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Douglas County Government Planning for Wildlife and Mobility Across Transportation Corridors

Compiled by Andy Hough, Environmental Resources Coordinator

Douglas County Open Space and Natural Resources

Some information vetted jointly by CDOT, CPW, and Douglas County

(Indicated by logos on individual slides)

Topics

- ▶ Habitat conservation and protection
- ▶ Conserving a sustainable wildlife system
- ▶ Facilitating wildlife movement across transportation corridors
- ▶ I-25 Gap example

What is Wildlife Habitat???



Food



Water



Shelter



Space



Juxtaposition/arrangement



Varies by species

Douglas County Methodology

Ecosystem approach

Larger blocks where possible

Secure various habitat types

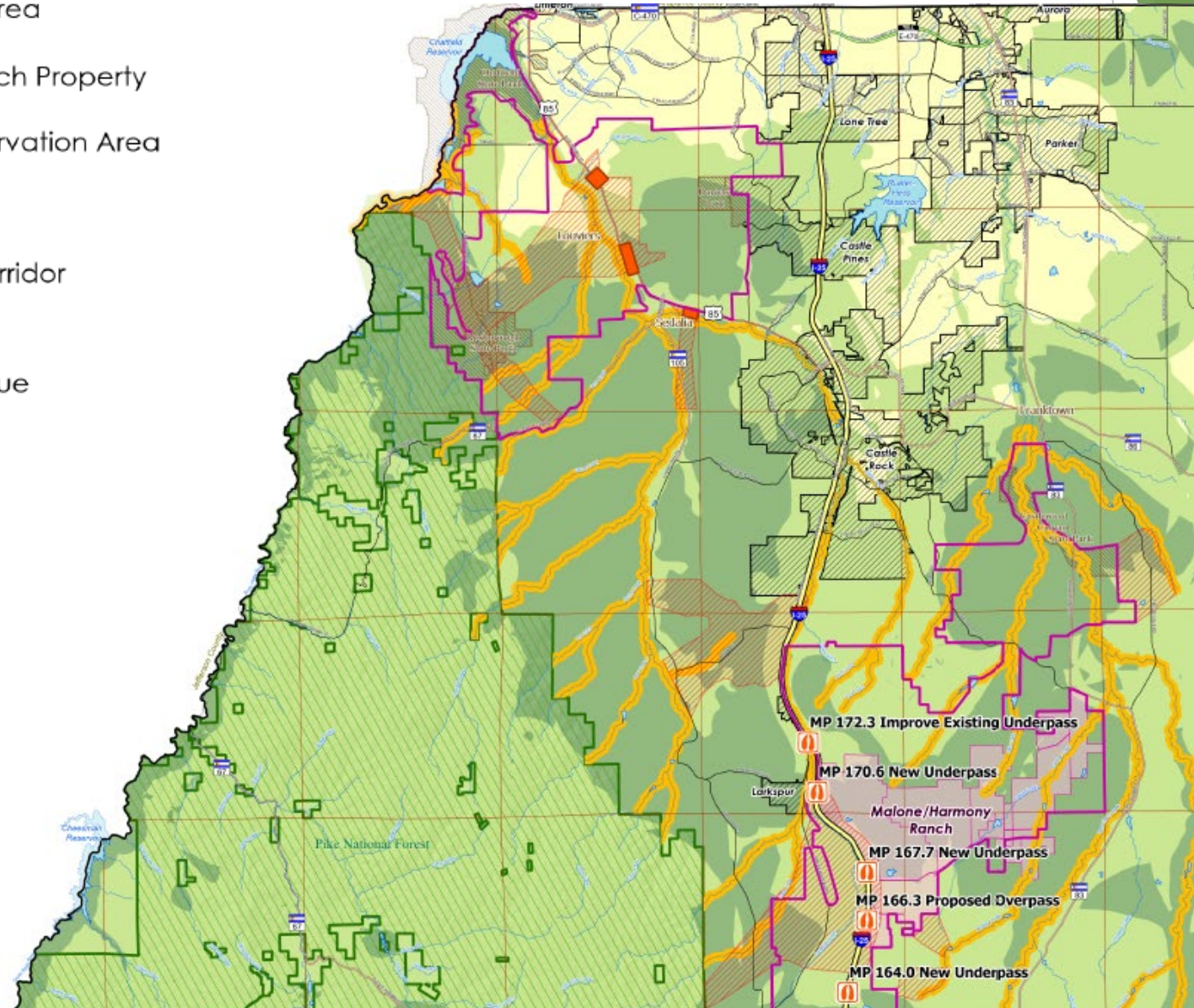
Contiguity

Movement corridors

Look for stream corridor opportunities

Wildlife Habitat & Corridors in Douglas County

-  I-25 Wildlife Crossing Area
-  Malone/Harmony Ranch Property
-  Wildlife Habitat Conservation Area
-  Overland Connection
-  Wildlife Movement Corridor
-  Low Habitat Value
-  Moderate Habitat Value
-  High habitat Value
-  Wildlife Crossing Area
-  Parks
-  Pike National Forest
-  Municipalities



Methods of Protection

- ▶ Purchase-Fee Title
- ▶ Conservation Easement
- ▶ Open Space Agreement
- ▶ Deed Restriction
- ▶ Viable Farm or Ranch
- ▶ Regulation

