



INTRODUCTION

BACKGROUND

In May 1999, the federal government listed the Puget Sound chinook salmon as “threatened” under the Endangered Species Act (ESA). In December 1999, the bull trout was also listed as “threatened” in the coterminous United States, including the Puget Sound region. In response to these listings, local governments in the Puget Sound area formed a coalition, known as the “Tri-County ESA Response Effort,” to implement programs to conserve listed species. The Tri-County ESA Response Effort identified several government agency program areas with the potential to contribute to conservation of the listed species. Road maintenance is one of these programs.

Under the Tri-County Response Effort, the Tri-County Road Maintenance ESA Technical Working Group—a team of local road maintenance managers and technical staff—was formed. The mission of the Tri-County Road Maintenance ESA Technical Working Group was to develop a road maintenance program that would contribute to the conservation of salmonids and other fish species and would meet federal agencies’ requirements under Section 4(d) of the ESA (see below). At the same time the Tri-County effort was getting underway, WSDOT was beginning to develop its own road maintenance program, with the same goals as the Tri-County Road Maintenance ESA Technical Working Group.

The Tri-County Road Maintenance ESA Technical Working Group quickly expanded to include counties and cities outside the Tri-County area. WSDOT also became an active and vital member of the group. The group was renamed the Regional Road Maintenance Technical Working Group to reflect the growing interest and participation in the program. In the fall of 2001, after two years of collaborative effort developing the Regional Program and the WSDOT road maintenance program, WSDOT decided to formally consider their program part of the Regional Program. This decision expanded the Regional Program to include the entire State of Washington.

Section 4(d)

The National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NMFS) administers the ESA as to salmon and other species that spend the majority of their life history in marine waters. The United States Fish and Wildlife Service (USFWS) administers the ESA as to terrestrial species, birds, and species that spend the majority of their life history in freshwater, such as bull trout. These federal Services follow separate procedures to apply Section 4(d) of the ESA.



Section 4(d) of the ESA grants the Secretaries of Interior and Commerce (and by delegation the USFWS and NMFS) broad administrative discretion to promulgate regulations that are necessary and advisable to provide for the conservation of *threatened* species. Section 4(d) also confers upon the Secretaries, and thus upon the NMFS and USFWS (the Services), discretion to apply to a *threatened* species any or all of the prohibitions against “take”¹ that automatically apply to *endangered* species via ESA Section 9.

USFWS has implemented a standing prohibition on the take of *threatened* species (codified at 50 CFR 17.31(a)) under Section 4(d) of the ESA. In other words, take prohibitions automatically apply when the USFWS lists a species as *threatened*, such as the bull trout. NMFS does not have a standing prohibition on take. Instead, NMFS uses its authority under Section 4(d) to adopt protective regulations on a species-by-species basis. NMFS’ protective rules usually incorporate ESA Section 9’s prohibition on take.

However, both of the Services sometimes promulgate more detailed 4(d) rules for *threatened* species.

- When NMFS issues a 4(d) rule, the rule may apply the Section 9(a) prohibition of “take,” but “limit” the application of that prohibition to certain activities. The decision to “limit” the take prohibition is based on a determination that such activities are already adequately regulated, or are unlikely to cause prohibited “take” if executed in a manner approved by NMFS. For example, NMFS adopted a detailed 4(d) Rule in July 2000, codified at 50 CFR 223.203. That rule prohibits take of 14 groups of salmon and steelhead (including the Puget Sound chinook) listed as *threatened* under the ESA, but “limits” the prohibition on take for 13 categories of activities that NMFS deemed to be sufficiently regulated or otherwise adequately protective of the species.
- When USFWS promulgates a detailed 4(d) rule for *threatened* species, it is called a “special 4(d) rule” to distinguish it from the standing USFWS regulation prohibiting the take of *threatened* species. If deemed appropriate by USFWS, a special 4(d) rule may be adopted to eliminate or reduce the standing regulation’s applicability to activities that may affect a particular *threatened* species for which USFWS is responsible.

