CITY OF BREMERTON
DEPARTMENT OF PUBLIC WORKS AND UTILITIES
COMBINED SEWER OVERFLOW ANNUAL REPORT FOR 2006

NPDES PERMIT #WA-002928-9

SUBMITTED TO WASHINGTON DEPARTMENT OF ECOLOGY

January 31, 2007

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EXECUTIVE SUMMARY

The City of Bremerton's Combined Sewer Overflow (CSO) Reduction program has made great progress in reducing CSO events and discharges to the Sinclair and Dyes Inlets. The CSO Annual Report describes improvements made in 2006 and provides summaries of past CSO reduction efforts. To date, Bremerton has:

- Reduced overflow volume by 98.8%* reduced frequency of events by 95.8%*
- Completed CSO reduction projects in 8 of the 10 drainage basins
- Completed CSO reduction projects at 11 of the 14 CSO sites
- Invested over $40 million in system upgrades and new infrastructure in both the wastewater and stormwater systems
- Partnered with the US Navy and other ENVVEST stakeholders to model and evaluate the impact of CSOs on Dyes Inlet which prompted Washington DOH to reopen shellfish beds in 2003 that were closed in the 1960's.
- Developed public education and assistance program to involve the citizens of Bremerton with CSO Reduction efforts and educate on water pollution prevention

* (CSO volume and frequency are affected by rainfall intensity and duration. Percent reduction from baseline will vary year to year depending on storm events that occur throughout the reporting year)

Figure 1 illustrates the reduction of overflow frequency as a result of combined sewer system improvements by comparing the frequency baseline with recorded CSO data over the past 13 years of the program.

Figure 1. Percent Reduction of CSO Frequency from Baseline

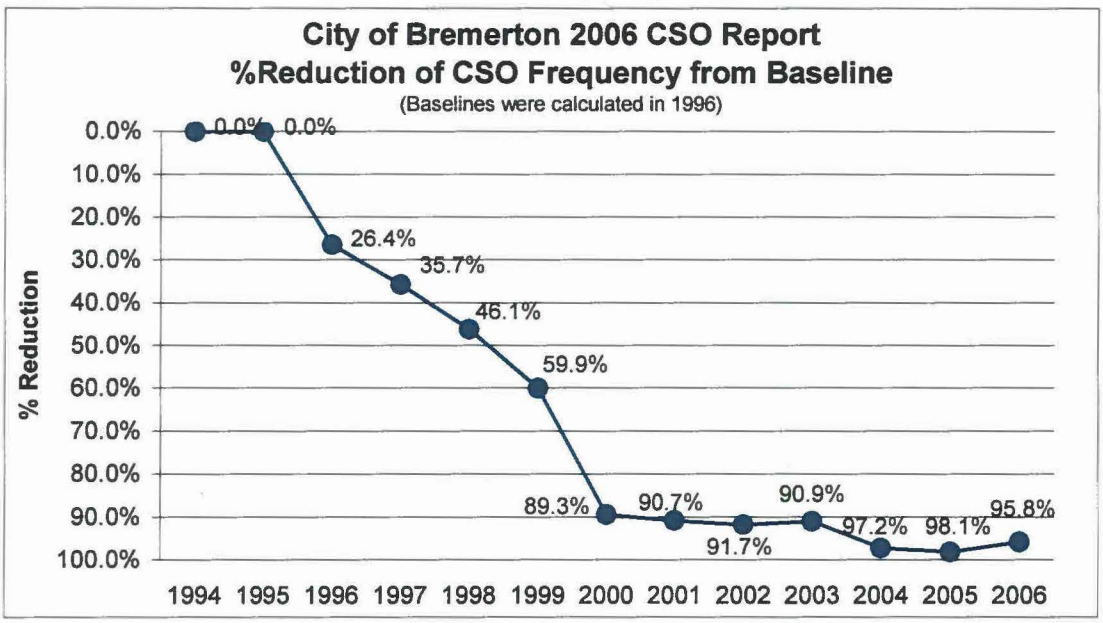

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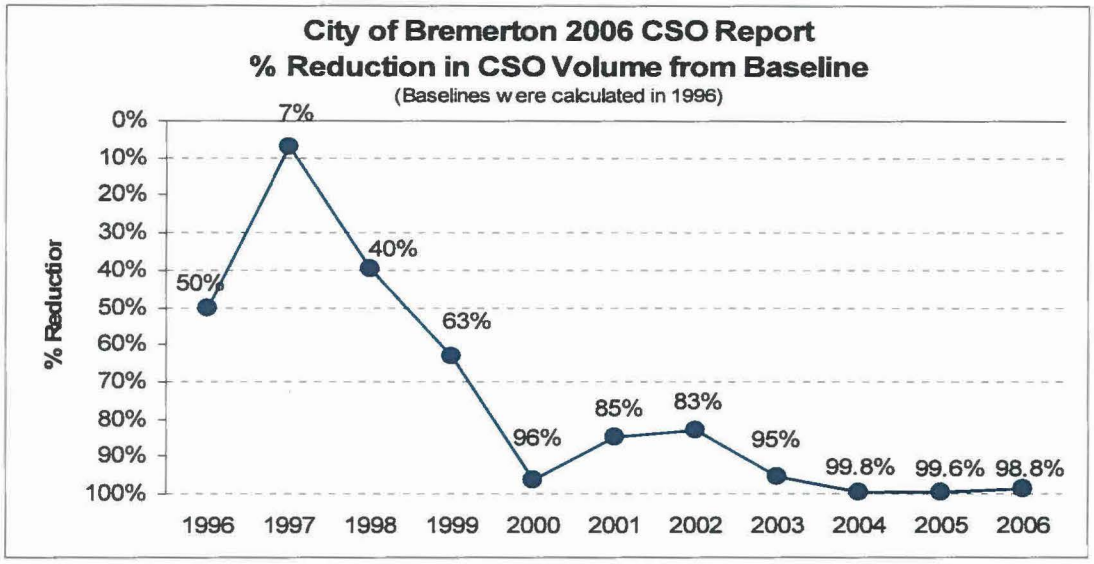
Figure 2 illustrates the reduction of overflow volume as a result of combined sewer system improvements by comparing the volume baseline with recorded CSO data over the past 11 years of the program.

