U. S. HIGHWAY 93 RECONSTRUCTION
ON THE FLATHEAD INDIAN RESERVATION
Addressing Highway-related Habitat Fragmentation

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1991 - Montana Department of Transportation (MDOT) began planning for reconstruction of U. S. Highway 93 on the Flathead Indian Reservation.

Justification:
1. Public safety
2. Increasing traffic
3. Increasing population
CSKT’s primary concern related to further dilution of their culture.
Wildlife and habitat issues were significant concerns.
Subdivision/Habitat Fragmentation
Wildlife Movement/Habitat Fragmentation
Wetland Habitat Impacts
Wildlife/Vehicle Collisions
MDOT’s Preferred Alternative
Divided four-lane design
The Confederated Salish and Kootenai Tribes disagreed and recommended an improved two-lane highway with safety improvements through their reservation.
Without consensus, the Federal Highway Administration would not authorize and fund the project. Gridlock occurred.

In 1999, the three governments began negotiations to resolve their differences.

In 2000, consensus between the three governments was reached for most of the route, except for the Ninepipe – Kicking Horse Wetland and City of Ronan areas.
Problem Resolution Process
Context Sensitive Approach
Multi-tiered process for project design
Value engineering to economize
Technical Design Committee: Engineers
Design Engineers
Consultants
Ecologists
Landscape Architects
Policy Oversight Group: MDOT Administrators
FHWA Administrators
Tribal Council
Spirits of Place Photomontage

Spirits of Place
Mountains
Plains
Hills
Forest
Valley
Sky

What defines this place...
places and paths
formed by water
glaciers
wind
plants
animals
insects....
US 93 FISH AND WILDLIFE CROSSINGS

18. Ravalli Curves #2 Wildlife Crossing
Arlee - Ravalli Segment

This area has great significance for fish and wildlife crossing. The Jacko River is rich in trout-bearing. Two tributaries in the area, Cotton Creek and Spring Creek have been altered by highway fills and embankments. Restoring these water channels will greatly improve fish and wildlife habitat. Raising the road in concert with providing undercrossings, would improve motorist safety and allow wildlife to move through the canyon. Anticipated use by black bears, grizzly bears, mountain lions, bobcats, coyotes, elk, deer, etc.

Design Recommendations
Recommended crossing type: Corrugated metal pipe or concrete box culvert
Approximate dimensions: 12' x 22'

Notes:
Continue 8' wide fencing along both sides of road. Begin 5' page wire fencing south of Schall Flats #4 crossing; continue to a point south of Ravalli. Provide cattle guards for connecting roads and driveways. Fencing on west side of road to be placed below sight line.

Criteria for locations of crossings:
1. Winter tracking - WA
2. Summer Game Trails - NA
3. Road Kill Data - Tribal data from 1995-1998 combined with MDT data from 1997-1998 indicates an extremely high concentration of kills in this area (21 kills)
4. Habitat - The road bisects two areas of good mountain habitat, and runs adjacent to excellent riparian habitat (the Jacko River) and by two tributaries (Spring Creek and Copper Creek). These tributaries increase the fish and wildlife habitat value.
5. Engineering Practicality - The physical constraints of this canyon poses a challenge.
Wildlife Crossing Structures
Crossing Structure Locations

Most crossing structures per mile for longest distance in U.S.
Pre- and Post-construction Monitoring
WTI, CSKT, MDOT
Wildlife Jumpout Use
In 2010, 28 structures were monitored using wildlife cameras.

<table>
<thead>
<tr>
<th>Species</th>
<th>Number</th>
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<tbody>
<tr>
<td>white-tailed deer</td>
<td>6,712</td>
</tr>
<tr>
<td>mule deer</td>
<td>1,174</td>
</tr>
<tr>
<td>deer (unk. species)</td>
<td>561</td>
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<tr>
<td>domestic dog</td>
<td>1,130</td>
</tr>
<tr>
<td>domestic cat</td>
<td>785</td>
</tr>
<tr>
<td>other</td>
<td>1,660</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>12,022</strong></td>
</tr>
</tbody>
</table>

This is a minimum, as not all structures were monitored for the entire year.

From Huijser et al. 2012.
White-tailed deer (*Odocoileus virginianus*), 14,206, 63%

Dog (*Canis lupus familiaris*), 2,362, 11%

Deer mule (*Odocoileus hemionus*), 1,952, 9%

Domestic cat (*Felis catus*), 1,588, 7%

Other, 2,358, 10%

CSKT acquired a 81 ha. tract, restored the wetland and riparian habitat and sold habitat mitigation credits to MDOT.
Ninepipe-Kicking Horse SEIS is completed, but construction is not planned until after 2015.
Expanded post-construction monitoring project has begun to determine:

1) to what extent wildlife are using the structures;
2) if there is increased safety; and
3) cost effectiveness.
Partners