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/s/ Douglas B. MacDonald  
Secretary of Transportation

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Director, Environmental Services

## **Protections and Connections for High Quality Natural Habitats**

### **I. Introduction**

Like human communities, fish and wildlife communities depend on mobility. Across the land and through the water, wildlife must move in good quality habitats from place to place for foraging, breeding, and for rearing young. These natural processes take place in every setting in Washington from estuaries and streams to rainforests and coastal valleys to arid shrub steppes and alpine meadows.

Washington's roads and highways that provide for the movement of people and goods across the state also impose impacts upon the state's diverse terrestrial and aquatic habitats. These habitats make up complex and fragile ecosystems and they sustain the many species that make up the biodiversity of our region. Over 650 different vertebrate species of fish and wildlife, as well as innumerable plants and aquatic and terrestrial invertebrates depend on natural habitats in Washington State for all or part of their life cycles.

Natural habitats and processes have been altered by many different human land use activities. Roadways and highways are among the many human activities that can impact natural habitats.

The importance of understanding and protecting natural habitats and ecosystems has been further underscored through the creation of the Washington Biodiversity Council. This partnership of agencies and organizations has been directed to develop strategies for improving the protection of the state's biodiversity.

## II. A Growing Understanding of Road Ecology

Wildlife biologists and others with the benefit of careful research and field studies are now appreciating the complex relationships between human transportation corridors and the natural environment, including the barriers that roadways present to the breeding, migrations, and sustenance of wildlife. This field of study is known as Road Ecology. A poorly designed and failing roadway culvert can block a spawning stream, but the effect to a fish species is magnified when this occurs at hundreds of culverts over large areas of spawning habitat. Similarly, highways criss-crossing the state hinder movement of species like deer, elk, wolverine, bobcat, or lynx. The contribution of highways to the ever-increasing fragmentation of natural habitat is one among many significant forms of habitat degradation from human activities and land uses that threaten the health and survival of natural plant and animal communities.

Roads and highways present the following problems for the health of wildlife and the maintenance of biodiversity in our state:

- Roads and highways reduce natural habitat; disturbance from traffic and other operational activities can degrade adjacent habitat quality for some species.
- Roads and highways can be barriers to wildlife movement, causing the natural ranges of wildlife communities to be divided and shrunk in ways that can threaten the well being of species communities and individuals.
- Collisions with wildlife present a significant safety threat to motorists. Roads and highways carry fast-moving motor vehicles; collision can cause extensive injury and mortality to wildlife as well as injury and property damage for motorists.
- Roads and highways and their right of way sometimes facilitate the spread of non-native invasive plant species.

## III. Assuring Protection and Preservation

Washington State Department of Transportation (WSDOT), in partnership with other agencies, organizations, and the public, must assure that road and highway programs recognize, together with other needs, the importance of protecting ecosystem health, the viability of aquatic and terrestrial wildlife species, and the preservation of biodiversity.

To meet these aims, WSDOT intends:

- To identify potentially affected fish and wildlife habitats as early as possible during the planning process for projects and programs and in preparation of regional and statewide long-range transportation plans. This planning should seek to integrate state conservation and biodiversity plans and other available natural resource information. Transportation planning should recognize and respond to particular concerns and opportunities for habitat preservation and the need for habitat connections. The earlier that habitat concerns are taken up in project planning, the likelier that good habitat approaches to state investment in habitat protection and habitat connectivity can be incorporated into projects.
- To locate specific opportunities to restore habitat connectivity already damaged by human transportation corridors. Such opportunities should be prioritized for maximum ecological benefit by taking account of such factors as the multiplicity of benefited species, as well as the opportunity to support recovery of threatened and endangered species, the long-term security and viability of the habitat connection, and the cost-effectiveness of achieving connectivity gains. Such opportunities can be located and achieved both as part of capital projects and in ordinary maintenance activities.
- To cooperate and coordinate with other agencies involved in wildlife habitat protection. This aim will ensure compatibility of natural resource and habitat management in adjacent areas so that wildlife connections provided at roadways will link to functional and permanently protected wildlife corridors. Ultimately, WSDOT and other agencies should seek to develop a statewide habitat connectivity plan to better integrate overall habitat management with transportation planning.
- To support the use of site appropriate native plant species in roadside landscaping and vegetation management and to protect adjacent natural plant communities.
- To develop and follow design criteria for transportation structures that help promote fish and wildlife movement and minimize habitat degradation. WSDOT recognizes the Washington Department of Fish and Wildlife's manual, *Design of Road Culverts for Fish Passage (2003)*, as a primary source for information on fish passage designs. Guidance, criteria, and manuals for structures affecting terrestrial species will be developed.