¹Section 3 of the ESA defines “take” to include actions that “harass” or “harm” listed species. USFWS regulations further define “harass” to mean “an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering.” USFWS regulations further define “harm” to mean “an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.” (50 C.F.R. §17.3). NMFS has adopted a similar definition, codified in 50 C.F.R. §222.102.



NMFS' 4(d) Rule for salmon and steelhead includes a "take limit" for approved road maintenance programs. In that rule, Limit 10(ii) provides that routine road maintenance activities conducted by the employees or agents of a state, county, city, or port in a manner that has been found to contribute to properly functioning condition are eligible for the limitation on the definition of "take" of *threatened* species.

The USFWS published a "special 4(d) rule" for bull trout on November 1, 1999. It appeared in the Federal Register at Volume 64, Number 210, pages 58909-58933. That rule applies the ESA Section 9 take prohibition to bull trout, but exempts certain fishing programs, educational programs, and scientific activities from the prohibition. On the same date, USFWS published a "Notice of Intent to Prepare a Proposed Special Rule Pursuant to Section 4(d) of the Endangered Species Act for the Bull Trout." It appeared in the Federal Register at Volume 64, Number 210, pages 58934-58936. The notice stated that USFWS is considering whether to amend the existing special rule to exempt two additional categories of other activities that may affect bull trout: habitat restoration, and other land and water management activities governed by enforceable regulations that provide substantial protection for bull trout. However, a local agency desiring a take limit under the NMFS Salmon and Steelhead 4(d) Rule, or "Special 4(d) Rule, and/or Section 7 take exemption (provided through the incidental take statement of a biological opinion) through the USFWS, prepares a Part 3 Application for its routine road maintenance activities.

The Regional Road Maintenance ESA Guidelines

Among other things, Section 2(b) of the ESA states that the purpose of the ESA is to provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved, and to provide a program for the conservation of such listed species. Under ESA Section 3, "conservation" is defined as the use of all methods and procedures which are necessary to bring any endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary.

The Services have identified habitat degradation in both freshwater and estuarine/near-shore marine environments as a major factor of decline for bull trout and listed salmonids and steelhead. When properly modified and implemented, road maintenance practices can contribute to the conservation of listed species and the ecosystems upon which they depend by protecting or restoring habitat. The Tri-County ESA Response Effort had two primary goals



for road maintenance. The first goal was to develop a road maintenance program that would contribute to the conservation of chinook and bull trout and other listed species. The second goal was to negotiate a program the Services would deem an appropriate basis to “limit”, reduce or eliminate the prohibition on take of certain threatened species (chinook, bull trout, and other threatened species) for which they are responsible. As described above, the Services utilize different options to limit, reduce, or eliminate the prohibition on take of threatened species:

- For NMFS administered species, NMFS could grant approval for a take limit for the specified road maintenance program under Limit 10 of the 4(d) Rule issued in July 2000.
- For USFWS administered species, USFWS could promulgate a special 4(d) rule (or amend an existing special 4(d) rule) and/or Section 7 take exemption to reduce or eliminate certain take prohibitions that apply to the specified road maintenance program.

To assist local governments in implementing the program, and to provide the Services with a thorough document against which Regional Program compliance could be evaluated, the Regional Road Maintenance Technical Working Group developed the *Regional Road Maintenance ESA Program Guidelines (Guidelines)*. The Services and other regulatory authorities, as well as Puget Sound area tribes, environmental interest groups, and business groups, also provided input and assistance in the development of the *Guidelines*. The collaborative effort to develop the Regional Program was extensive. A full year of development and review of the program had been completed by July 2000. That collaborative effort continued through 2000 and 2001. Biological reviews conducted in the course of that process demonstrate that if local agencies follow the *Guidelines* when doing road maintenance work, they can contribute to the conservation of chinook salmon, bull trout, and other aquatic species listed under the ESA.

PURPOSE

The purpose of the *Regional Road Maintenance ESA Program Guidelines* is to provide a consistent, Regional Program that can be used by any agency wishing to limit, reduce or eliminate the prohibition on take of threatened species under the 4(d) Rule (NMFS), special 4(d) rule and/or Section 7 take exemption (USFW).

