



## **CHAPTER 7: RECOMMENDATIONS**

### **7.1 OVERVIEW**

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During the Phase II basin planning effort, Salmon Creek Basin Stakeholders, Thurston County and consultants investigated a variety of alternatives to alleviate flooding impacts. It was decided that capital projects would be considered for addressing existing flooding problems and that non-structural measures (such as planning tools or regulations) would be used to address flooding impacts to future development. It was found that none of the alternatives would totally eliminate episodic flooding or high groundwater elevations; however, some of the conveyance alternatives could help reduce the depth and duration of flooding.

In keeping with the objectives of this plan, as described in Chapter 1, the following recommendations focus on reducing existing drainage problems for basin residents. The recommendations also seek to ensure that any new development is not built in flood-prone areas, or does not worsen flooding problems for existing properties. The plan would allow development on property not vulnerable to flooding to occur in a manner and scale that does not increase flooding of downstream properties. It also recognizes the importance of maintaining Hopkins Ditch and the Hickman Sub-Area Drainage Improvement Project.

### **7.2 RECOMMENDATIONS: EXISTING DEVELOPMENT**

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#### **7.2.1 West Basin Conveyance Alternative**

Thurston County should incorporate the Rhondo Pond to Fishtrap Creek Alternative, the highest ranked of west basin alternatives, into the Storm and Surface Water Utility's long term (20-year) Capital Facilities Plan (CFP) which annually determines project priorities based on uniformly applied criteria. Project implementation is based on project ranking, securing required permits, and available funding.

The Salmon Creek Basin Stakeholders Committee recognizes that there is insufficient funding in the Utility's CFP for this project, and encourages the county to look for alternative sources of funding. A variety of financing tools should be explored.

Description: The annual CFP evaluation process uses a Storm and Surface Water Advisory Board (SSWAB) subcommittee to review each project against a consistent set of criteria. From this process, a project-ranking list is established. This priority list constitutes a recommendation to the full SSWAB, which then adjusts the list or concurs, and makes a recommendation to the Board of County Commissioners. The Commissioners make the final implementation decision through the annual budget process.

Estimated Cost: \$1.3 – \$1.9 million (depending on the combination of pipe/ditch used) plus the cost of property acquisition. Property acquisition would be determined during the design phase of the project. Approximately 480 acres would be benefited.

It is important to note that while the Rhondo Pond to Fishtrap Creek alternative would help alleviate the *magnitude* of flooding in areas of the West Basin, it would not eliminate flooding in the West Basin.

Participants: Thurston County

### **7.2.2 East Basin Conveyance Alternative**

Thurston County should not pursue the East Basin Alternative at this time due to estimated costs and benefits afforded, based on the results of this study. However, in the future, should social and economic conditions warrant, Thurston County should pursue the East Basin Alternative and add the project to the Storm and Surface Water Utility Capital Facilities Plan (CFP).

Description: At this time, it is recommended that Thurston County not pursue the East Basin Alternative. Instead, the County should seek funding sources to flood-proof or purchase homes in high groundwater areas, as described in Recommendation 7.2.7.

Estimated Cost: The estimated cost to Thurston County of not building the East Basin Alternative is minimal: Thurston County would incur costs associated with any damage to public property in the future. The cost to private property owners would continue to depend on site-specific conditions.

Participants: none

### 7.2.3 Roads

Thurston County should elevate critical public roads that have historically flooded, and develop criteria to prioritize the scheduling of projects. These efforts would generally require work beyond normal maintenance. Outside funding should be solicited to help fund these public safety-oriented projects.

Thurston County should coordinate with the Washington State Department of Transportation (WSDOT) to elevate SR 121 over the Hopkins Ditch extension. The Port of Olympia should carry out its plans to elevate Case Road.

As a secondary priority, Thurston County and the City of Tumwater should pursue elevating the less-critical roads that historically flood.