Figure 2. Percent Reduction of CSO Volume from Baseline



CSO frequency and volume baselines were calculated in 1996 using several years of monthly CSO data as measured at each CSO site. These values are used to monitor the progress and effectiveness of the CSO reduction program efforts. The values reported as percent reduction from baseline are calculated by comparing rainfall volume received during the reporting month and summarized as a cumulative total at the end of the year.

The reported percent reduction will vary year to year based on rainfall volume and intensity. Intense storm events can exceed the design storm criteria that was used to size new facilities built to reduce or eliminate CSO events and may cause a CSO event to occur which can reduce the percentage of reduction for the system.

The National Weather Service station precipitation gauge, located on Kitsap Way in Bremerton, shows January 2006 to be the wettest on record and November to be the wettest month on record.

In 2006, 30 CSO events occurred on 11 separate days totaling 2 MG of overflow. The City's rain gauges show that January received an average rainfall of 14.29" which caused 10 CSO events to occur, of which eight were in basins 10 and 11. November received an average of 16.32" of rainfall and had four CSO events, all of which were in basins 10 and 11. Saturated soils and continued high rainfall in December caused an additional 13 CSO events. Nine of these occurred in CSO basins 10 and 11. Of the 30 CSO events in 2006, 23 (77%) of these occurred in Basin 10 and 11 which accounted for 1.9 MG (95%) of the total overflow volume for the year. These sites will be addressed in 2007.

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1) INTRODUCTION

This annual Combined Sewer Overflow (CSO) report describes the City of Bremerton's CSO reduction program activities from January through December 2006. Significant progress was made towards completion of the CSO reduction program in Bremerton this past year.

Chapter 173-245-090 of the Washington Administrative Code requires submittal of an annual CSO report by May 31. The following information is included in the 2006 Annual CSO Report:

- CSO event volume and frequency monitored in 2006
- CSO reduction accomplishments for 2006
- CSO reduction projects planned for 2007

In 2006, the City of Bremerton's wastewater collection system contained 14 CSO sites. These structures are in the older portion of the City's wastewater collection system and some pre-date the first wastewater treatment plant built in 1946. CSO site locations are shown on the attached map (Attachment 1). All have outfall numbers assigned in the City's wastewater treatment plant (WWTP) NPDES permit.

Although the City continually improves the wastewater collection system, a focus on CSO planning began in 1989 in response to Department of Ecology (Ecology) regulations to limit CSOs into state waters. Ecology approved Bremerton's first CSO Reduction Plan in November 1992. A CSO Plan Update was completed in 2000 detailing recommended improvements for the City's wastewater collection system to reduce CSOs implemented through 2007. Ranking of improvement projects considered health, cost effectiveness, safety concerns, overflow frequency, and infrastructure conditions. All proposed CSO reduction projects are identified in the City's CSO Reduction Plan Update and associated facility plans for wastewater collection system drainage basin.

Ecology issued an order on consent to the City in 1993 formalizing the schedule set forth in the City's CSO Reduction Plan. Also in 1993, the City settled a citizen's lawsuit with the Puget Soundkeeper Alliance (Alliance), resulting in an agreement that included additional requirements such as CSO water quality monitoring and accelerated construction schedule. CSO baseline and the implementation schedule were modified in an amended order in 2000.

The Environmental Protection Agency (EPA) signed the National Combined Sewer Overflow Control Policy in April 1994. The City has been implementing the requirements for the Nine Minimum Controls and the Long Term Control Plan.

Bremerton has completed more than ninety percent of the CSO reduction projects and many were completed ahead of schedule. A fate and transport water modeling effort, completed as part of the US Navy's ENVVEST Program, provided the Washington State Department of

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Health with enough information to re-open shellfish beds in Dyes Inlet in 2003 for the first time since they were closed in the late 1960's. Modeling results indicate the City's CSOs have little measurable effect on bacterial quality of the receiving waters.

The National Weather Service station precipitation gauge, located on Kitsap Way in Bremerton, shows January 2006 to be the wettest on record and November to be the wettest month on record.

In 2006, 30 CSO events occurred on 11 separate days totaling 2 MG of overflow. The City's rain gauges show that January received an average rainfall of 14.29" which caused 10 CSO events to occur, of which eight were in basins 10 and 11. November received an average of 16.32" of rainfall and had four CSO events, all of which were in basins 10 and 11. Saturated soils and continued high rainfall in December caused an additional 13 CSO events. Nine of these occurred in CSO basins 10 and 11. Of the 30 CSO events in 2006, 23 (77%) of these occurred in Basin 10 and 11 which accounted for 1.9 MG (95%) of the total overflow volume for the year. These sites will be addressed in 2007.

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2) BASELINE REVIEW AND UPDATE

The objective of CSO baselines is to provide CSO volume and frequency levels for the system prior to implementing improvements. This allows Ecology to monitor the City's CSO reduction progress as set forth in Chapter 173-245 WAC.

In 1996, the City established CSO baselines for each outfall based on monthly rainfall and linear regression of measured flow and frequency. Both the mean and upper 95% confidence intervals were established, as indicated in Tables 1 and 2. Figure 1 shows a comparison of the overflow baselines to measured flows for all sites combined. Individual overflow site Baselines are compared to measured overflow volume and frequency in Section 9, Attachments to 2006 CSO Report.

This graphical presentation of measured CSO volume and frequency, compared to their respective baselines, show the success of the CSO reduction program in controlling and reducing CSO events. To date the City has reduced CSO volume by 98.8% and the frequency of events by 95.8%.

