

# City of Fife City-Wide Comprehensive Stormwater Management Plan

## Final Report

- *Analysis of Existing Stormwater Program*
- *Capital Improvement Projects and Costs*
- *Regulatory Compliance Strategy*
- *Financial Plan*
- *Implementation Priorities and Schedule*

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# City of Fife Comprehensive Plan Update Stormwater Program Summary: Final Report

## Section 1 — Introduction

### *Background and Purpose*

The City of Fife has established an aggressive Land Use Plan, the full development of which is contingent on the development of needed infrastructure. It is the intent of this summary to ensure that needed public storm and surface water (stormwater) facilities, as well as other stormwater-related programmatic services and capabilities, are available when growth occurs. This includes effective use of existing revenue sources and the creation of adequate revenue sources to accommodate future growth and economic development.

This document, the *Stormwater Program Summary: Final Report*, provides information about the City's existing stormwater management program and recommends a Comprehensive Stormwater Management Plan for the City. It presents capital facilities needed to accommodate existing and future growth, and proposes a regulatory compliance strategy to address federal and State stormwater requirements. A draft Notice of Intent for compliance with the National Pollution Discharge System (NPDES) Phase II Municipal Stormwater Permit by the March 2003 due date has been included in the Technical Appendices

The City's stormwater capital needs and costs have been identified in earlier documents including *the Capital Facilities Element – Storm and Surface Water Facilities (May 2002)* and *Stormwater Program Summary (July 2002)*. This Stormwater Program Summary: Final Report analyzes the City's existing Stormwater Management (SWM) Program. The Report concludes with a series of recommended enhancements, an estimate of needed resources, costs and funding mechanisms, and a prioritized implementation plan for activities and projects. It also presents a future vision for the City to work in cooperation with the two drainage districts and other adjacent agencies, in order to respond to the needs of future development throughout the region.

## Section 2 — Drainage Area Characterization

### *Description of the Planning Area*

- *Location and Boundaries*

The City of Fife is located in the lower reaches of the Hylebos and Wapato creeks drainage basins, directly adjacent to the City of Tacoma, the Port of Tacoma, and Commencement Bay to the north. It encompasses approximately 5.1 square miles of land area. It is bordered to the south by the Puyallup River, and to the north and east by the cities of Milton and Edgewood, unincorporated Pierce County, and the northern part of the city of Puyallup, as shown in Figure 1.

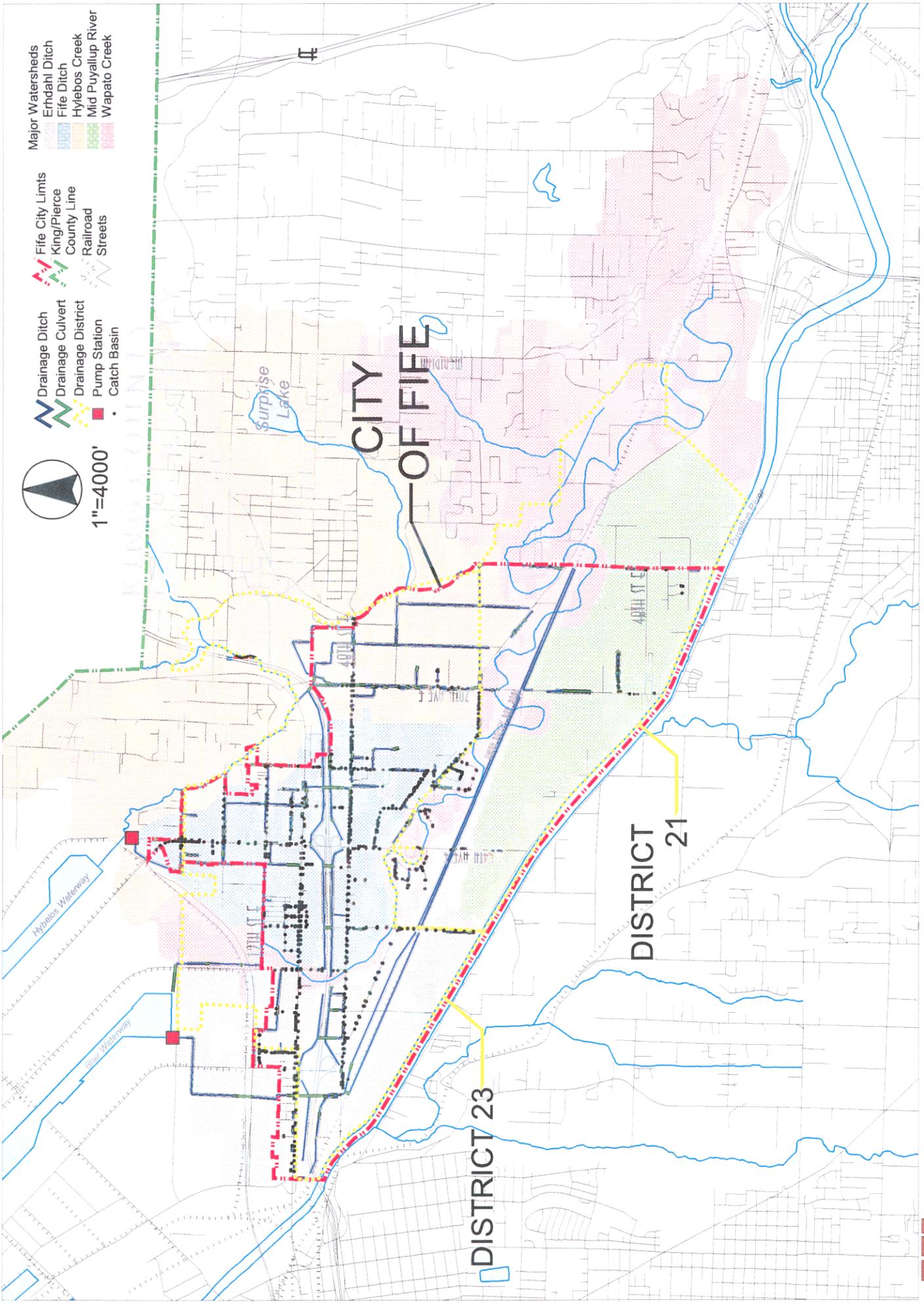


Figure 1  
City of Fife

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The City is transected by Interstate 5 (I-5), which runs in a east/west direction, bisecting the most northern commercial and business sectors from the more southern residential and agricultural areas. The City is heavily industrialized and urbanized on both sides of I-5, with urbanization and industrial growth steadily expanding to the east into the City's less developed and agricultural lands. An extensive system of rail lines support its numerous industrial and commercial businesses. The residential community is relatively small in area compared to the current and projected industrial areas; however, a few larger residential communities are currently planned within the more southeastern sectors of the City.

- *Land Use*

As development continues, the population within the City of Fife is expected to continue to grow beyond its current resident population of 4,815. During an average working day, the population within the city increases to over 15,000, due to the number of businesses that have established themselves in Fife. In accordance with the City's Land Use Plan, much of the forecasted growth is expected to be in the designated business, commercial, and industrial land use sectors in the eastern parts of the City.

Geographically, most of the projected growth will occur outside of the central business district and will result in the conversion of many of the existing vacant lots and agricultural lands will be connected into an expanded metropolitan center. This expanded economic base will support the new services needed by a growing community.

- *Climate and Rainfall*

The weather patterns in and around the City of Fife are typical of many communities that lie west of the Cascade Mountain range, within the Puget Sound Basin. Annual rainfall varies from 35-55 inches of rain per year, with only a small portion of the precipitation falling as snow during the winter months. Rainfall occurs usually anytime from about the third week of October through the month of June. Back to back rainfall events are common, particularly during the months of November through February. Temperatures range from 35 to 45 degrees Fahrenheit during the winter, to 75-85 degrees during the summer months.

- *Topography and Surface Hydrology*

Within the City of Fife, local topography dictates surface hydrology. It also plays a major role in controlling the magnitude and location of local drainage and regional flooding problems. The entire city lies within an abandoned floodplain from the Stuck River that is located on top of a previous mudflow from Mount Rainer. The amount of gradient (vertical drop) from one end of the city to the other amounts to only a few feet. Over time, five major drainage basins have

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been created within the City, as shown in Figure 1. They include the Erdahl Ditch, Wapato Creek, Fife Ditch, Hylebos Creek, and the Ox-Bow Area. With the exception of the Ox-Bow Basin, which drains directly into the Puyallup River, the other four drainage basins discharge directly into Commencement Bay and ultimately into Puget Sound.

Surface water runoff falling within the City is collected and conveyed to Commencement Bay through natural and man-made drainage systems. The primary natural drainage basins are those of the Hylebos and Wapato Creek watersheds. These two natural drainages are augmented by a substantial system of man-made drainage conveyance enhancements in the form of open ditches and canals. Historically, the man-made drainage features have been built and maintained by the two local drainage districts, Drainage Districts #21 and #23.

Drainage District #21 maintains the major ditches that drain into Wapato Creek, from its headwaters, at the base of the Edgewood foothills, downstream to Frank Albert road. Drainage District #23 maintains the major ditches, outfall and the pump station that form the Fife Ditch drainage basin. The Fife Ditch basin discharges near the mouth of Hylebos Creek, and drains directly into the Hylebos Waterway of Commencement Bay.

Wapato Creek generally parallels the course of the Puyallup River just north of the levee that runs along the north bank of the river. The upper reaches of Wapato Creek, in the vicinity of North Puyallup, have been diverted directly into the Puyallup River via a large regional drainage system. This buried infiltration and conveyance system, generally parallels Meridian Avenue, and traverses from one side of the basin near the foothills of Edgewood, to where it discharges directly into the Puyallup River near the northwest corner of the City of Puyallup. This watershed is impacted by the increased development within the upper reaches of the watershed, lying largely within the cities of Milton and Edgewood.

Historically, the runoff that drains into the Fife Ditch system likely flowed directly into Hylebos Creek and then into Commencement Bay. However, with the nearly flat topography and the creation of the extensive system of ditches to de-water local agricultural fields, a separate drainage basin has been created. This system has its own collection and conveyance system, with its own pump and outfall directly to the Hylebos Waterway. The Fife Ditch Pump Station is over 50 years old. It is owned and operated by Drainage District #23.

The Erdahl Ditch drainage system is also largely man-made and likely originally discharged into Wapato Creek and/or directly into the Blair Waterway or into Commencement Bay. It has been channeled and conveys surface water runoff

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down to a large pump station that is currently owned and operated by the City. This pump system was built in 1985, through an Economic Development grant from the federal government, with support from the Port of Tacoma. Only a small portion of the Hylebos Creek drainage system lies within the City of Fife. However, the lower reaches of this drainage system are subjected to regular annual flooding and regional flood waters often collect and back into the north east corner of the City. Much of the lower reaches of the Hylebos are designated as federal floodplain, and as such are subjected to restricted development and fill standards. Currently, this area acts as the region's single largest regional detention facility, providing compensation storage in the floodplain and adjacent properties for all the development that has occurred throughout the watershed, primarily in the City of Federal Way.

One tributary of the Hylebos that does run through the City of Fife is the drainage from Surprise Lake. This lake is located in the foothills above Fife and accepts drainage from both Milton and Edgewood, prior to its discharge down a steep ravine, under Freeman Road, and onto the flat agricultural fields lying within the City. This tributary meanders through and along fields in ditches down to and along 74th Avenue East, passes under the I-5 freeway in the vicinity of 70th Street, and discharges into Hylebos Creek.

- *Groundwater*

High ground water is a historic problem throughout the City, and is one of the reasons the original landowners installed the extensive system of ditches and pumps to de-water their fields. During most winters, the ground water levels are at or near the surface in many areas of the city. This has created problems for development and is one of the main reasons why most new developments deposit a few feet of compacted fill material before building. It is also one of the primary reasons why the construction of adequately sized on-site or regional detention facilities have been such a challenge for the City and for new developers.