Regulation in Douglas County

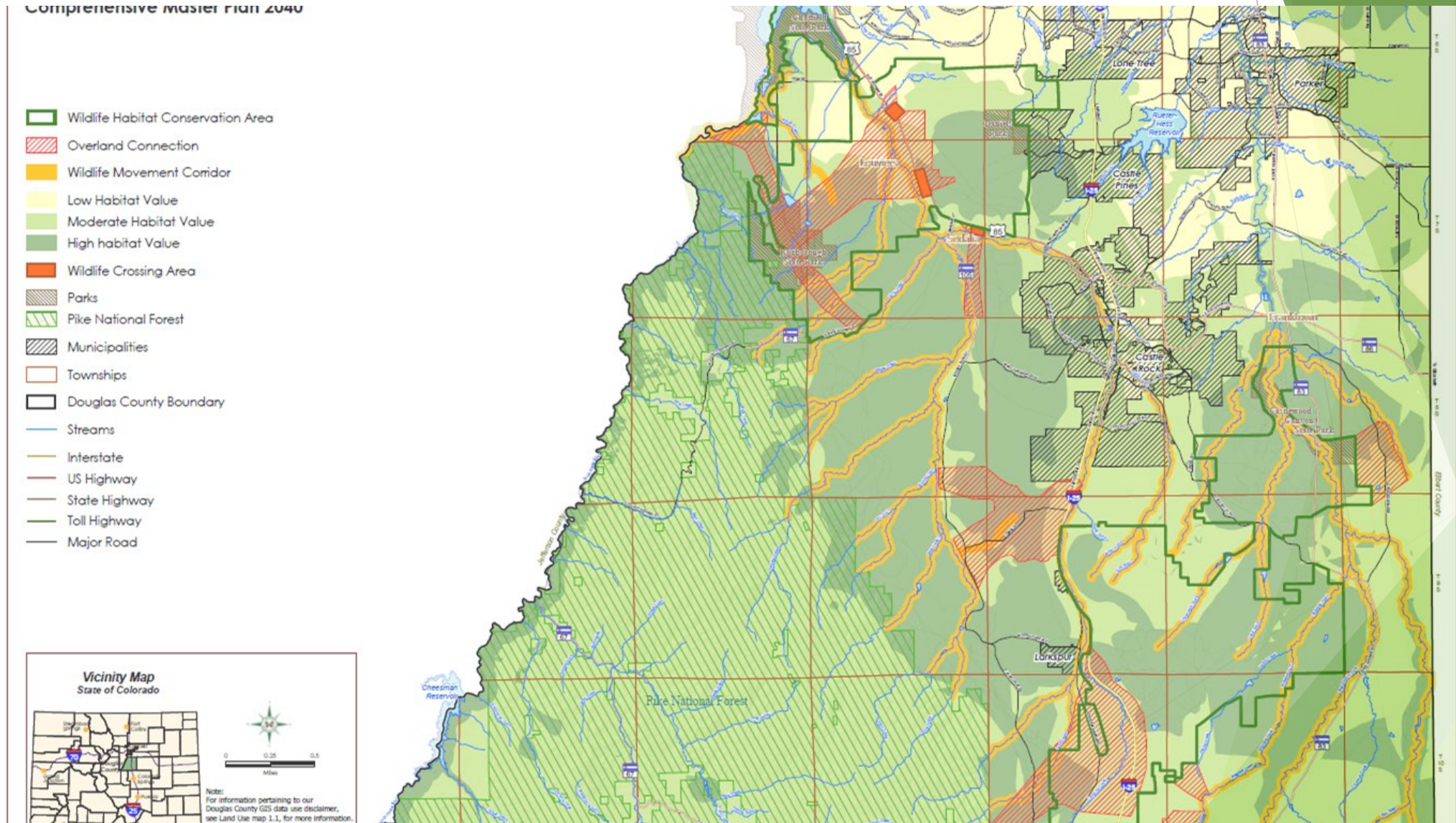
Comprehensive Master Plan (CMP)

- Section 9: Wildlife
 - Tier 1 Wildlife Resources Map
 - Policies & Objectives

Subdivision & Zoning Resolutions

- Compliance with CMP
- Zone District use limitations
- Density bonus for cluster design
- Conservation of natural resources
- Open space & parks dedications

CMP Wildlife Resources Map (Tier 1)



Some CMP Policies (partial list)

- ▶ POLICY 9-1B.2: Consider wildlife opportunities on neighboring lands, as well as a countywide scale, when evaluating land use applications.
- ▶ POLICY 9-1B.3: Link wildlife habitat and movement corridors, wherever possible.
- ▶ POLICY 9-1B.4: Locate development outside of important wildlife habitat and movement corridors.
- ▶ POLICY 9-1B.5: Balance the location and design of transportation infrastructure with accommodation of wildlife habitat and movement values.
- ▶ POLICY 9-1B.6: Minimize fencing that is exclusionary or dangerous to wildlife, except when necessary for human safety, commercial and industrial uses, protection of at-risk crops, and domestic animal containment. All other fencing should be wildlife friendly.
- ▶ POLICY 9-1B.9: Require habitat restoration, improvement, and management practices such as restoration of native or beneficial flora; stream stabilization; erosion control; maintenance of residual cover during the winter; and proper pasture management on new development and special uses, as appropriate.

PROTECTED LANDS Douglas County, Colorado

Permanent Protection

Legend

- Douglas County Open Space Funds Used
- Douglas County Fee Title
- Douglas County Conservancy Conservation Easement
- Douglas County Conservation Easement
- Backcountry Wilderness Area of Highlands Ranch
- Backcountry Wilderness Area of Highlands Ranch - Planning Areas
- Colorado Cattleman's Agricultural Land Trust Conservation Easement
- Colorado Division of Wildlife
- Colorado Open Lands Conservation Easement
- Town/Metro District Open Space
- State Land Board
- Pike National Forest
- Colorado State Parks
- Douglas County Regional Parks
- City and County of Denver
- Municipalities
- County Boundary

Lakes

- Interstate
- US Highway
- State Highway
- Toll Highway
- Major Road

* Note:

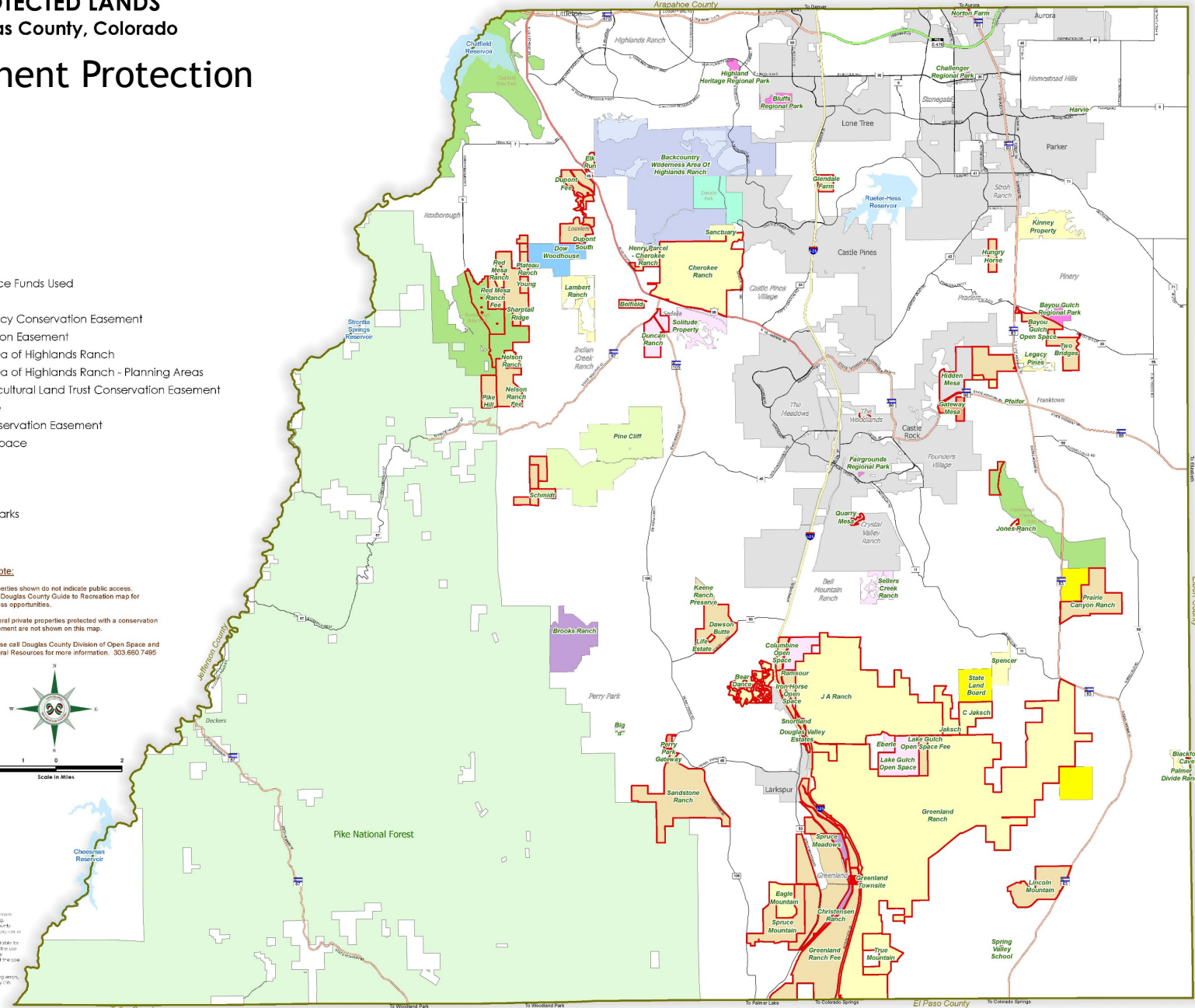
Properties shown do not indicate public access. See Douglas County Guide to Recreation map for access opportunities.

Several private properties protected with a conservation easement are not shown on this map.

Please call Douglas County Division of Open Space and Natural Resources for more information. 303.660.7405



DISCLAIMER:
Although every effort has been made to ensure the accuracy of the information presented on this map, Douglas County does not warrant the accuracy of the information. Douglas County is not responsible for any errors or omissions. Douglas County is not responsible for any damages or injuries resulting from the use of this map. Douglas County is not responsible for any claims or liabilities resulting from the use of this map. Douglas County is not responsible for any claims or liabilities resulting from the use of this map.



Over \$292M spent over 30 years

County purchases

Grant assistance

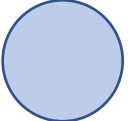
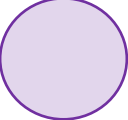
Partner land purchases

