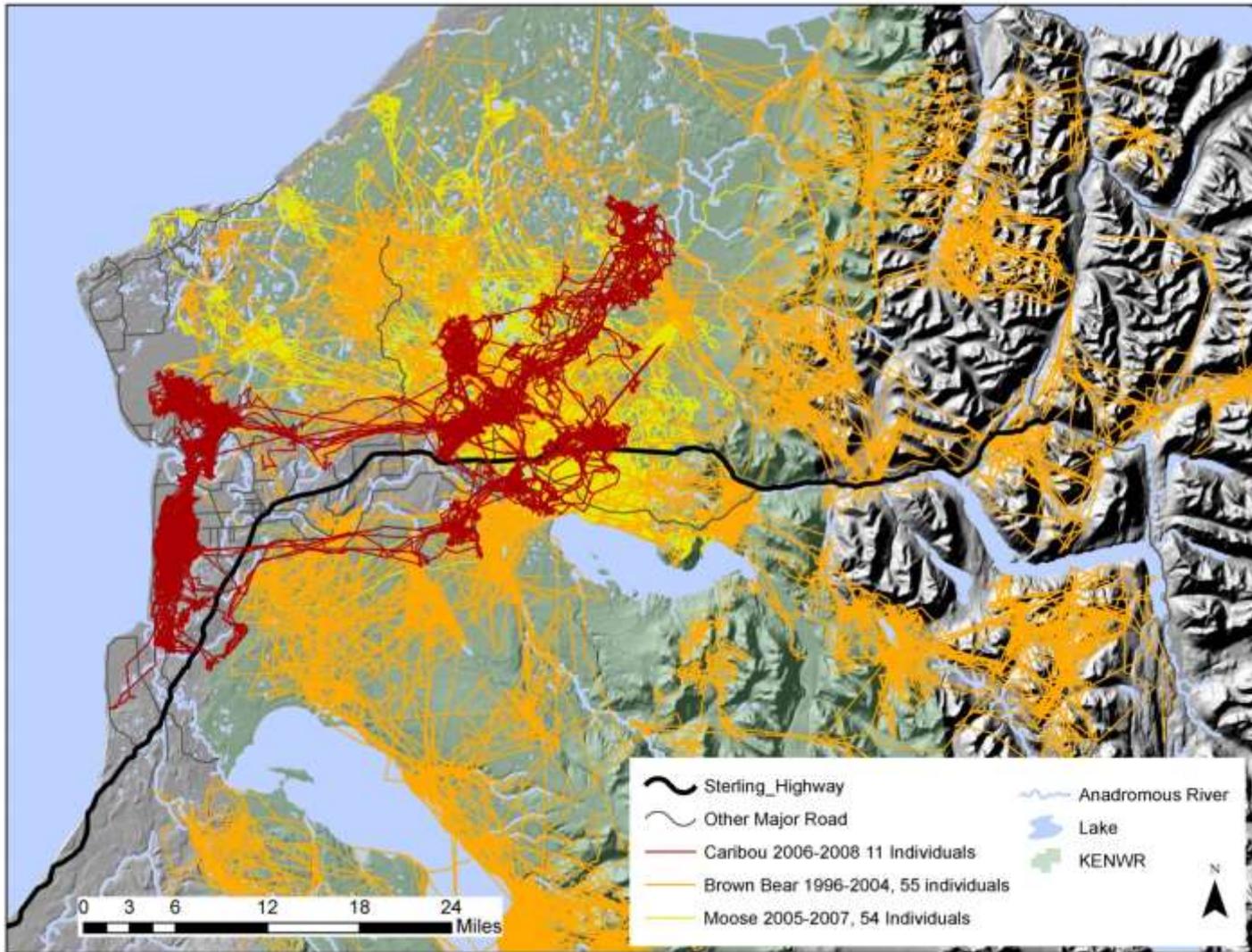


Why does the moose cross the road?

**Sterling Highway MP 58-79 Rehabilitation
Jim's Landing to Sterling**

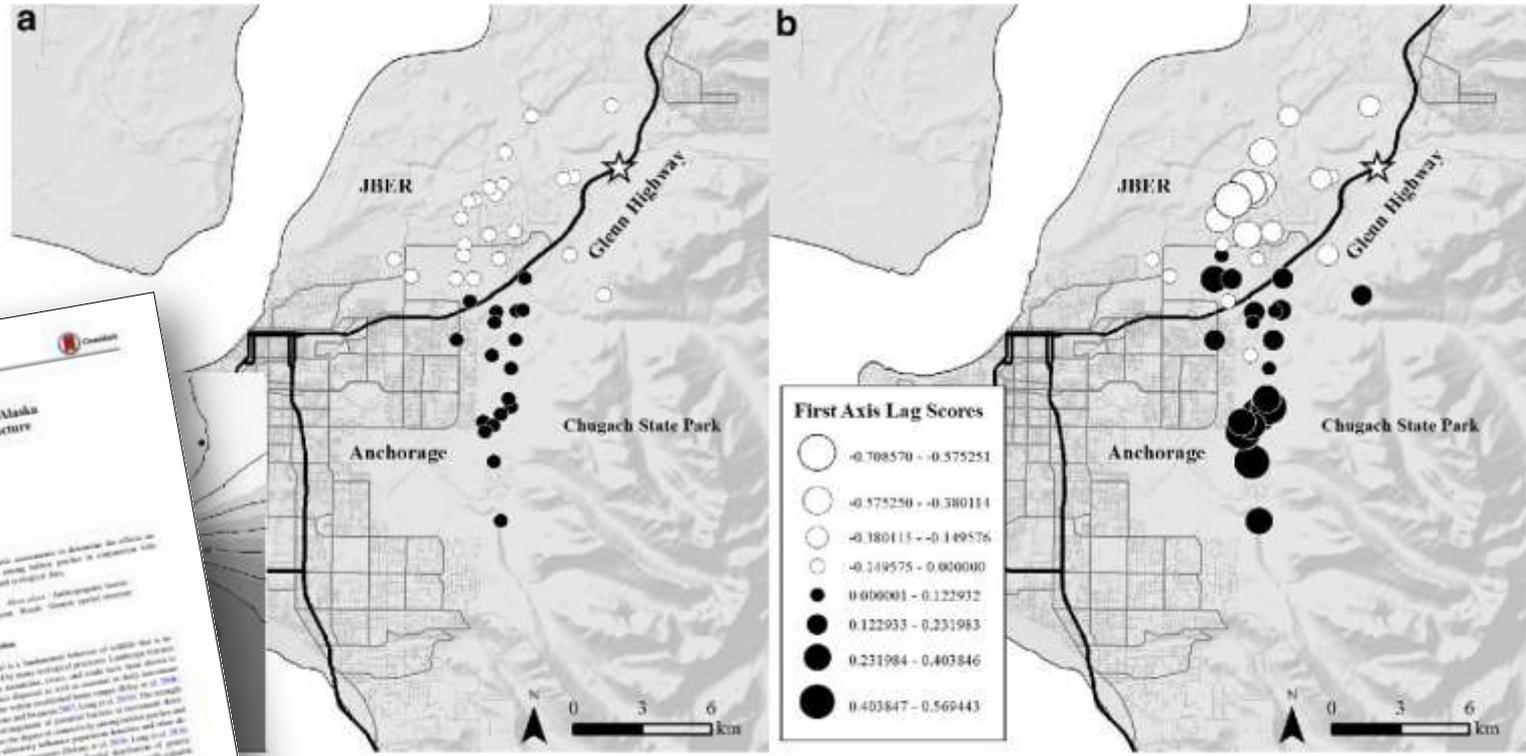
**John Morton
Kenai National Wildlife Refuge**





