

4.0 ASSESSMENT OF CURRENT PROGRAMS

4.1 INTRODUCTION

As part of the development of the basin planning process, Pierce County conducted a thorough review of surface water management problems and the county programs that address them. The purpose of the review was to identify problems that are not currently addressed, or are inadequately addressed by existing programs (program “gaps”), and to make recommendations for improvements. The basin planning process will address as many of the program gaps as is practicable but other program modifications or new programs will be needed to address the remainder. The review was conducted and recommendations were developed in a series of workshops with representatives of several Pierce County departments including public works and utilities, and planning.

4.2 PROGRAM GAP ANALYSIS METHOD

Surface water management problems were divided into the following four categories although it was recognized that there is some overlap between categories.

- flooding of property and public infrastructure
- aquatic habitat degradation
- surface water quality degradation
- groundwater quality degradation

Problems produced by human activities in each of the four categories were discussed by workshop participants and a list of problems and their causes was prepared. County programs that are intended to address the problems were identified. For example, discharge of excess sediment in runoff from construction sites was identified as a cause of surface water degradation. The problem is addressed by the county’s requirement that grading permits will only be granted if an erosion and sedimentation control plan is prepared and implemented for a construction site.

The effectiveness of the county’s programs was then evaluated. Gaps in the county’s programs were identified. Gaps are areas where county staff believe there is clear evidence of a need for improvement in programs in order to better address the problems and their causes. Returning to the example cited above, staff noted that contractors often do not implement adequate construction site erosion plans. This may be because their knowledge of the

county' Stormwater Management and Site Development Manual is inadequate or because enforcement mechanisms are ineffective. In some cases, program gaps were identified when one of the county's activities inadvertently contributes to a problem. For example, county road construction and maintenance activities can cause surface water degradation. In a final workshop, county staff developed recommendations for improvements, identified appropriate lead agencies within the county and established priorities for action.

4.3 GAP ANALYSIS AND RECOMMENDATIONS

The results of the workshops are summarized in Appendix E, Table M-1. Table M-1 is a working document that will be used to continuously improve county programs that affect surface water management. The most important program gaps are described below together with their implications for basin planning.

Flooding of property and public infrastructure

Gap Analysis

Flood hazard is commonly increased as urban development occurs because the volume and speed of stormwater runoff increases and floodplain storage is reduced as a result of development in the floodplain and floodway. The county requires that new development be built in accordance with the county's Stormwater Management and Site Development Manual. The manual calls for measures that limit the post-development peak stormwater flow from a site to its pre-development value. Although this is a great improvement from former practice, the fact that development causes an increase in total runoff volume continues to affect downstream flood hazard. (It also affects channel stability as discussed in the following section on habitat degradation.) The county does not currently regulate the volume of runoff from new development unless runoff flows to a closed drainage basin (pothole area). Many pothole areas remain unidentified.

Although county land use and environmental regulations prohibit development in the flood plain in some locations, construction in the floodplain is permitted elsewhere provided the new structures are protected from flood damage. Current regulations do not prevent filling in the floodplain and in fact may encourage it, because new structures must be raised above the 100-year flood water level. Filling reduces floodwater storage capacity and may exacerbate flooding of existing flood-vulnerable structures.

The floodplain ordinance applies only to lands within the 100-year floodplain as currently mapped. The 100-year floodplain is the area that would be inundated in a 1% flood; that is a flood that might be expected on average to occur once in every 100 years and has a 1%

chance of occurrence in any year. Pierce County's floodplain maps may no longer accurately portray the floodplain because of the effects of development in the last 10 years.

General Recommendations and Implications for Basin Planning

The gaps discussed above could be filled by a combination of countywide program improvements and basin-specific actions. Establishing limits on the total runoff volume from new development sites is a controversial issue that is probably best addressed on a countywide basis as discussed below in the section on habitat degradation.

Pierce County's floodplain regulations could be revised on a countywide basis but it may be more appropriate to do so on a site-specific basis. More stringent regulations on construction in the floodplain could be onerous for property-owners. It is probably best that they only apply to areas where they are needed most. For example, the city of Portland has imposed regulations that require any filling in the floodplain in certain very flood vulnerable areas to be offset by a "cut" of equal volume, sometimes referred to as a "balanced cut and fill" rule, but the rule does not apply throughout the watershed. Areas where more stringent floodplain regulations are desirable could be identified in the basin planning process.