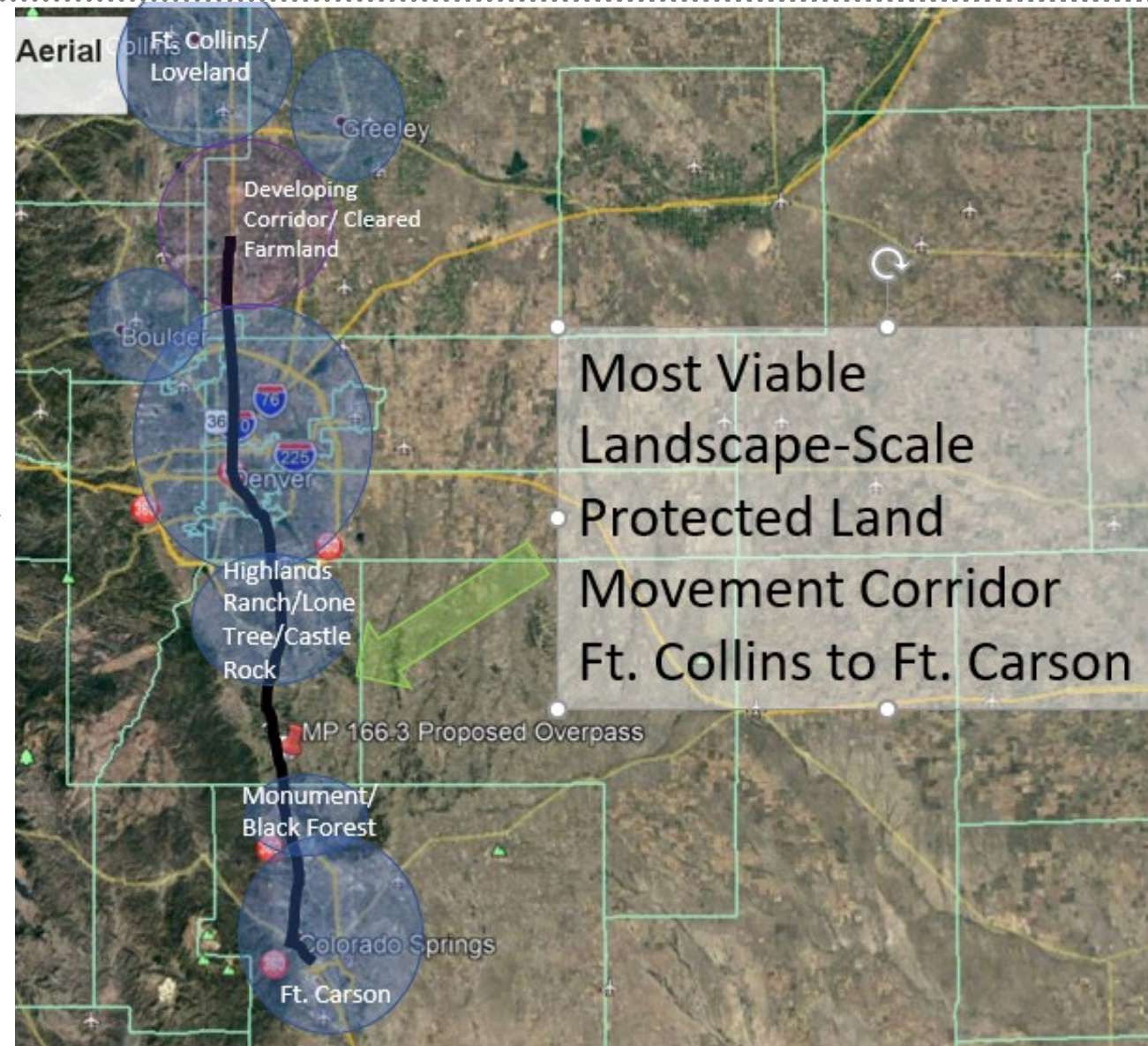
Conservation easements

Highway improvements for wildlife movement

East/West Wildlife Movement Along the Front Range

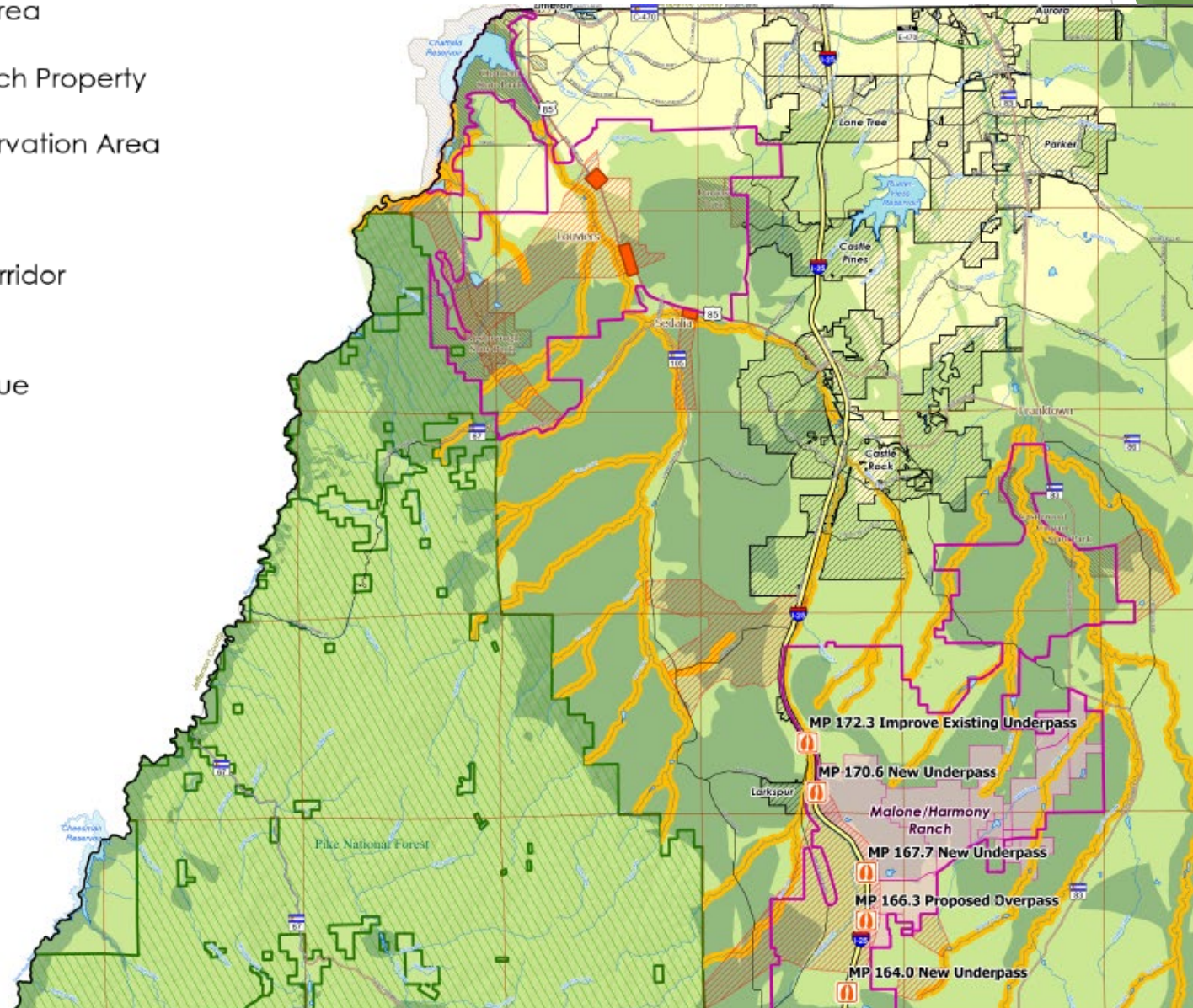


-  = Developed/Urbanizing Area
-  = Developing Corridor/Cleared Farmland



Wildlife Movement in Douglas County

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US DOT Act of 1966 Section 4(f)

- ▶ Section 4(f) refers to the original section within the US Department of Transportation Act of 1966 which established the requirement for consideration of park and recreational lands, wildlife and waterfowl refuges, and historic sites in transportation project development.
- ▶ Section 4(f) applies to projects that receive funding from or require approval by an agency of the U.S. Department of Transportation

