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**Before the Senate Committee on Environment and Public Works
Subcommittee on Water and Wildlife**

**Hearing on Solving the Problem of Polluted Transportation
Infrastructure Stormwater Runoff**

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Introduction

Protecting the environment is a core value of Oregonians, and the Oregon Department of Transportation (ODOT) is doing its part to protect our streams and rivers from stormwater runoff from our highways. In response to the listing of salmon as a threatened species under the Endangered Species Act, ODOT has worked with its state and federal regulatory partners to develop and implement a set of measures to address stormwater from road projects that increase the amount of impervious surface. By implementing these measures ODOT will progressively reduce the impacts of the highway system on the quality of the state's waters.

These measures were negotiated with our regulatory partners and address the unique circumstances we face in the Pacific Northwest. This negotiation allowed us to achieve the regulators' goals around environmental protection while providing ODOT regulatory certainty and measures that can be implemented at a reasonable cost. The approach we developed includes flexibility in how we meet the performance standard for a project, allowing for off-site mitigation where site conditions at a project make it difficult to achieve the goal on-site. This allows progress to be made on water quality without derailing important transportation projects.

Going forward, ODOT hopes to work with regulatory agencies to move away from a project-by-project approach and develop a more strategic, watershed-based effort that focuses on areas where improvements to highways can have the greatest environmental benefit at a reasonable cost. While federal direction in this area could improve environmental outcomes, any nationwide effort needs to take into account the unique circumstances in each state while allowing flexibility for negotiating mutually beneficial outcomes between regulators and transportation agencies.

ODOT's Approach to Environmental Protection

Oregon, with its strong green ethos and focus on environmental stewardship and sustainability, has been a leader in ensuring that transportation projects complement rather than compromise the natural and built environment. ODOT's approach focuses on green outcomes, not red tape, and works to streamline regulatory processes while improving environmental outcomes. We work to build the

concept of “environmental uplift” into all of our programs so that we are leaving the environment in a better condition than we found it. We have found that working closely with all of our regulatory partners and coordinating programmatic agreements that offer a single set of terms and conditions can lead to improved environmental outcomes while reducing our costs and improving project delivery timelines.

For example, ODOT recently faced the need to repair or replace nearly 300 bridges in a decade under the Oregon Transportation Investment Act (OTIA) III State Bridge Delivery Program. In response, ODOT worked with regulatory agencies to develop programmatic agreements that allowed ODOT to develop projects that met certain terms and conditions agreed to by regulatory agencies. These projects then received an expedited review and moved quickly through the permitting process. In the end, ODOT saved time as well as an estimated \$73 million in delivering the projects, and the terms and conditions negotiated with regulatory agencies ensured the projects actually enhanced the environment.

Stormwater Management for Highway Projects

ODOT’s management of highway runoff has evolved considerably over the last 25 years, going from occasionally treating stormwater from new impervious surface area to routinely treating all of a project’s pavement. In the beginning, the decision to treat stormwater was based on an analysis of whether a project would result in exceeding toxicity criteria or other water quality standards. This approach was incorporated into the stormwater management plan in ODOT’s permits. Regulatory oversight over individual projects was limited to projects needing water quality certification from the Oregon Department of Environmental Quality (DEQ)—the state’s environmental regulatory agency— for projects requiring a permit from the Corps of Engineers for filling in waters and wetlands of the United States. DEQ did not require submittal of project stormwater management plan reports.

The Endangered Species Act (ESA) listing of salmon in Oregon’s rivers and streams added a layer of complexity to the regulation of highway runoff. The National Marine Fisheries Service (NMFS), which has regulatory authority for the recovery of salmon listed under the ESA, recognized that highway runoff was a contributor to the conditions leading to the fish’s decline and began including evaluation of stormwater impacts in Biological Opinions. As a result, ODOT and NMFS faced uncertainty about how to address stormwater in projects. For the first time ODOT was faced with regulatory review of stormwater for a large percentage of its projects, with requirements and demands varying from one to the next. One major project was held up for a year and a half because of delayed review by NMFS. Furthermore, DEQ responded to increased understanding of the impact of stormwater by tightening up their review and requirements, but without clear guidance. Unfortunately, there was no consistency between DEQ and NMFS, leading to consternation at ODOT when plans acceptable to one agency were rejected by the other.