The Regional Program consists of the following three parts:



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- **Part 1: Regional Program Elements** is the basic framework for the Regional Road Maintenance ESA Program. It includes ten program elements that make up the Regional Program. Implementation of all ten of the program elements is required for a local agency to obtain a 4(d) take limit (NMFS), special 4(d) rule, and/or a Section 7 take exemption from USFWS.
 - **Part 2: Best Management Practices** is a set of site-specific best management practices (BMPs) for road maintenance. Under the Regional Program, road maintenance, environmental, and engineering design staff can use these BMPs, in addition to routine BMPs presented in Part 1 to achieve conservation outcomes identified in the *Guidelines*. It is recognized that state regulations and local ordinances or site-specific permit conditions may all dictate use of specific BMPs. For that reason, Part 2 offers a menu of possible BMPs from which the most suitable method of maintenance activity can be selected.
 - **Part 3: Application** is an individual agency application for a 4(d) take limit (NMFS) special 4(d) rule and/or Section 7 take exemption, to receive an elimination or reduction of the standing prohibition of take for threatened species (USFWS) under the Regional Program. The Part 3 Application, known as the “plug-and-play” part of the Regional Program, allows local agencies to “plug” into Parts 1 and 2 of the program. The Part 3 Application is a specific commitment that an agency will comply with the ten program elements in Part 1.

The five appendices to the *Guidelines* include the following:

- **Appendix A.** Appendix A is a list of contacts for information on the Regional Program.
- **Appendix B.** Appendix B is a description of the role of the Washington State Department of Transportation (WSDOT) Highway and Local Program (H&LP) or the Regional Forum in screening Part 3 Applications to the Regional Program
- **Appendix C.** Appendix C is a BMP Outcome Category matrix. It is a tool for planning, selecting and implementing BMPs that achieve the conservation outcomes of the Regional Program.
- **Appendix D.** Appendix D contains three sample checklists agencies can refer to or use to implement the Regional Program. The checklists contain useful steps for planning and selecting BMPs, conducting pre-construction or pre-maintenance meetings, and implementing BMPs.



- **Appendix E.** Appendix E is a Fish Exclusion Protocol.

The *Guidelines* also include a glossary, list of acronyms and index.

Local agencies are encouraged to participate in the Regional Program to help achieve regional conservation objectives. Detailed information about how the Regional Program works is contained in Part 1.

