintenance is considered anecdotal and is based primarily on incidental observations
36 rather than systematic analysis. The Colorado State Patrol compiles and maintains the official
37 record of animal-vehicle collisions. Data compiled between 2007 and September 2012 recorded
38 approximately 4 vehicle-mule deer collisions, 1 vehicle-elk collision, and 1 collision with a black
39 bear during this time period (CDOT, 2013).

40 ***Predators and other Mammals***

41 There is suitable forage habitat within the study area for several common predator species.
42 These species include coyote (*Canis latrans*), red fox (*Vulpes vulpes*), bobcat (*Lynx rufus*), and
43 raccoon (*Procyon lotor*). The entirety of the study area is considered overall range for black bear
44 (*Ursus americanus*), and fall concentration areas and human conflict areas have been mapped
45 just west of the study area (CPW, 2012). In addition, mountain lions (*Felis concolor*) are found
46 throughout the region in areas that support populations of deer and elk. Common small to

1 medium-sized mammal species include pine squirrels (*Tamiasciurus hudsonicus*), porcupines
2 (*Erethizon dorsatum*), deer mice (*Peromyscus maniculatus*), and cottontail rabbits (*Sylvilagus*
3 *nuttallii*).

4 *Migratory Birds and Raptors*

5 The lodgepole pine, aspen mixed conifer forest, and sagebrush meadows found within the study
6 area provide both foraging and nesting habitat for a variety of migratory birds and raptors that
7 summer, winter, or migrate through the area. Raptors that forage in meadow areas include Red-
8 Tailed Hawk (*Buteo jamaicensis*), Prairie Falcon (*Falco mexicanus*), Great Horned Owl (*Bubo*
9 *virginianus*), and American Kestrel (*Falco sparverius*).

10 An on-site raptor nest survey was completed in the fall of 2012 to identify the presence/absence
11 of raptor nest locations within the study area, and no nests were identified at the time of the
12 survey. Another nest survey was conducted in 2013 during the breeding season (which lasts
13 from approximately late March through mid-August) for an accurate determination of nesting
14 avian presence. One Great Horned Owl nest was detected during the 2013 survey. Habitat
15 adjacent to Dillon Reservoir within the study area is mapped as winter range and winter forage
16 for Bald Eagles. While Bald Eagles are known to winter along suitable habitat adjacent to Dillon
17 Reservoir, the lack of contiguous riparian habitat limits the suitability of habitat within the study
18 area.

19 AQUATIC RESOURCES

20 The proposed project area is located within the Blue River and Dillon Reservoir Hydrologic Unit
21 Code (HUC) 7 subwatersheds. Surface Water Resources within the study area include Dillon
22 Reservoir, Iron Springs (an intermittent drainage that flows from a spring), two unnamed
23 intermittent drainages, and one unnamed drainage ditch that bisects the large fen/wetlands
24 complex in the southern portion of the study area. All drainages and the Blue River (located just
25 outside the study area) drain into Dillon Reservoir. Most of the drainages in the study area are
26 intermittent and do not have flows necessary to support aquatic life or provide suitable
27 spawning habitat.

28 Dillon Reservoir, with approximately 25 miles of shoreline, contains an important recreational
29 fishery with stocked rainbow trout (*Oncorhynchus mykiss*) and naturally reproducing brown
30 trout (*Salmo trutta*) and kokanee salmon (*Oncorhynchus nerka*) making up most of the catch.
31 The fall spawning brown trout and kokanee salmon migrate from Dillon Reservoir into the Blue
32 River to spawn. CPW annually stocks Dillon Reservoir with approximately 50,000 rainbow trout
33 starting in late spring and summer.