Description: The following critical road sections, identified by the Thurston County Roads and Transportation Services and the Stakeholders Committee, would be elevated by the appropriate agencies. Thurston County s would be responsible for elevating the first four on the list:

- ❑ Littlerock Road and 88<sup>th</sup> Avenue;
- ❑ 93<sup>rd</sup> Avenue, west of Jones Road and east of Littlerock Road;
- ❑ 93<sup>rd</sup> Avenue, west of I-5 and east of Blomberg Street; and
- ❑ The vicinity around Rhondo Street and its intersections with 83<sup>rd</sup> Avenue and 85<sup>th</sup> Avenue.
- ❑ Tilley Road (SR 121) over the Hopkins Ditch Extension (Thurston County would work with WSDOT to achieve this project.)
- ❑ Case Road between 86<sup>th</sup> Avenue and 93<sup>rd</sup> Avenue (Port of Olympia is scheduled to work on this project.)

After accomplishing these priority projects, Thurston County and the City of Tumwater would pursue raising the less critical roads that historically flood (shown on Figure 5-1, Appendix E):

- ❑ Prine Drive southeast near I-5;
- ❑ Blomberg Street just south of Emerald Lane and just south of 93<sup>rd</sup> Avenue;
- ❑ Kimmie Street and the southeast freeway frontage road near 80<sup>th</sup> and 83<sup>rd</sup>, and an area between 91<sup>st</sup> Avenue and 93<sup>rd</sup> Avenue;
- ❑ Walter Court;
- ❑ Hart Street, north of 100<sup>th</sup>;
- ❑ Armstrong Street south of 89<sup>th</sup>;
- ❑ Case Road at the intersection of 101<sup>st</sup>; and
- ❑ 101<sup>st</sup> Avenue at the corner of Nunn Road.

Proper placement of culverts would ensure that elevated roads do not increase flooding levels.

Cost Estimate: Cost is dependent on permitting issues and construction-specifications that would only be estimated prior to construction as part of project scoping.

Participants: Thurston County, Washington State Department of Transportation, City of Tumwater

#### **7.2.4 Hickman Sub-Area Drainage Improvement Project**

Thurston County should seek to acquire an easement for the Hickman Sub-Area Drainage Improvement Project and maintain the Project in perpetuity.

Description: The Hickman Sub-Area Drainage Improvement Project, constructed by Thurston County in 1999, crosses the 80 acre parcel west of the Washington State Department of Natural Resources (DNR) nursery on Blomberg Avenue. The project includes re-opened ditches which convey flow from the remnants of the old Hickman Ditch to a County right-of-way at 93<sup>rd</sup> Avenue. The flow is then piped to the existing culverts located at 93<sup>rd</sup> Avenue near Salmon Creek. Thurston County would negotiate with property owners to acquire a permanent easement so that the County would have access for maintaining the project. Thurston County Storm and Surface Water Utility would include the project in its annual maintenance work plan, funded by Utility rates.

Estimated Cost: \$5,500 per year for ditch maintenance. One-time expense for acquiring property or easements is estimated at \$180,000 – \$200,000.

Participants: Thurston County

#### **7.2.5 Hopkins Ditch**

The Hopkins Ditch District should continue to maintain Hopkins Ditch and assess corresponding rates. The District should assess current service levels and rates and develop strategies to increase maintenance activities.

Description: Hopkins Ditch District #2 has been active since 1901, and the ditch has been maintained to varying degrees over the years within limits of the District's rates. Balancing financial resources and the expectations of property owners is a challenge. In an effort to balance the two, the Ditch District would consider developing a comprehensive maintenance plan for the ditch and implement rates necessary to achieve the recommended actions. The Ditch District would continue ditch maintenance activities. Thurston County would provide technical assistance to the Ditch District upon request for site specific problems.

Estimated Cost: The cost for the Ditch District is annually assessed and collected through the Thurston County Treasurer. Actual costs will be determined by the decisions of the Ditch District.

Participants: Hopkins Ditch District, Thurston County.

## **7.2.6 FEMA Flood Map**

The Flood Insurance Rate Map (FIRM) should be updated to recognize High Groundwater Areas as "Special Flood Hazard Areas" under the FEMA Flood Insurance Rate Map Program.