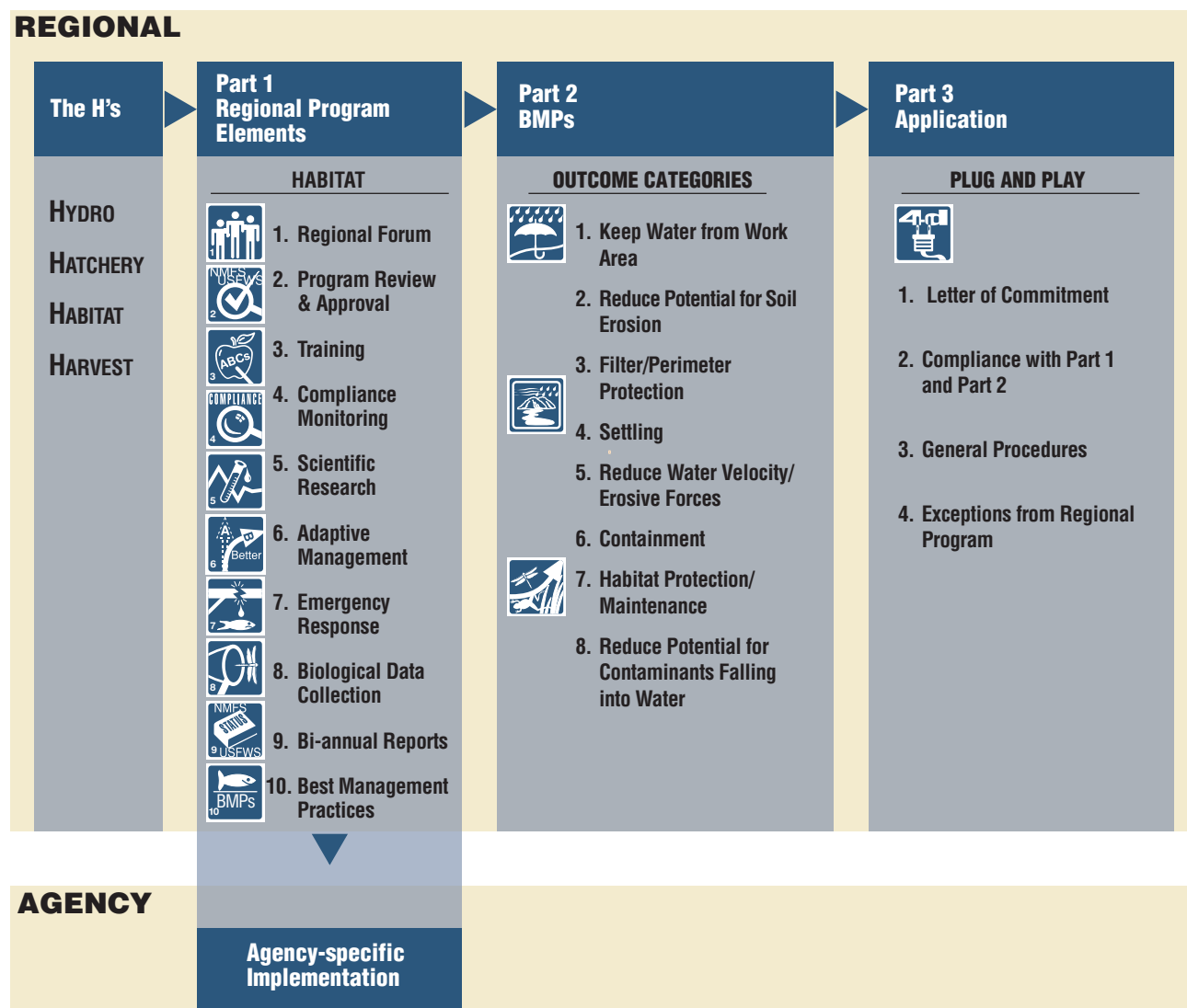
Agencies seeking guidance in developing Part 3 Applications for their participation in the Regional Program are welcome to attend Regional Forum meetings (see Part 1, Element 1, Regional Forum, for more information). Contact information on the Regional Forum members is listed in Appendix A.

The Regional Road Maintenance ESA Program framework is shown on Figure 1.



Regional Road Maintenance ESA Program Framework

Figure 1





PERMIT REGULATION

Compliance with this program in no way exempts participating agencies from local, state, and federal permits required by law. In fact, permit compliance is specifically spelled out as a BMP requirement in these *Guidelines*. Merely following permit requirements does not, however, constitute compliance with the Regional Program. To receive coverage under the program, agencies must comply with the *Guidelines*.

Compliance with Washington state fish passage regulations is particularly important for conservation when performing culvert replacement work in stream crossings. Washington State law and regulations require that new or retrofit culverts be designed for fish passage. (RCW 77.55.060; WAC 220-110-070). Culvert installation and replacement under these sections requires the issuance of a Hydraulic Project Approval (HPA) by the Washington Department of Fish and Wildlife (WDFW). All work done under this section will comply with the HPA. To clarify the fish passage criteria defined by WAC 220-110-070, WDFW prepared a design manual entitled “Fish Passage Design at Road Culverts” (the Manual) (WDFW 1999). The Manual was reviewed by the NMFS, which concluded that, when designing retrofits or replacements of existing culverts, the WDFW Guidelines should result in improved habitat conditions with the potential to bring impaired habitat on a trend to Properly Functioning Conditions (PFC). Using the WDFW Manual, while designing a new culvert, should not impair PFC as long as the hydraulic and other fish passage considerations are properly applied (NMFS memorandum, Assistant Regional Administrator for Hydro to Assistant Regional Administrator for Habitat Conservation, November 28, 2001). Therefore, the Regional Program incorporates the relevant considerations for the design of new and retrofit culverts stated in the Manual, as well as other relevant fish passage and habitat considerations addressed in the last chapter of the Manual. (As of the date of this publication, the Manual can be viewed on the Internet at <http://www.wa.gov/wdfw/hab/engineer/cm/fpdrc.pdf>.)

