Restoring Fish Passage at WSDOT Stream Crossings

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WSDOT & the Federal “Culvert” Injunction

- WSDOT has about 2,000 fish barriers statewide

- 996 WSDOT barriers subject to injunction as of June 2016

- 825 with significant habitat (>200 m)
  - Must be corrected by 2030
  - Barriers with up to 10% of the total habitat can be deferred until end of life or corrected as part of other transportation projects
    - Requires about 475 barrier corrections to reach 90% of the habitat

- 171 barriers having <200 m habitat must be corrected at the end of the structure’s life, or as part of other transportation projects
http://www.wsdot.wa.gov/Projects/FishPassage/default.htm
Evolution of a fish passage project

SR 99 West Fork Hylebos Creek

Crossings must mimic natural stream conditions

BEFORE: Previous culvert had excessive velocities and outfall drop.


Correction Status – 2013 Injunction through 2016 Construction Season
Injunction Target – Open 90% Habitat by 2030 (~475 Barrier Corrections)

<table>
<thead>
<tr>
<th>Barriers Addressed Through 2016</th>
<th>Number</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stand Alone Corrections</td>
<td>29</td>
<td>$67.2 M</td>
</tr>
<tr>
<td>Included in Larger Transportation Projects,</td>
<td>14</td>
<td>$30.2 M*</td>
</tr>
<tr>
<td>including Emergency Repairs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>43</td>
<td>$97.4M</td>
</tr>
</tbody>
</table>

*From 2011 Program-Level Estimate

Remaining Barriers to be Addressed to Reach 90% Habitat by 2030

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stand Alone Corrections</td>
<td>432</td>
</tr>
<tr>
<td>Included in Larger Transportation Projects</td>
<td>TBD**</td>
</tr>
<tr>
<td>TOTAL</td>
<td>432</td>
</tr>
</tbody>
</table>

GRAND TOTAL ~475

**Evaluation in Process
Cost to Meet Culvert Injunction

$2.4 billion – current estimate

• Estimate determined considering stream width; length of culvert and height of roadway above the culvert

• Using the factors above, projects were categorized as small, medium and large

• Standard costs were established for these categories

• Overall estimate includes inflation

Estimate doesn’t include:

– correcting barriers outside injunction area
– cost of correcting barriers with <200 meters of habitat
– cost of correcting future barriers
## WSDOT Injunction Delivery Plan

Reflects Governor’s Proposed 2017-19 Budget, including Connecting Washington Funds

<table>
<thead>
<tr>
<th>Biennium (in Millions)</th>
<th>13-15</th>
<th>15-17</th>
<th>17-19</th>
<th>19-21</th>
<th>21-23</th>
<th>23-25 to 29-31</th>
<th>Cumulative Total thru 29-31</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Funding</td>
<td>$23.8</td>
<td>$78.5</td>
<td>$97.5</td>
<td>$89.3</td>
<td>$91.4</td>
<td>$446.0</td>
<td>$826.2</td>
</tr>
<tr>
<td>Cumulative Barriers Corrected</td>
<td>18*</td>
<td>43*</td>
<td>64</td>
<td>85</td>
<td>104</td>
<td>170*</td>
<td>170-172*</td>
</tr>
<tr>
<td>Cumulative Habitat Gain %</td>
<td>4%</td>
<td>14%</td>
<td>25%</td>
<td>37%</td>
<td>44%</td>
<td>70%</td>
<td>65% to 70%**</td>
</tr>
</tbody>
</table>

*Includes barriers in other highway projects
**Per tribal agreement, WSDOT re-estimates habitat blocked yearly based on new information
Cost and Complexity Drivers for High Volume Highways

- Public Safety

- Design Requirements
  - Geotechnical Conditions
  - Traffic Volumes and Loads
  - Seismic

- In-Water Work Timing Limitations

SR 542 Anderson Creek
SR 202 Coe Clemmons Creek
SR 522 Lyon Creek
Efficiencies in Correcting Barriers

- Developed specialized fish passage delivery teams
- Created standard designs for buried structures for 20 – 60 foot spans
- Streamlined Federal ESA consultations – programmatic approvals in place (e.g., NOAA approvals now taking 2 days compared to 45-288 days in past)
- Established Executive Oversight Committee with WDFW to improve the permitting process
- Implementing Practical Design -- focus on only correcting barriers, and not making other improvements
- Using on-call consultants and Design/Build to meet delivery dates
- Bundling projects to achieve geographic efficiencies
Dogfish Creek Fish Passage Coordination

2007 - Mid-Sound Salmon Enhancement Group replaced private culvert through Family Forest and Fish Passage Program

1999 - Kitsap County corrected barrier

2007 - WSDOT corrected SR 307

1998 - WSDOT corrected SR 305 barrier

2007 - City of Poulsbo corrected barrier

2016 - SR 307 fish passage project

2013 - Private barrier corrected

1998 - Kitsap County corrected barrier

1999 - Kitsap County corrected barrier

Legend
Barrier_Status_Desc

- No
- Yes
- Unknown

Sources: Esri HERE, DeLorme, USGS, Intermap, Increment P Corp., NRCAM, China, IGN (France), IGN (France), TomTom, MapmyIndia, © OpenStreetMap contributors
Purdy Creek Partnership

WSDOT barrier at SR 302 is estuary-tidally influenced

Pierce County barrier at 144th St NW

Early planning underway for a combined correction of fish passage barriers
Contact

For more information about Restoring Fish Passage at WSDOT Stream Crossings, please contact:

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