Figure 3. CSO Volume Measured, Mean and 95% Confidence Level Baselines

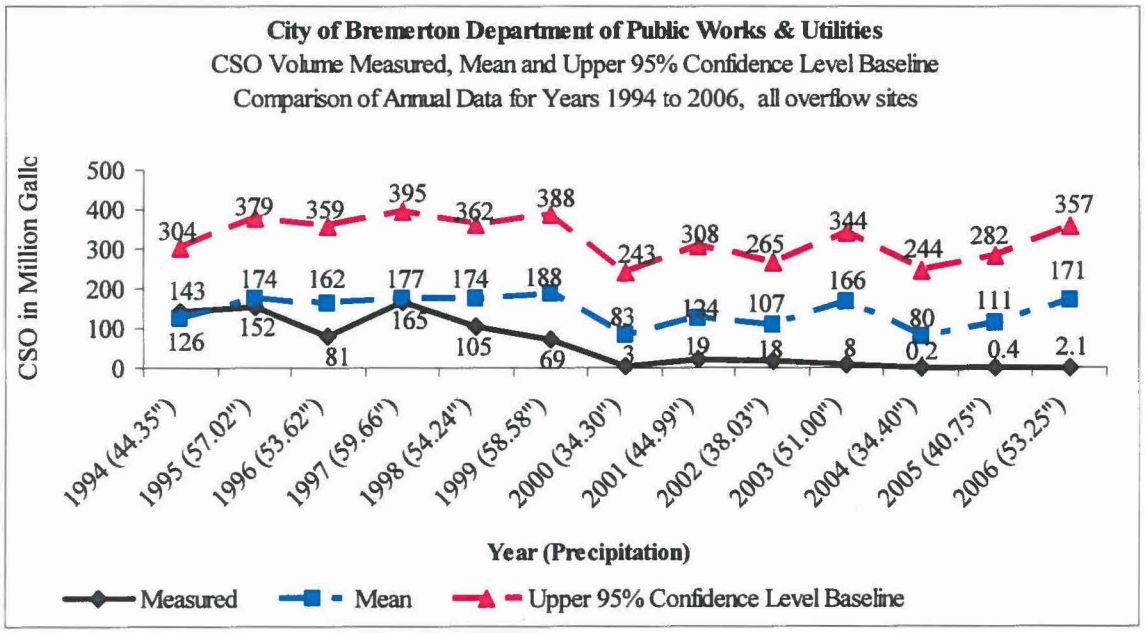

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Table 1. Volume Regression Formulas

CSO Volume Linear Regression Equations for Each Outfall
Based on Bremerton Monthly Recorded 1994 through April 1997 CSO Volume versus Precipitation

CSO Outfall ID	Mean		Upper 95% Confidence Level		Mean Equation a	Upper 95% Confidence Level Equation a
	y-intercept Gallons (G)	slope G/(in/mon)	y-intercept Gallons (G)	slope G/(in/mon)		
OF1	-329284	165970	-43398	216705	Vcso =165970*(P)+(-329284)	Vcso =216705*(P)+(-43398)
OF2	-37563	23167	43294	37516	Vcso =23167*(P)+(-37563)	Vcso =37516*(P)+(43294)
OF3	-36005	22106	-9471	26815	Vcso =22106*(P)+(-36005)	Vcso =26815*(P)+(-9471)
OF4	-290658	229095	-9708	278954	Vcso =229095*(P)+(-290658)	Vcso =278954*(P)+(-9708)
OF6	-205360	89564	123266	140512	Vcso =89564*(P)+(-205360)	Vcso =140512*(P)+(123266)
OF7A	-628820	298173	-66738	383415	Vcso =298173*(P)+(-628820)	Vcso =383415*(P)+(-66783)
OF7B	-77654	31646	-2730	43009	Vcso =31646*(P)+(-77654)	Vcso =43009*(P)+(-2730)
OF8	-1049986	457295	386033	677950	Vcso =457295*(P)+(-1049986)	Vcso =677950*(P)+(386033)
OF9	-323114	172307	-35492	223351	Vcso =172307*(P)+(-323114)	Vcso =223351*(P)+(-35492)
OF10	-146601	75314	56302	108261	Vcso =75314*(P)+(-146601)	Vcso =108261*(P)+(56302)
OF11	-160483	62140	101383	108613	Vcso =62140*(P)+(-160483)	Vcso =108613*(P)+(101383)
OF12	-216658	94442	-35935	113958	Vcso =94442*(P)+(-216658)	Vcso =113958*(P)+(-35935)
OF13	-1427994	773870	616703	1138426	Vcso =773870*(P)+(-1427994)	Vcso =1138426*(P)+(616703)
OF16	164699	-4566	529755	54737	Vcso =-4566*(P)+(164699)	Vcso =54737*(P)+(529755)
OF17-97	-205459	191829	201154	259216	Vcso =191829*(P)+(-205459)	Vcso =259216*(P)+(201154)
OF17-94	-1766634	1446152	763397	1865451	Vcso =1446152*(P)+(-1766634)	Vcso =1865451*(P)+(763397)
OF17-81	-189679	184824	586075	297517	Vcso =184824*(P)+(-189679)	Vcso =297517*(P)+(586075)

a WHERE: Vcso = Monthly CSO Volume in gallons (G)
Negative Vcso values indicate zero overflow
P = Monthly Precipitation in inches per month (in/mon)

Table 2. Frequency Regression Formulas

CSO Frequency Linear Regression Equations for Each Outfall
Based on Bremerton Monthly Recorded 1994 through April 1997 CSO Frequency vs Precipitation

CSO Outfall ID	Mean		Upper 95% Confidence Level		Mean Equation a	Upper 95% Confidence Level Equation a
	y-intercept count	slope count/month	y-intercept count	slope count/month		
OF1	-0.501	0.633	0.302	0.776	Fcso =0.633*(P)+(-0.501)	Fcso =0.776*(P)+(0.302)
OF2	0.084	0.474	0.953	0.628	Fcso =0.474*(P)+(0.084)	Fcso =0.628*(P)+(0.953)
OF3	1.109	0.960	2.298	1.171	Fcso =0.96*(P)+(1.109)	Fcso =1.171*(P)+(2.298)
OF4	3.338	1.944	7.918	2.757	Fcso =1.944*(P)+(3.338)	Fcso =2.757*(P)+(7.918)
OF6	0.259	0.492	1.522	0.688	Fcso =0.492*(P)+(0.259)	Fcso =0.688*(P)+(1.522)
OF7A	0.054	0.487	1.613	0.723	Fcso =0.487*(P)+(0.054)	Fcso =0.723*(P)+(1.613)
OF7B	-0.297	0.281	0.557	0.411	Fcso =0.281*(P)+(0.297)	Fcso =0.411*(P)+(0.557)
OF8	-0.818	1.091	0.667	1.319	Fcso =1.091*(P)+(-0.818)	Fcso =1.319*(P)+(0.667)
OF9	-1.090	1.117	0.244	1.353	Fcso =1.117*(P)+(-1.09)	Fcso =1.353*(P)+(0.244)
OF10	0.693	0.698	2.993	1.071	Fcso =0.698*(P)+(0.693)	Fcso =1.071*(P)+(2.993)
OF11	-0.408	0.238	0.039	0.318	Fcso =0.238*(P)+(-0.408)	Fcso =0.318*(P)+(0.039)
OF12	3.930	0.745	10.825	1.490	Fcso =0.745*(P)+(3.93)	Fcso =1.49*(P)+(10.825)
OF13	0.065	0.824	1.641	1.105	Fcso =0.824*(P)+(0.065)	Fcso =1.105*(P)+(1.641)
OF16	0.236	0.026	0.734	0.107	Fcso =0.026*(P)+(0.236)	Fcso =0.107*(P)+(0.734)
OF17-97	0.689	0.945	2.560	1.255	Fcso =0.945*(P)+(0.689)	Fcso =1.255*(P)+(2.56)
OF17-94	2.640	1.243	5.767	1.761	Fcso =1.243*(P)+(2.64)	Fcso =1.761*(P)+(5.767)
OF17-81	0.996	0.520	4.038	0.962	Fcso =0.52*(P)+(0.996)	Fcso =0.962*(P)+(4.038)