OTHER 4(D) PROGRAM ELEMENTS

Activities covered by the definition of “maintenance” will be executed according to the ten program elements set forth in these *Regional Road Maintenance ESA Program Guidelines*, as negotiated with the National Marine Fisheries Service and United States Fish and Wildlife Service (the Services). In the event that a jurisdiction or other entity adopts this Regional Road Maintenance ESA Program, and also adopts a development and



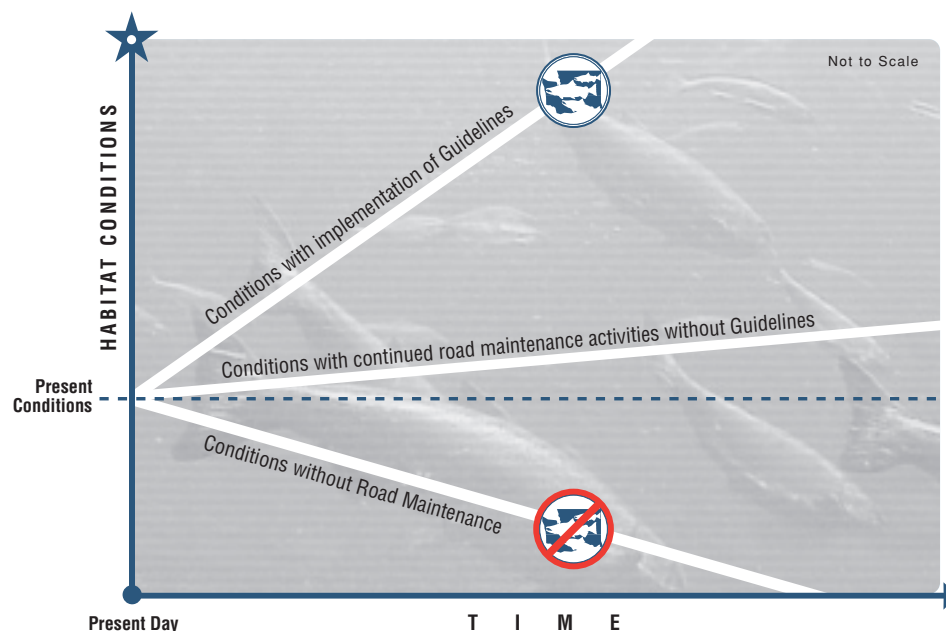
redevelopment program (if any), the maintenance activities included in these *Regional Road Maintenance ESA Program Guidelines* will not be considered “development” or “redevelopment.” Maintenance activities conducted in compliance with this Regional Road Maintenance ESA Program shall be recognized as mitigation (WAC 197-11-768) which is exempt from development or redevelopment regulations adopted pursuant to the land use or stormwater operational programs or any other future development or redevelopment related programs.

Unlike development or redevelopment, road maintenance mitigates the impacts of the original construction of the road structures, ongoing roadway use, and preservation of the structure. Road maintenance can also lead to habitat improvement. Figure 2 shows the impact of road maintenance on habitat conditions under three scenarios:

1. If road maintenance were to cease altogether, habitat conditions would decline.
2. With current road maintenance practices, habitat conditions would improve slowly.
3. With implementation of the *Guidelines*, habitat conditions would improve at a greater rate.

Impact of Road Maintenance on Habitat Conditions

Figure 2





APPLYING THE *GUIDELINES* TO ROAD MAINTENANCE

This Regional Program applies to roadway maintenance operations, utility maintenance, maintenance of stormwater facilities, and other right-of-way (ROW) structure maintenance within the ROW.

Participants in the Regional Program need a clear understanding of what road maintenance is, how it minimizes impacts to habitat, and where it occurs.

DEFINITION OF ROAD MAINTENANCE

Activities that fall under the following definition of “maintenance” are covered under the Regional Program:

Maintenance: Repair and maintenance include activities that:

- (a) are conducted on currently serviceable structures, facilities and equipment; and
- (b) involve no expansion of or change in use of such structures, facilities, and equipment; beyond those that existed previously; and
- (c) do not result in significant negative hydrological impact.