34 Only one unnamed drainage ditch in the study area, located adjacent to SH 9 just north of Swan
35 Mountain Road, has reported observations of fish, primarily brown trout, rainbow trout, and
36 possibly kokanee salmon in the fall (Lewellen, 2013, personnel commun.). This unnamed ditch
37 bisects the large fen/wetland complex and drains into Dillon Reservoir. The source of water in
38 this ditch is primarily effluent discharge from the Upper Blue Sanitation District and the Farmers
39 Korner Wastewater Treatment Facility. In addition, flows from a water quality detention pond
40 associated with Summit County High School also cross under SH 9 and flow into this unnamed
41 ditch. The Upper Blue Sanitation District constructed this ditch in the 1980s and currently diverts
42 water out of the Blue River, mixes it with treated effluent, and then pipes the water 1,700 feet
43 to this open ditch, where it discharges to Dillon Reservoir. The Sanitation District also
44 constructed a rock check dam (fish barrier) structure in the lower portion of the channel to keep

1 fish from migrating from Dillon Reservoir to the discharge channel (Carlberg, 2013, personnel
2 commun.).

3 IMPACTS

4 Effects to wildlife were identified based on the potential for disruption and loss of existing
5 habitats and movement corridors due to construction activities associated with the No Action
6 Alternative and Proposed Action. Short-term effects include temporary habitat loss,
7 construction noise disturbance, and restrictions on wildlife movement. Long-term wildlife
8 effects generally include habitat fragmentation, road mortality, permanent loss of habitat, and
9 disruption of movement corridors. Direct effects to wildlife were identified based on the loss of
10 existing habitats due to construction activities associated with the No Action Alternative and
11 Proposed Action. Short-term direct effects include temporary habitat loss, construction noise
12 disturbance, and mortality. Long-term direct effects generally include habitat fragmentation and
13 permanent loss of habitat. Indirect impacts to wildlife include bisecting a potential wildlife
14 corridor, which may cause an increase in animal vehicle collisions or interruptions of migration
15 patterns. In addition, indirect effects could be caused by the introduction and spread of noxious
16 or invasive weed species, which degrades wildlife habitat.

17 *No Action Alternative*

18 The No Action Alternative would directly impact wildlife foraging and nesting habitat.
19 Approximately 3.04 acres of habitat would be converted to transportation and recreation use.
20 The direct disturbance of wildlife habitat will slightly reduce habitat availability for a variety of
21 common small mammals, birds, and their predators. The loss of habitat from the No Action
22 Alternative would be a low to moderate effect because of the low quality of vegetation
23 communities near the existing SH 9 alignment and the limited wildlife use near the road. Habitat
24 loss resulting from the construction of No Action Alternative is shown in **Table 3** and **Table 4** of
25 Appendix A9, *Vegetation and Noxious Weeds Technical Memorandum*, of the EA. The
26 disturbance of wildlife habitat from the No Action Alternative could result in some direct
27 mortality to small mammals, birds, and their predators and displacement of songbirds from
28 construction activity.

29 **General Wildlife and Big Game**

30 Construction of the No Action Alternative would have short-term effects on large and small
31 mammal movement due to construction noise and vegetation removal and could increase
32 animal-vehicle collisions. Soil disturbance from construction equipment would also create
33 favorable conditions for noxious weeds to introduce and establish, or to further spread.
34 Temporary impacts during construction are discussed below. Based on the existing conditions in
35 the study area, no long-term impact or disruption of frequently used migration corridors is
36 anticipated in the vicinity of the No Action Alternative. However, construction of the No Action
37 Alternative would result in an expanded highway section located immediately adjacent to Dillon
38 Reservoir and sections of highway that traverse seasonal ranges for mule deer and elk.
39 Expansion of the existing SH 9 alignment and realignment of bikeway under the No Action
40 Alternative would permanently impact approximately 10.7 acres of elk winter range and
41 18.1 acres of mule deer summer range. It should be noted that these acres of impact would also
42 include habitat that has already been converted to impervious surface.

43 Under the No Action Alternative, the new four-lane cross section would require the use of a
44 Type 7 concrete barrier for 5,600 feet or 1.06 miles in the center with no median, 2,800 feet of

1 steep cut slopes on the western side of SH 9 and approximately 2,200 feet of retaining wall,
2 which would be located directly adjacent to Dillon Reservoir. The No Action Alternative could
3 create a long-term barrier to localized wildlife movement due to the increased width of the
4 highway with the concrete barrier and retaining walls necessary to widen the existing highway
5 in close proximity to the reservoir and the large fen wetland complex just north of Swan
6 Mountain Road. Mitigation measures listed in the SH 9 Frisco to Breckenridge EIS would be
7 implemented to offset impacts to vegetation and wildlife habitat (CDOT and FHWA, 2004a).
8 However, the EIS did not include any wildlife crossing structures or oversized culverts along this
9 expanded section of SH 9 to enhance or maintain connectivity for wildlife.