Movements of caribou (n =11), brown bear (n=55) and moose (n = 54). Wildlife avoid the Sterling development corridor

Glenn Highway divides Anchorage moose into 2 genetically distinct subpopulations

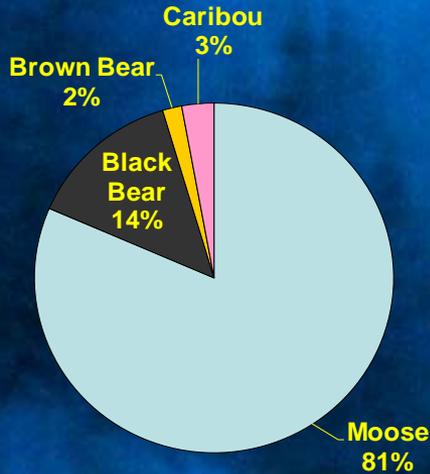


- based on microsatellite allelic frequency

WILDLIFE-VEHICLE COLLISIONS

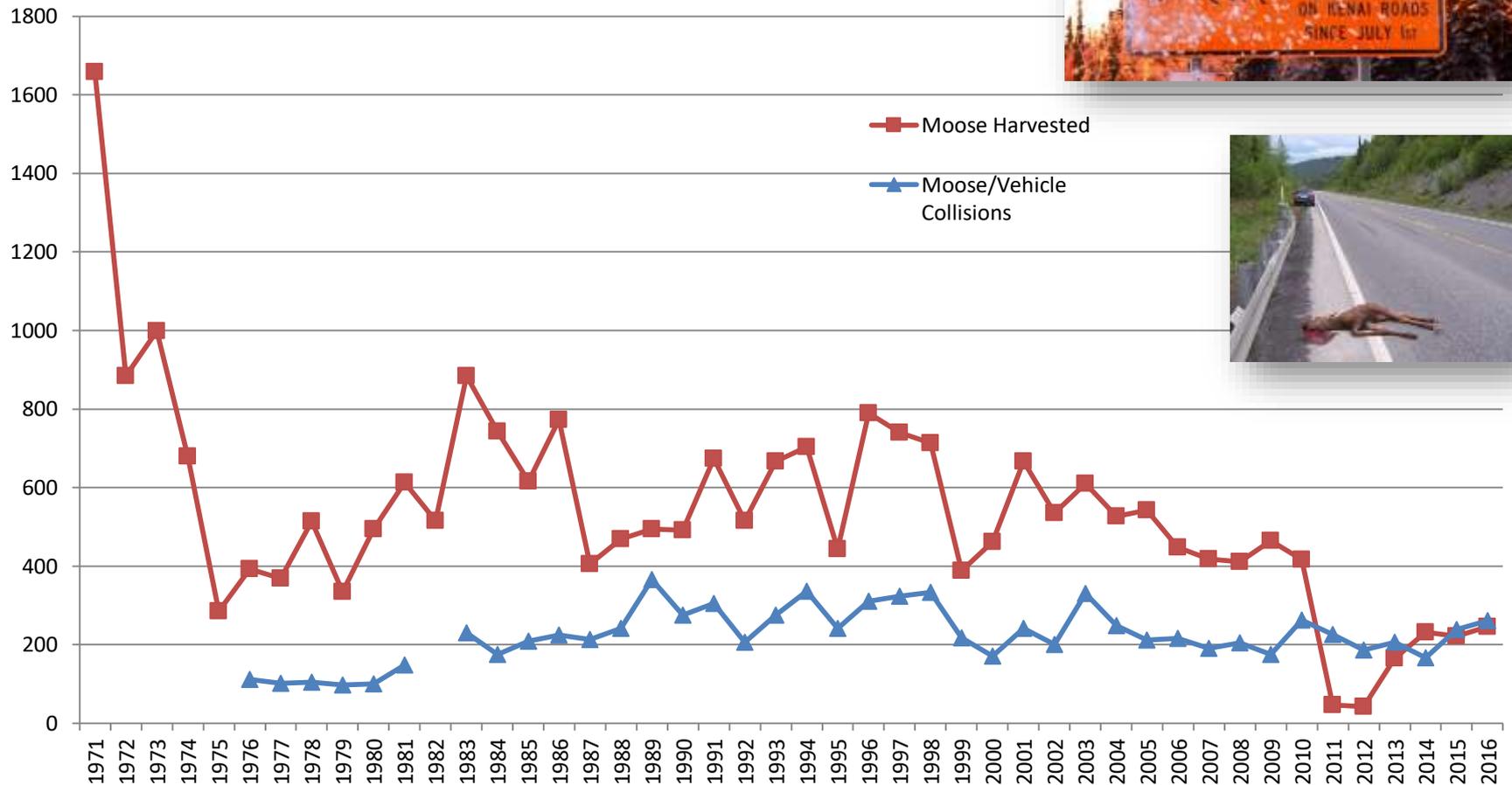
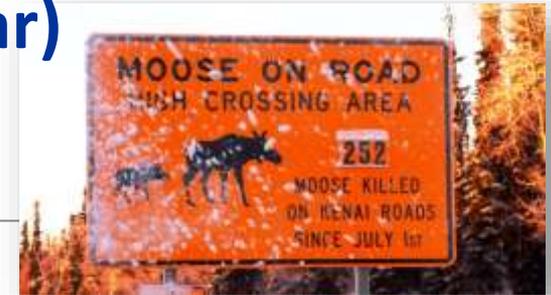
Sterling Highway MP 58 – 79
2000 to 2007 (n = 168)
22.4 WVC/year

Source: Alaska State Troopers



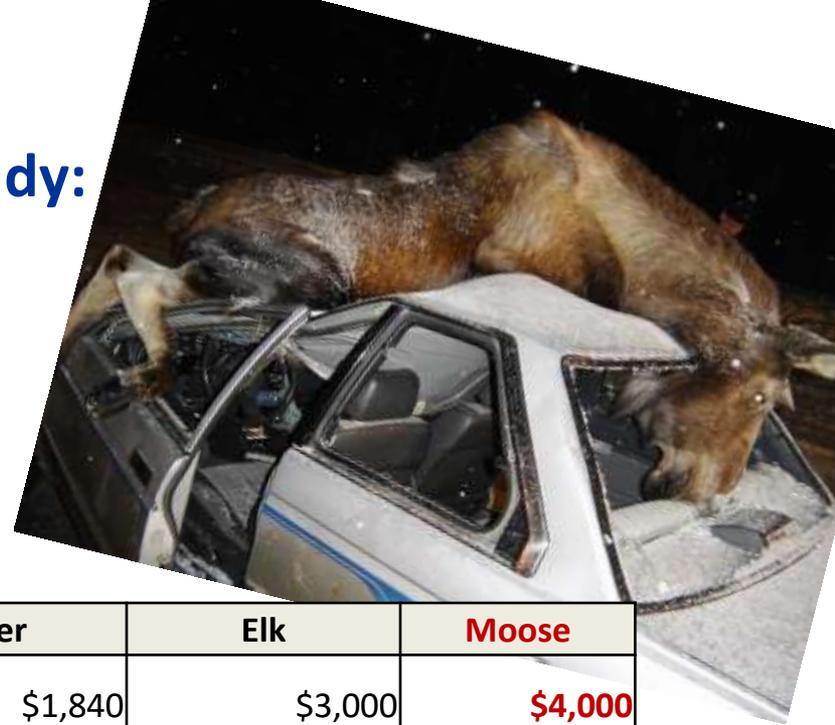
Source: Alaska DOT

Vehicle collisions kill as many moose as harvested by hunters (~250 per year)



