Transportation Operations and Ecology: Working In and Around Water

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Maintenance and Operations Management; Ecology and Transportation
ODOT's OTIA III Bridge Program: Stewardship through Environmental Performance Standards

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HDR, Inc.
Salem, Oregon
$2.5 billion transportation package

Enacted by 2003 Legislature (House Bill 2041)

Largest investment in Oregon transportation infrastructure in 50 years

Includes $1.3 billion to repair or replace almost 400 bridges on the state highway system
365+ Bridges throughout Oregon
Environmental Stewardship Program

OTIA III Goals

- Capitalize on funding opportunities
- Stimulate the economy
- Employ efficient and cost-effective delivery practices
- Build projects that are sensitive to their communities and landscape
- Maintain freight mobility/keep traffic moving

Program Success

CS³
Why is the standard environmental process a significant hurdle?

- Web of regulations can be challenging

  - Federal Endangered Species Act
  - Oregon State Endangered Species Act
  - Fish and Wildlife Coordination Act
  - Migratory Bird Treaty Act
  - Clean Water Act § 404
  - Clean Water Act § 401
  - Clean Water Act § 402 (MS4 & 1200 – CA)
  - Bald Eagle Protection Act
  - Coastal Zone Management Act
  - Oregon Removal/Fill Law
  - Marine Mammal Protection Act
  - Magnuson-Stevens Fishery Conservation and Management Act
  - National Environmental Policy Act
  - Wild and Scenic Rivers Act
  - Department of Transportation Act of 1966 § 4(f)
  - National Historic Preservation Act
  - Rivers and Harbors Act § 9 & 10
Environmental Stewardship Program
Program Philosophy

- Certainty
- Consistency
- Flexibility
- Innovation
5 OTIA III Goals

Environmental Performance Standards

Programmatics:

- Regional General Permit (Corps)
- Joint Biological Opinion (USFWS and NMFS)
- Letter of Agreement (ODFW)
- Others
What they are and how they came to be:

- Outline process/expectations for avoidance, minimization, and mitigation of adverse environmental effects.

- Developed with team of regulatory and resource specialists from NMFS, USFWS, ODFW, DEQ, and others.

- Focus on enhancing habitats and promoting long-term natural habitat forming processes.
Environmental Performance Standards

Elements

- Goal
  - What does success look like?

- Threshold Statement
  - Relevant to my project?

- Objectives
  - How do I measure success?

- Means, Methods, or Materials
  - How can I achieve success?

- Compliance Documentation
  - How do I document success?
Environmental Performance Standards

What do they cover?

- **Species**
  - Fish
  - Wildlife (birds, bats, passage)
  - Plants
  - Invertebrates

- **Habitat**
  - Removal
  - Streambank Protection
  - Water Quality
  - Site Restoration
  - Compensatory Mitigation
  - Fluvial
Environmental Performance Standards

Species

- In-water work
Environmental Performance Standards

Species

- Capture & Release
Environmental Performance Standards

Species
- High Noise
Environmental Performance Standards

Species

- Clearing / Nest Removal
Environmental Performance Standards

Habitat

- Bat Roosting
Environmental Performance Standards

Habitat

- Stormwater Treatment
Habitat

- Passage

Maintain and re-connect aquatic habitats within the construction project footprint:
“Avoid and minimize adverse effects to natural stream and floodplain function by limiting streambank protection actions to those that are not expected to have long-term adverse effects on aquatic habitats”
Environmental Performance Standards

Fluvial Focus - at the center

- Fish Passage
- Fish Habitat
- Wetland Functions
- Water Quality
- Channel Migration
- Wildlife Passage
- Wildlife Habitat
- Floodplain Functions

Fluvial Standard
Environmental Performance Standards
Fluvial Focus - Goal

- Promote longitudinal continuity
  - Natural sediment transport patterns
  - Unaltered fluvial debris movement
- Allow lateral connectivity
  - Bridge the functional floodplain
  - Accommodate potential flow pathways and channel migration
Environmental Performance Standards
Fluvial Focus - Engineers “can do” anything

ENGINEERS Can Do ANYTHING

RACING ashore on beaches, American troops make westwards towards Cherbourg—necessary objective because a harbor would prevent the continued use of beaches because invading armies would grow in strength. Fluvial Focus—engineers emphasized the Engineer mission of keeping dominating the river.

Pointing the spearhead were engineers and key tactical bridging across the Teutoburger Vorgebirge, with its strategically important artillery fire, a repetitious job. The enemy knocked out and again with missed artillery. But as they moved, Engineer soldiers restored and kept the Army moving.

They were keeping the Army moving. It was no new mission, for the 1st Engt of the 1st Inf. Div., when it hit and kept its division streaming across it. It was the same Co. A, when commanded.

ENGINEERING THE VICTORY

The Story of the Corps of Engineers

ONE MORE River TO SPAN

ION has the Engineers as bridge builders. In 1944, an Engineers battalion of the Army of the Rhineland was a key factor in the crossing of the Rhine River in seven hours. The river is not only a key factor in the crossing, but it also provided the bridgehead, with its artillery and its defenses, without delay in 48 hours. In World War I, General Pershing, in his battle of the Meuse-Argonne, wrote that it couldn’t be done, but the story Engineers didn’t know that—did it and “did it” just as the Army was moving towards Berlin. It was perhaps fitting that one of the last and biggest battles for the Allies was the crossing of the Rhine in 1944.
Environmental Performance Standards

Fluvial Focus - for example...
Environmental Performance Standards
Fluvial Focus - what the standard is not
Environmental Performance Standards

Fluvial Focus - vision
Before bridge replacement
Before bridge replacement
Elevation view of grading for fluvial
Plan view of grading plans for fluvial
Days after grading for fluvial
Days after grading for fluvial
The OTIA III Program uses...

- Integrated and
- Collaborative approaches to
- Successfully build projects that are sensitive to their communities and landscape.
Our Challenge

Many **untested** Environmental Performance Standards

**Unique** Programmatic Permits

Desire to verify we are meeting the **intent**

Our Solution

1 PARIT

Programmatic Agreements Reporting and Implementation Team
Mission of the PARIT:

- Facilitate the successful implementation of the OTIA III State Bridge Delivery Program’s Environmental Stewardship Program

Goals:

1. Develop effective communication protocols
2. Develop effective monitoring & reporting procedures
3. Calibrate understanding of permitting process, compliance, and environmental performance standard intent
4. Refine the permitting process to better achieve the missions and goals of all involved agencies
Environmental Stewardship Program

PARIT

- Two working meetings each month
- One evaluation meeting each year
- Agency participants (liaisons)
  - ODFW
  - DSL
  - Corps
  - NMFS
  - USFWS
  - DEQ
  - FHWA
  - Others
Pre-Construction Assessment (PCA)

- Single programmatic permitting application
- Documents compliance with Environmental Performance Standards
- From issue identification (effect) to resolution (specs)
- Web-based interface
- Agency-friendly output and electronic report routing (EDMS)
- Integrated QC
- Metrics tracking
- 30-day agency review
110 bridges permitted in 2007
Less than 30-day agency review
No surprises, no redesigns
Fluvial standard reduces long-term operational costs

Lesson – often, what’s good for maintenance’s budget is also good for the environment...