10 **Temporary Impacts during Construction**

11 Wildlife species that are sensitive to indirect human disturbance (noise and visual disturbance)
12 will be impacted most during the duration of construction. Construction activities would
13 temporarily affect wildlife resources due to disturbance from construction noise and increased
14 human presence. In addition, construction activities would have short-term effects on large and
15 small mammal movement due to construction noise.

16 Increased levels of human disturbance (for example, traffic and the operation of heavy
17 machinery) would likely cause some wildlife species or individuals to avoid the study area during
18 construction. Although wildlife can become accustomed to human activity, they are generally
19 sensitive to human encroachment. The presence of the construction work force, heavy
20 machinery, and construction noise would likely lead to temporary wildlife displacement to
21 individuals that occur in the vicinity of the project. Some species may be more susceptible to
22 displacement than others, but species inhabiting adjacent areas may periodically be disturbed or
23 displaced by human activity. Because of the mobility of many species, they are generally capable
24 of avoiding activities causing disturbance. It is anticipated that wildlife would return to their
25 habitats once construction is complete. Mitigation measures listed in the SH 9 Frisco to
26 Breckenridge EIS would be implemented to offset impacts to vegetation (CDOT and FHWA,
27 2004a).

28 **Aquatic Resources**

29 As discussed in Appendix A6, *Water Resources and Water Quality Technical Memorandum*, of
30 the EA, the No Action Alternative would expand the existing SH 9 alignment, which is located
31 directly adjacent to Dillon Reservoir. Dillon Reservoir contains an important recreational fishery
32 with several species that naturally reproduce in the Blue River (located just outside the study
33 area). Expanding SH 9 immediately directly adjacent to Dillon Reservoir would allow vehicle
34 splash, plowing, etc., to go directly into the reservoir without treatment. In addition, the
35 No Action Alternative would create much longer and higher retaining walls, which can
36 concentrate runoff. In addition, the No Action Alternative would require steep cuts directly
37 adjacent to Dillon Reservoir. The addition of such steep slopes that readily erode could create
38 additional sediment that has the potential to reach receiving streams and Dillon Reservoir. The
39 combination of steep cuts (with more erosion potential), more concentrated runoff, and less
40 opportunity to treat and intercept highway runoff could negatively impact aquatic resources.

41 ***Proposed Action***

42 Similar to the No Action Alternative, the Proposed Action would directly impact wildlife foraging
43 and nesting habitat. Approximately 6.7 acres of habitat would be converted to transportation
44 and recreation use. Habitat loss resulting from the construction of the Proposed Action is shown
45 in **Table 5** of Appendix A9, *Vegetation and Noxious Weeds Technical Memorandum*, of the EA.
46 Loss of wildlife habitat would be higher under the Proposed Action than under the No Action

1 Alternative because of the new roadway alignment (versus widening the existing road). In
2 addition, the quality of habitat lost would also be higher under the Proposed Action because in
3 contrast to the No Action Alternative, impacted habitat would be located farther from the
4 existing highway. The direct disturbance of wildlife habitat from the Proposed Action could
5 result in some direct mortality to small mammals, birds, and their predators and displacement
6 of songbirds from construction activity. No direct permanent impacts to big game (mule deer or
7 elk) migration corridors would result from the construction of the Proposed Action.

8 Under the Proposed Action, 1.76 miles of the existing SH 9 roadway would be reduced from a
9 standard 36-foot cross section to a 12-foot paved path (at the existing grade) and would revert
10 to recreational use. This new 12-foot paved recreational trail would not be maintained in the
11 winter. It is estimated that approximately 3.1 acres of the existing SH 9 alignment will be
12 reclaimed (impervious surface removed) and revegetated with native grasses/forbs and native
13 trees and shrubs where appropriate. This reclamation effort would benefit general wildlife
14 species that are acclimated to human presence/recreation use.