Description: The responsibility for administration of the National Flood Insurance Program (NFIP) falls with the Federal Insurance Administration of the Federal Emergency Management Agency (FEMA). FEMA publishes a Flood Insurance Rate Map (FIRM) and distributes it to a wide range of users: private citizens, community officials, insurance agents and brokers, lending institutions, and other Federal agencies. The FIRM is the basis for floodplain management, mitigation, and insurance activities of the NFIP.

Thurston County would pursue formal inclusion of Salmon Creek Basin's High Groundwater Areas under the federal flood hazard mapping program. Currently, the 100-Year Flood Zone maps include portions, but not all, of the areas prone to flooding. Inclusion of all designated flooding areas as Special Flood Hazard Areas would provide regulatory consistency and ensure accurate information for lending institutions and other parties. Any revisions would be subject to a process outlined by FEMA.

Estimated cost: Costs would be incurred for FEMA and the County to revise flood maps countywide. Property owners within the Special Flood Hazard Area would be required to purchase flood insurance (which currently is optional).

Participants: Thurston County, FEMA

### **7.2.7 Flood-proofing and acquisition**

Thurston County should seek grants, loans and other financial assistance to flood-proof, elevate, or in the most severe cases, acquire those homes in high groundwater hazard areas.

Description: The 2002 applications made to FEMA's Hazard Mitigation Grant Program were not successful because properties did not meet the required cost/benefit ratio. However, Thurston County would continue to look for ways to help Salmon Creek Basin property owners flood-proof their homes. The County would develop criteria to determine which homes qualified as "most severe cases" in order to evaluate potential eligibility for buy-out, and the County would continue to look for funding to accomplish this measure.

Estimated Cost: Cost would depend on the number of qualified homes and their value.

Participants: Thurston County, Salmon Creek Basin property owners

### **7.2.8 Groundwater Monitoring**

Thurston County should continue to monitor groundwater levels and provide early warning to residents and businesses when flooding appears imminent.

Description: Thurston County currently monitors wells in Salmon Creek Basin for groundwater levels. Data is downloaded approximately every two weeks during the wet season of each year to determine the likelihood of flooding. In the event that flooding appears imminent, Thurston County would immediately notify basin residents and property owners through mass media channels and written notification.

Estimated Cost: The estimated cost for monitoring is \$12,000 per year. Monitoring would be funded by Thurston County Storm & Surface Water Utility rates.

Participants: Thurston County

### **7.2.9 Emergency Preparedness and Response Plan**

Thurston County should incorporate the Salmon Creek Emergency Preparedness and Response Plan as an appendix to the Office of Emergency Management's Comprehensive Emergency Management Plan and update as necessary.

Description: In December 1999, the Salmon Creek Basin Stakeholders Committee developed an emergency response plan titled: "Recommendations to Prepare and Respond to Potential Groundwater Flooding During the 1999-2000 Wet Season." Recommendations in this plan include information for residents on sandbags, wells, onsite septic systems, and other health and safety issues related to flooding. Thurston County would work with the Office of Emergency Management (OEM) to include these recommendations as an appendix to the County's Comprehensive Emergency Management Plan.

Estimated Cost: Costs for implementing recommendation 7.2.9 is minimal. Costs for helping residents and businesses during flood events would vary depending on the severity of flooding.

Participants: Thurston County

### **7.2.10 Flood Damage Record Keeping**

Thurston County should collect, record, and process flood damage data in high groundwater hazard areas.

Description: Thurston County would solicit flood damage information from residents, businesses, and other property owners whenever flooding occurs in Salmon Creek Basin through public outreach efforts. Documentation of expenses related to flooding is important for FEMA mitigation grant funding applications.

Estimated Cost: Cost is dependent on the number and severity of future flooding events.