The programmatic permitting for the OTIA III Bridge Program included stormwater requirements, which functioned well. The increasing awareness of the adverse effects of stormwater, particularly of metal pollution, led to escalating requirements outside of the OTIA III projects, and once again inconsistency between regulatory agencies. By the middle of the 2000s, all parties were frustrated and project delays due to stormwater were a real possibility. At that point, ODOT convened a multi-agency panel to develop practical and consistent highway runoff management criteria.

ODOT, NMFS and DEQ were the primary agencies on the Stormwater Action Team (SWAT), but other state and federal agencies—including the Federal highway Administration (FHWA), U.S. Fish and Wildlife Service (USFWS), Oregon Department of Fish and Wildlife (ODFW) and the Environmental Protection

Agency (EPA)— also participated and offered input. ODOT’s goals were to develop stormwater management criteria that were permittable and constructible, while providing certainty in scope, schedule and budget. NMFS and DEQ were looking for criteria that would protect listed fish and the quality of the waters of the state, and would lead over time to an improvement in conditions. Every agency wanted improved regulatory efficiency.

The key issues addressed by the SWAT were thresholds for requiring stormwater management for environmental protection and the level of treatment to be required. The latter involved setting the size of storm to design for, identifying the area to be treated for each project, and determining how the stormwater is to be treated. Both water quality and hydrologic issues around volume of flows were included in the work. Authorities and limitations of the various agencies had to be considered, as well as practicality. All decisions were based on information from technical literature review and, where warranted, data analysis. After two years, the SWAT achieved mutual understanding and consensus on stormwater management criteria.

The water quality criteria developed by the SWAT is to treat the stormwater generated by the water quality storm from the project contributing impervious area, using best management practices (BMPs) that are effective at treating the range of standard highway runoff pollutants. All three elements are defined, and the list of BMPs is expected to change with ongoing research and development. The favored BMPs all incorporate substantial infiltration into the ground or filtration through a medium that removes pollution. Examples include bioretention basins, media filter drains, roadside vegetated filter strips and amended soil bioswales. Treatment is required when new pavement is put down, the drainage system is substantially changed, bridges and stream culverts are replaced, widened or newly built, or major reconstruction of a highway completely removes or replaces the pavement. There are common sense exemptions for new bicycle/pedestrian paths and minor features such as guardrail flares or bus pullouts.



Two examples of water quality treatment installed by ODOT. On the left, a vegetated water quality swale at the interchange of I-5 and I-205 near Portland. On the right, a water quality pond along I-84.

Implementation began at the individual project level, with the criteria included in NMFS biological opinions (BOs) and forming the basis of review for Clean Water Act (CWA) Section 401 Water Quality Certifications from DEQ. They were soon incorporated into programmatic Biological Opinions (BOs) from NMFS and incorporated into ODOT standards, manuals, and guidance documents. The use of programmatic BOs and a consistent standard has given ODOT certainty and made the BO and CWA Section 401 processes much more efficient.

A number of decisions by the SWAT were particularly crucial. Most importantly, the criteria are focused on providing high quality treatment of the stormwater using a set of preferred best management practices (BMPs), and not on achieving specific numeric pollutant concentration or removal levels. The SWAT decided that given the complexity and variability of stormwater, the science for selecting such levels was not there, and the problems associated with design and compliance monitoring are significant. More benefit could be achieved by having several projects do a good job of treating highway runoff than getting one job perfect. This is based on a system-level view of the impacts rather than a focus on individual projects. Second, all of the stormwater from the project would be subject to treatment, not just the new pavement or some percentage thereof. Third, the threshold for treatment would be project elements and scale rather than assessment of individual project impacts. And fourth, recognizing that site conditions may limit the ability to fully achieve the treatment goals, off-project mitigation is acceptable on a case by case basis.

For ODOT, the primary benefit of this approach has been certainty. ODOT hydraulics engineers and environmental staff have a clear idea of what and how stormwater should be treated. There is no more regulatory haggling and back and forth as ODOT and the resource agencies negotiate over what should be done on a project. By incorporating the stormwater management criteria in programmatic BOs, stormwater is not likely to cause project delays. The explicit ability to deal with difficult sites by using off-project mitigation allows those projects to go ahead without incurring excessive costs. The resource and regulatory agencies will see ongoing progress toward water quality improvement across the state as more of the state highway system is provided with stormwater treatment. They also benefit from the regulatory efficiencies at a time when they have stagnant or declining resources.