Wildlife-Vehicle Collision Reduction Study: Report To Congress, FHWA 2008

**> \$7.75 million per year
on Kenai Peninsula!**



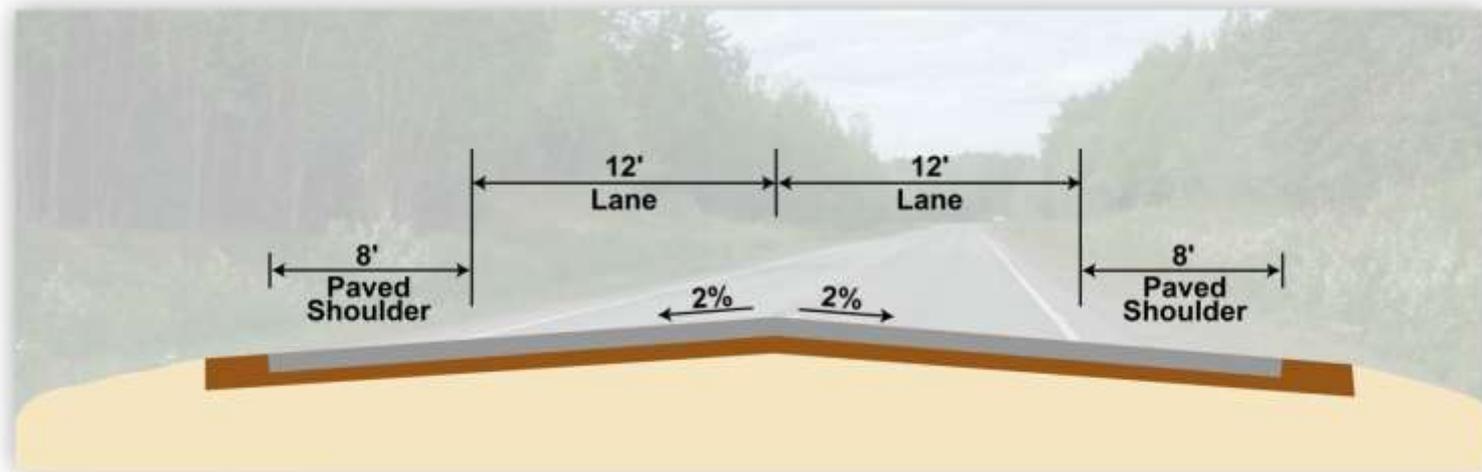
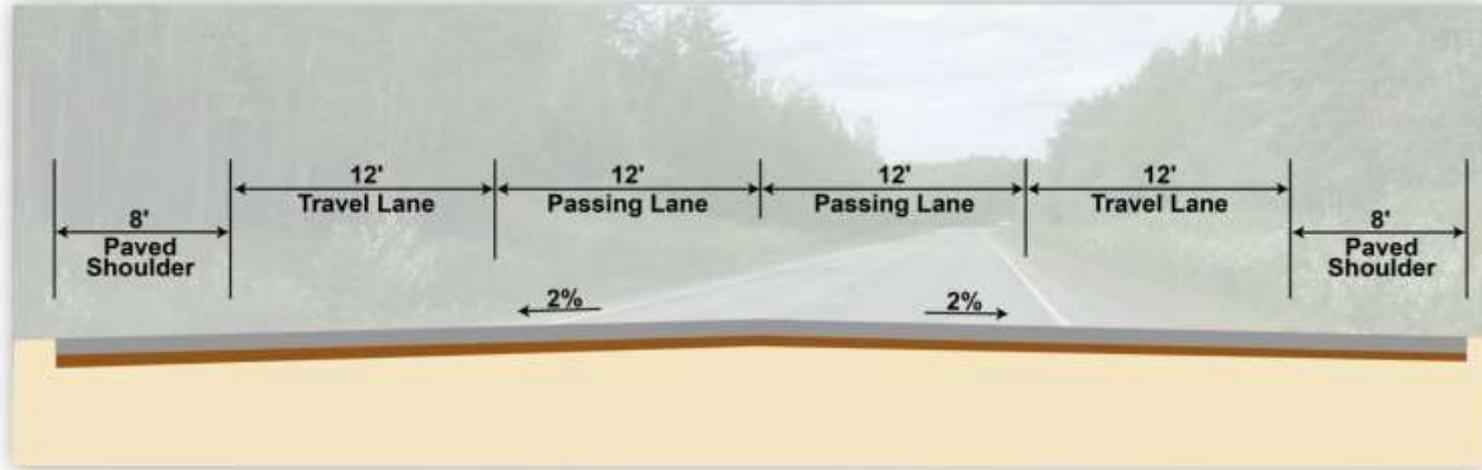
| | Deer | Elk | Moose |
|---|----------------|-----------------|-----------------|
| Vehicle repair costs per collision | \$1,840 | \$3,000 | \$4,000 |
| Human injuries per collision | \$2,702 | \$5,403 | \$10,807 |
| Human fatalities per collision | \$1,671 | \$6,683 | \$13,366 |
| Towing, accident attendance and investigation | \$125 | \$375 | \$500 |
| Monetary value animal per collision | \$2,000 | \$3,000 | \$2,000 |
| Carcass removal and disposal per collision | \$50 | \$100 | \$100 |
| TOTAL | \$8,388 | \$18,561 | \$30,773 |

Project Components

- Repave the existing highway
- Construct passing lanes
- Widen highway shoulders
- Improve drainage
- Maintain 55 mph posted speed
- Wildlife enhancement features