Participants: Thurston County, Salmon Creek Basin property owners

## **7.3 RECOMMENDATIONS: FUTURE DEVELOPMENT**

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### **7.3.1 Tumwater Urban Growth Area and Zoning**

Tumwater and Thurston County should re-evaluate the feasibility of supporting urban-level development in areas subject to high groundwater (surface flooding and groundwater less than 6 feet from the surface). Industrial land supply and anticipated demand in the Tumwater UGA should be considered in this evaluation. Revisions to land use designations and development standards should be incorporated into the Tumwater/Thurston County Joint Plan through the Comprehensive Plan amendment process.

Description: The basin plan's analysis of land use found that development on 80% of vacant land zoned for commercial/industrial use and 73% of vacant land zoned for residential use is limited by the presence of high groundwater or wetlands. Part of this limited land lies within Tumwater's Urban Growth Area (UGA). Since it may not be feasible for Tumwater's UGA to support growth that is expected and planned for by the Tumwater/Thurston County Joint Plan, the two jurisdictions would re-evaluate this area's land use zoning and development standards.

Estimated Cost: Costs would be incurred to develop alternative land use designations and process Joint Comprehensive Plan and zoning amendments.

Participants: Thurston County, City of Tumwater

### **7.3.2 Property Assessments**

The annual reassessment of property values by Thurston County Assessor's Office should reflect the restrictions to properties in Salmon Creek Basin that might limit commercial, industrial, and residential development. Owners of property, the development of which is limited by high groundwater, should be given information on opportunities to reduce property taxes by considering options such as the Open Space Program or conservation easement programs.

Description: The Thurston County Assessor's Office, when reassessing properties in Salmon Creek Basin, would take into account whether the development potential (and value of the property) has changed due to the presence



of high groundwater. This may be especially important if land use designations within Tumwater's UGA are changed in the future. Thurston County would inform basin residents of opportunities for the Open Space or other tax reduction programs, through outreach efforts such as basin newsletters and web sites.

Estimated Cost: The cost for non-conveyance recommendations such as 7.3.2 is difficult to estimate since implementation would occur over time.

Participants: Thurston County

### **7.3.3 Critical Areas Ordinance**

Thurston County should continue to enforce protection standards in the Critical Areas Ordinance for High Groundwater Hazard and High Groundwater Buffer areas. The City of Tumwater should maintain or adopt regulations that are equivalent to Thurston County's ordinance.

Description: The Critical Areas Ordinance governs how land is developed in environmentally sensitive areas, including high groundwater areas and their buffers throughout Thurston County. The "High Groundwater Flood Areas Resource Map," available at the Thurston County Permit Assistance Center, was updated to include the flooded areas of Salmon Creek Basin. No building permits may be issued within a flooding area; however existing structures can be repaired or raised. Within 300 feet of the flood area, builders are subject to specific setbacks, site elevations, impervious surface limits, and timber harvesting requirements. Thurston County would continue to ensure that these standards remain in place for Salmon Creek Basin. The City of Tumwater has its own ordinances, which may currently, or in the future, differ from Thurston County's.

Estimated Cost: No added cost beyond existing permitting fees and County expenditures.

Participants: Thurston County, City of Tumwater

### 7.3.4 Flood Plain Standards

Thurston County should continue to enforce the Flood Plain Building Standards.

Description: “Flood plain” refers to low areas along rivers and streams which potentially may flood during periods of heavy rainfall. Thurston County regulates flood plain development to promote public health and to minimize flood losses. To accomplish this, building may not occur within the 100-year floodplain, with very narrow exceptions. Regulations also control filling, tree cutting, grading and other development activities which may increase flood damage. The flood plain building standards also apply to designated High Groundwater Hazard Areas. Thurston County would continue to ensure that these standards remain in place for the flood plain along Salmon Creek and Hopkins Ditch and for the high groundwater hazard area.

Estimated Cost: No added cost beyond existing permitting fees and County expenditures.

Participants: Thurston County

### 7.3.5 Stormwater Standards

Thurston County should permanently adopt stormwater standards for new development and redevelopment that are technically equivalent to the Revised Interim Stormwater Design Standards for New Development in Salmon Creek Basin. The City of Tumwater should consider adopting equivalent standards.

