

## CHAPTER 9. DRAINAGE AND EROSION PROBLEM ANALYSIS

Drainage and erosion problems were identified by interviewing staff from King County and other agencies, reviewing recorded drainage complaints, and assessing hydrologic modeling results. No detailed investigation of the various drainage systems or survey was included in this study.

### 9.1 APPROACH TO IDENTIFYING DRAINAGE PROBLEMS

Drainage and erosion problems were identified as follows:

- Basin steward and other Department of Natural Resources and Parks staff identified problem areas based on their knowledge.
- Drainage complaints were reviewed, categorized and field-investigated as needed.
- Results of a previous King County drainage complaints review that targeted “early action” were reviewed and summarized.
- King County Road Maintenance staff identified problem areas based on their knowledge.
- King County’s existing CIP was reviewed for scheduled projects.

Following the collection of known drainage and erosion problems, two field reconnaissance trips were made to validate selected problems and consider possible solutions.

#### 9.1.1 Drainage Complaint Review

Drainage complaints were reviewed and analyzed for potential projects. Vashon-Maury Island contains over 75 stream systems. For administration purposes, King County has divided these systems into five drainage areas. Judd (JUD) and Shinglemill Creek (SHI – previously identified as Needle Creek – NDL) occupy the middle portion of the island, in between the West Vashon (WVN) and East Vashon (EVN) drainage areas. Maury Island (MID) is also identified as a drainage area. The list of complaints for each area is included in Appendix E.

Of the 221 logged complaints from 1990 through 2002, 88 were requests for information, reports of illegal dumping, or other complaint types not applicable to the scope of this report. Code enforcement activities were reported to the Department of Development and Environmental Services for investigation and enforcement. Most of the remaining 133 complaints can be characterized as isolated, hydrologically independent drainage problems. Table 9-1 categorizes the types of complaints by area.

TABLE 9-1.  
SUMMARY OF DRAINAGE COMPLAINTS ON VASHON-MAURY ISLAND 1990-2002

Drainage Area	Private Problems	Drainage, Erosion, Flooding Problems	Landslide Problems	Total
East Vashon	22	14	9	<b>45</b>
Shinglemill Creek	3	4	0	<b>7</b>
Judd Creek	1	9	0	<b>10</b>
West Vashon	14	25	4	<b>43</b>
Maury Island	10	15	3	<b>28</b>
<b>Total</b>	<b>50</b>	<b>67</b>	<b>16</b>	<b>133</b>

The reported problems were scattered across the island. No significant concentration of problems occurred in any one area, except for local flooding along SW Bank Road and in chronic landslide areas.

Overall, many of the problems came from private systems and were small in scale. Of those larger in scale, most have already been addressed by King County Roads Maintenance or other agencies. After initial review of the problems, the following types were eliminated from consideration:

- Private nuisances that do not present a public safety or habitat risk.
- Problems that have already been corrected.
- Problems reviewed by the County where “no action” was recommended.

The remainder were listed for consideration for capital improvement projects.

### 9.1.2 Hydrologic Modeling Assessment

The results of hydrologic modeling indicate slight to moderate increases from predeveloped to existing conditions in the 2-year, 5-year, and 10-year peak annual discharge for Judd Creek and Shinglemill Creek.

## 9.2 IDENTIFYING THE EXISTING DRAINAGE NETWORK

No existing drainage network map was available for unincorporated King County, but several of the existing culverts were investigated during field reconnaissance. Much of the drainage system for Vashon-Maury Island consists of open channels and roadway culverts. The Washington Trout Stream Typing Survey provided the most comprehensive fish passage inventory of culverts on the island, but capacity assessment was not included in the survey.

## 9.3 CONCLUSIONS AND RECOMMENDATIONS

The Vashon-Maury Island drainage system consists of many isolated smaller streams, open channels and culverts. Typical drainage complaints are smaller private property problems or nuisance flooding. The complaints are scattered across the island with no apparent areas of concentration except for local flooding along SW Bank Road and in chronic landslide areas. Table 9-2 lists the drainage, erosion and flooding problems identified by this effort and recommended as potential CIP projects.

TABLE 9-2.  
DRAINAGE PROBLEMS IDENTIFIED FOR POSSIBLE IMPROVEMENT PROJECTS

Project Number	Name	Problem Description	Category	Source
VMI-2B	Gorsuch Creek Abandoned Road Removal	Culvert under a historical roadbed in Gorsuch Creek is a fish passage barrier due to being perched and having a high slope. The channel above and below the culvert has been incised. Turbid water present during reconnaissance.	Habitat/ Erosion	King County Basin Steward
VMI-04	Wetland 4301 Protection and Enhancement, Phase 1	Wetlands in upper Shinglemill Creek experiencing increased water levels. Concern for potential degradation to Shinglemill system	Habitat/ Drainage	King County Basin Steward
VMI-08	Grand Canyon on Shinglemill Creek	"Severe" erosion of portion of Shinglemill Creek near RM 0.8 due to anthropogenic drainage alterations. This site is called the "Grand Canyon".	Erosion/ Habitat/ Drainage	King County Basin Steward, King County Roads Maintenance, Stream Typing Survey
VMI-21	SW Bank and 107th Flooding Reduction	Flooding occurs along SW Bank Road near 107th Avenue NW because the road is too low through a natural depression.	Flooding	King County Roads Maintenance
VMI-22	Vashon Highway at Shawnee Hill Culvert Replacement	Culvert has plugged in past causing flooding	Flooding	King County Roads Maintenance
VMI-27	Dockton cross tiles	Deteriorating Dockton Road SW cross tiles/ catch basins. Bulkhead is failing.	Erosion	KC Roads Maintenance
VMI-28	Canyon at Christensen Creek	Severe erosion of area near Christensen Creek. Future potential threat to SW Reddings Road.	Erosion	KC Roads Maintenance
VMI-31	Kellogg Flooding	Increased flows through swale cause ponding and basement flooding on Kellogg Property	Flooding	Drainage Complaints
VMI-35	SW Bank and 103rd Flooding Reduction	Private culverts at the shopping center on SW Bank Road near 103rd Avenue SW are undersized and cause flooding. Also, no oil/water separator exists for the parking area per the King County Maintenance Supervisor for Vashon Island.	Flooding, Water Quality	King County Roads Maintenance