- *Sensitive and Critical Areas*

Lying in the lower reaches of two major drainage systems has historically allowed water to stand for long periods and form numerous wetland areas. Many of these natural wetland areas have been filled in over time; however, many vacant lots and parcels of land retain extensive wetland and riparian areas. Much of the land adjacent to the stream in the upper reaches of Wapato Creek remains in a natural state and is currently protected from development by the City. Other sensitive areas also protected by the City include floodplains and designated aquifer recharge areas.

Since the Endangered Species Act, the City has also added fish protection and habitat enhancement to its sensitive and critical areas ordinances.

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**Section 3 — City's Existing Stormwater Program**

*Drainage Facilities*

The City of Fife Public Works Department manages the City's drainage facilities in cooperation with Drainage Districts #21 and #23. Generally, the two drainage districts are responsible for operating and maintaining the primary conveyances and one of the two pumping systems (i.e., Wapato Creek, Fife and Erdahl Ditches, and the Fife Ditch Pump Station). The City is responsible for maintaining the tributary drainages. Most of the tributary drainages lie primarily within existing road rights-of-way. The City also operates the Erdahl Pump Station, and directs the design and construction of drainage facilities associated with new development.

The City's drainage system consists of approximately 10 to 15 miles of pipes, ditches, and culverts, over 250 catch basins, one pump station and outfall, 4-5 miles of open streams and numerous wetlands and riparian areas (Figure 1). The City's first regional detention/water quality facility is currently under construction at the intersection of 70th Avenue East and 20th Street East. City-owned stormwater facilities are complemented by the numerous on-site detention and water quality enhancement facilities constructed by private landowners and businesses.

*Problem Areas*

Annual localized drainage problems commonly occur throughout the City. Most incidences last only for short periods, and are primarily a nuisance, causing little property damage or inconvenience. At other times, however, such as during the storm events of 1990 and 1996, the flooding was extensive throughout the City, lasted for several days and caused a significant public and private property damage.

These last two major drainage events suggest that the existing conveyance and pumping systems are of limited capacity to protect the City's current level of development and business infrastructure. These existing facilities and this level of service were adequate historically, when the City contained primarily large undeveloped agricultural parcels. However, these same facilities are currently unable to provide adequate protection for the City's more intensely developed, low-lying areas.

A recent survey of City and Drainage District staff suggests that most of the problems are conveyance related. Restrictions in the collection and conveyance system were noted at the following locations:

- Fife Ditch at 4th Street
- East Fife Ditch at 54th Avenue East and 8th Street
- East Fife Ditch at 58th Avenue East

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- East Fife Ditch at two locations along 58th Avenue East
- Fife Ditch System at 62nd Avenue East and 20th Street East
- All along 70th Avenue East
- And at two locations along 48th Street East.

In addition to these conveyance problems, significant regional problems were recorded on the northeast section of land at the corner of 70th Avenue East and 40th Street East. This area is not in the current floodplain designation, but is acting as a regional floodplain storage area for the Hylebos Creek watershed. It was also observed that the Fife Ditch Pump Station appears to be undersized and is not operating at its original design capacity. Continued growth throughout the City and the region will further exacerbate these existing problem areas. Property-related damages and public safety concerns related to stormwater runoff will likely increase as the City approaches full development unless the City's drainage system is properly maintained and many of the major conveyance and pumping facilities are enhanced.

*Stormwater Program*

- *Organization, Staffing and Services*

The City's existing Stormwater Program is composed of staff, equipment, and resources from primarily two major departments within the City, Planning and Community Development (Planning) and Public Works (Figure 2). Planning implements the City's Growth Management Plan, manages the development review process, establishes drainage policy-related ordinances, participates in regulatory compliance and provides regional planning coordination. Currently, the Planning Department is funding the City's Comprehensive Stormwater Management Planning Study. Approximately 0.70 staff (full time equivalents - FTEs) are involved in drainage-related activities on an annual basis within the Planning Department. (See Table 1 of Appendix A.)

Public Works drainage-related activities are divided into two main areas of service, engineering, and maintenance. The engineering services are composed of capital facility design and construction, setting design criteria, inspection and enforcement, with some participation in development review and permitting processes. The maintenance services ensure that existing drainage facilities are inspected and adequately maintained on an annual basis. The maintenance crews also participate in public and emergency response, regional coordination of drainage facility operation, and regulatory compliance. Approximately 1.45 FTEs are involved in drainage-related activities on an annual basis within the Public Works Department.

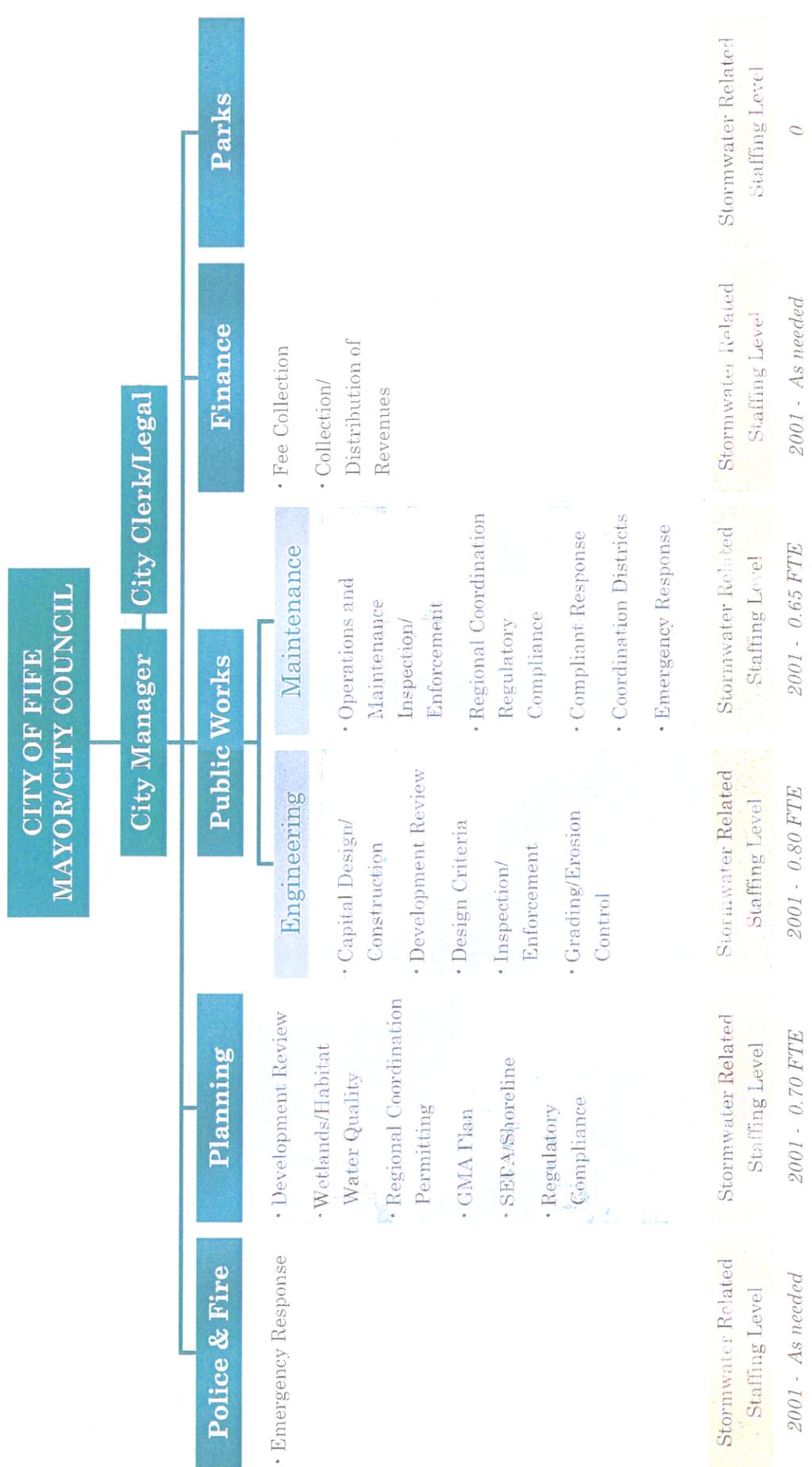


Figure 2  
 Organization and Staffing Levels  
 of the City's Existing Stormwater Management Program

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- *Annual Funding*

Funding for the City's existing stormwater related services comes from a variety of sources: the General Fund, Road Fund, Developer's Fees, Water or Sewer Utility Funds, and other lesser sources of revenue. The current annual stormwater management budget is estimated to be \$221,000, \$161,000 for labor, and \$60,000 for expenses including equipment, and outside services. (See Table 2 of Appendix A.)

The City does not have a dedicated source of funding for stormwater management-related services. Nor does it have a capital improvement fund for the construction of new facilities, or the repair or replacement of older or damaged facilities. For this reason many of the City's current stormwater facilities are designed and constructed in conjunction with a road and/or other utility infrastructure projects. New developments are also often requested to upgrade and/or replace existing undersized drainage facilities as a condition of their permit approval.

#### **Section 4 — Analysis of the Existing Stormwater Program**

##### *Comprehensive SWM Planning Study*

- *Impacts from New Development*

From a drainage perspective, new development will be required to provide water quality treatment and on-site stormwater detention. However, the total volume of runoff from new development will increase, even if the new drainage facilities are designed according to the 2001 Ecology Stormwater Design Manual for Western Washington. Increased stormwater runoff will further tax the capabilities of the City's existing drainage system, which in many places is currently unable to convey or pump existing runoff during the larger storm events.

The surrounding communities of Milton, Edgewood, Federal Way, and unincorporated areas of Pierce and King counties will also continue to send increased amounts of surface water runoff into the City of Fife. While this runoff will ultimately drain to Commencement Bay and the Puyallup River, the City's drainage system should be designed and built to accommodate runoff from future land use conditions. These developed related impacts can be accommodated and should be planned for in advance.

- *Neighboring SWM Programs, Plans and Funding*

Similar to the City of Fife, the jurisdictions bordering Fife are each attempting to address their local drainage needs as well as the emerging regulatory

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requirements. Listed below are the highlights of the status of each of their various stormwater management programs.

- City of Puyallup
  - Has an established stormwater program and an established utility.
  - They are currently updating their plan and likely their rates.
- City of Edgewood
  - Developed a comprehensive SWM plan a number of years ago.
  - Has not established a funding source, thus the plan is largely unimplemented.
- City of Milton
  - Has just completed its first SWM plan.
  - The creation of adequate local funding to implement the plan is still being discussed.
- City of Federal Way
  - Has a long established SWM Program and utility, and has completed its capital projects.
  - Is about to raise its utility rates to address habitat, water quality and the new regulatory needs.
  - It is currently about to begin a study of the Hylebos Creek basin.
- Pierce County
  - Has an established SWM Program, utility, flood plain management/flood fighting program, and routinely conducts watershed planning studies.
- King County
  - Has an established SWM Program, utility, and flood plain management/flood fighting program and routinely conducts watershed planning studies.
- Port of Tacoma
  - Is interested in partnering to enhance local drainage, including upgrading the Fife Ditch and pump station.
- State Department of Transportation (WSDOT)
  - Would like to partner and help fund regional drainage enhancements in order to ensure adequate drainage for I-5 and its proposed SR 167 improvements.
- Puyallup Tribe
  - Would support regional water quality and habitat enhancement measures.
  
- *City's Comprehensive SWM Planning Study*

For the past eighteen months the City of Fife has been conducting a study to develop a comprehensive stormwater management plan for the City. Much of the data and information presented in this *Stormwater Program Summary: Final Report* is the result of this Citywide stormwater planning effort. The study is about to conclude and will be presenting its final report to the City Council in

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October, 2002. The report includes an evaluation of the City's current stormwater program, local improvements that are needed, and recommendations on how to respond to and fund the various regulatory requirements. It is clear that additional staffing and levels of funding will be needed to achieve regulatory compliance over the next five years. A progressive, phased approach to stormwater management is being recommended in Section 5 of this Report that includes the creation of a series of new funding mechanisms and a closer future working relationship with the two drainage districts.