- https://www.dot.ny.gov/divisions/engineering/environmental-analysis/manuals-and-guidance/epm/repository/Section_4f_at_a_Glance.pdf

Determine impacts are de minimis

Or undertake 4(f) Evaluation

- If viable alternative avoiding 4(f) properties - It must be selected
- If no viable alternative
 - FHWA may select alternative of least impact
 - Must minimize harm to 4(f) properties

I-25 Gap Project 4-F Rule Mitigations

- ▶ \$20M in wildlife mitigations out of \$450M overall project
 - ▶ 5 wildlife underpasses
 - ▶ Wildlife exclusionary fencing
 - ▶ Deer guards (to keep wildlife off the highway at openings/intersections)
 - ▶ Wildlife jumpouts to allow wildlife on highway corridor to escape

Other I-25 Mitigations

- ▶ \$15M wildlife overpass at Greenland
 - ▶ One of the largest in the world
- ▶ \$1.5-2M on wildlife exclusionary fencing N. of Castle Rock to reduce collisions

I-25 Gap Wildlife Movement Barriers

- ▶ New design changes from 'at grade'
- ▶ To separated grade north vs south bound
- ▶ Exclusionary fencing required
- ▶ Now blocks all wildlife movement in corridor

After Construction



Previous Situation



After Construction



Wildlife in the Gap



I-25 bisects 55 square miles of conservation easements in Douglas County

Largest contiguous preserved habitat along the Front Range

An important wildlife connection between foothills and plains & Pike National Forest

Large local elk and deer herds forced to cross I-25 at-grade

4(f) Rule required mitigation

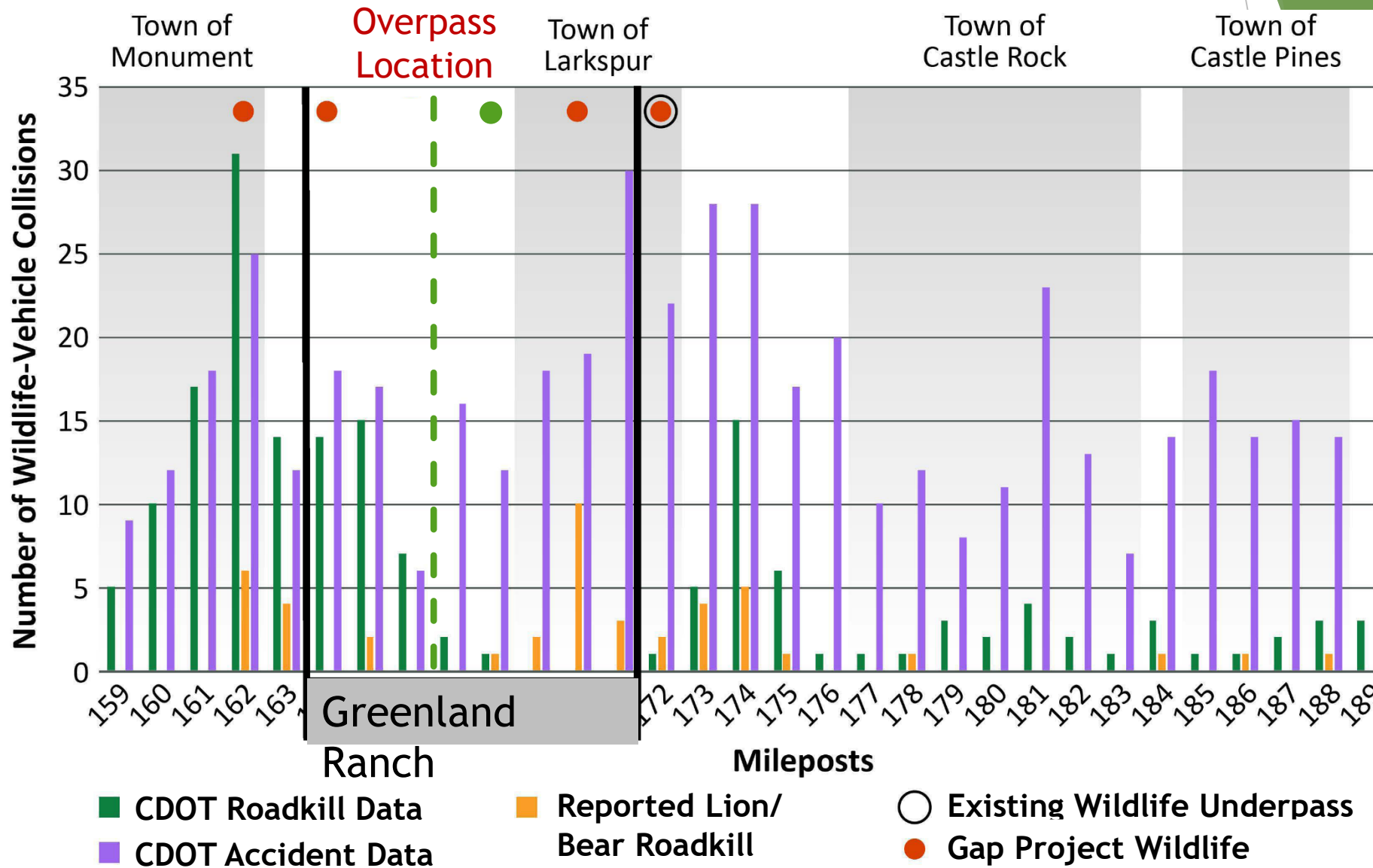
More than one deer/elk hit on I-25 every day in peak season (June and November)



DOUGLAS COUNTY
COLORADO



Wildlife-Vehicle Collisions (WVCs) on



The Problem - Roadkill

Dark travel corridor + fast vehicles





How CDOT addressed WVCs in the Gap

Improved underpass at E. Plum Creek

Wildlife underpass (CDOT Rest Stop)