15 **General Wildlife and Big Game**

16 Similar to the No Action Alternative, the Proposed Action would have short-term effects on large
17 and small mammal movement due to construction noise and vegetation removal and could
18 increase animal-vehicle collisions. Based on the existing conditions in the study area, no long-
19 term impact or disruption of frequently used migration corridors is anticipated in the vicinity of
20 the Proposed Action. However, construction of the Proposed Action would result in a new
21 roadway alignment that bisects mule deer and elk seasonal ranges.

22 Construction of the new alignment and Dickey Day Trail Connection improvements would
23 permanently impact approximately 11.0 acres of elk winter range and 13.8 acres of mule deer
24 summer range. It should be noted that these acres of impact also include habitat that has
25 already been converted to impervious surface. In addition, construction of the new alignment
26 will also limit access to approximately 57.0 acres of elk winter range (habitat between the
27 proposed alignment and future bikeway). However, this would account for only a very small
28 percentage of available elk winter range on public lands between Frisco and Breckenridge.
29 Based on CPW's Species Activity Mapping for elk (CPW, 2012), approximately 5,100 acres of elk
30 winter range have been mapped on public lands between Frisco and Breckenridge. Direct
31 impacts (addition of impervious surface) from the Proposed Action would account for
32 approximately 0.2 percent of elk winter range between Frisco and Breckenridge. Other direct
33 impacts (limiting access to 57 acres of winter range) would account for only 1 percent of elk
34 winter range in the vicinity of the Proposed Action.

35 The wider road width, new roadway alignment, and increased traffic volumes could increase the
36 potential for wildlife-vehicle collisions. In general, because a large portion of habitat within the
37 study area has been disturbed to some extent by human activity and recreation, no significant
38 change in vehicle-related mortality due to the Proposed Action is expected. However, as trees
39 are harvested as part of the Ophir Mountain Forest Health and Fuels Project, the amount of
40 available forage (grasses) will increase and this could make the area on both the north and south
41 sides of the new alignment more desirable to elk in the winter months.

42 Both the No Action Alternative and Proposed Action would bisect seasonal ranges for both elk
43 and mule deer as well as habitat for a variety of common small and medium-sized mammals.
44 Seasonal range for both elk and mule deer was bisected when SH 9 was first constructed.
45 However, habitat on the Frisco Peninsula has been heavily impacted by high recreation use and
46 lack of available cover. SH 9, like other highways, is a barrier to wildlife movement. Construction
47 of the No Action Alternative could create a long-term barrier to localized wildlife movement due

1 to the increased width of the highway with the concrete barrier in the median and retaining
2 walls necessary to widen the existing highway in close proximity to the reservoir and large fen
3 wetland complex just north of Swan Mountain Road. In contrast, the Proposed Action would
4 eliminate the need for large retaining walls and a concrete barrier in the median due to the
5 increased distance from the reservoir. In addition, the Proposed Action would include two large
6 multi-use underpass structures for the new Blue River Bikeway. These large underpass
7 structures would allow small and medium-sized mammals the ability to cross and move under
8 the highway. Moreover, an oversized drainage structure near the eastern end of the alignment
9 would provide the opportunity for small, medium, and large mammals (as large as deer) to cross
10 under the highway to access suitable habitat north of the proposed alignment and on the Frisco
11 Peninsula but the size of this structure may not be conducive for elk.

12 **Temporary Impacts during Construction**

13 Wildlife species that are sensitive to indirect human disturbance (noise and visual disturbance)
14 would be impacted most during the duration of construction. Construction activities would
15 temporarily affect wildlife resources due to disturbance from construction noise and increased
16 human presence. In addition, construction activities would have short-term effects on large and
17 small mammal movement due to construction noise. Soil disturbance from construction
18 equipment would also create favorable conditions for noxious weeds to introduce and establish,
19 or to further spread. The amount of temporary disturbance necessary during construction
20 would be higher for the Proposed Action.