a WHERE: Fcso = CSO Frequency in Occurrances per month (with 24 hour maximum duration event)
Negative Fcso values indicate no overflow
P = Monthly Precipitation in inches per month (in/mon)

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Within the constraints of available CSO monitoring data, the CSO baselines method developed in this evaluation adhered to Ecology's *Guidance for Chapter 173-245 WAC: Combined Sewer Overflow Reduction Plans and Engineering Reports.* Ecology approved the City's methodology in January 1999 and the resultant baselines in July 1999. Comparing recorded CSO flow data to the calculated mean is a method used to measure the success of future CSO reduction projects.

The statistical analysis technique used to determine the *upper 95% confidence interval* provides a regulatory baseline for determining the CSO flow exceedance level. In this report, the *mean* refers to the calculated volume or frequency of expected overflow using the mean regression equation, and the *upper 95% confidence interval baseline* is derived from the upper 95% confidence regression equation. The monthly values for both equations will vary depending on the amount of precipitation.

3) 2006 CSO FLOW MONITORING

Combined sewer overflow sites are continuously monitored with ultrasonic level monitoring equipment and CSOs are recorded as they occur. Precipitation is measured with electronic, data logging, rain gauges that record every 0.01 inch of rainfall that occurs at three locations within the City's limits. Continual improvements to the flow monitoring system have made this system more reliable and event notification time has been significantly reduced with the use of Supervisory Control and Data Acquisition (SCADA) and installation of auto-dialers. CSO sites 10 and 11 use auto-dialers that notify city staff when an overflow has occurred while other sites are connected to the Bremerton's WWTP SCADA system that will notify staff when a CSO has occurred.

A CSO event is an overflow caused by rainfall that occurs during a 24-hour calendar day (midnight to midnight), as defined on the frequency tables. CSO volumes and frequencies for 2006 are summarized in Attachments 2 through 8 in the appendices.

Average precipitation for 2006 was 53.25 inches as measured by Bremerton's data logging tipping bucket rain stations. These instruments are record the date and time of every 0.01" of rain fall as it occurs. An inherent deficiency with these types of rain collectors is that they will not record values less that 0.01" which will allow collected rainfall sit in the tipping bucket until it is full. Many times this water will evaporate before this occurs. Tipping bucket units are not capable of recording all rain fall it collects during high intensity storm events due to spillage between bucket tips. Manual rain gauges at various locations throughout the City recorded more rainfall in 2006 which is to be expected.

Even with the extreme rainfall that occurred in 2006, Bremerton's efforts reduced overflow volume by 98.8% and achieved a 95.8% reduction in overflow events or frequency when compared to respective "mean baseline" values. This reduction is the result of continued system improvements and upgrades to the wastewater collection system. In 2006, nine overflow sites did not have a CSO event, one site had one CSO event and the remaining

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four sites had two or more events. CSO volume for 2006 was 2,054,699 gallons from 30 events which is a very significant reduction when compared to baseline overflow volume of 111 million gallons from 568 events.

Collection system improvements completed in 2006 helped to reduce overflow volume and the number of CSO events. Part of this work was to reduce the amount of stormwater entering the combined sewer system by completing various separation and system upgrade projects (see Section 4 for details). These projects included the installation of new stormwater sewer mains extending the collection area of the stormwater systems. Additionally, stormwater separation on private property was an important part of the reduction effort that provided the opportunity to improve public relations while educating City property owners about stormwater concerns. For more details, see the sections on Public Education and Cooperative Approach to CSO Reduction Program.

Figure 5. CSO Volume and Precipitation for 1995-2006

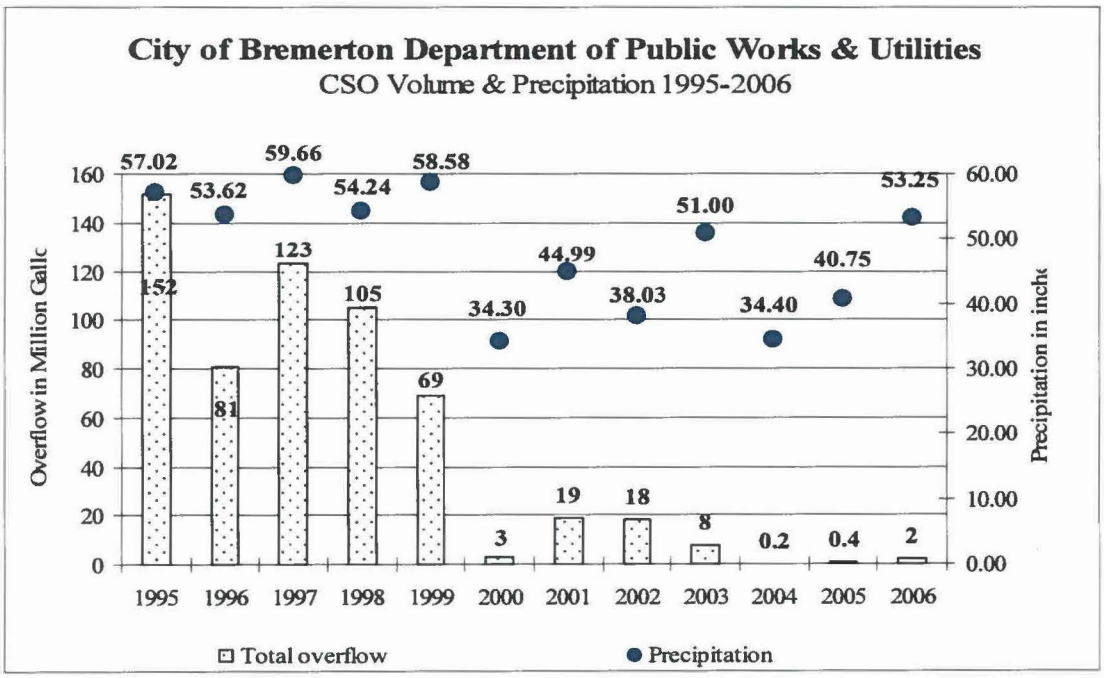

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Figure 6. Overflow Volume vs. Precipitation for 2006