Description: The “Revised Interim Stormwater Design Standards for New Development in Salmon Creek Basin,” an amendment to the 1994 Drainage Design and Erosion Control Manual, requires a prospective builder to go through a screening process to answer the question: “Does the proposed site have at least six feet of separation between the winter 1999 groundwater elevation and the bottom of the infiltration pond?” If the answer is “no,” then the project must be redesigned to ensure it does not cause increased groundwater elevations at the property’s boundary. Thurston County would initiate and carry out the public process for adopting a permanent stormwater standard (amending TC Code 15.05) that would be technically equivalent to the interim standard. The City of Tumwater would consider similar steps.

Estimated Cost: The cost for non-conveyance recommendations such as 7.3.5 is difficult to estimate since implementation is already occurring.

Participants: Thurston County, City of Tumwater

### 7.3.6 Well Casings

Thurston County should adopt standards requiring owners of new wells in flooding areas to install well casings that extend above the anticipated flood elevation.

Description: Thurston County would initiate and carry out the public process for revising the Thurston County Health Code to require new well casings in Salmon Creek Basin to extend above the anticipated flood elevation.

*WAC 173-160-291 currently requires well casing to extend 2 foot above the estimated water levels as a result of the 100YR flood event. Due to a lack of data necessary for the 100 year flood event, the recommendation is intended to provide protection when installing new well casings in the basin.*

Estimated Cost: The cost for revising the Health Code is difficult to estimate since implementation would occur over time. The cost to each private well owner for well casing extension is anticipated to be approximately \$100. Future (20-year) cost estimate is \$205.

Participants: Thurston County





## **CHAPTER 8: RECOMMENDED PLAN IMPLEMENTATION**

### **8.1 PLAN ADOPTION AND REVISION**

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The basin plan must be adopted by Thurston County and the City of Tumwater in order to work effectively, because the plan recommendations span both jurisdictions. The County Commissioners and City Council will take public testimony on the plan at public hearings publicized through the media. Each jurisdiction may adopt the plan as written or direct the staff to prepare changes. The basin plan may also be adopted by reference in the jurisdictions' Comprehensive Plans, which would give the plan additional authority. Comprehensive Plan revisions are reviewed by the appropriate Planning Commission, then forwarded to the Commissioners or City Council with a recommendation.

The plan will also be submitted to the Department of Ecology (WDOE) for approval. The WDOE may also approve or request revisions. Approval by the WDOE will make the recommendations eligible for a variety of state grant and loan programs.

Adoption by the County and City does not commit actual dollars to specific recommendations. Each recommendation must then go through a separate implementation process, depending on the nature of the recommendation. The cost estimates will be refined and the details of each recommendation will be fleshed out at that time. Each recommendation will be subject to further public review through the implementation processes.

Some recommendations will require revising local ordinances or regulations. For example, one recommendation states that Thurston County and the City of Tumwater would re-evaluate their Joint Plan, which designates land-use and zoning in Salmon Creek Basin. This recommendation would require additional actions by the County Commissioners and City Councils, with more opportunities for public comment. However, recommendations to revise drainage design standards would become effective upon adoption of the basin plan and supercede requirements of the drainage manual.

All City and County capital facilities must be included in the jurisdictions' capital facilities plans (CFP), which are adopted as part of the Comprehensive Plans. The CFPs must support projected population growth for 20 years, and identify sources of funding for 6 years. The CFPs cover all capital projects such as sewer, roads, and parks, and may be updated only once a year. The capital recommendations must also be coordinated between jurisdictions so that the correct project share is budgeted in the appropriate year for joint projects.

The County and City currently have a general interlocal agreement on Stormwater projects, which provides the basis for shared participation on projects. Specific agreements attached to the general agreement detail the actual cost shares for various projects. For instance, the ambient monitoring agreement details the annual water quality monitoring budget and specifies the financial contribution of each jurisdiction. Some of the basin plan recommendations would require development of new interlocal agreements and/or revision of existing ones. These agreements must be approved by the Commissioners and City Council.