21 Increased levels of human disturbance (for example, traffic and the operation of heavy
22 machinery) would likely cause some wildlife species or individuals to avoid the study area during
23 construction. Although wildlife can become accustomed to human activity, they are generally
24 sensitive to human encroachment. The presence of the construction work force, heavy
25 machinery, and construction noise would likely lead to temporary wildlife displacement to
26 individuals that occur in the vicinity of the project. Some species may be more susceptible to
27 displacement than others, but species inhabiting adjacent areas may periodically be disturbed or
28 displaced by human activity. Because of the mobility of many species, they are generally capable
29 of avoiding activities causing disturbance. It is anticipated that wildlife would return to their
30 habitats once construction is complete.

31 **Aquatic Resources**

32 As discussed in Appendix A6, *Water Resources and Water Quality Technical Memorandum*, of
33 the EA, the Proposed Action would be located farther from the main receiving water body
34 (Dillon Reservoir) than the No Action Alternative. Dillon Reservoir contains an important
35 recreational fishery with several species that naturally reproduce in the Blue River (located just
36 outside the study area). Due to the increased distance from the reservoir, the Proposed Action
37 would provide more opportunity to intercept, slow down, and/or treat highway runoff. With
38 sufficient water quality treatment, the Proposed Action would improve water quality relative to
39 the No Action Alternative. Although direct or indirect impacts to aquatic resources are not
40 anticipated from the Proposed Action due to the lack of perennial drainages or spawning habitat
41 adjacent to the proposed alignment, mitigation for water quality will be required and is
42 described in detail in Appendix A6, *Water Resources and Water Quality Technical Memorandum*,
43 of the EA.

1 MITIGATION

2 All appropriate Best Management Practices to prevent and minimize temporary impacts to
3 vegetation will be followed during construction. The vegetation and water quality technical
4 memoranda include a number of measures that will be applied during construction to reduce
5 construction-related and/or long-term operation impacts to vegetation and water quality from
6 the Proposed Action. In addition, several measures have been incorporated into the project to
7 enhance connectivity for terrestrial wildlife:

- 8 • The new drainage structure located on the east end of the new alignment will be an arch
9 culvert with a natural bottom substrate to promote wildlife usage. This structure shall
10 have a 10-foot high by 16-foot wide arch to encourage use by medium-sized and large
11 mammals. Mature habitat adjacent to this new drainage structure will be retained, as
12 much as practicable during construction, by a qualified biologist designating a protected
13 area with orange construction fencing. Enhancement of vegetation adjacent to this
14 drainage structure and wildlife crossing will be evaluated during final design.
- 15 • Although wildlife fencing is not currently included, the incorporation of appropriate
16 wildlife fencing and wildlife jump outs along the new alignment will be reassessed during
17 final design in consultation with CPW and the USFS WRNF.
- 18 • The two multi-use underpasses located at each end of the new alignment will include a
19 4-foot wide separate path (natural substrate) adjacent to the 12-foot wide paved trail for
20 general wildlife usage. Lighting in the underpasses will not be provided to promote usage
21 by wildlife. Enhancement of vegetation adjacent to these underpasses will be evaluated
22 during final design.
- 23 • A revegetation plan will be developed in final design in coordination with the USFS and
24 Summit County for use along the reclaimed SH 9 alignment/new recreation path and
25 other areas disturbed during construction. Specific objectives of the revegetation plan
26 would be identified, such as blending the vegetation with existing vegetation, use of
27 native species, and minimizing the spread of noxious and invasive weeds.
- 28 • Bear resistant trash receptacles will be used near construction areas to reduce conditions
29 that may attract bears.
- 30 • Construction will not occur between December 1 and April 15, to avoid construction
31 disruption in areas of elk winter range.
- 32 • Temporary erosion control blankets will have flexible natural fibers.
- 33 • If construction is to commence between April 1 and August 31, to avoid impacts to
34 nesting birds in accordance with the MBTA, a qualified biologist will conduct a nest
35 survey prior to construction. If active nests are found, coordination with CPW and USFWS
36 is required to determine an appropriate course of action, which may include, but is not
37 limited to, a delay in construction to avoid the breeding season.

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