Repair and maintenance include those usual activities taken to prevent a decline, lapse, or cessation in the use of structures and systems or to replace dysfunctional facilities. Repair and maintenance also include replacing existing structures with different types of structures, **PROVIDED THAT** replacement is required to meet current engineering standards or by one or more environmental permits and the functioning characteristics of the original structure are not changed. An example would be replacing a collapsed, fish-blocking round or wooden culvert with a new box culvert under the same span or width of roadway.

As negotiated with the Services, the Regional Program specifies activities that have been determined to be adequately regulated and therefore can limit, reduce or eliminate the prohibition on take of threatened species.

The Regional Program does not apply to construction of new facilities or major expansion of existing facilities.



ROAD MAINTENANCE IS MITIGATION

Road maintenance limits, reduces, or eliminates impacts from vehicle use and road wear. Given the critical nature of the transportation system, road maintenance is not optional. It is required for several reasons (WAC 197-11-768 mitigation):

- Safety of the traveling public
- Preservation of infrastructure
- Mitigation for environmental impacts associated with initial construction, preservation, and maintenance during the life of the structure.

The *Guidelines* provide a road maintenance program that achieves the dual goals of operating a transportation system while conserving aquatic habitat conditions. An example of how road maintenance conserves habitat can be found in the road maintenance category “Cleaning Enclosed Drainage Systems.” Maintenance activities within the category contribute to the following conservation outcomes:

1. Street sweeping reduces sediments from entering storm drains and waterways.
2. Maintaining and cleaning enclosed drainage systems removes sediments.
3. Maintaining and cleaning oil/water separators reduces pollutants and sediments.
4. Maintaining and cleaning retention/detention facilities and connector ditches removes pollutants and sediments.
5. Repair and restoration of an enclosed drainage system facility ensures storage capacity.
6. Mowing bio-swales and cleaning water quality vaults removes pollutants and sediments.
7. Culvert repair and rehabilitation reduces erosion.
8. Outfall maintenance reduces erosion.
9. Check dams, or similar BMP’s should not be used when maintenance activities are conducted in locations that could reduce actual or potential high flow salmonid refuge functions.

Each maintenance category within the *Guidelines* has activities that contribute to the conservation outcomes listed for that category.



RIGHT-OF-WAY STRUCTURE

Road maintenance activities occur within the right-of-way (ROW). ROW is the area of land dedicated for public use or secured by the public for purposes of ingress and egress to abutting property and other public purposes. ROW includes area maintained by public agencies through prescriptive rights. ROW structures include planned, designed, engineered and constructed features that together encompass many built systems. Typical ROW structures include, but are not limited to, the following:

- Open drainage system/sediment transport system.
- Closed drainage system/sediment transport system.
- Retention/detention/wetland systems/sediment transport system.
- Road surface/drainage and sediment transport system.
- Bridge systems.
- Utilities.
- Stream system.
- The ROW itself, width, air space above and underground.

An understanding of the ROW, its structures, and its relationship to water quality and habitat is critical to the successful implementation of the Regional Program.

Examples of systems and structures within the ROW include the following: roadway, bridges, drainage, sediment containment, retention/detention, water, sewer, gas, electrical, street lighting, traffic loops, and traffic signals.

The aboveground surface area of the ROW structure consists of, but is not limited to, the roadway shoulder, cuts, fills, ditches, channels, dikes, bridges, retention/detention structures, swales and constructed wetlands (intentional and incidental). The road surface directs water from the road, across the gravel or grass shoulder, across the inslope of the ditch, through the ditch to a swale or retention/detention area and then to an outlet.

