

**ATTACHMENT B3: CITY OF TACOMA STORMWATER
MANAGEMENT PROGRAM ASSESSMENT**

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The following discussion includes an assessment of the appropriateness of the City of Tacoma (City) Stormwater Management Program elements including any changes made or anticipated to be made, and why, per the National Pollutant Discharge Elimination System (NPDES), Stormwater Management Program (SWMP) Permit, Sections S9.E.6 and S8.B.2.

B3.1 Public Involvement and Participation

Program Update:

The Environmental Services Department biannual budget review and approval for 2013-2014 was completed during 2012 and adopted in February 2013. The City Council and Environmental Services Commission members reviewed the Surface Water Utility budget items contained in the SWMP.

The Environmental Services Commission also regularly advises the City on issues related to SWMP implementation.

Program Assessment:

The existing public participation process completes the related elements of the SWMP and satisfies NPDES Permit requirements.

B3.2 Controlling Runoff from New Development, Redevelopment and Construction Sites

Program Update:

During 2012, the existing permitting and inspection procedures for new and redevelopment projects were sufficient to meet permit requirements. These procedures were coordinated with the reorganization of the Building and Land Use Services Division into the Planning and Development Services Division to ensure that necessary processes continued to occur during the transition period. Preventing erosion and sediment loss during active construction is recognized as an ongoing challenge and will continue to be a focus of construction inspections as staff reorganization transfers those inspection duties to the Environmental Services Department.

Coordination between inspector sign-offs on newly constructed stormwater connections and adding those approved connections to our mapping system is still being improved to better implement the standard operating procedures (SOPs) identified in the SWMP. In March, staff drafted an updated SOP, assigning specific individuals with tasks to coordinate mapping updates. However, subsequent reorganization and staff reassignments will require additional review and potential adjustment of the SOP to ensure proper implementation.

Plan review and inspection staff training opportunities continued during 2012. Highlighted training includes 2012 Stormwater Management Manual training for City staff, the development community and the general public, training on minimum requirements #5 for construction inspectors and a variety of training topics at regular plan review staff meetings.

Program Assessment:

The existing program meets the minimum NPDES Permit requirements. Additional improvements in program implementation and effectiveness will continue to be identified and implemented in 2013.

B3.3 Structural Stormwater Controls

Program Update:

In 2012, several stormwater treatment and flow reduction projects identified in the Capital Improvement Program spreadsheet started design or construction phases and are included in Attachment B4. Three highlighted projects include the Wapato Lake Drive and Asotin Court Pervious Street Projects and the Pacific Avenue Streetscape Project.

Asotin Court Pervious Street:

Approximately 580-lf of Asotin Court will be converted from a failed street to pervious pavement to reduce stormwater runoff by providing infiltration for approximately 4 acres of residential neighborhoods draining to Wapato Lake. Native Street trees will also be included in these project improvements. Wapato Lake has high levels of phosphorus. This project will reduce the contaminant loading to the lake, which is vital to the health of this sensitive receiving water. The City is pursuing Greenroad™ certification for this project. This project cost approximately \$780,500 and completed construction in December 2012.

Wapato Lake Drive Pervious Street:

Approximately 1,400-lf of Wapato Lake Drive will be converted from a failed street to pervious pavement to reduce stormwater runoff by providing infiltration for approximately 4 acres of residential neighborhoods draining to Wapato Lake. Native Street trees will also be included in these project improvements. Wapato Lake has high levels of phosphorus. This project will reduce the contaminant loading to the lake, which is vital to the health of this sensitive receiving water. The City is pursuing Greenroad™ certification for this project. This project cost approximately \$1,030,000 and completed construction in December 2012.

Pacific Avenue Streetscape Project:

The Pacific Avenue Streetscape Project started construction in November 2012 and will complete construction in 2013. The project includes innovative stormwater improvements along the entire Pacific Avenue right-of-way from South 7th to South 17th Street including 14 new rain gardens and 129 trees to reduce runoff and improve water quality.