Each recommendation must be incorporated into the appropriate agency's annual work plans and budgets. The annual planning process usually begins in late spring or early summer for the local jurisdictions, leading eventually to budget approval by the end of the year. Coordination between jurisdictions begins early in the planning process, which insures that each jurisdiction's budget allocation reflects its correct share for joint projects.

The Commissioners and Tumwater City Council review and approve the annual plans and budgets, with opportunities for public comment. No actual funds are committed to any project or program until this time. Each jurisdiction has its own specific process for adopting the annual budget. Tumwater does most of its initial review and revision in subcommittees. The County Commissioners request input from the Storm and Surface Water Advisory Board, prior to approving the Stormwater budget.

The "lead agency" for capital projects is usually the jurisdiction where the project will be constructed. The lead agency is responsible for making sure that interjurisdictional coordination occurs. The lead agency for capital projects and some nonstructural projects usually does the work, pays for the project, and bills the other participating jurisdictions. Some recommendations would be funded and implemented separately by each jurisdiction, but coordinated together. Most basin plan recommendations require close coordination because the basin crosses city and county boundaries.

The basin plan should be revised and updated in the future, as the basin changes and additional information becomes available. Monitoring will be critical to revising the basin plan.

Project-specific monitoring would be incorporated in the funding and operation of each capital project and would include pre-construction (baseline) and post-construction data collection. Project-specific monitoring plans must be designed to portray as accurately as possible the effectiveness of each management measure under a range of environmental conditions, which would take several years.

The results of monitoring would be interpreted for management implications and fed back into the basin planning process. As the basin develops, the conditions will change, and the basin model would need to be updated to reflect the changes. In this way, the basin plan would be a dynamic document that evolves in response to changing conditions.

## 8.2 FUNDING

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Revenues for financing the basin plan recommendations can be grouped into two categories: local sources and grants. Existing local sources include stormwater utility fees, road funds, city and county general funds, various building fees, and development charges. Each local source generates money from a different mix of residents. Other potential mechanisms for generating local revenues include shellfish districts, aquifer protection areas and local improvement districts. Grants include a variety of federal and state programs. Historically, stormwater projects have been funded by a mix of utility fees, road funds and grants.

### 8.2.1 Local Revenue Sources

#### *Stormwater Utility Fees*

Thurston County, and the City of Tumwater have stormwater utilities that collect fees from property owners within their boundaries. The charges are based primarily on the amount of impervious area (as measured, estimated or averaged) and the type of property use. Each jurisdiction's utility has a unique rate structure. Table 8-1 compares the local jurisdictions' utility rates.

**Table 8-1 Local Stormwater Utility Rates (Annualized)**

Land use	Tumwater	Thurston County
Single-Family Residential	\$68.40	\$23 - \$38 per parcel + \$1.00 per acre
Duplex	\$126.60	\$15 - \$25 per unit + \$1.00 per acre
Multi-Family Residential	Based on a formula involving impervious surface area	\$7 - \$12 per unit
Commercial, Industrial, and Schools	Same as multi-family	\$6 - \$11 per 1,000 sq. ft. impervious area (includes state government)
Streets and Roads,	Same as commercial charge (includes state government)	30% of commercial charge

Some of the local stormwater utilities' current rate revenues may not be sufficient to finance the basin plan recommendations. For example, the Thurston County Storm and Surface Water Utility capital rate (dedicated to construction projects) generates approximately \$500,000 a year.

One possible source of revenues for basin plan recommendations would be increasing the Stormwater utility rates.

### *Roads Funds*

Funding for drainage improvement and maintenance in Thurston County is largely the responsibility of the Roads and Transportation Services Department. Road drainage improvements such as culverts and ditches are constructed along with road projects because they are necessary to accommodate transportation needs. Road funds currently support only minor capital improvements. Thurston County's stormwater system is largely comprised of ditches and culverts. Minimal additional funds can be expected from this source. Tumwater uses a variety of sources for street repairs and construction, including grants and general funds.

### *Other Local Revenue Sources*

Other potential local revenue sources that could be used for stormwater programs include:

- Potential general funds;
- Plan review and inspection fees;
- Connection fees (general facilities charges); and
- Latecomer fees.

