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

Source: Alaska State Troopers

WILDLIFE-VEHICLE COLLISIONS

Moose 81%
Black Bear 14%
Brown Bear 2%
Caribou 3%

Source: Alaska DOT

Traffic Volume

Source: Alaska DOT
Vehicle collisions kill half as many moose (~250) as harvested by hunters (~500)
## Wildlife-Vehicle Collision Reduction Study: Report To Congress, FHWA 2008

> $7.75 million per year on Kenai Peninsula!

<table>
<thead>
<tr>
<th></th>
<th>Deer</th>
<th>Elk</th>
<th>Moose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle repair costs per collision</td>
<td>$1,840</td>
<td>$3,000</td>
<td>$4,000</td>
</tr>
<tr>
<td>Human injuries per collision</td>
<td>$2,702</td>
<td>$5,403</td>
<td>$10,807</td>
</tr>
<tr>
<td>Human fatalities per collision</td>
<td>$1,671</td>
<td>$6,683</td>
<td>$13,366</td>
</tr>
<tr>
<td>Towing, accident attendance and investigation</td>
<td>$125</td>
<td>$375</td>
<td>$500</td>
</tr>
<tr>
<td>Monetary value animal per collision</td>
<td>$2,000</td>
<td>$3,000</td>
<td>$2,000</td>
</tr>
<tr>
<td>Carcass removal and disposal per collision</td>
<td>$50</td>
<td>$100</td>
<td>$100</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$8,388</strong></td>
<td><strong>$18,561</strong></td>
<td><strong>$30,773</strong></td>
</tr>
</tbody>
</table>
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
**Option 6D-I: Proposed Wildlife Undercrossings**
Horizontal Ellipse 16' x 23.45' Dual Culverts
20,880' 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+50

3) Wildlife Underpass
14' x 14' Culvert
400' Fencing
Station: 793+15

4) Wildlife Underpass
8' x 8' Culvert
400' Fencing
Station: 1151+15

**USFWS Enhancements Requests**

<table>
<thead>
<tr>
<th>Wildlife Crossing #</th>
<th>Item</th>
<th>Mile Post</th>
<th>Station</th>
<th># of Lanes</th>
<th>Increased Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>East Fork Moose River Bridge (138'x43')</td>
<td>-MP 71.4</td>
<td>STA 495+50</td>
<td>2</td>
<td>$3,995,000</td>
</tr>
<tr>
<td>2</td>
<td>Wildlife Underpass (14'x14')</td>
<td>-MP 61.9</td>
<td>STA 937+80</td>
<td>2</td>
<td>$307,000</td>
</tr>
<tr>
<td>3</td>
<td>Wildlife Underpass (14'x14')</td>
<td>-MP 64.8</td>
<td>STA 792+15</td>
<td>4</td>
<td>$446,000</td>
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<tr>
<td>4</td>
<td>Wildlife Underpass (8'x8')</td>
<td>-MP 18.2</td>
<td>STA 1151+75</td>
<td>4</td>
<td>$307,000</td>
</tr>
<tr>
<td>5</td>
<td>Wildlife Underpass (8'x8')</td>
<td>-MP 75.3</td>
<td>STA 251+40</td>
<td>2</td>
<td>$226,000</td>
</tr>
</tbody>
</table>

**SUBTOTAL**: $4,279,000

5) East Fork Moose River Bridge (138'x43')
-MP 71.4
STA 495+50
2
$3,995,000

6) Option I
6D Wildlife Underpass (19'x23.45')
-SP 73.4
STA 350+00
2
$4,226,000

**TOTAL with 6D Option I**: $8,505,000

6) Option II
6D Wildlife Underpass (19'x23.45')
-SP 72.2
STA 415+00
2
$3,200,000

**TOTAL with 6D Option II**: $8,505,000

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**U.S. Fish & Wildlife Services**

**Requested Wildlife Enhancements**

T 5 N, R 5 W
Seward Meridian, Alaska

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**STATE OF ALASKA**

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

DOT & PF Project No. 1M-043-3(14) / 54690
Sterling Hwy. Skilak Lake Road to Sterling Rehabilitation Project
Cooper Landing, Alaska

August 19, 2014

Figure 1
MP 75.3 8’x8’ underpass
MP73.4 20’x16’ underpasses (2), EFMR 104’x18’ bridge
East Fork Moose River

- 104’ X 18’ clearance
- ≥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
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

<table>
<thead>
<tr>
<th>Milepost</th>
<th>Structure (net clearance)</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>75.3</td>
<td>structural plate pipe-arch 8’ X 8’</td>
<td>$550,410</td>
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<tr>
<td>73.4</td>
<td>structural plate horizontal ellipse 20' X 16'</td>
<td>$1,255,690</td>
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<tr>
<td></td>
<td>structural plate horizontal ellipse 20 X 16'</td>
<td></td>
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<tr>
<td></td>
<td>additional fill for 6a and 6B (~ 20,000 yd³)</td>
<td>$508,405</td>
</tr>
<tr>
<td>71.4</td>
<td>East Fork Moose River bridge (104’ X 18’)</td>
<td>$2,473,104</td>
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<tr>
<td>64.8</td>
<td>structural plate underpass 14’ X 14'</td>
<td>$957,183</td>
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<tr>
<td>61.9</td>
<td>structural plate underpass 14’ X 14'</td>
<td>$572,740</td>
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<tr>
<td>58.2</td>
<td>structural plate underpass 14’ X 14'</td>
<td>$627,661</td>
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<tr>
<td></td>
<td>retaining walls for wildlife undercrossings</td>
<td>$718,189</td>
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<tr>
<td></td>
<td>cast-in-place retaining wall (Jean Lake)</td>
<td>$1,752,622</td>
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<tr>
<td>71.3-73.6</td>
<td>moose fence, 9’ high,</td>
<td>$487,041</td>
</tr>
<tr>
<td></td>
<td>22 jump-outs</td>
<td>$398,323</td>
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</tbody>
</table>
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