- *Facility Inventory and Mapping*

This project was initiated with a detailed inventory of the City's drainage system and the creation of an extensive set of GIS based maps of the physical and environmental features of the City, and surrounding watersheds and drainage basins.

The inventory was conducted by a part-time technician (Peter van Pelt, 206-340-6325) using a research grade PGS unit that was easily portable in the field. The inventory required about four months and resulted in a series of data layers that were transmitted to a GIS specialist for down loading and map production. The resulting map, as shown in Figure 1, presents the pump stations, conveyance systems and catch basins within the City limits. This information was overlaid with another layer of data showing drainage basins, roads, topography and jurisdictional information to create the final base map of the study area. In a similar manner, a larger watershed base map was also created for the study. These projects maps were developed in cooperation with the Pierce County GIS Department, operating under a special agreement with the City of Fife.

- *Analysis of the City's Stormwater Program and Estimate of Future Needs*

The following analysis of the City's Stormwater Program, as presented in the Appendices of this final report, is based on a series of individual studies. Studies were undertaken to identify and evaluate the effectiveness and performance of the City's existing Stormwater Program by:

- Assessing local drainage needs,
- Conducting engineering analyses to identify needed drainage facilities and their costs, and
- Comparing existing stormwater activities to the various regulatory requirements in order to develop a compliance strategy that the City can afford to implement.

Results of these studies are presented below. The results have been compiled and analyzed to formulate the Comprehensive Stormwater Management Plan presented in Section 5 of this report.

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*Analysis of Local Drainage Needs*

- *Existing Stormwater Activities*

The following observations have been made as opportunities to enhance the City's existing stormwater program. This information is based on interviews with City staff, drainage districts, and local citizens, and a management level review of the City's existing stormwater, activities, staffing, organization, equipment, and funding.

- No dedicated, annual local funding exists to address SWM needs.
- No capital improvement program or facility replacement program exists.
- The City is out of compliance with federal and State stormwater requirements i.e. NPDES II and the PSWQMP.
- A level of annual maintenance is performed with existing equipment and resources such that some facilities are only maintained/repaired/replaced when they fail.
- No established annual maintenance program with frequency and type of maintenance being based on facility needs; no field inspection or annual inventory of needs.
- No inventory or mapping of drainage facilities and drainage responsibilities. (Note: This has been resolved as part of this comprehensive planning effort.)
- Little and infrequent public education and involvement.
- Little emphasis placed on water quality and design, construction and maintenance of BMPs.
- City's single bristle brush street sweeper, is old and has no back up; a newer more efficient vacuum type of sweeper may be needed.
- No annual funding or replacement plan exists for street sweeper and catch basin cleaning equipment annual reliance on contractors.
- Emergency response is primarily to spills, and not to water quality incidents.
- Little regional watershed or basin planning.
- Most SWM is performed on an as-needed basis.
- There are opportunities to enhance regional cooperation and funding with the two drainage districts, Port WSDOT, and surrounding cities and counties.
- Ordinances need to be reviewed and updated to be in compliance with regulatory requirements.
- New 2001 Ecology Stormwater Manual should be adopted, or an alternative manual developed.
- City's flood plain ordinance, needs to be reviewed and updated.
- Filling/grading guidelines need to be reviewed and updated.

Please refer to the analysis of the existing SWM Program summarized in Tables 2 and 3 of Appendix A (Regulatory Compliance Analysis – Part I) for additional information. Tables 2 and 3 analyze local needs and make preliminary suggestions for staffing and funding, subject to review and approval by the City.

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Other drainage-related needs, that are based on regulatory requirements or on needed enhancements to the physical drainage facilities of the City, are presented in the Appendices and discussed below. They include the need to construct capital projects, achieve regulatory compliance, adopt the new Ecology Stormwater Manual, enhance annual maintenance, create new local funding, participate in regional and watershed planning, update ordinances and enhance regional coordination with surrounding agencies, particularly with the two drainage districts, the Port, WSDOT and Federal Way.

Results of the Analysis City's Local Drainage Program have been included in Appendix A, entitled *Regulatory Compliance Analysis – Part I*. The Appendix includes:

- Documentation of the City's Existing Stormwater Program,
- Organization, Staffing and Equipment,
- Annual Budget and Funding Sources, and
- Analysis of the City Existing Stormwater Program.

***Management Analysis:***

***In general, the City has effectively utilized its annual resources and existing staff in regard to stormwater management, providing maintenance, reviewing and issuing permits for new developments, coordinating with the two drainage districts and responding to citizen complaints. However, the City's Stormwater Program is underfunded and unable to meet the demands of the new regulatory requirements of the federal NPDES II Permit and the Puget Sound Water Quality Management Plan (PSWQMP). The City also owns and operates an older system of drainage facilities and equipment that need to be enlarged and/or replaced. There is also the growing need for the City to take more of a leadership role in working with the two drainage districts, and in conducting and participating in regional basin and watershed planning efforts.***

***Management Suggestion:***

***The above Analysis of the City's Existing Stormwater Program suggests a number of needed improvements. Some of these improvements can be realized by re-assigning and/or training existing staff. Others, such as the replacement of the aging street sweeper, will require an investment of new capital. The sum of \$25K per year allows the street sweeper to be replaced between years 4 and 5 of the proposed stormwater program.***

***Were it not for the enhancements needed to address the various regulatory requirements, this list of enhancements of the City's Existing Stormwater Program would be much longer, and their associated costs much higher. In light of the need for the City to achieve regulatory compliance with both the NPDES II Permit and the PSWQMP, suggested enhancements have been***

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***created to address both local drainage needs, as well as the various regulatory requirements.***

***The resulting analysis presents recommended enhancements for the local drainage program, proposes a capital improvement program, and suggests a series of activities to improve the City's Existing Stormwater Management Program. The results of the analysis are presented below in the form of City-Wide Comprehensive Stormwater Management Plan.***

*Analysis of Local Ordinances and Other Legal Authorities*

- *Drainage Standards for New Development*

The City adopted the Ecology 1992 Stormwater Technical Manual in about 1996. Shortly thereafter, the City's public works director enhanced the on-site detention requirements for new development to detain the 100 year, 24 hour storm event. His rationale was based on his observations of the limited downstream conveyance and pumping capacity in the Fife Ditch drainage system.

In 2001, the State Department of Ecology released its updated stormwater manual for western Washington. This new manual substantially increased the detention, decreased the rates of release to pre-European forested conditions, and further enhanced the use of best management practices (BMPs) for water quality. The City of Fife is currently considering the adoption of this new manual. The new guidance allows the City to conduct local basin planning studies that may allow the City to directly discharge to Commencement Bay without on-site detention. It also allows the City to set, with Ecology approval, other stormwater control criteria that are tailored to the specific drainage needs of the City and the region.

- *Flood Plain Management and Filling / Grading Guidelines*

The City of Fife has adopted a floodplain ordinance that prohibits the construction of any new structures within the federally designated floodway. There are also controls for development within the floodplain. The City's floodplain guidance, however does not have a clause that requires developers to provide compensatory storage for the natural flood storage area that is being displaced by their new site fill and construction. (Note: The result of not having this guidance may result in a net increase in the frequency and depth of flooding within the lower lying areas of the City.)

Related to the issue of floodplain management and compensatory storage is the practice of new developers add 3-4 feet of compacted fill material over a site prior to construction. This practice allows the elevation of the first floor of the development to be placed above the 100 year flood plain and appears to be a

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general approach of local contractors and engineers to avoid the seasonally high groundwater levels that are common throughout many parts of the City. Due to the City's flat topography, the net result is the displacement of seasonal ground waters and the gradual removal of the area's natural flood storage areas. This tends to increase the depth, duration and potential damages associated with future larger runoff events.

- *City's Existing Ordinances*

The City of Fife has created and routinely enforces an array of ordinances, guidelines and practices related the stormwater management. They include the following ordinances, as described in the Fife Municipal Code.

Chapter 15.32 – Drainage of Surface Water

- 15.34 – Stormwater Facility Design and Construction Standards
- 15.40 – Flood Damage Protection
- 17.05 – Critical Areas – General Provisions
- 17.07 – Aquifer Recharge Areas
- 17.09 – Frequently Flooded Areas
- 17.11 – Geological Hazardous Areas
- 17.13 – Seismic Hazard Areas
- 17.15 – Fish and Wildlife Habitat Conservation Areas
- 17.17 – Wetlands
- 18.44 – Improvements

- *Ordinances Needed for Regulatory Compliance*

Ordinances are a critical and easily verified component of achieving regulatory compliance with both the federal NPDES II Municipal Stormwater Permit, and the Comprehensive Stormwater Management Plan required by the Puget Sound Water Quality Stormwater Management Plan (PSWQMP).

The NPDES II Stormwater permit requires ordinances in:

- Minimum SWM Requirement #3 – For Illicit Discharges,
- Minimum SWM Requirement #4 – For Erosion Control,
- Minimum SWM Requirement #5 –
  - For runoff from New and Redevelopment Projects that disturb greater than 1 acre of land,
  - For Maintenance of New and Existing SW Facilities
  - For use of Source Control and Water Quality BMPs.

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The PSWQMP also stresses the use of local ordinances to achieve local stormwater, habitat and water quality goals by requiring the use of ordinances for:

- SW-1.2 (f.) – The control of Dumping and Illicit Discharges,
- SW-1.2 (b.) – To document the process for Submittal and Review of Detailed Plans for New and Redevelopment,
- SW-1.2 (c.) – To minimize the Amount of Soil and Other Pollutants from New and Redevelopment, and
- SW-1.2 (a.) – To require the Use of BMPs to Control Flows, Provide Treatment, Protect Erosion/Sedimentation for all New and Redevelopment Projects (i.e. the 10 minimum requirements), and
- SW-1.2 (l.) – To require the use of Low Impact Development.

Results of the Review of Existing Legal Authorities of the City have been included in Appendix D. The Appendix includes a listing and copy of each of the eleven of the City's stormwater related ordinances.

***Management Analysis:***

***The City has already established a good array of stormwater related ordinances and legal authorities. While there may be little need for new ordinances, each of the City's existing ordinances needs to be reviewed and compared with the Model Ordinances from Ecology and the various regulatory requirements of NPDES II and the PSWQMP.***

***There are three areas, however, that may require new ordinances or revisions to existing ordinances. They included adding the use of compensatory storage to the flood plain ordinance, adopting the new 2001 Ecology or a locally equivalent manual and updating the two stormwater design related ordinances, and creating one or more new ordinances to create a city-wide stormwater utility, and/or other funding mechanisms. Usually the formation of a utility requires two separate ordinances, one for the formation of the new utility and one for the rate structure. Existing fees rates in permit review and inspection ordinances may need to be revised, along with the possible establishment of development impact fees.***

***Management Suggestion:***

***The City will significantly help itself, in the regulatory review that Ecology may perform in the near future of the City's NPDES II Permit Notice of Intent (NOI) application, if it were to adopt the 2001 Ecology Stormwater Management Manual for Western Washington within the next 6-12 months. Other needed ordinances, including the ordinances for setting up a city-wide stormwater utility can be developed and approved by the Council on an***

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***as needed basis. The review of existing ordinances and comparison with regulatory requirements should occur within the next year.***

*Analysis of Capital Needs*

- *Engineering and Modeling*

Three sets of engineering analyses were undertaken as part of the development of the City's Comprehensive Stormwater Management Plan.

The first analysis, conducted by MGS Engineering, Inc., was based on the analysis of existing problem areas and resulted in the development of eight proposed capital improvements and one flood plain study.

The second analysis was undertaken by AHR Engineering and Survey of Fife to analyze the current performance of the Fife Ditch Pump Station. They identified alternatives and suggested a phased approach to enhance and/or replace the performance of the existing facilities. (Note: None of these recommended pump station improvements have been included in the City's list of needed capital improvements because the pumps and surrounding land are owned and operated by Drainage District #23.)