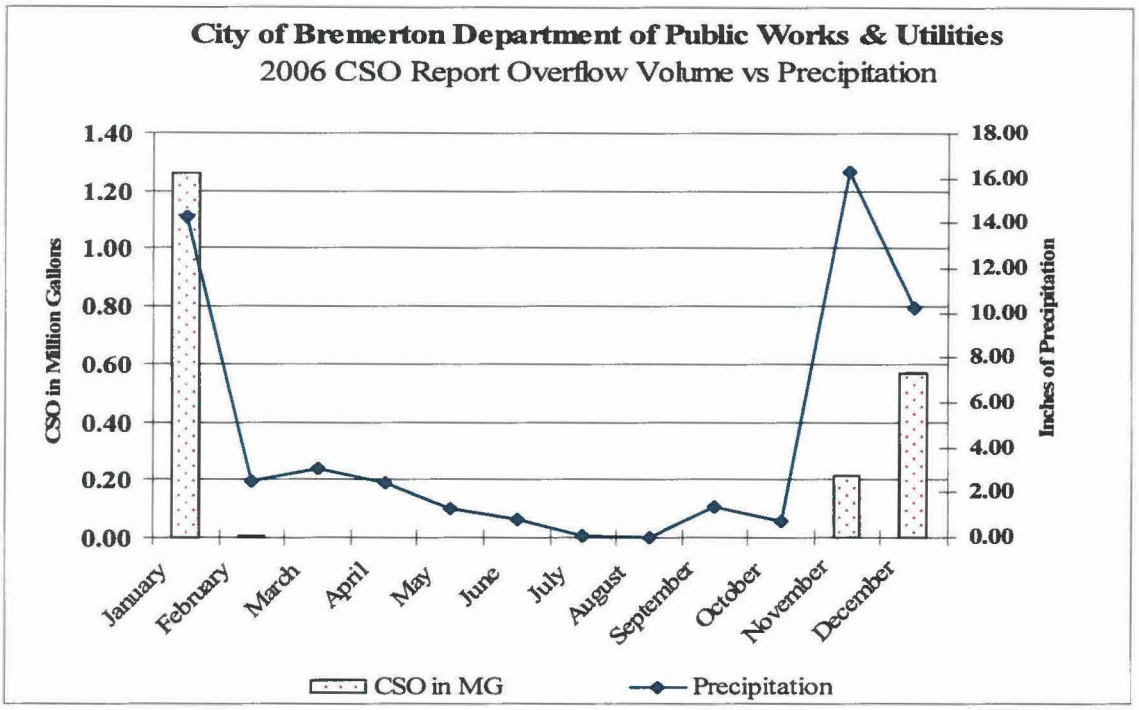

Figure 7. Comparison of Measured Volume and Baselines by Site for 2006

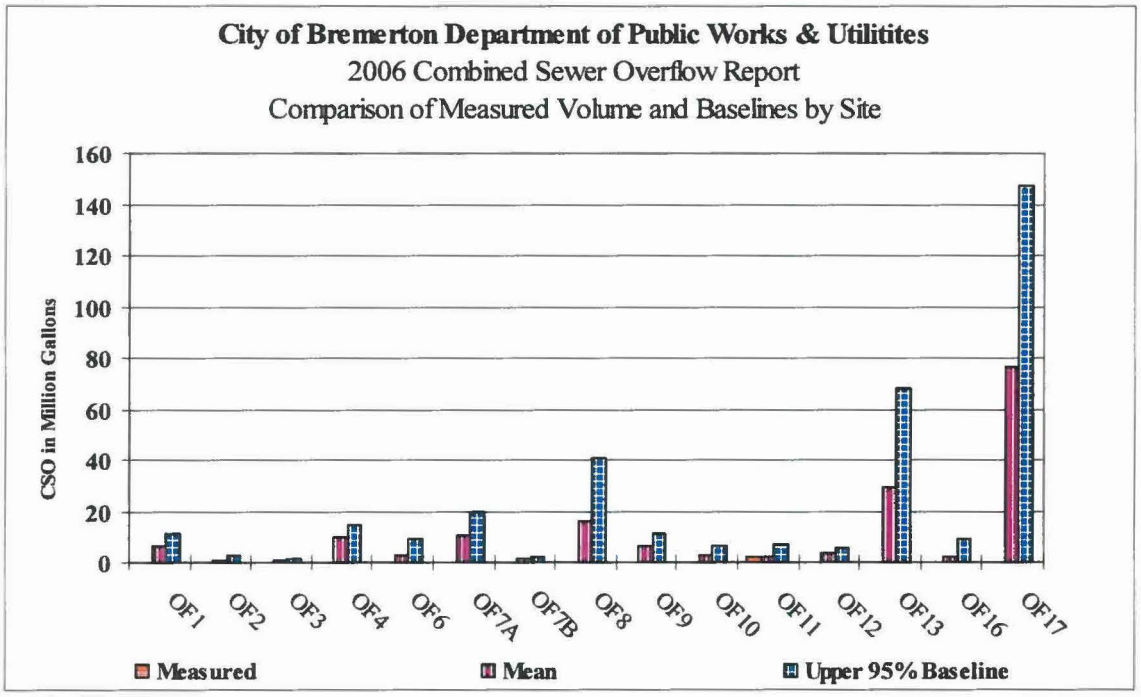

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Figure 8 shows each month's cumulative flow for all sites compared to baseline. In 2006, the annual overflow volume was below both the mean and the upper 95% confidence level baseline for all sites combined and individually.