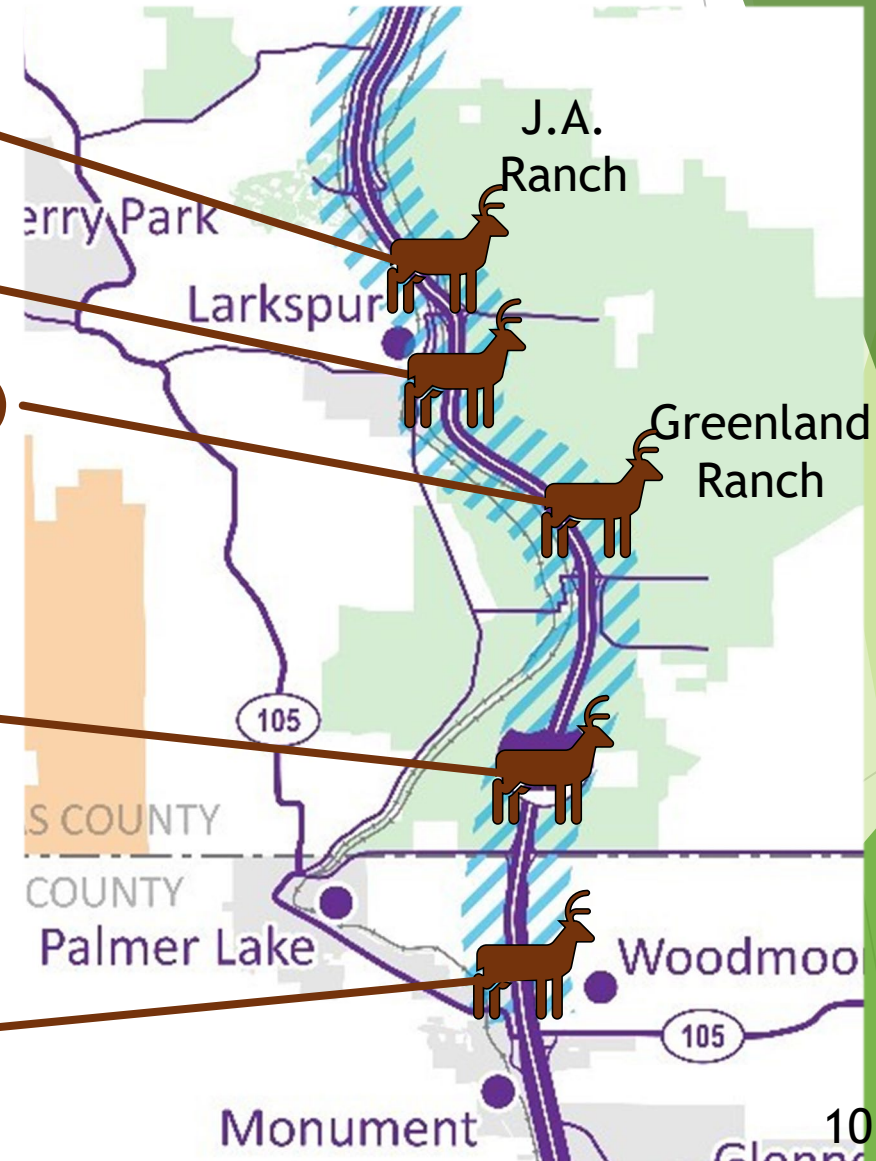
Wildlife underpass (N of Greenland Rd.)

3.7
miles

(1 to 1.5 mile
spacing optimal)

Wildlife underpass (N of County Line)

Wildlife underpass (Monument Hill)



The wildlife underpass openings measure approximately 18' high by 100' wide



Wildlife underpass just north of Greenland Road under construction

November 2019

Previous Culvert Crossing



Upgraded to this wildlife Underpass!