Typical Section



Wildlife Undercrossings

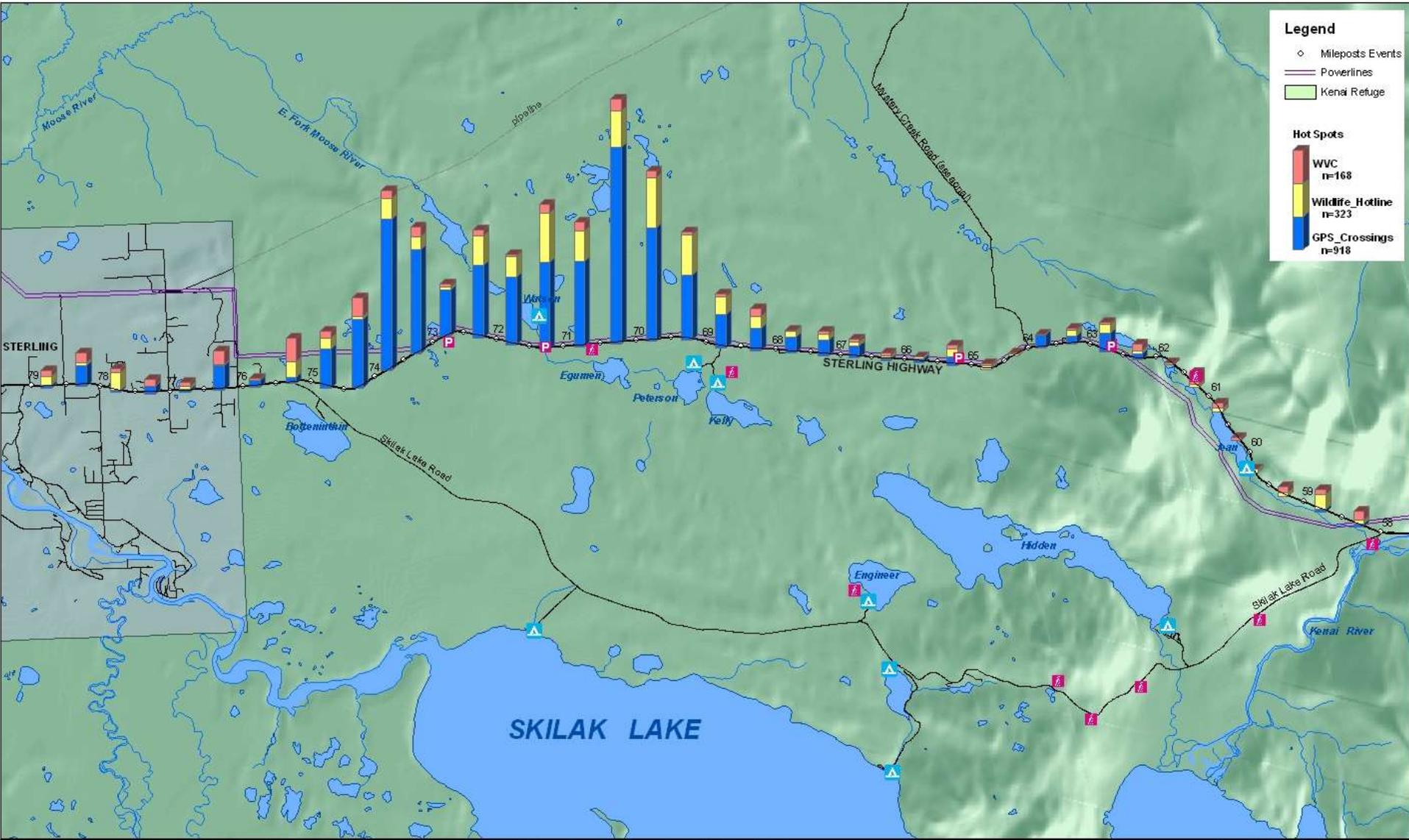
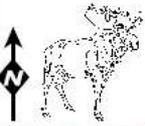


STERLING HIGHWAY MP58-79 PROJECT

Interagency Working Group
Kenai Peninsula, Alaska

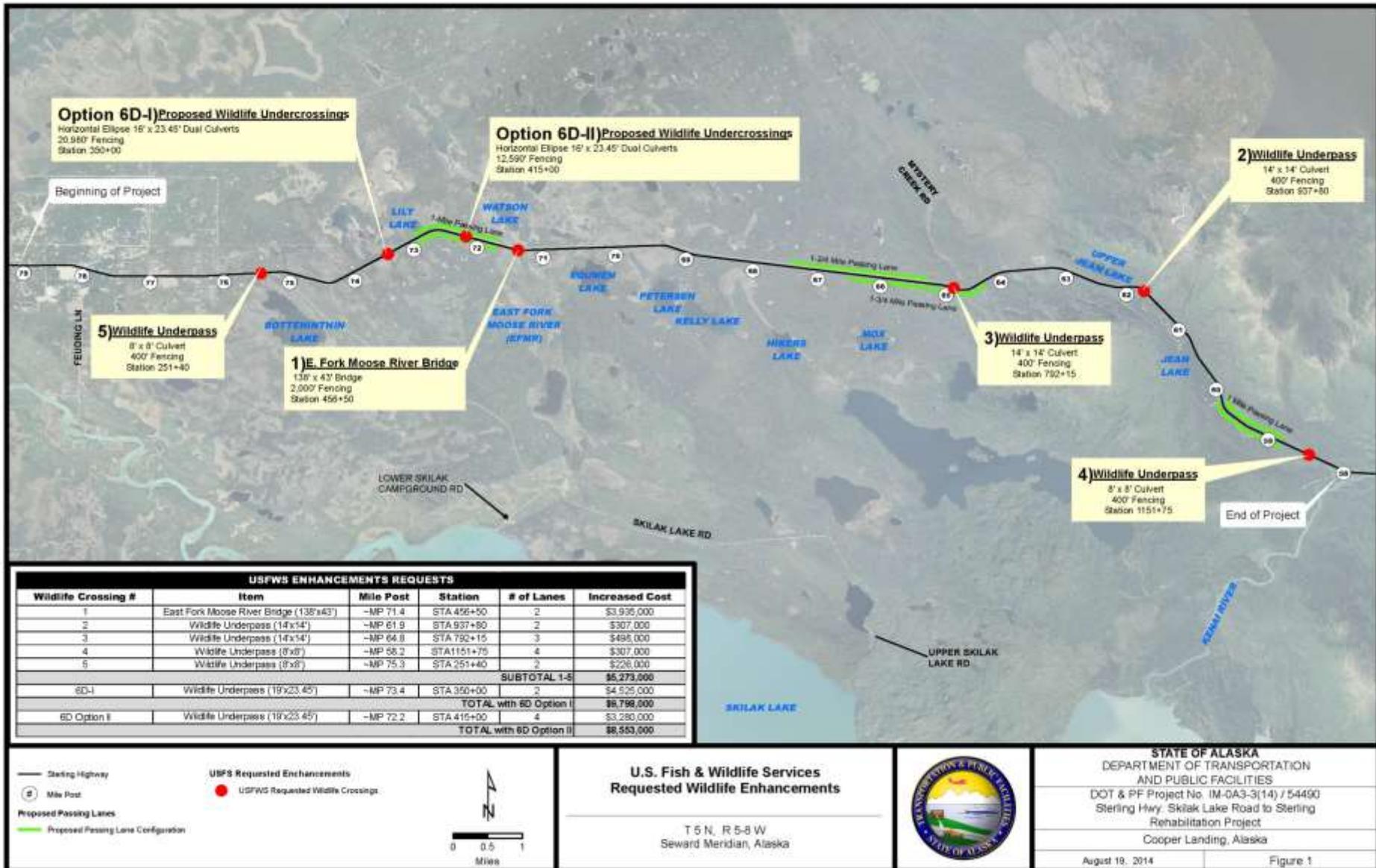


SEGMENTS OF HIGHEST CONCERN
Total WV Collisions, Hotline Sightings, and GPS Crossings



Map 3. Hot spots (sum of WV Collisions, Wildlife Hotline, and GPS Crossings) along the Sterling Highway.