Figure 8. Cumulative Overflow Volume for All Sites: Measured, Mean and Upper 95% Baseline

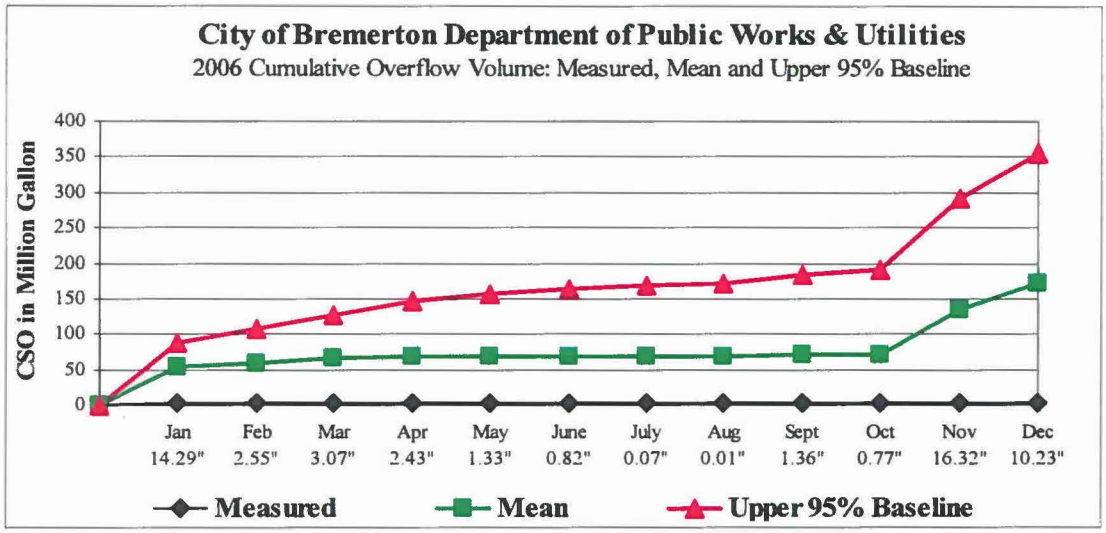

Figure 9. Overflow Volume by Month for All Sites: Measured, Mean and Upper 95% Baseline

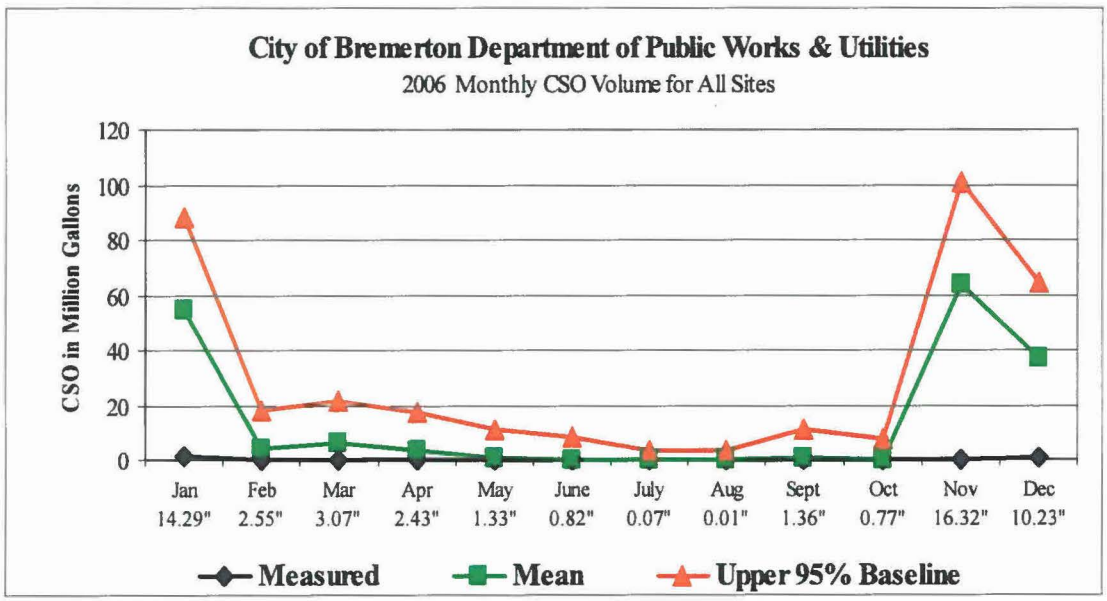

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Figure 10. Cumulative CSO Frequency for All Sites: Measured, Mean and Upper 95% Baseline

