
Appendix J
Wildlife Technical Memorandum



COLORADO
Department of
Transportation

**I-25 PEL: CO Springs Denver South
Connection**

Wildlife

I-25 PEL: Colorado Springs Denver South Connection

August 2019

Prepared For:
Colorado Department of Transportation

CDOT Project No.
NHPP 0252-450

CDOT Project Code
21102

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The Study Area for the Planning and Environment Linkages (PEL) Study covers a unique stretch of Interstate-25 (I-25) between Denver and Colorado Springs. Deer and elk are common to the area and can often be observed from I-25 and in the adjacent communities. The Study Area also supports habitat for pronghorn, mountain lions, bobcats, black bears, and many species of reptiles and amphibians. The designated open spaces and conservation easements between the Town of Castle Rock (Castle Rock) and the Town of Monument (Monument) represent the largest contiguous habitat areas for animals in the PEL Study Area.

Although no designated wildlife underpasses or overpasses exist in the PEL Study Area, several species of large animals—but not including elk—have been recorded crossing underneath I-25 at the East Plum Creek bridge (Mile Post [MP] 172.2) and the Happy Canyon Creek bridge (MP 191.1). Despite these crossings, wildlife-vehicle collisions remain an issue in these areas because the bridges have not been supplemented with the other key elements that make underpasses effective. Foremost, the animals are not being directed to the underpasses with wildlife fence, which prohibits the animals from crossing I-25 at a place other than the underpass. The limited wildlife fence at the Happy Canyon Creek bridge, which extends no more than 1,500 feet on any side of the bridge, is not adequate to direct animals to the crossing and has no other nearby underpasses to tie into. No wildlife fence currently exists at the East Plum Creek bridge.

Figure 1. Existing Underpass at MP 191.1



Within the Study Area between C/E-470 and Monument, collisions with animals are frequent. Deer are struck most often, followed by elk, black bears, mountain lions, coyotes, and other small animals. Between 2005 and 2017, an average of 63 wildlife-vehicle collisions were recorded every year. Of those, 88 percent resulted in property damage only, with 12 percent also resulting in human bodily injury. No wildlife-vehicle accidents resulting in a human fatality were reported (CDOT 2016a). Given the underreported nature of

wildlife-vehicle collisions, the data points are undoubtedly lower than the true number of wildlife-vehicle collisions in the Study Area.

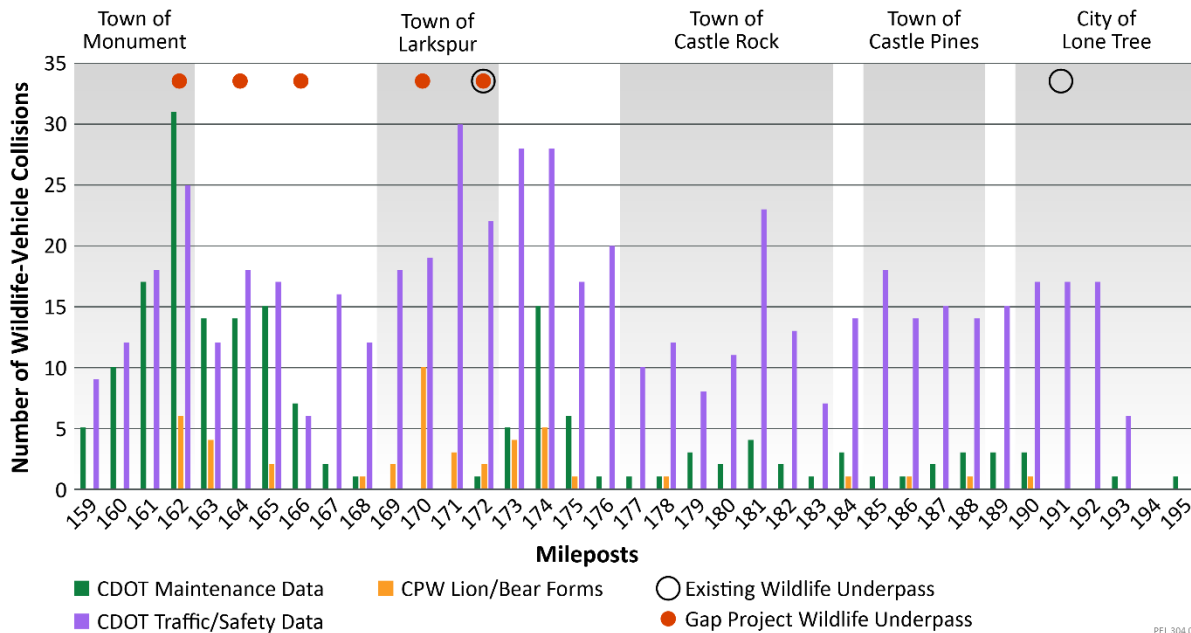
A combination of habitat data, wildlife-vehicle collision reports, roadkill data, and local expert knowledge from Colorado Parks and Wildlife (CPW), Douglas County, and El Paso County was assembled and evaluated to identify the areas of most frequent wildlife conflicts within the Study Area. The southern portion of the Study Area between the Monument and Castle Rock reports the highest number of wildlife conflicts per mile. Within this area, the highest concentration of wildlife conflicts is located where I-25 borders Monument and the Town of Larkspur (Larkspur).