The third engineering analysis, conducted by MGS Engineering, Inc., involved the development and use of an HSPF Hydrologic model to estimate and route flows down through the lower reaches of the Fife Ditch Pump Station. Results were used to document the performance of the Fife Ditch Pump Station, and to verify the capital facilities proposed in the initial engineering analysis.

Results of the Engineering Analyses of this project have been included in Appendix E. The Appendix includes:

- List and costs of Capital Facilities
- Location Map and Conceptual Engineering Drawings
- Project Descriptions
- Cost Estimates
- CIP Engineering and Modeling Report (From MGS Engineering Consultants, Inc., September, 2002)
- Fife Ditch Pump Station Analysis (From AHR Civil Engineers and Surveyors, Inc., June, 2002)

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- *Capital Needs*

A recent preliminary engineering study, conducted as part of the City's Comprehensive Stormwater Management Planning Study, has proposed capital facilities to address each of the problem areas listed above. (See Appendix D.) New major facilities include eight new conveyance enhancements and a flood plain study, as listed below and shown in Figure 3.

|   |                     |
|---|---------------------|
| 1. Fife Ditch – 4th Street East – Crossing Upgrade                                | \$ 48,000           |
| 2. 62nd Avenue East – 20th Street East –<br>Conveyance Upgrade                    | \$ 325,000          |
| 3. East Fife Ditch – 54th Avenue East and 8th Street<br>East – Crossing Upgrade   | \$ 326,000          |
| 4. East Fife Ditch – 12th Street East and 15th Street<br>East – Crossing Upgrades | \$ 196,000          |
| 5. East Fife Ditch – 58th Avenue East – Conveyance<br>Upgrade                     | \$ 352,000          |
| 6. 70th Avenue East – Conveyance Upgrade  | \$ 468,000          |
| 7. 20th Street East – Culvert Upgrade   | \$ 105,000          |
| 8. 48th Street East – Conveyance Upgrade  | \$ 275,000          |
| 9. FEMA Floodplain Map Revision and Floodplain<br>Ordinance                       | \$ 225,000          |
| <b>Total</b>  | <b>\$ 2,235,000</b> |

Capital costs total \$2.23M, or about \$370,000 per year over six years. An annualized implementation schedule for capital projects, presented in Table 1, shows annual CIP costs ranging from \$244K to \$468K per year, with all projects being designed and constructed within the next six years.

Note that many of these proposed drainage enhancements may be able to be shared responsibilities between the City, Drainage District #23, and perhaps the Port of Tacoma and/or WSDOT. There have been some discussions with the State Department of Transportation in regard to their participation in some of these regional drainage enhancements, as part of the mitigation associated with the proposed Highway 167 improvements.

Additional drainage facilities, needed to address the impacts of future development, will likely be identified as the City conducts future watershed modeling and engineering analyses, as part of the implementation of the City's new Comprehensive Stormwater Management Program.

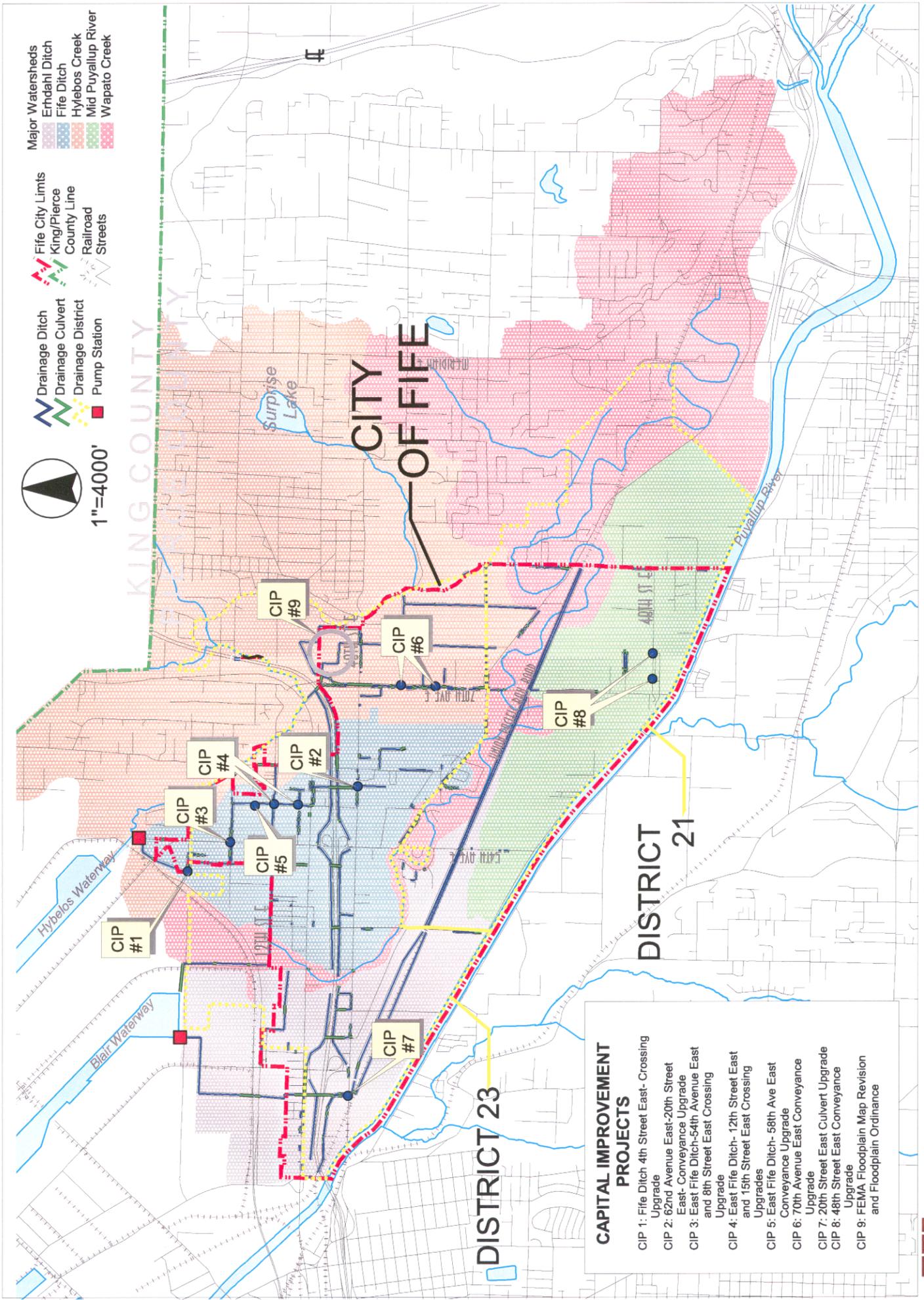


Figure 3  
City of Fife  
Storm and Surface Water Capital Facilities Needs

**Table 1  
Annual SWM Capital Project Costs  
2003 to 2008 Capital Improvement Program**

| SWM Capital Project   | Six Year CIP Implementation Schedule |              |              |              |              |              | Total<br>2003 to 2008 |
|---|--------------------------------------|--------------|--------------|--------------|--------------|--------------|-----------------------|
|   | 2003                                 | 2004         | 2005         | 2006         | 2007         | 2008         |                       |
| 1. Fife Ditch - 4th Street East - Crossing Upgrade                          | \$48                                 |              |              |              |              |              | \$48                  |
| 2. 62nd Avenue East - 20th Street East - Conveyance Upgrade                 |                                      |              | \$325        |              |              |              | \$325                 |
| 3. East Fife Ditch - 54th Avenue Est and 8th Street East - Crossing Upgrade |                                      | \$326        |              |              |              |              | \$326                 |
| 4. East Fife Ditch - 12th Street Est and 15th Street East Crossing Upgrades | \$196                                |              |              |              |              |              | \$196                 |
| 5. East Fife Ditch - 58th Avenue East - Conveyance Upgrade                  |                                      |              |              | \$352        |              |              | \$352                 |
| 6. 70th Avenue East - Conveyance Upgrade                                    |                                      |              |              |              | \$468        |              | \$468                 |
| 7. 20th Street East Culvert Upgrade   |                                      |              |              |              |              | \$105        | \$105                 |
| 8. 48th Street East Conveyance Upgrade                                      |                                      |              |              |              |              | \$275        | \$275                 |
| 9. FEMA Floodplain Map Revision and Floodplain Ordinance                    |                                      | \$100        | \$125        |              |              |              | \$225                 |
| <b>Total Annual SWM CIP</b>   | <b>\$244</b>                         | <b>\$426</b> | <b>\$450</b> | <b>\$352</b> | <b>\$468</b> | <b>\$380</b> | <b>\$2,320</b>        |

(amounts are in 1,000's)

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***Management Analysis:***

***The City of Fife has never had an annual capital improvement program (CIP) for capital stormwater facilities. It is not realistic to expect that the City will immediately implement a \$370K per year, \$2.3M CIP program. It is also not realistic for the City to assume a \$370K per year CIP program when there is no plan in place to raise the new revenues needed for the program. However, if the City chooses a ten year construction period and prioritizes the list of CIP projects to fund the highest priority project first, such as those needed for the Fife Ditch system, the annual CIP requirement could be reduced to about \$100K per year. (Note: The five Fife Ditch CIPs total \$1.34M, or \$134K per year over 10 years.) Thus, during the life of the first six years of the new SWM Program a total of about \$800K in new revenue could be realized.***

***As a result of this analysis, it is suggested that the City consider a capital improvement program in the range of \$100K-\$135K per year and evaluate its management alternatives.***

- ***One alternative is for the City to initiate a “pay as you go” CIP program, based on new revenues as they are developed at the local level. (Let’s assume new revenues are available to the City through such funding mechanisms as forming a stormwater utility, setting up developer impact fees, increasing permit and inspection fees, bonding partnering and cost sharing with neighboring agencies and pursuing grants and low-interest loans, and other funding techniques.) This would allow the five Fife Ditch CIPs to be built during the next 10 years***
- ***Another alternative is based on the fact that the City’s most significant drainage need (i.e. to upgrade the Fife Ditch Pump Station) is not in the City, and is not it controlled or funded by the City. If the City wants to see the greatest benefit in the shortest period of time for the least amount of funding, working with the District #23 to enhance the Fife Ditch Pump Station would be a logical approach. Using this approach local funding would first be used as match for state and federal loans and grants. This may “free up” future local CIP funding during the years 5-10 of the program. It is estimated that it would take about five years and about \$500K-\$670K (\$100K-\$135K per year).***
- ***Other options are also available to the City based on local perspectives and desires.***

***Management Suggestion:***

***Reduce annual CIP program to \$100K per year for the next five years, and pursue either CIP alternative #1 or #2 above.***

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*Analysis of Regulatory Requirements and Needs*

- *Federal Stormwater Requirements: NPDES Phase II Stormwater Permit*  
The City is subjected to a myriad of various federal, State, regional and local stormwater, water quality, and habitat-related requirements. At the federal level, the primary requirement is to achieve compliance with the Clean Water Act. While there are many aspects to this law, one of the most significant for municipal agencies is the requirement for the City's Stormwater Program to apply for and come under the review of the State and federal government via a new National Pollution Discharge Elimination System (NPDES) Permit. The intent of this new NPDES Phase II Municipal Stormwater Permit is to remove pollutants from urban and municipal stormwater runoff, prior to its discharge into local receiving waters.

The six minimum requirements under the Environmental Protection Agency (EPA) General NPDES Phase II Municipal Stormwater Permit include the following:

- #1 - Public Education and Outreach
- #2 - Public Participation and Involvement
- #3 - Illicit Discharge Elimination
- #4 - Construction Site Pollution Control
- #5 - Post-Construction Stormwater Management
- #6 - Municipal Operations: Pollution Prevention/Good Housekeeping

The application due date for this federal permit, as administered by the State Department of Ecology, is March 10, 2003. This application is referred to as the Notice of Intent or NOI. (Note: A draft NOI for the City is presented as Table 2 in Appendix B, along with a listing of required staff resources and cost.)