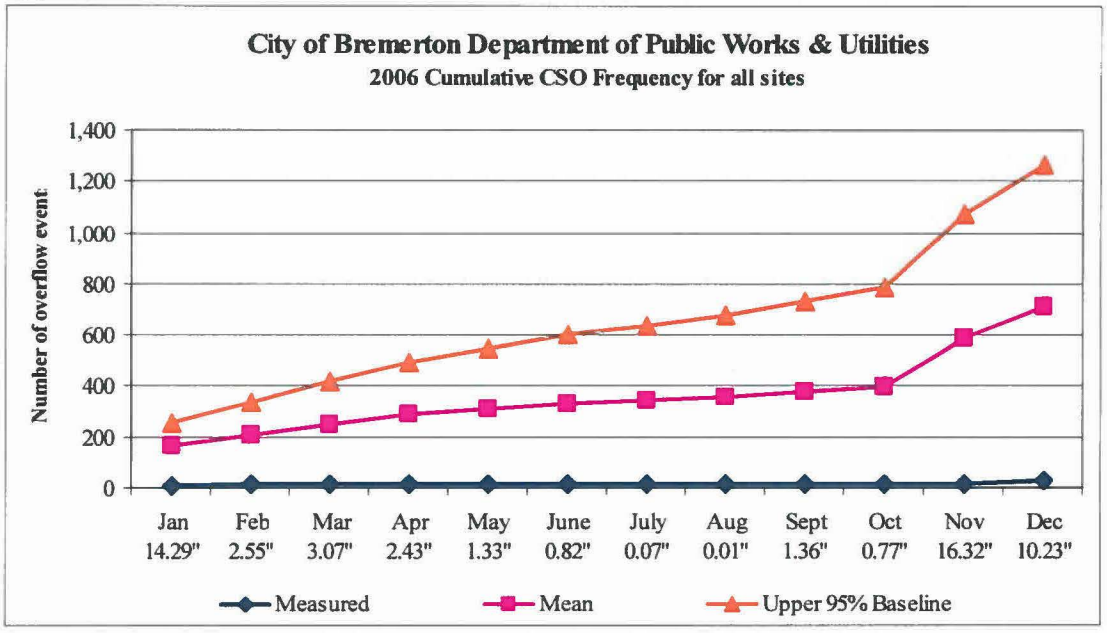
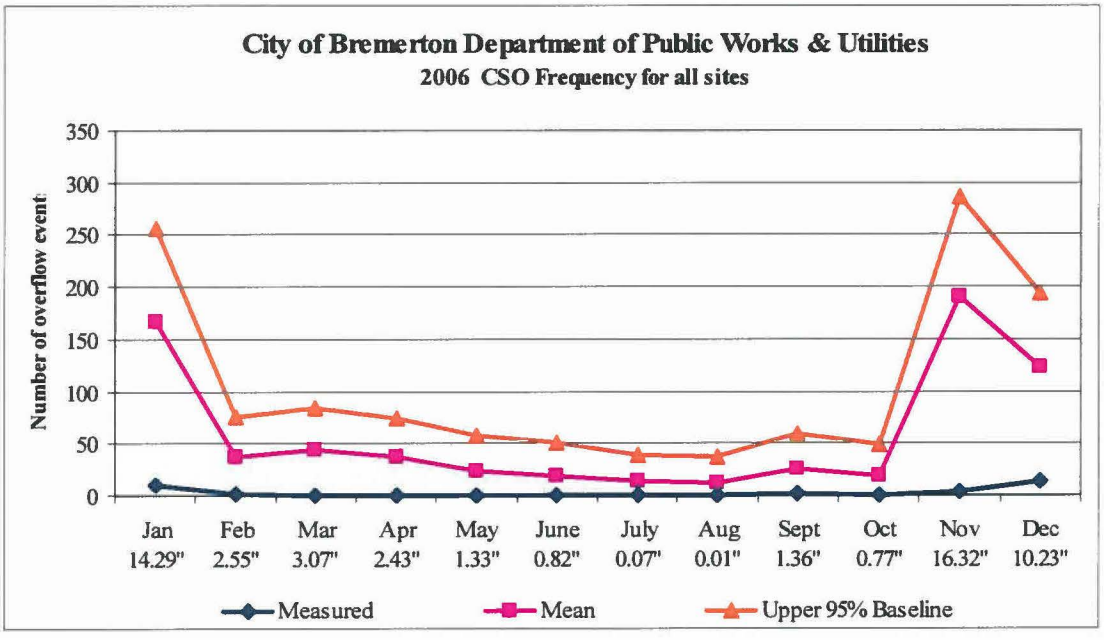


Figure 11. Monthly CSO Frequency for All Sites: Measured, Mean and Upper 95% Baseline



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4) CSO REDUCTION ACCOMPLISHMENTS TO DATE

WARREN AVENUE BASIN SEPARATION – COMPLETED IN 1996

The Warren Avenue CSO Reduction and Stormwater Separation Project resulted in a greater than 99% reduction in CSOs for this basin. In 2003, pump station controls were modified to use 200,000 gallons of in-line storage in East Bremerton and the new Eastside CSO Treatment Facility as needed. This change allows the flow into CE-1 to reach 10,000 gpm before an overflow would occur, which is unlikely. To monitor for peak basin flow, a 24-inch flume and an ultrasonic flow meter were installed in the Park Avenue sanitary sewer main in 2001. Flow data are recorded and analyzed with a focus on enhancing the operation and reliability of the collection system.

PINE ROAD BASIN, EASTSIDE CSO TREATMENT PLANT – COMPLETED 2001

The Eastside CSO Treatment Facility, located at the OF1 site, was operational December 31, 2001. The facility operates with a peak capacity of approximately 14 MGD. This $4 million facility is capable of clarifying wastewater to meet water quality standards of the Port Washington Narrows. In addition, the plant treats the effluent with ultraviolet disinfection. Part of the treatment plant is a 100,000 gallon storage tank constructed in 2000 for an additional $400,000.

STEVENS CANYON BASIN - COMPLETED IN 2000 - 6 YEARS EARLY

In 2001, the City installed 100,000 gallons of in-line storage between OF1 and OF2. This was completed by installing 700 feet of 30-inch and 530 feet of 42-inch diameter sanitary sewer within the Pine Road Basin at a cost of approximately $600,000. This pipeline is required to provide conveyance capacity to the new storage facility and treatment plant. Additionally, the OF2 structure was relocated and the weir elevation raised to ensure all flows possible would be conveyed to the Eastside CSO Treatment Facility. The majority of this work was completed by December 2000 and in early 2001. Construction of the conveyance improvements and replacement of the OF2 structure complete all required work within the Stevens Canyon Basin. Completion of this work in January 2001 was well in advance of the 2006 date identified in the implementation schedule.

CALLOW AVENUE BASIN CSO REDUCTION – COMPLETED IN 2003

This basin produced the highest CSO flows from the City's system. CSOs from the Callow Avenue Basin are discharged through OF17 located in the area of Farragut Street and Cambrian Avenue (SR304.) The 54-inch CSO outfall pipe is located within the Puget Sound Naval Shipyard.

The Callow Avenue Basin CSO Reduction Plan was divided into five priorities. Priority 1 included construction of the storm drainage trunk main and outfall serving the majority of the basin. The trunk line was extended from the outfall along SR304 (Cambrian Avenue), east on Farragut Street, and north on Montgomery Avenue to Sixth Street.

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Priorities 2, 4, and 5 included construction of collection lines in the sub-basins to convey storm water to the trunk line. Priority 3 included construction of a new pump station with peak capacity of 7,500 gpm and upgrades to pump station WB-3 to increase its capacity to 10,000 gpm.

Priority 1 improvements were constructed in two phases – all construction was completed in 1997. Priority 2 and Priority 4 improvements were completed in 1999. Priority 3 and Priority 5 improvements were completed in the first quarter of 2003.