Figure 2. Existing East Plum Creek Bridge at MP 172.2



North of Castle Rock, the distribution of wildlife conflicts is relatively consistent with increases near the City of Castle Pines (Castle Pines) and the City of Lone Tree (Lone Tree). The data findings are supported by CPW and Douglas County input received throughout the study process.

Figure 3. Wildlife-Vehicle Collisions within the PEL Study Area

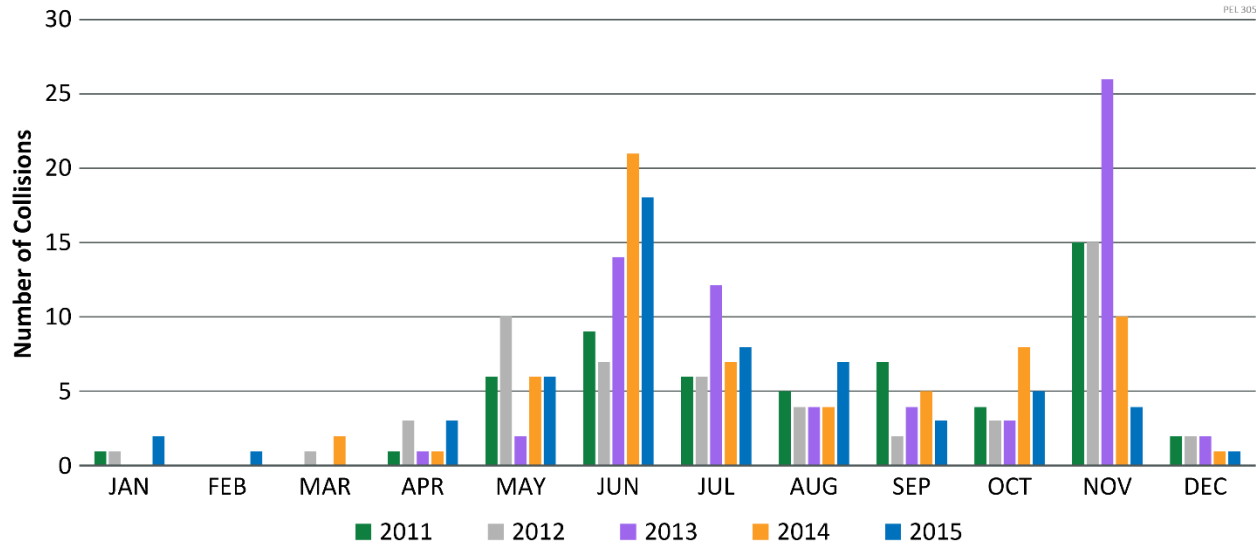


Source: CDOT Traffic/Safety Data, 2011-2016, CDOT Maintenance Data 2005-2017, CPW Lion and Bear Forms 2009-2017

In addition to identifying wildlife-vehicle collision hotspots within the Study Area, other important trends were identified in the wildlife conflict data. Wildlife conflicts appear to spike in early summer and early winter when deer and elk activity is higher in the Study Area due to rearing and rut seasons. Wildlife conflicts also appear to happen more frequently between 3 a.m. and 5 a.m. and between 9 p.m. and 10 p.m. Similar to the seasonal increase in wildlife conflicts, the

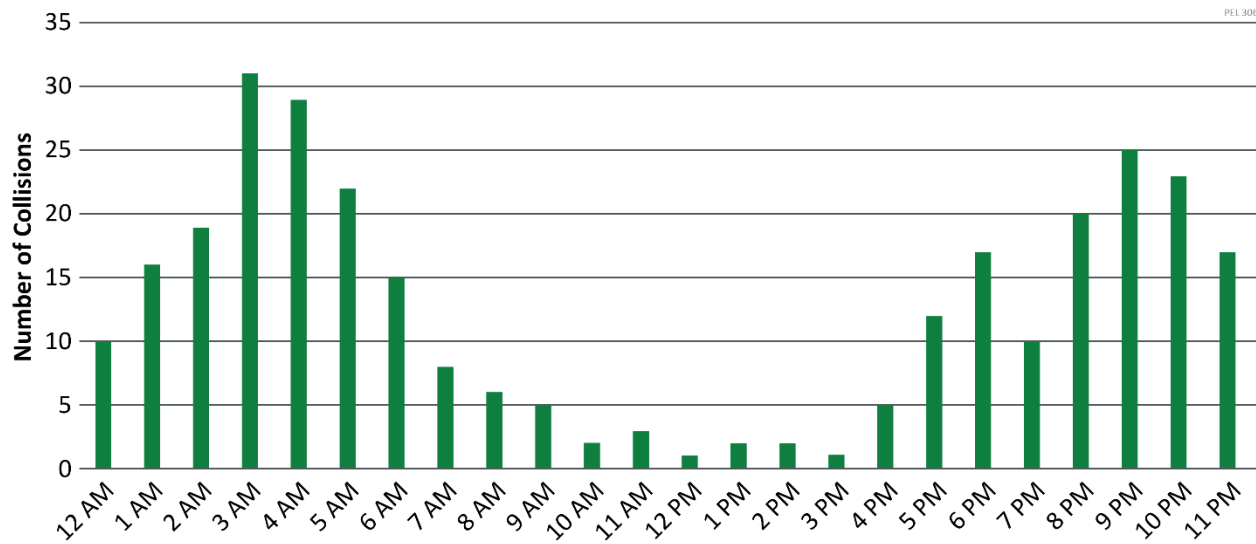
times of day associated with the most frequent occurrences of conflict correlate to the hours of the day when deer and elk are most active. Over half of the reported animal conflicts occurred in dark, unlit conditions.