State law permits local governments to create a variety of districts and jurisdictions to fund specific types of projects. None of these mechanisms have been created in Thurston County, or Tumwater, but they could theoretically be used to fund stormwater projects.

Potential mechanisms for generating County revenues include:

- Aquifer protection areas;
- Impact fees related to road improvement projects;
- Road improvement districts;
- Fee-in-lieu of construction;
- Local improvement districts (LIDs); and
- Flood control zone districts.



## **8.2.2 Grants**

Adopting the basin plan will improve the local jurisdictions' ability to compete for increasingly limited grants. Local governments have been successful in obtaining state and federal grants in the past. Most state-administered grants target either existing water quality or flooding problems, but not both, which sometimes causes problems for combined facilities. Problems which cause property damage or present public health or safety hazards usually rate highly for grant eligibility. Public involvement and education programs are also eligible for limited grant funding. Funds targeted at historical problems may also address potential future problems, or they may free up other funds for the prevention of potential problems.

Most grants require some amount of local matching funds, which may sometimes take the form of services-in-kind. Grant sources have dried up in recent years as government has reduced spending at all levels. Grants help bolster finite local funds, but they are highly uncertain and cannot be relied on for long-term planning. Grant sources for Stormwater projects include:

- Centennial Clean Water Fund Grant Program;
- Flood Control Assistance Account Program;
- Puget Sound Water Quality Action Team Public Involvement and Education Fund;
- Washington State Ecosystems Conservation Project;
- EPA Clean Water Act Section 319 Grants; and
- Other federal assistance programs available through the USDA, such as the Emergency Watershed Protection program or the Conservation Reserve Enhancement program.

## **8.2.3 Debt Financing Mechanisms**

Local government's ability to pay for the basin plan recommendations is limited by the existing revenues described above. These revenue sources might be able to pay for gradual implementation of basin plan recommendations with available funds over several decades. This "pay-as-you-go" approach could not implement the basin plan recommendations in time to prevent or repair the damage they are intended to address. Local governments have two basic debt financing mechanisms for obtaining additional, up-front funds in excess of current revenues: loans and bond sales.

Local jurisdictions have historically used loans for smaller capital projects and sold bonds to finance major improvements such as new schools or bridges. Thurston County and Tumwater have never sold bonds to finance stormwater projects because past projects have been small enough to fund from existing revenues. However, as local governments proceed with comprehensive facilities planning for stormwater and other infrastructure projects, bonds have become a more realistic approach.

Major capital improvement projects often require large sums of capital for construction, but they have low operating costs and long life spans. Debt financing offers a method for spreading out the impact of high-cost construction of a long period of time. Mechanisms such as bonds and low-interest loans have long been used to ease the immediate burden of financing capital construction, but they add financing charges to the total cost of the projects.

The basin plan recommends a combination of ongoing and one-time activities. The ongoing activities such as monitoring, maintenance and education constitute the base work programs of the stormwater utilities or other local agencies. The capital facilities would be one-time expenditures for activities because debt financing of basic work programs would be financially risky.

Capital facilities are good candidates for debt financing, because they require a one-time expenditure. The cost of capital facilities can be spread across the lifespan of the facilities, or some shorter period. Spreading the cost over several years reduces the financial burden of any particular year, but the longer that financing is extended, the greater the additional financing charges. Debt-financing opportunities include:

- Washington Public Works Trust Fund;
- Department of Ecology Centennial Clean Water Fund Loan Program;
- Washington State Revolving Fund for Water Pollution Control; and
- Revenue Bonds.

#### **8.2.4 Ongoing Maintenance**

As capital facilities are constructed and placed into operation, funding to support short- and long-term maintenance needs will be required. Replacement of capital facility components may also be required. Generally, funding to provide this needed maintenance could come from two sources: existing program budget; or, from a dedicated maintenance rate collected through the Stormwater fees. If funding is to come from the existing program budget, the existing work program will need to be reduced in scope. A dedicated maintenance rate would provide a financial resource to meet the ongoing maintenance needs resulting from capital construction.