Aquatic Habitat Degradation

Gap Analysis

The wildlife habitat value of stream corridors is frequently degraded by urban development because the protections for natural resources provided in community plans are inadequate. Natural stream functions are lost as streams adapt to development-related hydrologic change, roads and structures encroach upon the floodplain, and riparian vegetation is removed.

Although county programs are not yet fully effective in preventing these adverse changes, several existing regulatory programs are beginning to address habitat degradation. These include ordinances enacted pursuant to the state's Growth Management Act and county stormwater regulations. The basin planning program itself, is an effort to develop stream management plans that both prevent flooding and protect aquatic habitat.

The state's Growth Management Act requires that communities identify critical natural resources and enact ordinances that protect them. Pierce County has passed an ordinance that prevents construction within a specified distance for a stream but the ordinance as written may not be providing sufficient protection. For example, the specified buffer widths may not be sufficient to protect wetlands from certain adjacent land uses.

Although the filling of wetlands is regulated under state and federal law, it is not clear that regulation is preventing the continued loss and degradation of wetlands in Pierce County. Property owners may be unaware of the regulations or choose to ignore them. Enforcement is limited by lack of available resources.

Currently, the county's stormwater management and site development manual calls for measures that limit peak flows downstream of new developments but does not otherwise limit development-related hydrologic change. The increased volume of stormwater from new development that may destabilize stream channels remains unaddressed by existing county programs.

General Recommendations and Implications for Basin Planning

Improvements can be made on a countywide basis and through the basin planning process. As part of its Endangered Species Act Response Program, Pierce County is evaluating its requirements for buffer zones along streams. Currently, construction is not permitted within 150 feet of the ordinary high water mark along stream that are designated as Critical Fishery Rivers. Construction is not permitted within 35 feet of the ordinary high water mark along all other streams, rivers and lakes. Some streams and rivers have designated as critical fish and wildlife habitat for species listed under the Endangered Species Act. Although not required by the Critical Areas ordinance, county staff is requiring 150-foot wide riparian buffers for these waterways.

In response to the recent ESA listings, Pierce County is considering changes in its riparian buffer requirements. The new requirements may call for wider buffer zones, depending on the size and fish use of the stream. The adequacy of the protections provided by the countywide ordinance for particular streams will be evaluated in the basin planning process. If site-specific analysis reveals inadequate protection for certain streamside natural resources then the basin plans may contain recommendations for increased protection.

Pierce County is planning to revise its stormwater management and site development manual to include provisions that reduce the adverse effects of development on basin hydrology and stream hydraulics. The Department of Ecology has recently released a draft, revised version of the Puget Sound Stormwater Management Manual for public review. As part of the review, the state is seeking advice from counties and others on a number of issues pertaining to hydrologic analysis and the appropriate sizing of stormwater detention basins. After the issues are resolved, the state will finalize its stormwater management manual. Pierce County will then rewrite its own manual so that it conforms to the state's manual.

Pierce County's revised stormwater management and site development manual, like the present manual, will require stormwater control measures that apply to the county as a whole. Basin plan preparers will determine whether the required countywide controls provide a sufficient level of environmental protection in individual basins. If not, basin plans will contain recommendations for additional basin-specific or site-specific controls.

Surface Water Quality Degradation

Gap Analysis

Programs have been in place to protect surface water quality for several decades. The primary instrument for regulation of surface water quality is the National Pollutant Discharge Elimination System (NPDES), established by the federal Clean Water Act and administered by the state. Until about 1990, point sources of pollutants, municipal and industrial wastewater discharges, were the targets of most regulatory efforts. Considerable progress was made in abating point sources of pollutants between 1970 and 1990. No gaps in regulation of point sources were identified in Pierce County's workshops.

Because there are relatively few point sources of pollutants in Pierce County, surface water degradation in most basins in the county is attributable to non-point sources of pollutants. These include discharges from urban storm drainage systems and runoff from rural and agricultural lands. Changes in the Clean Water Act in 1987 called for the inclusion of urban storm drain discharges in the NPDES but runoff from rural and agricultural lands remains largely unregulated.

Pierce County's permit to discharge urban stormwater was issued in 1995. It calls for the implementation of a stormwater management plan that includes a range of best management practices. In the course of the Pierce County workshops, a number of gaps in programs for surface water management were identified. However, because plan implementation is only just beginning and because stormwater quality management technology is in its infancy, it is difficult to determine the importance of the gaps until more information on the effectiveness of the plan is available.