Other federal stormwater-related controls include the Endangered Species Act, wetland and riparian area protection as administered by the Army Corps of Engineers, Underground Injection Control (UIC) Program for infiltration and disposal of wastewaters, NPDES permits for treatment and disposal of wastewater effluents, hazardous and solid waste disposal, protection of groundwaters and aquifer recharge areas, and various shorelines, land use, and critical/sensitive areas designations, permits and criteria.

- *State Stormwater Requirements: Puget Sound Water Quality Management Plan*  
Similar to the federal government, the State government has a second layer of various stormwater, water quality and habitat protection and enhancement laws, permits, standards and criteria. The most significant for the City of Fife at this time is the Puget Sound Water Quality Management Plan (PSWQMP) Comprehensive Stormwater Management Planning Criteria, SW-1.1, 1.2, 1.3 and

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1.4. This Plan was developed in 1986 by the State Legislature to protect and enhance water quality of Puget Sound. The Plan is updated and administered by the Puget Sound Action Team. It requires the State Department of Ecology to develop stormwater/water quality management and design criteria for new development within the Puget Sound Basin. The most recent update to the PSWQMP was in 2000, which is the plan that currently applies to the City of Fife. The 2000 version of the PSWQMP requires the City to develop and fund a Comprehensive Stormwater Management (SWM) Plan, consistent with Ecology's guidelines.

The City was to be in compliance with these municipal stormwater requirements of the PSWQMP in 1995, and is currently not in compliance with its various stormwater requirements. It is likely that the requirements of the PSWQMP and the Ecology stormwater design criteria will be required elements of the new NPDES Phase II Municipal Stormwater Permit that will be administered by the State beginning March 10, 2003. This new permit will be enforceable by the State through the various legal authorities established in the federal Clean Water Act, and may include daily fines for non-compliance, damages and third-party lawsuits. (See Appendix C for a detailed analysis of resources required for compliance with the PSWQMP.)

The requirements of the Puget Sound Water Quality Management Plan include the following:

SW-1 Establishment of Local Government Planning and Stormwater Programs, which are to include these elements:

- SW-1.1 Growth Management Planning
- SW-1.2 Comprehensive Stormwater Programs for Cities and Counties
  - a. Stormwater Controls for New Development and Redevelopment
  - b. Stormwater Site Plan Review
  - c. Inspection of Construction Sites
  - d. Maintenance of Permanent Facilities
  - e. Source Control
  - f. Illicit Discharges and Water Quality Response
  - g. Identification and Ranking of Problems
  - h. Public Education and Involvement
  - i. Low-Impact Development
  - j. Watershed or Basin Planning
  - k. Creation of Adequate Local Funding
  - l. Monitoring
  - m. Schedule for Implementation
- SW-1.3 The Creation of Alternative Technical Manual(Optional)

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SW-1.4 Local Stormwater Program Evaluation, Reporting, and  
Modification

- *Other Regulatory Requirements*

Other requirements may impact the City's Stormwater Management Program in the near future. They include the following:

  - Compliance with the Endangered Species Act, specifically the proposed Tri-County 4(d) Rule, in which stormwater management plays a key role in maintaining and restoring urban habitat and spawning areas.
  - Regional watershed planning, through the State Watershed Inventory Resource Area (WRIA ) planning process. The result of these planning processes is usually a series of actions to be implemented by each local agency. The Puyallup River WRIA Study is currently being led by Pierce County.
  - Total Maximum Daily Load (TMDL) pollution planning and reduction programs required by the State Ecology Department. These studies are undertaken when local water quality conditions violate federal and state clean water standards. Specific pollution controls will likely need to be put in place by the City as a result of this regional water quality enhancement effort.
  - Currently, a TMDL study is underway for the mid- and lower- Puyallup River areas. Regional watershed planning studies sponsored by other local agencies. Currently, the City of Fife has been requested to participate in the Mid-Puyallup River Planning Study led by Pierce County and the Hylebos Watershed Planning Study led by the City of Federal Way.
  
- *Summary of Regulatory Compliance Activities*
  - **Federal NPDES II Municipal Stormwater Permit**

Federal NPDES II Permit requirements are presented, compared with the City's Existing Stormwater Program and resources presented for compliance in Table 1 of the Regulatory Compliance Analysis – Part II, presented in the Appendix. Compliance activities totaling \$157,700 per year and requiring the hiring of 1.35 of new staff have been suggested.
  
  - **State 2001 Puget Sound Water Quality Management Plan**

State PSWQMP requirements for the Comprehensive Stormwater Management Pan are presented, compared with the City's Existing Stormwater Program and resources presented for compliance in Part III of the Regulatory Compliance Analysis, presented in the Appendix. Resources are summarized in Tables 3, 4, and 5. Compliance activities totaling \$100,000 per year and requiring the hiring of 1.10 of new staff have been suggested.

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- Total new resources needed for regulatory compliance are \$257,700 per year and involve the hiring of 2.45 new staff. (See Table 2.)

***Management Analysis:***

***The initial cost estimate for compliance with the PSWQMP requirements totaled \$410,000. This was not realistic for the City of Fife, with an as yet unidentified funding source. A realistic approach for Fife is to do the highest priority elements first (i.e. create the needed new funding and enhance annual maintenance), during the first five year phase of the NPDES II permit. The other elements of the PSWQMP, including watershed planning, enhanced inspection/enforcement, source controls, low impact development, and chemical and biological monitoring would be initiated during the second five year phase of the NPDES II permit.***

***Management Suggestion:***

***Provide the needed resources to create the new revenue needed for the program and increase the level of maintenance to reduce the loading of non-point pollutants into adjacent receiving waters. Annual funding level for regulatory compliance for the next five years per the NPDES II Permit is \$257,700 per year.***

## **Section 5 — City's Future Stormwater Management Program**

### *Formation of the Plan*

- ***Approach***

The Comprehensive Stormwater Management Plan for the City of Fife was developed by analyzing and complying the individual needs of the City in the following areas of stormwater management:

- Local Drainage Needs
- Capital Improvements,
- Regulatory Compliance,
- Regional Coordination, and
- Funding.

Each of these elements of stormwater management are presented in the following evaluation of Program Priorities, formulation of an Implementation Schedule and identification and creation of new revenues presented in the Financial Plan.

| <b>Table 2</b>  |                      |                           |                               |                            |
|---|----------------------|---------------------------|-------------------------------|----------------------------|
| <b>Cost of Regulatory Compliance <sup>1</sup></b>   |                      |                           |                               |                            |
| <b>NPDES II Requirements<br/>(Minimum 6)</b>  | <b>Labor Cost \$</b> | <b>Staffing<br/>(FTE)</b> | <b>Expenses,<br/>Supplies</b> | <b>Total Cost<br/>(\$)</b> |
| <b>#1 - Public Education</b>  | \$ 6,000             | 0.1                       | \$ 2,500                      | \$ 11,000                  |
| <b>#2 - Public Involvement</b>  | \$ 6,000             | 0.1                       | \$ 2,500                      | \$ 11,000                  |
| <b>#3 - Illicit Discharge<br/>Elimination</b>   | \$ 12,000            | 0.2                       | \$ 25,000                     | \$ 37,000                  |
| <b>#4 Construction Site<br/>Pollution Control</b>   | \$ 6,000             | 0.1                       | \$ 5,000                      | \$ 11,000                  |
| <b>#5 - Post Construction<br/>Stormwater Management</b>   | \$ 6,000             | 0.1                       | \$ 5,000                      | \$ 11,000                  |
| <b>#6 Municipal Operation<br/>Pollution Prevention<br/>(No similar requirement<br/>in PSWQMP)</b> | \$ 36,000            | 0.6                       | \$ 30,000                     | \$ 66,000                  |
| <b>#7 Other NPDES Require-<br/>ments from PSWQMP*1<br/>Not Required by NPDES II</b>               | \$ 70,000            | 1.1                       | \$ 30,000                     | \$ 100,000                 |
| <b>#8 Monitoring and<br/>Reporting<br/>(Not included in NPDES<br/>minimum requirements.)</b>      | \$ 10,000            | 0.1                       | \$ 500                        | \$ 10,500                  |
| <b>#9 NOI Preparation<br/>(Not included in NPDES II<br/>minimum requirements.)</b>                | \$ 5,000             | 0.05                      | \$ 200                        | \$ 5,200                   |
| <b>Staffing, Labor and<br/>Expenses for Regulatory<br/>Compliance</b>                             | \$ 157,000           | 2.45                      | \$ 100,700                    |                            |
| <b>Total Annual Staffing<br/>and Revenue Needs</b>  |                      |                           |                               | \$ 257,700                 |

<sup>1</sup> Washington State Department of Ecology has provided not specific guidance for addressing the requirements of the NPDES II Municipal Permit or the NOI due March 10, 2003.

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*Elements, Staffing and Costs of an Enhanced SWM Program*

The recommended Comprehensive Stormwater Management Plan for the City of Fife is currently under development, with an initial draft of the plan presented in this Final Report. Costs and staffing recommendations have been made to address local drainage, capital, regulatory, regional, and funding needs and requirements. A preliminary estimate of staffing and funding needed to achieve the City's various stormwater management objectives includes staff and resources to:

- |   |                  |                        |
|---|------------------|------------------------|
| • Local Drainage Needs:<br>(Maintain existing SWM activities and staff of \$221K/yr.)<br>(Includes \$25K/yr to replace street sweeper.) | 2.15 FTE         | \$246K per year        |
| • Construct Capital Facilities:<br>(\$600K over the next 6 years.)  | 0 New            | \$100K per year        |
| • Achieve Regulatory Compliance:<br>(Regulatory Compliance includes:<br>- Regional Coordination<br>- Creation of Local Funding          | 2.45 New         | \$257K per year        |
| <b>Total:</b>   | <b>4.6 staff</b> | <b>\$603K per year</b> |

This would require the hiring of 2-3 new staff and the creation of up to \$382K of new revenue per year over the next 5-6 years.

*Regulatory Compliance Strategy*

A regulatory compliance strategy is currently being developed by the City of Fife. In creating this strategy and estimating the resources and funding needed for compliance, the City will first take advantage and seek credit for its existing stormwater program and current level of staffing, funding, equipment, ordinances, and technical expertise.

There is significant overlap between the six minimum requirements of EPA's NPDES II General Permit and the State's Puget Sound Water Quality Management Plan requirements (SW-1.1 through SW-1.4). Some efficiencies have been realized, and a proposal to meet the basic requirements over the next five years, for both of these sets of stormwater requirements has been proposed in the Regulatory Compliance Analysis Parts I-III presented in the Appendices A., B., and C.

Initial cost estimates for compliance with NPDES II Stormwater Permit requirements have been calculated to add 1.35 full-time staff and require additional

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annual revenues of approximately \$157,700. (See Appendix B.) This estimate assumes that most new regulatory activities will be assumed by existing City staff.

The analysis of the activities needed for compliance with the Puget Sound Water Quality Management Plan (PSWQMP) requirements, overlap and exceed those of the NPDES II requirements. Resources for the PSWQMP are in addition to those needed for compliance with NPDES II. The cost for compliance with the PSWQMP Comprehensive Stormwater Management Program is an additional \$100,000 per year and involves the hiring of 1.10 additional staff. Note that full compliance with the requirements of the PSWQMP have been extended over the second five year permitting period. Compliance with NPDES II is achieved within the first five years of the NPDES Phase II Permit.

The total cost for full compliance with both the federal and State stormwater requirements totals \$603,000 annually. This requires the potential hiring of up to 2.45 new staff, and realizing up to \$382K in new annual revenues. Credits for the City's existing Stormwater Program have been realized wherever possible. Future permit negotiations with Ecology and partnering with one or more of the two drainage districts and surrounding agencies may result in additional cost savings.

*Role of the Drainage Districts*

The City of Fife has enjoyed an effective working relationship with both Drainage District #21 and Drainage District #23. Historically, the two districts have performed annual maintenance of the major conveyance systems, usually consisting of vegetation removal and the removal of debris. District #23 also has provided the operation and repair of the pump system, tidegate, and outfall located at the end of the Fife Ditch drainage system. The City in return has performed annual cleaning, maintenance, and repair of the City-owned and operated drainage facilities. This work has annually involved catch basin cleaning, vegetation removal, culvert repair, and the operation and maintenance of the Erdahl Ditch pump station, tidegate, and outfall.