Watershed Model:

A Thea Foss Watershed model is being developed to identify the most cost-effective and beneficial placement and density of water quality best management practices (BMPs) in the storm system. The model builds on the analysis of stormwater quality data in the Thea Foss Watershed. The results of this model will be incorporated into a plan to guide the type, location and intensity of the application of new green infrastructure methods and BMPs in addition to ongoing traditional stormwater management strategies to improve water quality. The focus of the plan is three-fold:

1. Apply BMPs in high impact areas so that water quality can be improved;
2. Group these efforts so that any improvement can be monitored; and
3. Use the results to apply these BMPs to other like land uses.

Once completed, the plan will be a stormwater information resource to City staff designing and reviewing stormwater systems throughout the City and to decision-makers as they consider City-wide land use and development-related decisions.

In 2012, street sweeping, storm-line cleaning, media filtration vaults and pervious pavement were evaluated using the model to determine levels of improvement and direct the City to the most cost-effective actions or BMPs to protect water and sediment quality in the Thea Foss

Waterway. The initial modeling results are currently under review.

Program Assessment:

The Structural Stormwater Controls Program completes the related elements of the SWMP and satisfies NPDES Permit requirements. The new pipe assessment and watershed modeling efforts underway are anticipated to greatly improve the effectiveness of the program.

B3.4 Source Control Program for Existing Development

Program Update:

In 2012, business inspection efforts focused on adjusting inspector areas to increase field presence and completing the first round of treatment and flow control device inspections. The inspectors also continued to respond to 100% of spills and complaints.

In 2012, the original list of 6,308 potential pollution generating businesses was re-evaluated in coordination with an update of the business inspection database and creation of the private treatment and flow control device inspection database. The original list was a broad-based collection of businesses and land uses based on a variety of information sources including all of the SIC codes listed for the industrial categories in Appendix 8. Sources contacted for this information included the Port of Tacoma (tenant list); City and Pierce County Facility Management Departments (list of government and public use facilities); Citizens for a Healthy Bay (2006 list of Tacoma area businesses with environmental permits); EPA Envirofacts Warehouse (search by zip code); City Tax and License records; and, the City Billing System (database queries to extract customer names and addresses for all commercial wastewater accounts and commercial stormwater accounts whose billing rates are based on 60% or greater impervious surface). In addition, we consulted existing Wastewater Pretreatment Program and Stormwater Source Control Program files, conducted a page by page search of the DEX telephone business directory and yellow pages, and did a "windshield survey" by driving through the city, noting businesses that we wished to return to inspect and survey.

Source Control inspectors conducted "door-to-door" compliance inspections of all of the potential pollution generating businesses throughout the entire city between 2007 and 2012 and based on those observations of business activities, reduced the original list to include only those sites that merited re-inspection. A variety of businesses including legal offices, real estate offices, insurance companies and accounting offices were judged inappropriate to include in the list based on inspector experience. The list was also checked for duplicate entries, closed businesses and other non pertinent types of database records. The final list includes 4,667 commercial/business and multi-family facilities. During 2012, over 979 source control inspections were completed exceeding the 20% requirement in the permit. Through this process of updating the list of potential pollution-generating sites, the City will direct business inspection efforts in 2013 and beyond to those sites that have the most impact on surface water quality.

Staff training in 2012 included bi-weekly staff meetings on topics ranging from recent enforcement actions and spill responses to inspection protocols and additional training opportunities. A series of four stormwater device inspection training and field exercises, erosion and sediment control BMP training, and training on the 2012 Tacoma Stormwater Management Manual were also offered.

Program Assessment:

The existing source control program completes the related elements of the Stormwater

Management Program and satisfies NPDES Permit requirements.

B3.5 Illicit Connections and Illicit Discharges Detection and Elimination

Program Update:

Field crews have been investigating sanitary and storm cross-connections by initial smoke testing and verifying results with a dye test, if necessary. By July of 2012, field screening was completed for approximately 8,200 addresses in the City which equates to 13% of the City of Tacoma's stormwater system, exceeding the Permit requirement of 12% per year.