General Recommendations and Implications for Basin Planning

Many of the gaps in the surface quality management programs identified by Pierce County staff are probably best filled by making adjustments to the NPDES stormwater quality management plan and allocating sufficient resources to it to ensure that it is implemented. As noted above, implementation is in its early stages and it is too soon to judge how effective the plan will be.

In already developed areas, the stormwater quality management plan relies primarily on source controls. There are no requirements for treatment of urban runoff before discharge to waterways. The stream surveys that are a part of the basin planning process may reveal that certain individual urban runoff discharges are having an adverse effect on water quality or aquatic life. In these cases, basin plan preparers may find it necessary to recommend construction of structural water quality improvement facilities at certain stormwater outfalls. These might include water quality improvement ponds or a filter system.

In yet-to-be-developed areas, the stormwater quality management plan calls for measures to be built into new development to reduce the discharge of pollutants in urban runoff. The topic is addressed in the county's stormwater management and site development manual. Requirements for post-development runoff quality are likely to be refined when the manual is revised. It is already apparent, however, that staff resources are inadequate to check whether stormwater controls are actually being built in accordance with plans and properly maintained thereafter. There is also a need to monitor the effectiveness of current controls and determine whether they need to be improved. It is recommended that staff resources be increased for this purpose, perhaps funded by an increase in construction permit fees.

In some cases, basin plan preparers may need to recommend more stringent standards for new development than are contained in the countywide manual if unusually sensitive natural resources are potentially affected. An example might be where a new development is to be located immediately upstream of a known spawning or overwintering area for salmonids.

Groundwater Quality Degradation

Gap Analysis

Groundwater may be harmed by failing on-site sewage systems and by infiltration of contaminated urban runoff into groundwater bodies. Current programs for inspection and regulation of on-site systems are probably not fully protective of groundwater quality. Insufficient information is available to know whether contaminated urban runoff is adversely affected groundwater quality. The potential for harm clearly exists, however.

General Recommendations and Implications for Basin Planning

Problems associated with on-site sewer systems are probably best addressed by improving the current programs of the Tacoma-Pierce County Health Department. The definition of on-site system failure could be expanded to consider factors other than public health. Education programs that encourage proper maintenance of on-site systems should be improved.

Owners of failing systems could be required to correct problems rather than encouraged to do so.

Although surface water management is the primary focus of the basin plans, basin plan preparers should collect any groundwater data available during the basin characterization phase of planning and clearly delineate any areas of a basin that are served by on-site systems or dry wells. Groundwater quality problems should be identified if they exist but with the greatest emphasis given to circumstances where groundwater problems lead to surface water problems; for example, areas where failing on-site systems contribute to pollution of streams or shellfish beds.

4.4 SUMMARY

Closing some of the program gaps will require action on a countywide basis. For example, it is becoming apparent that measures currently required to prevent stream channel destabilization caused by new urban development are probably inadequate. As research results become available, the county's stormwater management and site development manual could be revised to include more effective controls. Changes of this sort are best accomplished on a countywide basis. Similarly, better enforcement of wetlands regulations and better post-construction checking of stormwater facilities at new developments would be best accomplished by improvements to countywide programs.

Table 4-1 summarizes the implications for basin planning derived from the gap analysis. Most of the potential actions by basin planners are basin-specific actions where environmental circumstances justify more stringent controls than are called for in countywide regulations.

Table 4-1

Summary of Implications for Basin Planning Derived from Gap Analysis

Topic	Implications for Basin Planners
Flood Reduction	<ul style="list-style-type: none">• Basin planners should consider remapping flood plains if FEMA estimates are known to be inaccurate• Basin planners may wish to consider a “balanced cut and fill” rule in certain developed flood plains
Aquatic Habitat Degradation	<ul style="list-style-type: none">• Basin planners may wish to recommend more than the minimum buffer zones in certain cases, e.g., a valuable salmonid spawning reach
Surface Water Degradation	<ul style="list-style-type: none">• Basin planners may wish to consider structural controls for improvement of water quality in already developed areas where current practices are ineffective• Basin planners may wish to consider more stringent new development standards in environmentally sensitive areas
Groundwater Degradation	<ul style="list-style-type: none">• Basin planners should be alert for evidence that on-site wastewater disposal systems are adversely affecting water quality