This symbiotic relationship has worked well for all parties for more than fifty years. Currently, however, there is the need to review that relationship and see if additional partnering, involving the sharing of the region's growing stormwater and flood control responsibilities, may be possible. Each of the two drainage districts levy annual service charges based on assessed property values and improvements. District #23 brings in about \$110,000 per year and District #21 brings in about \$65,000 per year. These funds are used primarily for ditch maintenance and vegetation removal, during the summer months.

***Management Analysis:***

***In the future, additional revenues will be needed both within the City and throughout the service areas of the two drainage districts. The drainage districts have the unique authority under state law to levy service fees across various jurisdictional boundaries. They also have, under state law, extensive ways of generating new revenues and of acquiring needed rights of way and properties that may be needed for regional conveyance and flood control. It would be to the advantage of all parties, including the Port of Tacoma and WSDOT, to support the two drainage districts in assuming a leadership role in managing the region's growing flood control, stormwater management, and permitting responsibilities.***

***Management Suggestion:***

***Actively pursue the development of interlocal agreements (ILAs) with the two drainage districts to share costs and pursue funding. Future ILAs could also include the contracting for services and equipment, and the possibility of joint NPDES II Permit and regulatory compliance strategies.***

*Priorities and Scheduling*

- *Program Priorities*

The following stormwater program priorities have been established for each of the major elements of the City's enhance Stormwater Management Program. They would be the primary emphasis of the program over the next five years and address the City's need to update capital infrastructure, as well as address the City's regulatory responsibilities.

- Local Drainage Needs:
  - To maintain existing funding and staffing levels, and
  - To replace the street sweeper with a new vacuum style sweeper.
- Capital Facilities Needs:
  - To identify a reliable source of annual capital funding, and
  - To design and build projects to enhance the city's conveyance system, especially within the Fife Ditch drainage system
- Regulatory Compliance Needs:
  - To submit an NOI by March 10, 2003,
  - To negotiate a fair and reasonable NPDES II Permit that the City can afford to implement, and
  - To address the terms of the permit.

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- Regional Coordination:
  - To work with the two drainage districts to review common needs and opportunities, and
  - To draft one or more interlocal agreements to work together, raise needed revenues, construct needed facilities and maintain and properly operate the existing facilities.
- Funding:
  - To identify and implement an array of local funding mechanisms so adequate levels of annual revenue can be realized to effectively implement the proposed stormwater program.
- *Scheduling Considerations*

The development and funding of the recommended Stormwater Management Plan and resulting Stormwater Management Program will be created slowly over the next five years, as local funding allows. Proposed stormwater improvements have been identified and phased in over the next five to six years, as shown in Table 3. The rate and funding levels will largely be dictated by the results of the negotiations with Ecology regarding the NPDES II Stormwater Permit. Compliance requires the creation, funding, and implementation of the prescribed Comprehensive Stormwater Management Program over the next five years (i.e., from 2003 to 2008).

In addition to the regulatory mandated stormwater requirements, local and regional stormwater capital needs over the next six years, from 2003 to 2009, total \$2.32 million. This list of capital needs includes enhancements to the Fife Ditch conveyance system that historically has been the responsibility of Drainage District #23. Recommended capital improvement projects have been previously prioritized and proposed for implementation in Table 3. Future inter-local agreements with the drainage districts could be used to provide regional funding and drainage services. Future partnering could assist District #23 in enhancing / replacing the Fife Ditch Pump Station. Because funding is so limited and undefined at this time, an annual capital program of only \$100K per year has been recommended.

The highest priority capital needs for both the City and District #23 are replacing/enhancing the Fife Ditch Pump Station, and improving the inter-city conveyance system of the Fife Ditch drainage system. Enhancing the Fife Pump Station is the highest priority for the City. Flow improvements, as presented in capital improvement projects #1-5, cannot be fully realized until the Fife Pump Station is upgraded. Enhancing the pump station is the primary responsibility of District #23, however, the City would like to support the district to help ensure needed improvements can be made in a timely, cost-effective manner. The

**Table 3  
SWM Program Priorities and Implementation Schedule**

| SWM Program Elements:<br>Prioritization of Key Activities               | Schedule Years   |   |   |   |   |  |
|---|--|---|---|---|---|--|
|   | 1  | 2   | 3   | 4   | 5   | 6  |
| Local Drainage Needs  | <ul style="list-style-type: none"> <li>- Maintain existing staff &amp; annual funding.</li> <li>- Set up annual fund to replace street sweeper.</li> </ul>   | <ul style="list-style-type: none"> <li>- Evaluate activities &amp; redefine.</li> <li>- Collect/save \$ annually for sweeper.</li> </ul>  | <ul style="list-style-type: none"> <li>- Collect annual \$ for sweeper funding.</li> <li>- Set new priorities</li> </ul>  | <ul style="list-style-type: none"> <li>- Enhance O/M Program.</li> <li>- Collect annual funding for sweeper.</li> </ul>   | <ul style="list-style-type: none"> <li>- Purchase new street sweeper.</li> </ul>  | <ul style="list-style-type: none"> <li>- Continue to implement on an annual basis.</li> </ul>  |
| Capital Facilities<br>(See CIP Implementation Schedule - Table 2)       | <ul style="list-style-type: none"> <li>- Plan how to staff &amp; fund SWM Program.</li> <li>- Set CIP priorities.</li> </ul>   | <ul style="list-style-type: none"> <li>- Secure Funding.</li> <li>- Save annual CIP funds.</li> </ul>                                     | <ul style="list-style-type: none"> <li>- Save CIP \$.</li> <li>- Accumulate \$ for 1st CIP's.</li> <li>- Design first CIP</li> </ul>  | <ul style="list-style-type: none"> <li>- Save CIP \$.</li> <li>- Accumulate \$ for 2nd CIP's.</li> <li>- Build First CIP's.</li> <li>- Design second set of CIP's.</li> </ul>                 | <ul style="list-style-type: none"> <li>- Save CIP \$.</li> <li>- Accumulate \$ for 3rd CIP.</li> <li>- Build second CIP's.</li> <li>- Design third set of CIP's.</li> </ul>                   | <ul style="list-style-type: none"> <li>- Save CIP \$.</li> <li>- Build third CIP's.</li> <li>- Design fourth set of CIP's.</li> </ul>              |
| Regulatory Compliance<br>(See Regulatory Compliance Schedule - Table 3) | <ul style="list-style-type: none"> <li>- Submit NOI by March 10, 2003.</li> <li>- Review NOI Schedule.</li> <li>- Plan how to staff &amp; fund.</li> </ul>   | <ul style="list-style-type: none"> <li>- Negotiate permit conditions with Ecology.</li> <li>- Finalize SWM Program.</li> </ul>            | <ul style="list-style-type: none"> <li>- Begin to implement permit conditions, Elements #1-6.</li> </ul>  | <ul style="list-style-type: none"> <li>- Continue to implement NPDES Permit activities.</li> </ul>  | <ul style="list-style-type: none"> <li>- Achieve compliance w/permit conditions for first five years.</li> </ul>  | <ul style="list-style-type: none"> <li>- Renew NPDES permit w/Ecology</li> </ul>   |
| Regional Coordination   | <ul style="list-style-type: none"> <li>- Identify shared responsibilities and costs.</li> <li>- Establish Interlocal Agreements with Districts #21 and #23.</li> </ul>                                   | <ul style="list-style-type: none"> <li>- Enter into Hylebos Basin Study w/Fed. Way and WSDOT.</li> </ul>                                  | <ul style="list-style-type: none"> <li>- Annually work w/Districts to raise rates &amp; enhance facilities &amp; sources.</li> <li>- Update ILA annually with annual work program.</li> </ul> | <ul style="list-style-type: none"> <li>- Annually work w/Districts to raise rates &amp; enhance facilities &amp; sources.</li> <li>- Update ILA annually with annual work program.</li> </ul> | <ul style="list-style-type: none"> <li>- Annually work w/Districts to raise rates &amp; enhance facilities &amp; sources.</li> <li>- Update ILA annually with annual work program.</li> </ul> | <ul style="list-style-type: none"> <li>- Consider closer working relationships with drainage districts.</li> <li>- Update ILAs</li> </ul>          |
| Funding   | <ul style="list-style-type: none"> <li>- Establish City-wide utility.</li> <li>- Apply for Grants.</li> <li>- Set up SDC's.</li> <li>- Increase Dev. Rev. Fees.</li> <li>- Increase O/M Fees.</li> </ul> | <ul style="list-style-type: none"> <li>- Collect new resources.</li> <li>- Manage grants.</li> <li>- Identify outside funding.</li> </ul> | <ul style="list-style-type: none"> <li>- Continue raising new revenues on an annual basis.</li> </ul>   | <ul style="list-style-type: none"> <li>- Continue raising new revenues on an annual basis.</li> </ul>   | <ul style="list-style-type: none"> <li>- Review and evaluate program effectiveness and costs.</li> </ul>  | <ul style="list-style-type: none"> <li>- Compile SWM Plan and funding per new NPDES Permit.</li> <li>- Fund years 5-10 of NPDES Permit.</li> </ul> |

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request of outside grants and /or loans by District #23 is strongly encouraged by the City.

A basic level of regulatory compliance has been recommended in this proposed stormwater management plan, as shown in Table 4. Additional regulatory compliance activities may be initiated once a secure source of annual funding has been identified. Due to limited local funding, full compliance may not be realized until the second five year phase of the NPDES II Permit.

*Summary of Key Elements of the Proposed Stormwater Management Plan*

- Addressing local drainage needs by maintaining existing levels of annual funding and replacing older equipment,
- Building needed Capital Facilities over a six to ten year period, as development occurs and local funding allows,
- Working towards Regulatory Compliance in a phased, realistic approach that the City can afford,
- Supporting / Leading Regional Coordination and cost sharing, including future partnering with the Drainage Districts, and
- Realizing Adequate Annual Local Funding by developing one or more new annual funding mechanisms.

**Section 6 — Funding**

*Revenue Needs*

The annual revenue needs for the City's enhanced Stormwater Program are as follows:

- For Operations: \$ 503,000
- For Capital Improvements: \$ 100,000
- Annual Total (including existing funding of \$221,000 per year): \$ 603,000
- Total Amount of New Annual Revenue Needed: \$ 382,000

A financial plan for the next six years of the proposed stormwater program is presented in Table 5. Implementing the proposed financial plan requires the realization of \$382K of new revenue on an annual basis.