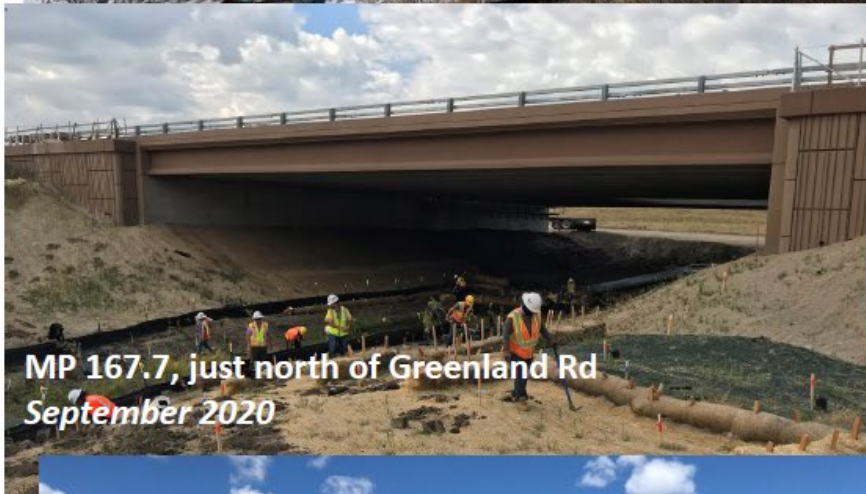




DOUGLAS COUNTY
COLORADO



MP 170.6, Just south of former CDOT rest stop
December 2020

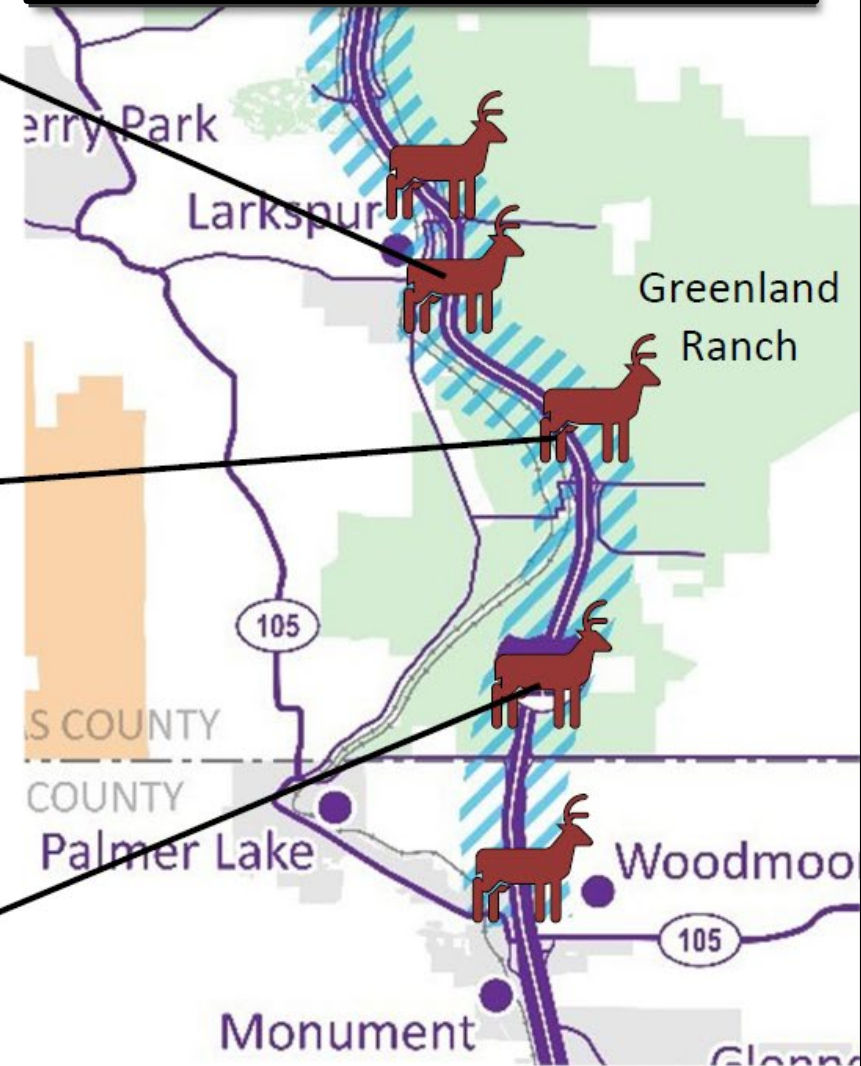


MP 167.7, just north of Greenland Rd
September 2020



MP 164.4, just north of County Line Rd
May 2020

All five wildlife underpasses were complete and revegetated by fall of 2021



New Underpasses in Action! Wildlife are using them!





CDOT Mitigation on Adjacent Open Space

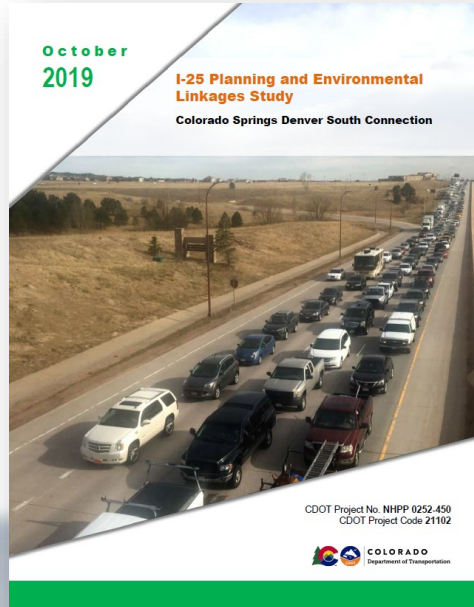
Beaver Dam Analogues

Taken over by beavers... major stream restoration!



Preble's mouse
habitat
improvements &
field sampling

I-25 South PEL Recommendations



Completed in October 2019, the I-25 South PEL study recommends creating additional wildlife crossings in the Gap