- To protect and enhance important wildlife habitat areas near highways on highway right of way in ways compatible with highway operations, and to support efforts to promote the traveling public's awareness and enjoyment of wildlife in the state.

#### IV. Secretary's Executive Order

WSDOT's Environmental Services Office shall coordinate the implementation of this policy by working with the support and cooperation of planning, design, engineering, construction, and maintenance offices throughout WSDOT, including all of its departments and divisions.

#### V. Additional Information and Resources

For more information please contact the Environmental professional in your organizations, or the Environmental Services Office in Olympia Headquarters.

- Environmental Services Employee Website  
~~<http://www.wsdot.wa.gov/eesc/environmental/>~~  
[www.wsdot.wa.gov/environment/](http://www.wsdot.wa.gov/environment/)  
[10/14/2010 updated link]
- Environmental Services Public Website  
[www.wsdot.wa.gov/environment/](http://www.wsdot.wa.gov/environment/)
- *Environmental Policy Statement* Executive Order E 1018.00  
~~<http://www.wsdot.wa.gov/docs/OperatingRulesProcedures/1018.pdf>~~  
[www.wsdot.wa.gov/publications/policies/fulltext/1018.pdf](http://www.wsdot.wa.gov/publications/policies/fulltext/1018.pdf)  
[10/14/2010 updated link]
- *Environmental Procedures Manual* M 31-11  
~~<http://www.wsdot.wa.gov/fasc/EngineeringPublications/Manuals/EPM/EPM.htm>~~  
<http://www.wsdot.wa.gov/Publications/Manuals/M31-11.htm>  
[10/14/2010 updated link]  
- excerpt:  
*Chapter 100.01 Introduction: The Environmental Procedures Manual provides guidance from complying with federal, state, and local environmental laws and regulations during the planning, designing, constructing, and maintenance of transportation facilities in Washington State.*

- *Context Sensitive Solutions* Secretary's Executive Order E 1028.00  
<http://wwwi.wsdot.wa.gov/docs/OperatingRulesProcedures/1028.pdf>  
[wwwi.wsdot.wa.gov/publications/policies/fulltext/1028.pdf](http://wwwi.wsdot.wa.gov/publications/policies/fulltext/1028.pdf)  
[10/14/2010 updated link]
- *Environmental Compliance Assurance Procedure for Construction, Projects, and Activities* Instructional Letter IL 4055.02  
<http://wwwi.wsdot.wa.gov/docs/OperatingRulesProcedures/4055.pdf>  
[10/14/2010 Superseded by the *Construction Manual* M 41-01  
[www.wsdot.wa.gov/publications/manuals/m41-01.htm](http://www.wsdot.wa.gov/publications/manuals/m41-01.htm)  
10/14/2010 updated link]
- *Environmental Compliance Assurance Procedure for Maintenance Work Activities* Instructional Letter IL 4057.01  
<http://wwwi.wsdot.wa.gov/docs/OperatingRulesProcedures/4057.pdf>  
[Superseded by *Environmental Procedures Manual* M 31-11 Chapter 790  
[www.wsdot.wa.gov/publications/manuals/m31-11.htm](http://www.wsdot.wa.gov/publications/manuals/m31-11.htm)  
10/14/2010 updated link]
- *Protection of Wetlands Action Plan* Directive D 31-12  
<http://wwwi.wsdot.wa.gov/docs/OperatingRulesProcedures/3112.pdf>  
[wwwi.wsdot.wa.gov/publications/policies/fulltext/3112.pdf](http://wwwi.wsdot.wa.gov/publications/policies/fulltext/3112.pdf)  
10/14/2010 updated link]



## Americans with Disabilities Act (ADA) Information

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