*Current Funding Mechanisms*

The City of Fife routinely uses various revenue sources and funding mechanisms to achieve its capital improvement objectives. For stormwater management (SWM), the City user fees are collected to reimburse the City for permit review and construction inspection labor costs. Road and General Funds are used to support

**Table 4  
SWM Regulatory Compliance Implementation Schedule**

| NPDES Minimum Requirements                                 | Schedule Years  |   |  |   |   |                       |
|--|---|---|--|---|---|-----------------------|
|  | 1   | 2   | 3  | 4   | 5   | 6                     |
| #1 Public Education and                                    | - Develop PIE Plan  | - Implement PIE Plan.   | - Implement PIE Plan.  | - Implement PIE Plan.   | - Implement PIE Plan.   | - Implement PIE Plan. |
| #2 Public Involvement                                      | - Set up and periodically convene Advisory Committee.<br>- Set up local volunteer program     | - Set up and periodically convene Advisory Committee.<br>- Set up local volunteer program.              | - Set up and periodically convene Advisory Committee.<br>- Set up local volunteer program. | - Set up and periodically convene Advisory Committee.<br>- Set up small grants program.   | - Set up and periodically convene Advisory Committee.<br>- Set up small grants program.   |                       |
| #3 Construction Site Controls (i.e. erosion/sedimentation) | - Review & revise erosion/construction ordinance.<br>- Inventory & map facilities & outfalls. | - Educate Developers via brochure.  | - Set up BMP manual in Pub. Wks.   | - Enhance Inspection.   | - Continue Education and Inspection.  |                       |
| #4 Illicit Discharges & WQ Response Plans                  |   | - Conduct Planning level study of problem areas, and field inspections.                                 | - Develop hand out and questionnaire to businesses.<br>- Identify problems.                | - Identify fixes.<br>- Develop plan and estimated costs.                                  | - Identify needed revenue to fix illicit connections.                                     |                       |
| #5 Post Construction SWM                                   | - Adopt 2001 Ecology Manual.<br>- Revise other City ordinances.                               | - Review/revise O/M manuals/procedures.   | - Hire O/M staff (1.0).<br>- Develop Annual O/M plan.                                      | - Purchase new street sweeper   | - Purchase new street sweeper.  |                       |
| #6 Municipal Pollution Control                             | - Inventory/ inspect City owned buildings & drainage facilities.                              | - Prioritize problems.<br>- Identify needed BMP's.<br>- Estimate costs & schedule for BMP enhancements. | - Make needed enhancements annually.<br>- Identify and secure needed resources, as needed. | - Make needed enhancements annually.<br>- Identify and secure needed resource, as needed. | - Make needed enhancements annually.<br>- Identify and secure needed resource, as needed. |                       |

**Table 4  
SWM Regulatory Compliance Implementation Schedule**

|   |   |  |                                       |                                       |                                       |
|---|---|--|---------------------------------------|---------------------------------------|---------------------------------------|
| <p>#7 Other PSWQMP Requirements (Source controls, CIP, basin planning, and ranking of problems)</p> | <p>- Future inclusion of these 4 elements into the NPDES II Permit is likely, but unknown at this time.</p> | <p>- To be determined.</p>               | <p>- To be determined.</p>            | <p>- To be determined.</p>            | <p>- 5-year report to Ecology.</p>    |
| <p>#8 Monitoring/Evaluation Annual Program Rpt.</p>   | <p>- Design annual monitoring program.</p>  | <p>- Annual Evaluation &amp; Report.</p> | <p>- Annual Report to Ecology.</p>    | <p>- Annual Report to Ecology.</p>    | <p>- Annual Report to Ecology.</p>    |
| <p>#9 Notice of Intent and Permit Registration</p>  | <p>- NOI to Ecology.</p>  | <p>- Negotiate NPDES Permit.</p>         | <p>- Implement permit conditions.</p> | <p>- Implement permit conditions.</p> | <p>- Implement permit conditions.</p> |
|   |   |  |                                       |                                       | <p>Permit Renegotiation.</p>          |

**Table 5  
Financial Plan for the City's Stormwater Program**

| SWM Program Activity             | Schedule Years                             |              |              |              |              |              | Total          |
|----------------------------------|--|--------------|--------------|--------------|--------------|--------------|----------------|
|                                  | 1  | 2            | 3            | 4            | 5            | 6            |                |
| Local Drainage Needs             |  |              |              |              |              |              |                |
| - Maintain Existing Funding      | \$221                                      | \$221        | \$221        | \$221        | \$221        | \$221        | \$1,326        |
| - Fund to Replace Street Sweeper | \$25                                       | \$25         | \$25         | \$25         | \$25         | \$25         | \$150          |
| Construct CIP Projects           | \$100                                      | \$100        | \$100        | \$100        | \$100        | \$100        | \$600          |
| Address Regulatory Compliance    |  |              |              |              |              |              |                |
| - NPDES II                       | \$158                                      | \$158        | \$158        | \$158        | \$158        | \$158        | \$948          |
| - PSWQMP                         | \$100                                      | \$100        | \$100        | \$100        | \$100        | \$100        | \$600          |
| Regional Coordination            | Included in Regulatory Compliance (PSWQMP) |              |              |              |              |              | \$0            |
| Funding                          | Included in Regulatory Compliance (PSWQMP) |              |              |              |              |              | \$0            |
| <b>Total Annual SWM CIP</b>      | <b>\$604</b>                               | <b>\$604</b> | <b>\$604</b> | <b>\$604</b> | <b>\$604</b> | <b>\$604</b> | <b>\$3,624</b> |

(amounts are in 1,000's)

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maintenance. Capital stormwater projects, often are constructed in conjunction with road and/or utility projects or in cooperation with new development. The City has never had an independent, dedicated revenue source for stormwater management, and thus has never had an annual capital facilities program to build new facilities, or to repair or replace existing facilities.

*Financial Alternatives*

- *Evaluation of Revenue Options*

To create the enhanced level of stormwater revenue needed to support the City's GMA Plan, numerous funding mechanisms have been considered (Table 6). Fifteen options, ranging from forming a stormwater utility to establishing long-term inter-local agreements with one or both of the two drainage districts, have been evaluated.

For most municipal agencies, the multitude of stormwater activities, ranging from maintenance, to inspection/enforcement to capital construction, usually require a diversity of long-term revenue sources. Common revenue sources used by many municipal agencies to create adequate primary levels of annual funding for stormwater programs include:

- Stormwater Utilities  
Usually based on impervious area per parcel, with bills issued monthly (cities), or semi-annually with property tax statements (counties).
- Service Fees  
Reimbursing agencies for direct hourly services such as permit review, private facility maintenance inspection, and enforcement.
- General Facility Charges  
New development pays for a portion of its impact to the existing drainage system. Some people refer to these as system development charges (SDCs) or developer impact fees.

These primary revenue sources typically account for as much as 70 to 90 percent of the annual revenue needs of a SWM program.

Some of the more mature utility-based SWM programs have adequate annual revenues to also take advantage of secondary sources of revenue including:

- Bonding for capital needs.
- Loans for special projects.
- Partnering for Cost Sharing with other agencies and/or developers.

Secondary revenue sources can contribute as much as 10 to 30 percent of the annual needs of a SWM program on a project-by-project basis.

**Table 6  
List and Evaluation of Stormwater Management Funding Mechanisms (1/3)**

| <b>Funding Mechanism/<br/>Revenue Source</b>      | <b>Advantage</b>   | <b>Disadvantage</b>   |
|---|--|---|
| 1. Service Fees                                   | <ul style="list-style-type: none"> <li>◆ Good for direct hourly services like permit review and inspection</li> <li>◆ Equitable and can be directly correlated to service level</li> </ul>   | <ul style="list-style-type: none"> <li>◆ Not appropriate for maintenance, capital construction, regulatory compliance, administration or other programmatic SWM needs</li> </ul>  |
| 2. General Fund                                   | <ul style="list-style-type: none"> <li>◆ An existing, readily available revenue source for city activities</li> </ul>  | <ul style="list-style-type: none"> <li>◆ Generally in short supply</li> <li>◆ SWM cannot compete with other city services and priorities</li> </ul>   |
| 3. Road Fund                                      | <ul style="list-style-type: none"> <li>◆ Roads directly benefit from good drainage design and maintenance</li> <li>◆ Equitable and appropriate for use in maintenance and construction in ROW</li> </ul>   | <ul style="list-style-type: none"> <li>◆ Use and equity is limited</li> <li>◆ Inappropriate for use out of roads' right-of-way (ROW)</li> <li>◆ Is of limited use as a primary, long-term revenue source for SWM</li> </ul>   |
| 4. Water/Sewer Funds                              | <ul style="list-style-type: none"> <li>◆ Existing revenue sources</li> <li>◆ Services understood by public</li> </ul>  | <ul style="list-style-type: none"> <li>◆ Generally, not appropriate or equitable for use on SWM projects</li> <li>◆ Not equitable with SWM, little direct correlation to water/sewer utility needs and services</li> </ul>  |
| 5. Interlocal Agreement with Drainage District(s) | <ul style="list-style-type: none"> <li>◆ Drainage districts are granted special powers and authorities under State law for raising revenue and providing regional drainage services</li> <li>◆ City does not have to staff up and duplicate drainage district services, equipment, and/or staff</li> </ul> | <ul style="list-style-type: none"> <li>◆ To develop effective regional stormwater services, both Districts #21 and #23 would likely need to raise new revenues, reorganize, develop, and implement annual O/M, CIP, and management programs; and add additional staff and/or equipment</li> </ul> |
| 6. Grants   | <ul style="list-style-type: none"> <li>◆ Can be used to help fund special studies, such as modeling, floodplan management, mapping, and ordinances, etc.</li> </ul>  | <ul style="list-style-type: none"> <li>◆ Funds are limited</li> <li>◆ Selection process is very competitive</li> <li>◆ Requires research and staff time to complete</li> </ul>  |

**Table 6 (continued)  
List and Evaluation of Stormwater Management Funding Mechanisms (2/3)**

| <b>Funding Mechanism/<br/>Revenue Source</b>             | <b>Advantage</b>   | <b>Disadvantage</b>   |
|--|--|---|
| 7. Loans   | <ul style="list-style-type: none"> <li>◆ Are readily available and can be paid back with little or no interest, if paid back in &lt;5 years</li> <li>◆ Are sometimes useful for special projects</li> </ul>    | <ul style="list-style-type: none"> <li>◆ Usually, requires an adequate, established revenue source to make annual payments</li> <li>◆ If adequate local revenues exist, loans are generally of little use to an agency</li> </ul>   |
| 8. General Facility Changes (GFCs)                       | <ul style="list-style-type: none"> <li>◆ Is a publicly acceptable approach to have new development pay for some of its impacts to the existing drainage system</li> </ul>                                      | <ul style="list-style-type: none"> <li>◆ Rarely are GFCs of an adequate level to pay for all impacts associated with new development</li> <li>◆ GFCs are usually for new CIP facilities, and are of limited use for O/M and other long-term SWM program needs</li> </ul>                                    |
| 9. Billings to Upstream Jurisdictions                    | <ul style="list-style-type: none"> <li>◆ An equitable approach to reimburse lowland agencies for receiving and managing flows from upstream</li> <li>◆ Reduces costs to city and drainage districts</li> </ul> | <ul style="list-style-type: none"> <li>◆ Will likely be difficult to successfully "sell" to upstream agencies</li> <li>◆ May have some legal challenges as well</li> </ul>  |
| 10. Intergovernmental Coordination                       | <ul style="list-style-type: none"> <li>◆ Is helpful for larger watershed and regional SWM needs that cross jurisdictional boundaries</li> <li>◆ Helpful in applying for grants and loans</li> </ul>            | <ul style="list-style-type: none"> <li>◆ Often difficult and time-consuming to implement</li> <li>◆ Usually doesn't result in much new revenue for any one agency</li> </ul>  |
| 11. Partnering with Port, WSDOT, Tribe and/or Developers | <ul style="list-style-type: none"> <li>◆ Appropriate for large, mutually beneficial projects, such as upgrading pump stations and dredging major ditches</li> </ul>  | <ul style="list-style-type: none"> <li>◆ Often a challenge and time-consuming to establish equity and a fair basis of payment/benefit</li> <li>◆ Usually limited to just a few specific projects</li> </ul>   |
| 12. Bonding  | <ul style="list-style-type: none"> <li>◆ Appropriate for larger, specific projects that have already been designed and are waiting to be constructed</li> </ul>  | <ul style="list-style-type: none"> <li>◆ Requires established CIP plan</li> <li>◆ Availability can be influenced by an agency's financial rating</li> <li>◆ Annual payments require stable, adequate revenue source</li> </ul>  |
| 13. Local Improvement/Special Districts (LIDs)           | <ul style="list-style-type: none"> <li>◆ Can be an effective way to approach regional needs on a basin or subbasin basis</li> <li>◆ Equitable for all participants</li> </ul>                                  | <ul style="list-style-type: none"> <li>◆ Usually, requires vote of impacted residents and businesses</li> <li>◆ Consumes staff time to set up and maintain</li> <li>◆ Usually project-specific and of limited use outside of the area for use for other SWM services other than capital projects</li> </ul> |

**Table 6 (continued)**  
**List and Evaluation of Stormwater Management Funding Mechanisms (3/3)**

| Funding Mechanism/<br>Revenue Source          | Advantage   | Disadvantage  |
|---|---|---|
| 14. Stormwater Utility                        | <ul style="list-style-type: none"> <li>◆ Once established, can provide an adequate, stable, equitable, long-term revenue source for all SWM activities</li> <li>◆ Equitable, relatively easy to establish</li> <li>◆ Usually accepted by the public, given adequate up front public education, involvement, and notification</li> </ul> | <ul style="list-style-type: none"> <li>◆ Uneducated public may view it as a "rain tax"</li> <li>◆ Requires education and public involvement</li> <li>◆ Rates need to be periodically increased as SWM program and new regulations increase</li> <li>◆ Can be complicated for the public if flood control and/or other drainage-related fees exist</li> </ul>  |
| 15. Drainage and Flood Central Zone Districts | <ul style="list-style-type: none"> <li>◆ Historically established under State law to address regional drainage issues without regard to jurisdictional boundaries</li> <li>◆ Have broad and sweeping powers to raise local revenues, apply for grants and loans, and maintain natural and man-made drainage ways</li> </ul>             | <ul style="list-style-type: none"> <li>◆ Most drainage districts were established when the primary land use was agricultural and the goal was flood control</li> <li>◆ Most are usually under funded</li> <li>◆ To change their historic role and current funding and organization may require a focused public education effort and an infusion of modern management and technical principles</li> </ul> |

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Occasionally, projects and funding opportunities arise that allow an agency to take advantage of additional outside funding sources including:

- Grants
- Billings to upstream property owners
- Establishing project specific Local Improvement Districts (LIDs)

These revenue sources, once established, augment annual SWM revenues, but would be inadequate as a primary source of funding for a SWM program.