The Stormwater Rapid Assessment Program to inspect the entire stormwater conveyance system in 4 years became a major element in our IDDE program in 2012. The camera inspection system is used to identify mainline pipe taps that could be potential sanitary sewer cross connections or sources of other illegal discharges. If the pipe tap is in a neighborhood that was not recently smoke-tested, the IDDE crew is dispatched within the month to smoke test the line and confirm whether or not it is an illicit connection. During 2012, a total of 2,601 segments of pipe were viewed and assessed which equates to 18% of the stormwater pipes in the MS4.

IDDE training for City-wide field staff to identify and report illicit discharges remains an ongoing effort including training for field staff in Public Works, Police, Fire, and Tacoma Public Utilities.

Program Assessment:

The existing IDDE program completes the related elements of the Stormwater Management Program and satisfies NPDES Permit requirements with the exception of the City-wide field staff IDDE training requirement which is a continuing effort.

B3.6 Operation and Maintenance Program

Program Update:

Maintenance Activity Summary:

As can be seen by comparing the maintenance summary reports from 2011 and 2012, the number of surface water maintenance tasks performed in 2012 related to storm pipe maintenance, catch basin, culvert and manhole cleaning increased from 2011 values. The 2012 total storm pipe maintenance and repair exceeded the annual goal of 150,000 linear feet per year. An increase of 21% in holding basin, ditch, and detention pond maintenance can be attributed to an extension of the summer brush crew work season to accomplish additional workload.

Street gutter-line cleaning and gutter box replacements are performed by the Streets and Grounds Operation and Maintenance Division whose staffing reductions may account for the decrease in linear feet maintained in 2012. Also, budget limits affected the quantity of gutter boxes replaced.

Annual catch basin inspections were fully completed by the street sweeping program in 2012. Although the street sweeping program was not fully staffed in 2012, arterial sweeping routes were still swept twice during the year (down from the previous arterial sweeping goal of 8 times per year.)

Stormwater Rapid Assessment Program (STRAP):

Staff running the Stormwater Rapid Assessment Program (STRAP) are in the process of inspecting the entire stormwater conveyance system (400 miles) within a four year period. The field crew assesses and records pipe condition, maintenance requirements, and connections. Using the results of the STRAP inspections, the Asset Management group identifies drainage areas to be targeted for storm pipe cleaning, pipe repair, and capital projects. The STRAP inspection system is also used to identify sewer cross connections and illegal connections to supplement the IDDE program. Since the initiation of the program in 2011, over 1,500,000 feet of stormwater pipe in the City has been assessed. The majority of pipe is in fairly good condition (71% of pipe assessed considered "good" or better).

Maintenance Plans:

One method the program continues to use to assess and improve program effectiveness is maintenance plans for City-owned catch basins and stormwater facilities. These maintenance plans identify maintenance needs and are developed as a result of new equipment installations, as well as observations during regular maintenance visits by staff. Thirty-five maintenance plans were updated and 26 maintenance plans were created in 2012 in response to maintenance staff observations. As we complete storm facility inspections, opportunities to improve current maintenance protocols and procedures are emerging. Creation of additional maintenance plans for new installations, and updates of the City's Stormwater Detention and Treatment Facilities O&M Manual occurs annually.

Program Assessment:

The Operation and Maintenance Program completes the related elements of the Stormwater Management Program and satisfies NPDES Permit requirements.

B3.7 Education and Outreach Program

Program Update:

Attached is a spreadsheet that summarizes the Stormwater Education and Outreach Program activities in 2012 and identifies program updates and future direction for each activity (Attachment B14).

Program Assessment:

Evaluation of the overall understanding and adoption of target behaviors resulting from the Stormwater Education and Outreach Program is based on the results of the City Environmental Services Customer Survey which is a regularly administered, statistically valid, City-wide survey. The most recent round of this survey was administered in 2009, and the program activity updates and future direction are based on evaluation of the survey results.

A post-visit survey of the walk-in visitors at the EnviroHouse during the last half of 2012 has been performed to evaluate the EnviroHouse program effectiveness. Survey results and recommendations are included in Attachment B14.