Other Stormwater Efforts at ODOT

New projects that increase impervious surface aren't the only areas where ODOT makes an effort to reduce stormwater impacts from the state highway system. For example, ODOT also operates a retrofit program that focuses on stand-alone projects that address some of the most significant stormwater challenges on the state highway system. This program allocated \$8.4 million for 14 projects in the Willamette River Watershed, primarily in urbanized areas, that involve installing a new stormwater treatment facility along a stretch of highway where no treatment currently exists.

Routine day to day highway maintenance and operations practices are also conducted in a manner to minimize the opportunity for contaminants to enter Oregon's waters. Examples include cleaning up spills from crashes on the system immediately and thoroughly, inspecting the drainage system for illicit discharges from third parties and neighbors, and removing sediment from ditches and storm water inlets. The ODOT Maintenance Blue Book provides a clear set of standard procedures for conducting maintenance activities in a way that protects water quality and other environmental resources. All ODOT maintenance yards participate in the Environmental Management System (EMS) program. The EMS Manual is ODOT's written stormwater management plan for the maintenance yards. The EMS program provides methods for pollutant source identification plus consistent, practical BMPs for source control and pollutant removal.

Looking to the Future

In the long-term, ODOT hopes to move away from simply addressing highway runoff on a project-by-project basis to a more strategic and holistic approach. We are endeavoring to develop a strategic program that uses asset management, planning and a watershed approach to anticipate where ODOT will have stormwater management needs, challenges and opportunities, and where ODOT can take steps that will have superior environmental benefit. Such an approach will allow ODOT to proactively

select and site treatment facilities in a corridor, reducing the life-cycle burden of multiple individual projects. Stormwater mitigation banking, if thoughtfully sited within a watershed, can more than compensate for the impacts of stormwater from roadway segments where treatment is not practical. Watershed priorities and high value locations can be targeted, providing more ecologic uplift than could be achieved by on-site treatment, potentially at a cost savings for ODOT. The establishment of mutually agreed on water resources goals and stormwater management criteria with our regulatory partners, and their recognition of the need and advantages of flexibility in meeting them has been a necessary and important first step.

The major challenge for ODOT and the rest of the nation is limited resources and increasing demand. New BMPs are developed with uncertain maintenance requirements, and the lifecycle costs of many traditional ones are poorly understood. ODOT is sandwiched between the increasing costs on the one hand and the push to eventually treat most of its stormwater on the other. The areas of the greatest concern, urban highways, are also the areas where costs associated with treatment – including right-of-way, construction and maintenance – are the highest. As we construct more stormwater treatment facilities the demand on ODOT's maintenance forces continues to grow. Even with the flexibility we have now, projects occasionally have to incorporate facilities that are expensive to maintain without assurance of a commensurate benefit. In any case, more facilities will be constructed and will have to be maintained. ODOT's challenge is to manage that growth so maintenance of these facilities does not become overwhelming.

Developing and implementing a strategic stormwater program will take time, effort and resources. ODOT is convinced that doing so will be beneficial for both the agency and the natural resources it is committed to protecting.

Conclusion

ODOT takes our responsibility for addressing stormwater from our roadways very seriously. Working with our regulatory partners, we have been able to develop a stormwater management program that will make significant progress over time. The agreement reached with regulatory partners created a win-win situation in which ODOT was offered certainty around project scope, schedule and budget and regulatory agencies received a commitment for significant environmental improvements. The agreement allows for cost-effective methods of addressing stormwater, including through off-site mitigation. Going forward, we hope to be able to modify our approach from a project-by-project effort to a more strategic, watershed level approach that will have even more benefit to the environment while reducing costs.

Any nationwide effort needs to take into account the unique circumstances in each state while allowing flexibility for negotiating mutually beneficial outcomes between regulators and transportation agencies. For Oregon, the primary driver of our effort was the listing of salmon under the Endangered Species Act, which created very unique needs that don't prevail across the nation. Other areas of the nation will need to address their unique circumstances, so federal regulations should avoid a one-size-fits-all approach and instead incentivize approaches such as Oregon's that bring regulators together with transportation agencies to work out the best solutions.