Option 6D-I) Proposed Wildlife Undercrossings
 Horizontal Ellipse 16' x 23.45' Dual Culverts
 20,960' Fencing
 Station 350+00

Option 6D-II) Proposed Wildlife Undercrossings
 Horizontal Ellipse 16' x 23.45' Dual Culverts
 12,590' Fencing
 Station 415+00

2) Wildlife Underpass
 14' x 14' Culvert
 400' Fencing
 Station 937+80

3) Wildlife Underpass
 14' x 14' Culvert
 400' Fencing
 Station 792+15

4) Wildlife Underpass
 8' x 8' Culvert
 400' Fencing
 Station 1151+75

5) Wildlife Underpass
 8' x 8' Culvert
 400' Fencing
 Station 251+40

1) E. Fork Moose River Bridge
 138' x 43' Bridge
 2,000' Fencing
 Station 456+50

| USFWS ENHANCEMENTS REQUESTS | | | | | |
|-----------------------------|---|-----------|-------------|------------|----------------|
| Wildlife Crossing # | Item | Mile Post | Station | # of Lanes | Increased Cost |
| 1 | East Fork Moose River Bridge (138'x43') | -MP 71.4 | STA 456+50 | 2 | \$3,935,000 |
| 2 | Wildlife Underpass (14'x14') | -MP 61.9 | STA 937+80 | 2 | \$307,000 |
| 3 | Wildlife Underpass (14'x14') | -MP 64.8 | STA 792+15 | 3 | \$495,000 |
| 4 | Wildlife Underpass (8'x8') | -MP 58.2 | STA 1151+75 | 4 | \$307,000 |
| 5 | Wildlife Underpass (8'x8') | -MP 75.3 | STA 251+40 | 2 | \$226,000 |
| SUBTOTAL 1-5 | | | | | \$5,270,000 |
| 6D-I | Wildlife Underpass (16'x23.45') | -MP 73.4 | STA 350+00 | 2 | \$4,525,000 |
| TOTAL with 6D Option I | | | | | \$9,795,000 |
| 6D Option II | Wildlife Underpass (16'x23.45') | -MP 72.2 | STA 415+00 | 4 | \$3,280,000 |
| TOTAL with 6D Option II | | | | | \$8,553,000 |

— Existing Highway
 ● Mile Post
 — Proposed Passing Lanes
 — Proposed Passing Lane Configuration