The ROW structure also includes a sediment transport (stormwater) system. The function of this system is to remove sediment before it outfalls to a watercourse or stream. The roadway drainage system has built-in stormwater retention capacity. The road surface traps large amounts of fine material, where it can be removed by sweeping operations, thereby preventing sedimentation in watercourses or streams. Gravel or grass shoulders filter and trap sediments. Ditches hold and trap sediments frequently acting as long,



narrow retention/detention ponds. Stormwater retention/detention facilities and constructed wetlands hold and trap large amounts of sediment, reducing downstream sedimentation. The open drainage system is designed to trap sediments. Road maintenance often removes these sediments before they pass through the system to a stream or watercourse.

Like an open drainage system, an enclosed drainage system transports sediment to built-in trapping and holding areas where the sediment can be removed before it reaches a stream or watercourse. An enclosed drainage system starts with the road surface or structure and directs water and sediment to inlets, catch basins, manholes, vaults, pipes, and retention/detention facilities. Inlets to the enclosed drainage system both limit the size of sediments and hold sediments. Catch basins, manholes, vaults, pipes, and retention/detention structures, constructed wetlands, and treatment facilities trap large quantities of sediments so they can be removed before they enter the outflow.

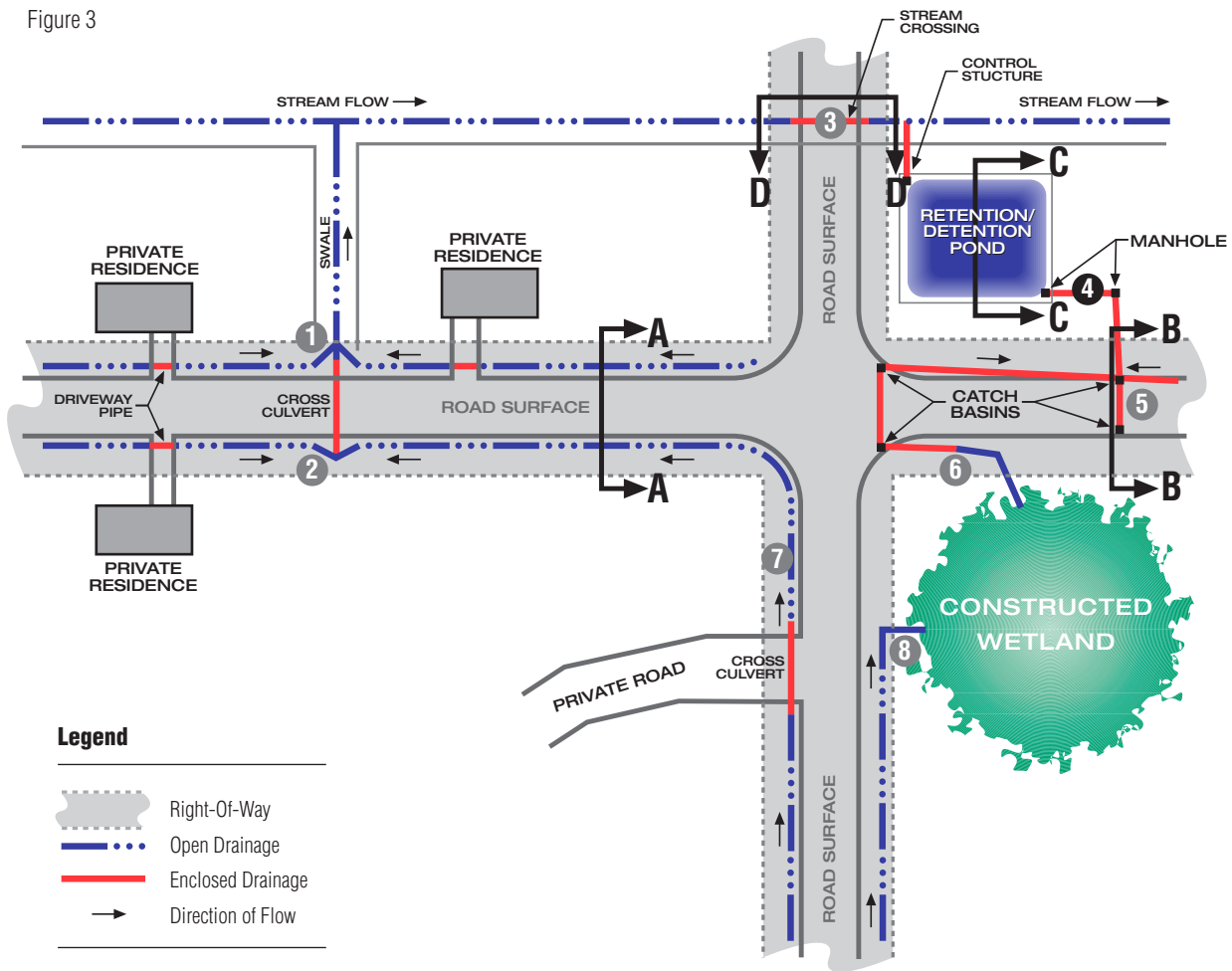
Road and utility maintenance activities occur within the road ROW structure. Figures 3-7 provide typical illustrations of the ROW structure, including the following:

- Figure 3: Typical ROW Structure
- Figure 4: Section A-A: Open Drainage System
- Figure 5: Section B-B: Enclosed Drainage System
- Figure 6: Section C-C: Retention/Detention Facility
- Figure 7: Section D-D: Stream Crossing Road.



Typical Row Structure

Figure 3



Legend

- Right-Of-Way
- Open Drainage
- Enclosed Drainage
- Direction of Flow

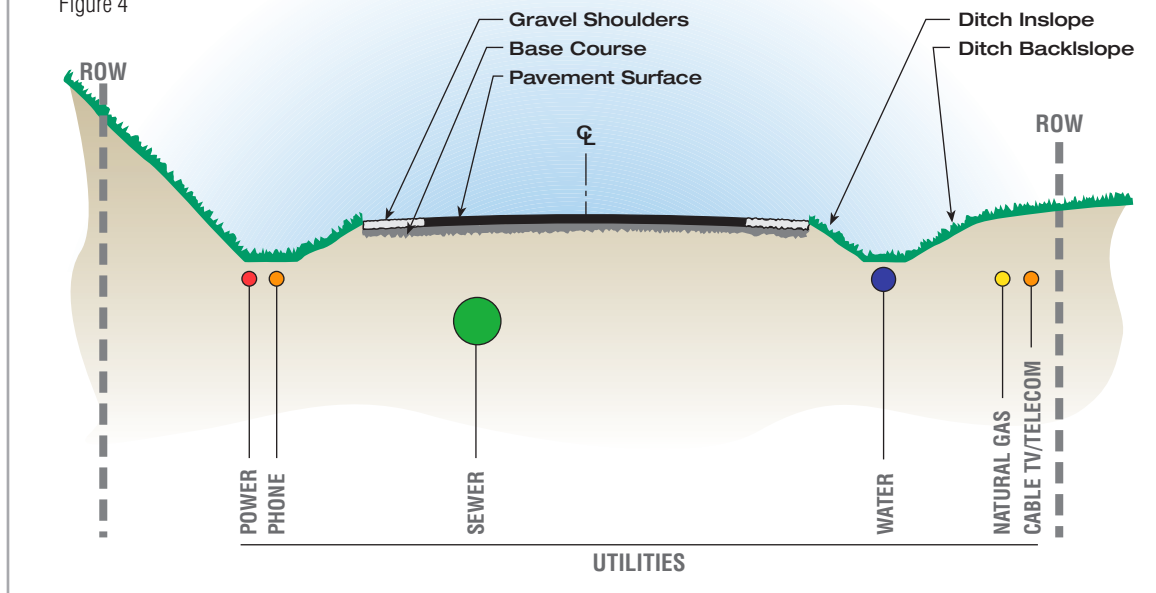
Probable BMP Locations

- 1 Where water leaves the ROW
- 2 Prior to water crossing the roadway
- 3 Upstream and downstream of stream crossing
- 4 Prior to water entering the detention facility
- 5 Cleaning of structures and oil water separators
- 6 Prior to water entering the enclosed system
- 7 Along ditches to collect siltation
- 8 Wherever water leaves ROW into sensitive areas



SECTION A-A OPEN DRAINAGE SYSTEM

Figure 4



SECTION B-B ENCLOSED DRAINAGE SYSTEM

Figure 5