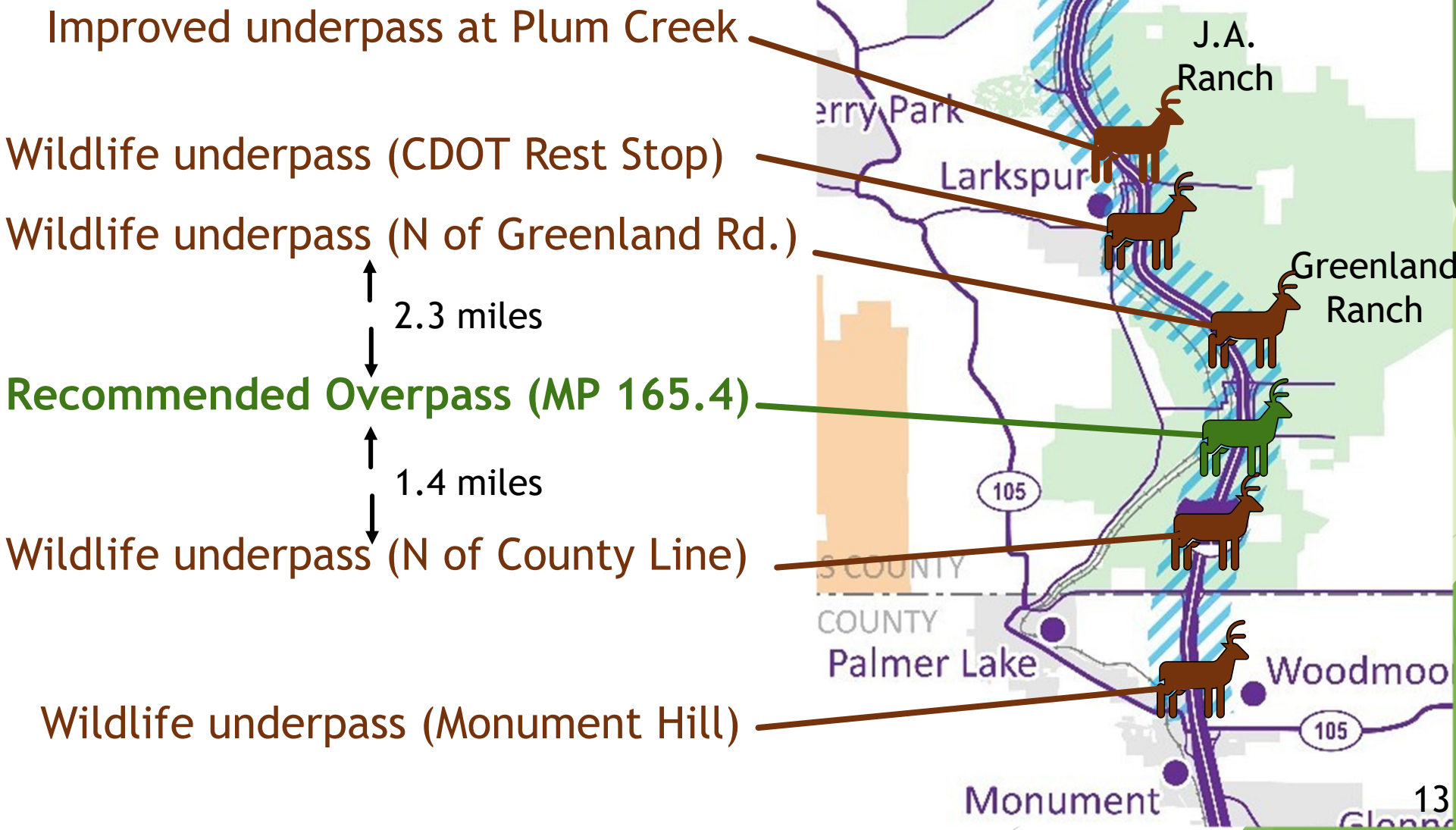


The PEL recommended additional wildlife crossings in the Gap

MP 165.4 was identified as an excellent location for a wildlife overpass between the underpasses at MP 164 and 167.7



Recommended Overpass Location



Why an Overpass?

- The terrain in this portion of the Gap is better suited for an overpass than an underpass
- Creating diverse structure types in the Gap will accommodate a greater variety of species
- The wildlife overpass is better suited for elk - a vigilant species that generally prefers overpasses
- Combined, the Gap wildlife crossings are expected to reduce wildlife-vehicle collisions by up to 90% and are expected to pay for themselves in about 15 years

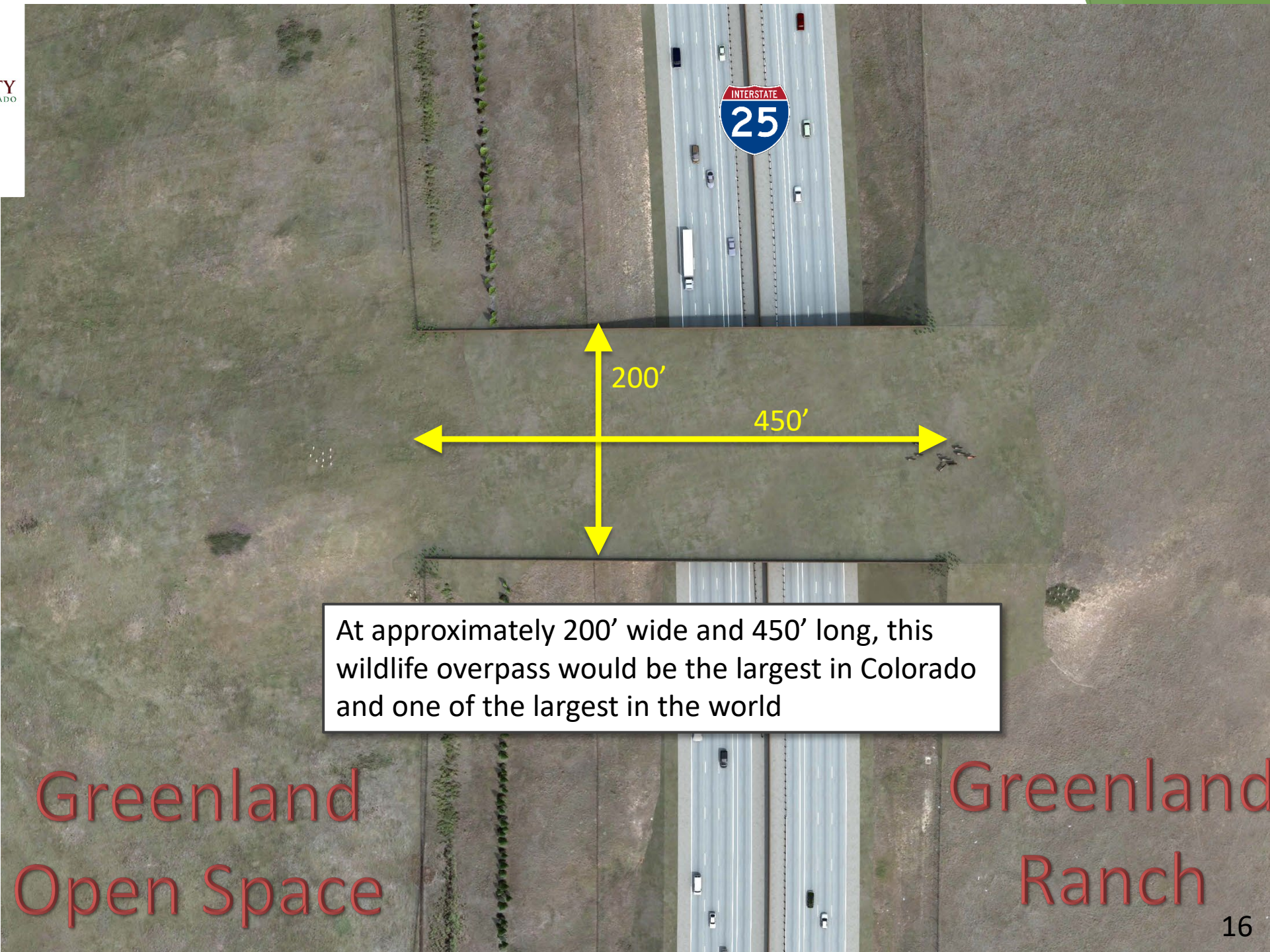


A50 Netherlands



Richert, Blue Valley Ranch-September 9, 2016





At approximately 200' wide and 450' long, this wildlife overpass would be the largest in Colorado and one of the largest in the world

Greenland
Open Space

Greenland
Ranch



Overpass Design and Construction

- Cost \$15 million
- Incorporates innovative, lightweight construction materials
- Standard CDOT bridge design minimizes design cost
- Required easements from adjacent properties

Questions?



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