USFWS Requested Enhancements
 ● USFWS Requested Wildlife Crossings

U.S. Fish & Wildlife Services
 Requested Wildlife Enhancements

T 5 N, R 5-8 W
 Seward Meridian, Alaska

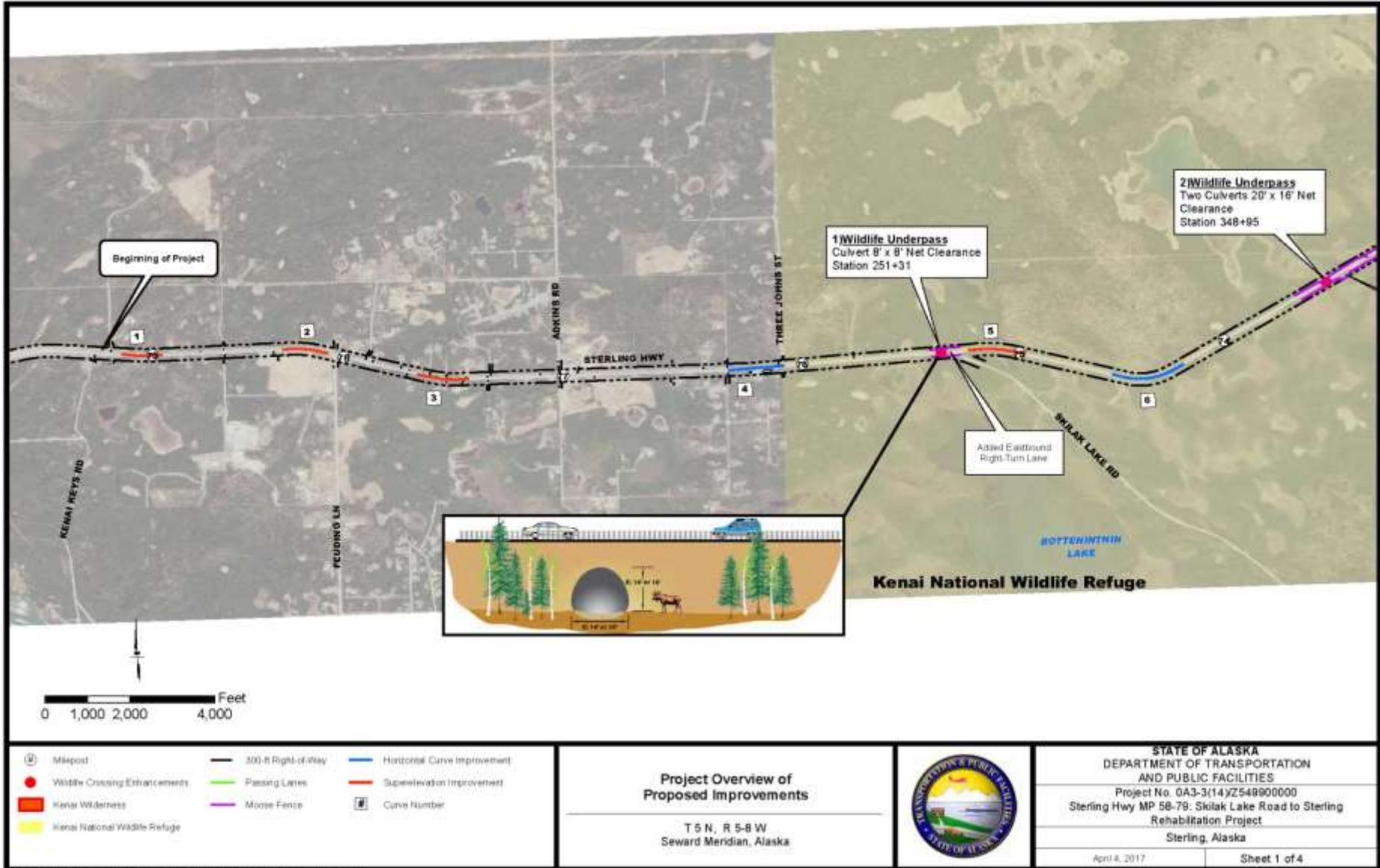
August 19, 2014



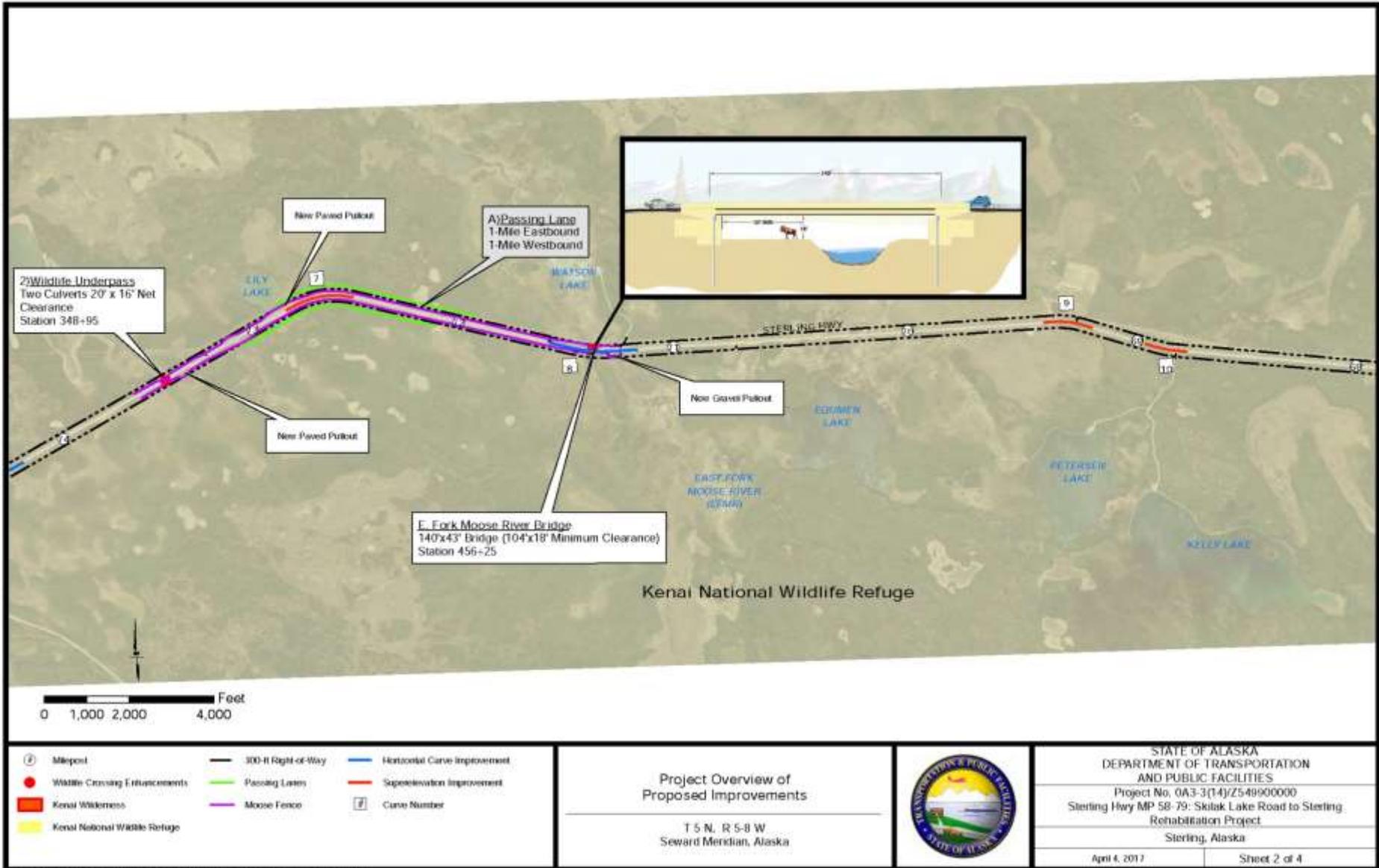
STATE OF ALASKA
 DEPARTMENT OF TRANSPORTATION
 AND PUBLIC FACILITIES
 DOT & PF Project No. IM-0A3-3(14) / 54490
 Sterling Hwy. Skilak Lake Road to Sterling
 Rehabilitation Project
 Cooper Landing, Alaska