Figure 4. Wildlife-Vehicle Collisions by Month



Source: CSP 2016

Figure 5. Wildlife-Vehicle Collisions by Time of Day



Source: CSP 2016

Lighting Conditions Associated with Wildlife-Vehicle Collisions	
Lighting Condition at Time of Incident	Number of Incidents
Daylight	20 percent
Dawn or Dusk	7 percent
Dark – Lighted	15 percent
Dark – Unlighted	58 percent

Source: CSP 2016

To increase the ability of animals to move safely across I-25 and decrease the number of wildlife-vehicle collisions, 14 potential wildlife crossing locations were evaluated as part of the *I-25 South Gap: Monument to Castle Rock Environmental Assessment* (CDOT 2018a). Of the 14 locations, 4 new wildlife underpasses and improvements to East Plum Creek bridge were ultimately recommended for construction and included in the *Finding of No Significant Impact* (CDOT 2018b). The 10 locations not included in the final recommendations could become feasible and should be revisited, if funding sources are identified (a detailed review of the site selection evaluation process is included in Appendix B1, *Wildlife Movement*, to the *I-25 South Gap: Monument to Castle Rock Environmental Assessment*). Currently undergoing final design and to be constructed as part of the I-25 South Gap Project, the four new underpasses at MP 162.5, MP 164.0, MP 167.7, and MP 170.6 will be the largest dedicated wildlife underpasses in Colorado.

The wildlife underpasses will be combined with wildlife fencing, deer guards, and escape ramps to create a system of improvements anticipated to significantly reduce the number of wildlife-vehicle collisions in the highest frequency conflict areas between Monument and Castle Rock. To measure the effectiveness of the improvements, the Colorado Department of

Figure 6. Simulation of Overpass at MP 166.3



Transportation (CDOT) has partnered with CPW to initiate a long-term research and monitoring study. A wildlife overpass was also studied and conceptually designed at MP 166.3 but not included in the Gap project for budgetary reasons. This location is suitable for an overpass due to the elevated land, adjacent land uses, and proximity to wildlife underpasses at MP 164.0 and MP 167.7. Next steps specific to the overpass include securing funding, obtaining environmental clearance through CDOT, and coordinating with the adjacent land owners.

Future I-25 improvements between Monument and Castle Rock should also consider culvert upsizing or new underpass locations adjacent to the Larkspur area and between the northern limit of Larkspur (MP 172.0) and the southern limits of Castle Rock (MP 176.0). Within this range, MP 173.2 should specifically be evaluated. This is a high frequency wildlife-vehicle collision area with challenging constraints for an underpass, including the flat natural topography, railroads on both sides of the interstate, the west Frontage Road, and the East Plum Creek floodplain. Future potential replacement of the Sky View Lane and County Line Road interchanges may also provide opportunities to create new wildlife movement improvements, tying into the system of wildlife underpasses that will be constructed as part of the Gap project.

Figure 7. Deer Guard and Wildlife Fence



Wildlife-vehicle collisions remain a vehicle and wildlife safety concern between Castle Rock and the I-25/C/E-470 interchange. Lone Tree and Castle Pines are currently undergoing aggressive residential and commercial expansion that will double their incorporated land areas and populations in the next 20 years. Castle Rock is also anticipated to double in population, rapidly expanding while simultaneously increasing the density of its existing semi-developed areas. As large swaths of grassland habitat in the

Study Area are developed, the resident populations of animals will be displaced to the surrounding areas, compelling them to cross an I-25 carrying more vehicles between Denver and Colorado Springs or become isolated on one side of the interstate.

Future I-25 and local road improvements within the Study Area should evaluate wildlife movement as a core environmental issue, and considered throughout the public involvement, environmental, and design processes of projects. Municipalities along the corridor should consider wildlife movement improvements, with an emphasis on safely moving animals across I-25, during their long range planning processes. The core CDOT/CPW biology team involved in the PEL Study should continue to be engaged in CDOT and local planning processes to advise on the location and design of wildlife fencing, escape ramps, deer guards, overpasses, and underpasses to ensure they operate as intended and as an effective and comprehensive wildlife movement system.

Figure 8. Standard CDOT Wildlife Escape Ramp



References

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