- *Stormwater Funding Mechanisms for the City of Fife*  
One of the City's primary SWM funding opportunities is the formation of a stormwater utility. A summary of the annual revenues that could be raised by a city-side stormwater utility is presented below.

- City-Wide Stormwater Utility

*Analysis*

If a city-wide stormwater utility were to be established in Fife, new annual revenues amounting to \$392,400 (\$5 per month per billing unit) to \$588,600 (\$7.5 per month per billing unit) could be realized. These findings are based on the following assumptions and analyses:

- There are about 1,000 residential homes (including individual condominiums and apartments).
- There is about 2,500 square feet of impervious area per residential lot.
- One billing unit is the equivalent of 2,500 square feet of impervious area.
- There are about 4,000 commercial billing units within the city (160 firms of 25 billing units each).
- City roads are 20 miles long and are equivalent to 1267 billing units.
- WSDOT is eligible to pay the equivalent of 718 billing units on 2.5 miles of highway.
- A total of 6,540 billing units are available within the City.
- Thus, a rate of \$5/month/billing unit generates \$392,400 in new revenue per year.
- And a rate of \$7.50/month/billing unit generates \$588,600

*Summary:*

The rate of \$5.00 would pay for the proposed stormwater improvements for the first five years of the NPDES II Permit, it would amount to \$392,400 per year in new revenue. The higher rate of \$7.50 generates \$588,600 in new revenue. It would allow the annual capital improvement program to grow by an additional \$207,000, to \$307,000 per year, with the remaining funding the annual operational needs of the NPDES II Permit.

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– Other Funding Mechanisms

Other funding mechanisms for the City of Fife include the following:

- Service/Permit Fees  
The City's fee related services, including development permit review and construction and maintenance inspections should be 100% fee supported and not subsidized from the City's General Fund or other sources of internal funding.
- General Facility Charges (GFCs)  
GFCs are paid by new developments to provide additional capacity to downstream drainage facilities. Based on impervious area, they can be as high as \$500 per home, and raise \$25K to \$50K of additional annual revenue for the City's stormwater program. These fees could help the City enhance the capacity of its internal conveyance system.
- Grants  
Include the State Centennial Clean Water Fund (CCWF) and Flood Control Assistance Account Program (FCAAP). They are increasingly competitive, but can be a good source of planning, habitat or water quality project funding in the range of \$200K-\$300K.
- Loans  
The State's Public Works Trust Fund as well as the CCWF and FCAAP funds each contain loan programs for drainage and flood control related projects. Interest rates are usually low (1-5%) if the loans are repaid within a five year period. Loans may be of some assistance to the City once stable sources of annual revenues are established.
- Bonds  
Typically, bonding is difficult for a new stormwater program. It would be especially difficult for the City of Fife, since the program has no permanent source of funding. Bonding is also normally limited to capital projects that have already been designed and permitted.
- Fee In Lieu of On-Site Detention  
One possible option for the City to consider is the establishment of a stormwater facility finding program where the developer pays a fee to the City for the City to allow the discharge their runoff directly into Commencement Bay. The amount of the fee would be equal to the projected cost of the developer to provide on-site detention. While this option would require additional research and approval from Ecology, it is consistent with the structure and performance of the City's existing

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conveyance system and pump stations and warrants further consideration.

### *Future Coordination Opportunities with the Drainage Districts*

There has been considerable discussion during the development of the Stormwater Plan about the City of Fife and Drainage Districts #21 and #23 working together as partners in regional stormwater management and flood control. One of the most likely working relationships would be the establishment of inter-local agreements with one or both of the two existing drainage districts.

Using this approach, the City and Drainage Districts #21 and #23 would annually collect stormwater revenues. Each agency would share in the regional costs of annual maintenance, capital construction, and regulatory compliance obligations, including replacing the Fife Ditch Pump Station. The two districts offer significant exterior funding opportunities and an array of legal drainage authorities that exceed those of the City. The legal and revenue raising authorities of the districts established under Washington State law could be of significant benefit to all parties in achieving local and regional stormwater management objectives. Other agencies, such as Federal Way, Port of Tacoma, WSDOT, and the cities of Milton and Edgewood may also like to play a role.

These primary revenue sources from the City and the two drainage districts could be supplemented by such outside funding opportunities including grants, loans, bonds and cost sharing.

### *Creating a Financial Plan that Optimizes The Creation of New Revenues*

Based on the above review and analysis of various financial alternatives and revenue generating mechanisms, the following sources and amounts of new revenue are potentially available to the City.

- Service Fees = could raise 50-100% more in annual revenues, estimated to be \$20K - \$30K per year,
- General Impact Fee = could raise \$25K-\$50K in annual revenue (or more)
- Fee In Lieu of On Site Detention = could raise \$100K-\$200K per year
- Stormwater Utility Service Fee = could raise \$400K-\$600K per year
- Grants = could bring in an additional \$50K-\$100K per year
- Cost Sharing with other agencies = about another \$100K-\$200K per year (This is realized as future cost savings, not actual annual revenue.)

**Total Potential New Revenue Opportunities of: \$605K - \$980K**

**Management Analysis:**

*The City of Fife currently has no dedicated annual funding for its stormwater infrastructure needs. There is no secure funding for capital projects, regulatory compliance or regional coordination. Funds are appropriated on an as needed basis, with drainage related improvements routinely included in road and utility projects. Often the City is at the mercy of developers to design and construct its needed drainage facilities as new development opportunities allow.*

*The City has grown to the point that it has exceeded the capacity of its existing drainage facilities. Replacements and upgrades are needed to the conveyance system in terms of both pipes and ditches. Having deferred compliance with the PSWQMP until now, the requirements of the PSWQMP have now been integrated with the minimum requirements of the NPDES II Permit. Additional annual funding is needed to meet these new State and federal regulatory requirements.*

*This Stormwater Management Plan has identified what is needed to address local, capital and regulatory needs. Program priorities, projects and activities have been identified, prioritized and scheduled for the next five to six years. A draft Notice of Intent for compliance with the NPDES II Permit has been developed, consistent with the City's ability to fund, staff and implement over the next five years. The Plan has also identified and evaluated different funding mechanisms and the annual revenues that may be realized from each. It is now up to the City of Fife, its citizens, its business community and its elected officials to decide what the City's future Stormwater Program will consist of and how to fund it on an annual basis.*

**Management Suggestion:**

*It is recommended that the City of Fife decide to establish a city-wide stormwater utility monthly service fee, and to implement this fee to fund stormwater program projects and activities over the next five years. The utility, along with the lesser local funding mechanisms presented in this report, will provide a secure and adequate level of funding for the City to have a stable and viable stormwater management program.*

*At the end of the five years, and at the point of renewal of the NPDES II Permit, the City should review its working relationship with the two drainage districts and may wish to merge and/or integrate stormwater revenues and services into one regional stormwater program. This would allow the various agencies of the region to manage and fund its stormwater, flood control, drainage, habitat, and water quality needs using an integrated, watershed based approach. The benefit of this approach should be to realize cost savings and program efficiencies that should reduce the*

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***future, long-term costs of stormwater management, as well as support the continued economic development of the region.***

## **Section 7 — Public Involvement Process**

### *Approach*

Public involvement was initiated early, and continued throughout the life of the 18-22 month project. It began with the creation of a citizen advisory committee, which was convened five times throughout the project. Three of the meetings occurred during the first half of the project. Two additional meetings were convened during the last half of the project. Example copies of meeting agendas, and meeting summaries are presented in Appendix F.

In addition to the advisory committees, there was one public hearing in front of the Planning Commission, and two public City Council Study Sessions were held prior to the development of the proposed stormwater management plan. Another work session and public hearing and Council vote are proposed for the adoption of the proposed SWM Plan in the Fall of 2002.

### *Acknowledgements*

The City of Fife would like to gratefully acknowledge the attendance and input of the various members of the Citizens Advisory Committee, whose membership included the following names.

- Mandel Hardey           - Fife Planning Commission
- John Houston           - Pierce County Drainage District #21
- Del Linsted             - Pierce County Drainage District #23
- Karen Bergmann       - AMEC
- Stan Selden             - Sheldon Furniture
- Tiffany Speir           - Master Builders Association
- Mike Robinson         - AHR Engineers
- Chris Carrel           - Friends of the Hylebos
- Jeannie Udd            - Stream Team

## **Section 8 — Conclusions and Recommendations**

### *Conclusions*

Conclusions from the analysis of the City's existing Stormwater Program include the following:

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- The City's Stormwater Program has historically been underfunded; it especially lacks adequate annual funding for maintenance, the construction of capital projects, and regulatory compliance.
- The City will increase in annual flooding and damages if no enhancements are made through increased local funding.
- The City has opportunities to enhance local revenues, including GFCs, stormwater utility, fees and grants/loans and should pursue each of them to optimize local revenues.
- Regulatory requirements should be negotiated with Ecology and phased in over the next five years of the life of the first NPDES II Municipal Stormwater Permit; highest priority requirements should be addressed in this first five-year permit, with the others deferred and included in the second five-year permit.
- Critical capital improvement projects for Fife Ditch should be funded and built first; the rest of the capital projects can be built over the next 5-10 years, as local funding opportunities allow.
- The City and the two drainage districts (#21 and #23) have common goals and should work together more effectively to share funding and technical capabilities.

*Recommendations*

City of Fife should:

- Adopt the 2001 Ecology Stormwater Manual for Western Washington, or create an alternative manual for Ecology approval, tailored to local drainage and watershed conditions.
- Update the City's flood ordinance, requiring the use compensatory storage for all new future development.
- Review, re-evaluate and revise the filling/grading ordinance to reduce or eliminate the use of fill to raise base land elevations to avoid seasonally high groundwater conditions.
- Conduct a flood plain analysis of regional storage areas and localized drainage depressions; re-map the flood plains of the City, as/if needed.
- Work with Drainage Districts #21 and #23 to enhance the Fife Ditch conveyance system and pump station. The development and use of inter-local agreements is encouraged.
- Establish adequate local funding, including a City-wide stormwater utility, along with increased developer and maintenance inspection service fees, creation of impact fees (SDCs) for new development, bonding, partnering with neighboring agencies and actively annually pursuing outside funding in the form of grants and/or loans.

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- Evaluate the option of increasing the City's conveyance system and directly discharging into Commencement Bay in lieu of on-site detention for new development, with developers paying the City to design and construct the larger regional conveyance channels and pumping enhancements to handle the increased flows related to new development.