August 19, 2014

MP 75.3 8'x8' underpass

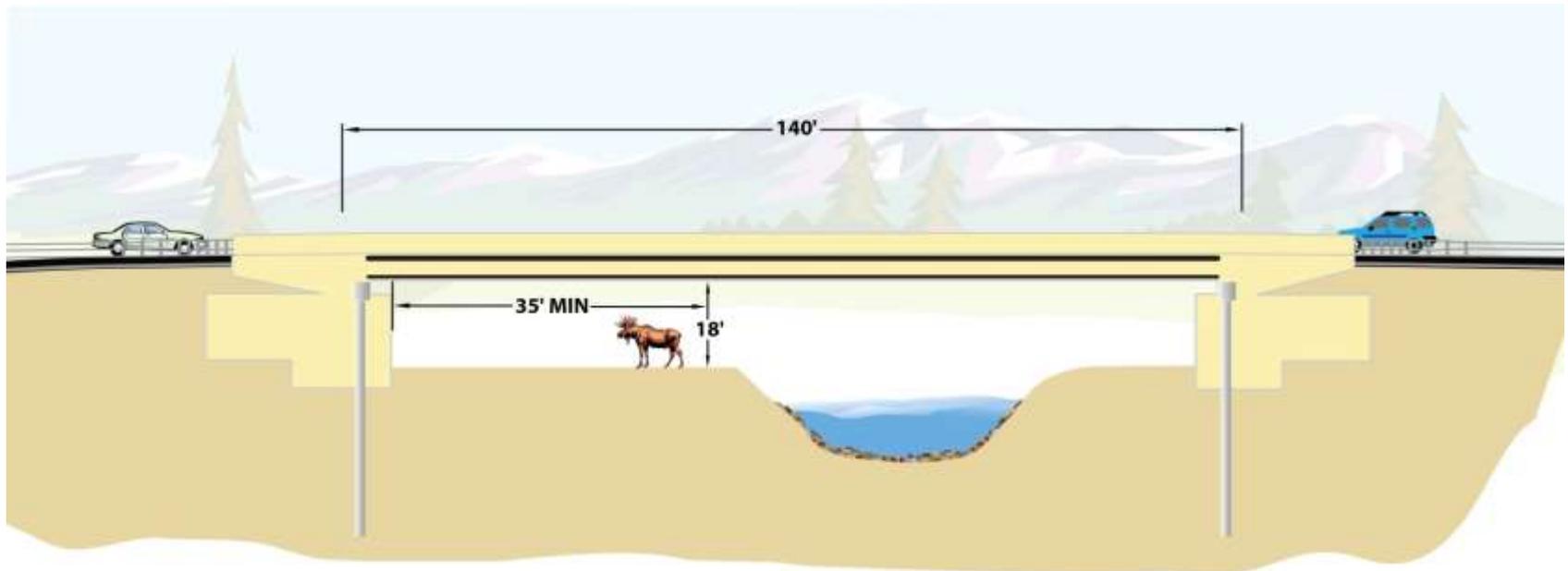


MP73.4 20'x16' underpasses (2), EFMR 104'x18' bridge



East Fork Moose River

- 104' X 18' clearance
- $\geq 35'$ bank for wildlife

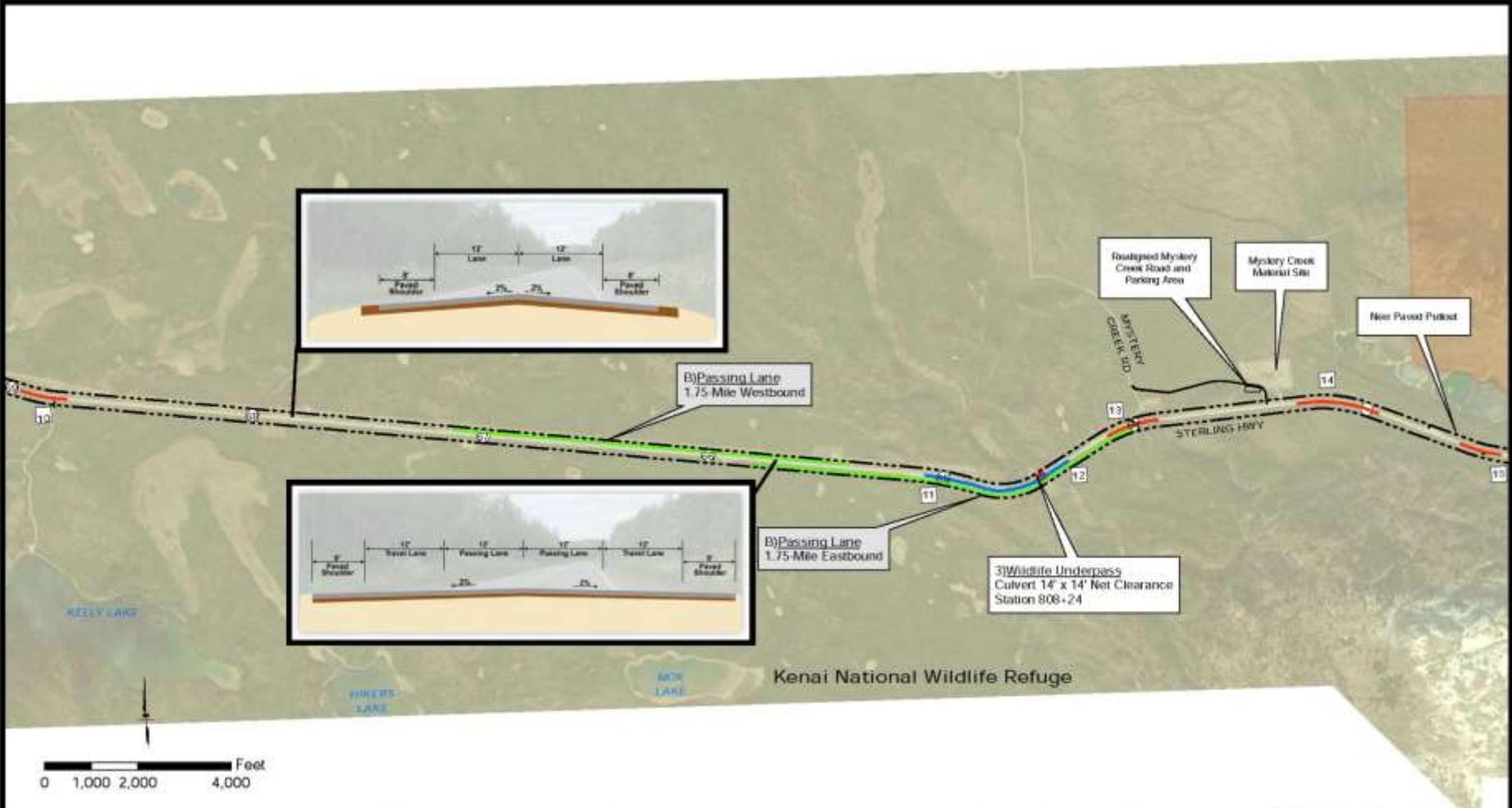


Moose Fence

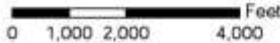
- 2.3-mile (x2) fence 9' tall with 1' gap at bottom
- 22 jump outs alternating every 1/8 miles



MP 64.8 14'x14' underpass



Kenai National Wildlife Refuge



- 2 Milepost
- Wildlife Crossing Enhancements
- Kenai Wilderness
- Kenai National Wildlife Refuge
- 300-ft Right-of-Way
- Passing Lanes
- Moose Fence
- Horizontal Curve Improvement
- Superelevation Improvement
- 7 Curve Number

Project Overview of
Proposed Improvements

T 5 N, R 5-8 W
Seward Meridian, Alaska



STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

Project No. 0A3-3(14)/Z549900000
Sterling Hwy MP 58-79: Skilak Lake Road to Sterling
Rehabilitation Project
Sterling, Alaska

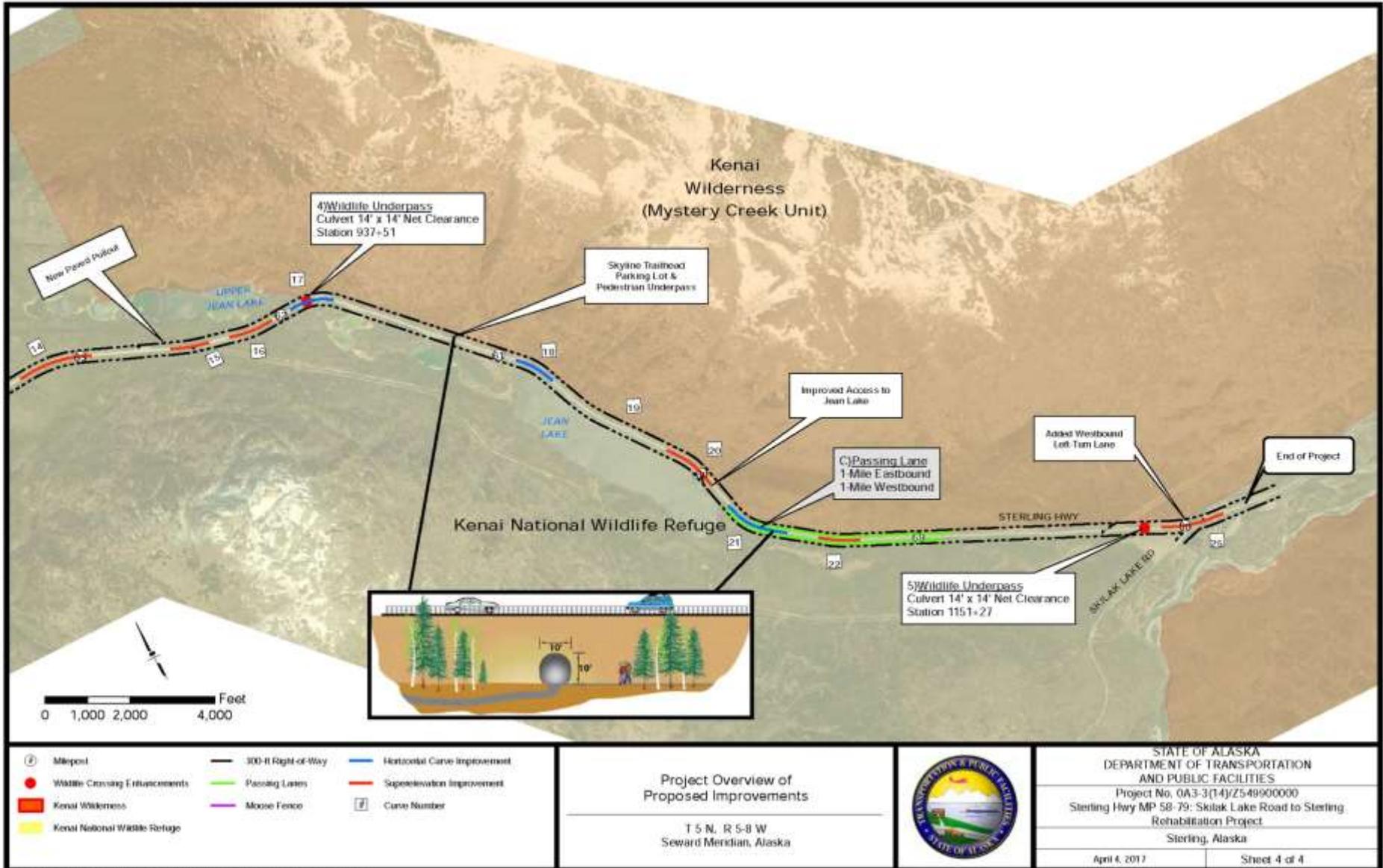
April 4, 2017 Sheet 3 of 4

Mystery Creek Road/Gravel Pit

- Extract 5.5 acres gravel from existing MP 63.4 material pit
- Realign road through gravel pit to improve safety/provide parking area
- Existing road access closed and partially reclaimed
- Spruce saplings translocated by YCC for reclamation



MP 61.9, 58.2 14'x14' underpasses



Additional Components

- Mystery Creek realignment/gravel pit restoration
- Skyline Trail pedestrian underpass/kiosk
- New paved pullouts at Lily Lake and MP 73.4
- Paving pullout at MP 62.7
- Turn lanes at Skilak Lake Road intersections
- Improved access road to Jean Lake
- Fish habitat in revetment along Kenai River braid at MP 57.8
- Improved hydrologic connectivity

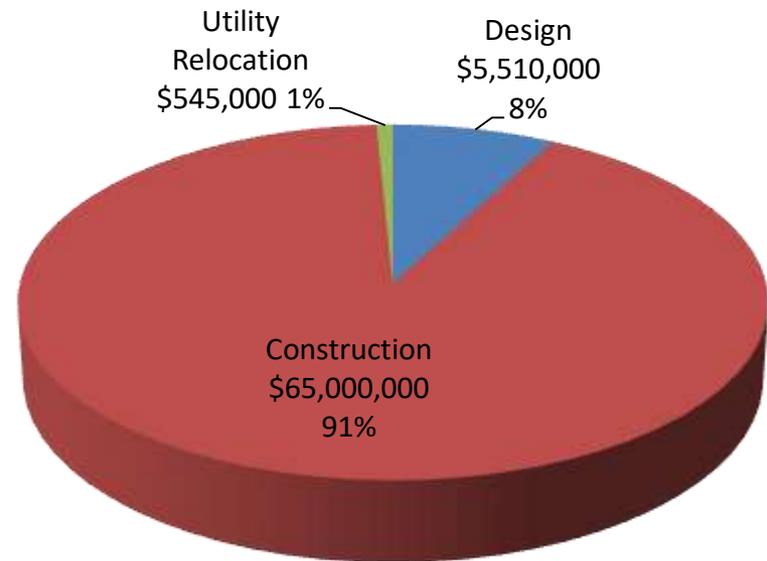


\$10.5 million wildlife mitigation

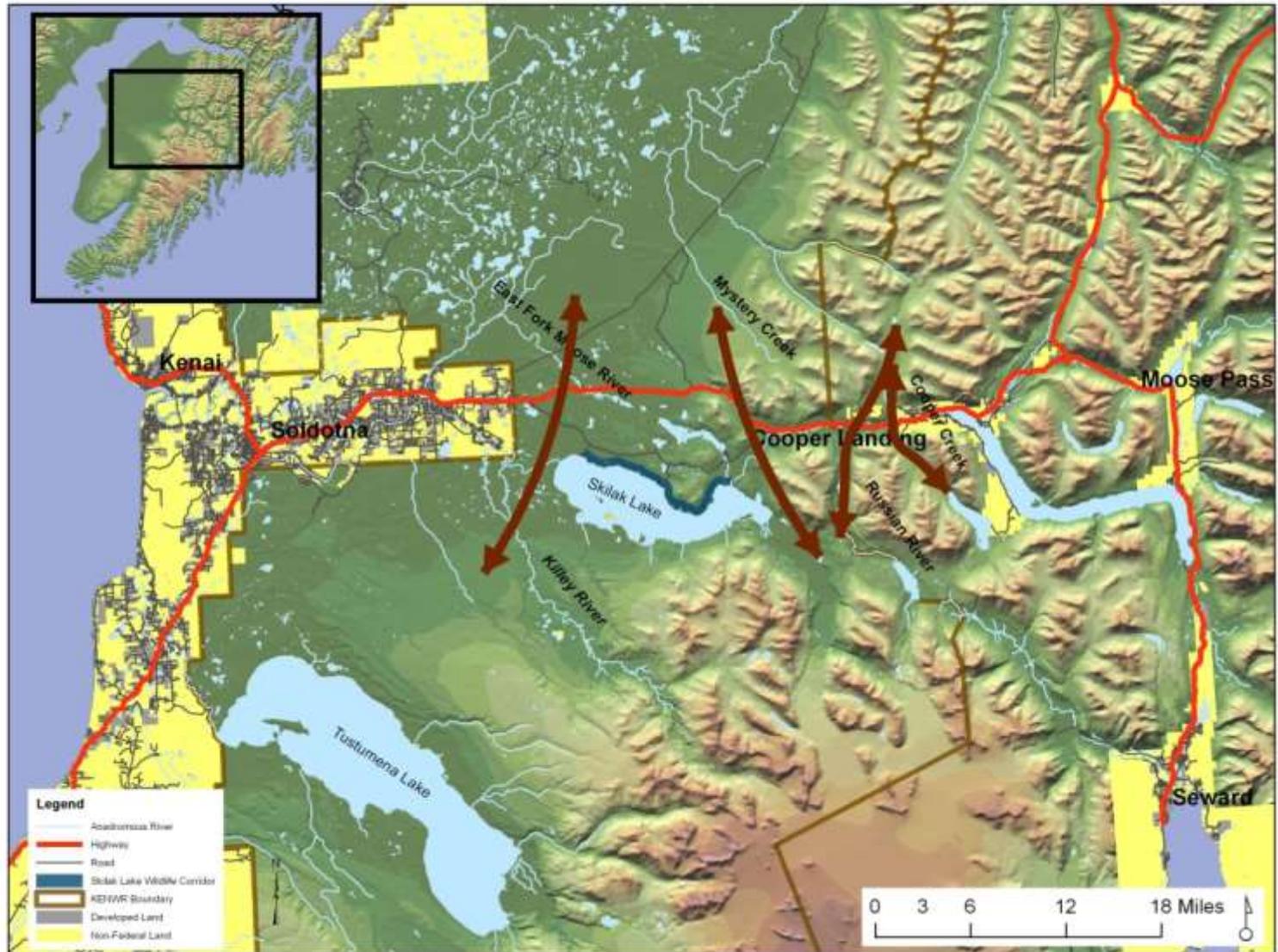
| Milepost | Structure (net clearance) | Cost |
|-----------|---|-------------|
| 75.3 | structural plate pipe-arch 8' X 8' | \$550,410 |
| 73.4 | structural plate horizontal ellipse 20' X 16' | \$1,255,690 |
| | structural plate horizontal ellipse 20 X 16' | |
| | additional fill for 6a and 6B (~ 20,000 yd ³) | \$508,405 |
| 71.4 | East Fork Moose River bridge (104' X 18') | \$2,473,104 |
| 64.8 | structural plate underpass 14' X 14' | \$957,183 |
| 61.9 | structural plate underpass 14' X 14' | \$572,740 |
| 58.2 | structural plate underpass 14' X 14' | \$627,661 |
| | retaining walls for wildlife undercrossings | \$718,189 |
| | cast-in-place retaining wall (Jean Lake) | \$1,752,622 |
| 71.3-73.6 | moose fence, 9' high, | \$487,041 |
| | 22 jump-outs | \$398,323 |

MP 58–79 project total cost \$71 million (bid amount)

- 93.4% Federal funds
- \$10.5 million wildlife mitigation
 - \$1.5 million NWRS-WO funds
 - \$1.3 million gravel
- \$0.6 million Skyline Trail underpass
 - \$1 million FLAP grant



Only 3 landscape-scaled corridors remain for north-south wildlife movement (<20% of area historically available)



Partnership and Collaboration!



THANK YOU



U.S. Department
of Transportation

**Federal Highway
Administration**