ANDERSON COVE BASIN – IN PROGRESS

Anderson Cove Basin is comprised of five sub-basins identified as Overflows 8, 9, 10, 11, and 12. CSO reduction improvements for sub-basins 8 and 9 were completed in 1999 as required by the compliance schedule. Improvement completions for sub-basins 10, 11, and 12 are required by 2005; however, the City moved ahead of the implementation schedule by constructing all the separation improvements identified in the facility plan for these sub-basins in 1999. In addition, the City placed major emphasis on slipping stormwater inflow away from the combined system.

The remaining work in the Anderson Cove Basin is upgrade of an existing pump station to reduce CSOs in basins 10 and 11 below the statutory maximum of one per year. Prior to 2005, the scoped CSO Reduction project had been upgrade to Pump Station CW-4 (in basin 12), and an associated flow diversion from basin 11 to 12. During pre-design of the project in 2005, analysis concluded that those improvements would not be sufficient to achieve the required CSO reduction. The CSO Reduction Plan was revised to require Upgrade of Pump Station CW-1, and to eliminate the diversion from basin 11 to 12. Given this change in scope, the CSO Reduction improvements in basin 12 have become un-necessary, and the basin is currently in compliance. The upgrade of CW-1 is anticipated to cost more than $500,000 more than the originally scoped improvements. All design for the remaining improvements in this basin has been completed, and funding has been identified to construct these improvements in 2007.

EAST PARK BASIN - COMPLETED IN 2003

CSO Reduction for the East Park Basin was completed by diverting all basin flows to the Cherry and Trenton Avenue Basins and isolating OF4 from downstream surcharge by installing a check valve at the overflow structure. The City constructed the East 18th Street diversion in 2001. This was the major component of the East Park Basin work - as a result of this construction, no overflows occurred from OF4 in 2002, one overflow in 2003 and no overflows in 2004, 2005 or 2006. An isolation check valve was installed in December 2003 as a component of the Pump Station EB-2 upgrade, completing all required improvements for this basin.

TRENTON AVENUE BASIN – COMPLETED IN 2004

All necessary project components required to increase the capacity from this basin were constructed in 2003, with all remaining improvements completed in 2004.

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The Trenton Avenue CSO reduction improvements included a major upgrade to Pump Station EB-2, a minor upgrade to Pump Station EB-3 (not a capacity upgrade), rehabilitation of several hundred feet of 18-inch sanitary sewer, in-basin conveyance revisions and improvements, and installation of a beach force main. The City applied for permits for the beach force main construction in 2001, anticipating this construction would occur during summer 2002. The permits were not obtained until mid-December 2002 which delayed construction until summer 2003. Construction of the upgrade to Pump Station EB-2 and the associated force main are the only upgrades in the Trenton Avenue Basin that increase capacity – these improvements were constructed in 2003. Construction costs for these improvements far exceeded the estimates used when the project budget was prepared resulting in a significant budget shortfall. The City elected to defer rehabilitation of the 18-inch sanitary sewer main and upgrade of pump station EB3, since they were not absolutely necessary to meet the CSO reduction mandate. The City obtained SRF loan funds, and completed those projects in 2004.

CHERRY AVENUE BASIN – COMPLETED IN 2005

The Cherry Avenue CSO reduction improvements included replacement of a portion of the gravity pressure main to eliminate a capacity bottleneck, and installation of cleaning access structures on the beach. This construction was completed in 2005, well ahead of the compliance schedule requirement of 2007.

PACIFIC AVENUE BASIN – IN PROGRESS

CSO reduction improvements are required to be completed in this basin by January 1, 2008; however, work has been accelerated and is currently underway. One of the two overflow outfalls for the Pacific Avenue Basin, OF15, was abandoned in October 1999 by the Puget Sound Naval Shipyard at the City's request, leaving only OF16 in this basin. In addition, the City has been actively identifying and eliminating stormwater inflows into the basin since 2001. The City received $1,000,000 and $250,000 SRF loans in 2002, a $5,500,000 PWTF loan in 2003, along with a $1,940,000 EPA grant that together will fund improvements in the Pacific Avenue Basin. In 2003, the City amended the CSO Reduction Plan for this basin – the improvements identified in the plan are currently being implemented. The City has identified and is eliminating some stormwater inflows in the basin by repairing several failing sewer sections in the sanitary system. The upgrade to pump station CE6, and the construction of a new major trunk storm drain are both currently under construction. The pump station upgrade is scheduled for completion in 2007, the completion of the trunk storm drain is scheduled for completion in 2008. Design of the final component of CSO reduction for this basin is installation of a new storm drain collection system. This project is currently under design, with construction scheduled to begin in late 2007.

TRACYTON BEACH BASIN – COMPLETED IN 2005

CSO reduction improvement for the Tracyton Beach Basin included an upgrade to pump station EB-6. Construction of this project began in 2004, and was completed in February, 2005.

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FLOW MONITORING IMPROVEMENTS

In 2006, preventative maintenance was completed on all CSO flow meters. All rain gages were cleaned and checked. The City now maintains and operates 7 data logging tipping bucket rain gages in the Bremerton area. Data are used for storm distribution analysis and other program needs.

Auto dialers were installed at OF-10 and 11 that notify staff when a CSO occurs. This system allows the city to promptly notify regulatory agencies as required. Several CSO sites have been connected to the WWTP SCADA system to monitor system performance during a storm event.

UPDATE OF CSO REDUCTION PLAN

Bremerton developed its original CSO Reduction Plan in 1992. Since then, the City has implemented an extensive CSO monitoring program, collected significant data related to rainfall, CSO overflow volume, and frequency. During development of the Facility Plan for the Anderson Cove Basin, it became evident that assumptions made in the original CSO Reduction Plan were inappropriate and required revision. The City subsequently updated the CSO Reduction Plan for two basins with the following two documents: Anderson Cove CSO Reduction Facility Plan, dated July 1999; and Pine Road Basin CSO Reduction Facility Plan, dated May 2000. The City then developed the update for all of the remaining basins in the document titled CSO Reduction Facility Plan Update, dated October 2000. This CSO Plan Update modified the CSO Reduction improvements identified in the original plan based on analysis using the new data. This CSO Plan Update included the following major components:

1. Development of a HYDRA™ hydrologic and conveyance model for the City's wastewater system.

2. Presentation in accordance with Facility Plan requirements and Code of Federal Regulations (CFR) 40.35 for the following basins: Stevens Canyon, Cherry Avenue, East Park, Tracyton Beach, Trenton Avenue, and Pacific Avenue.

3. Revision of the 1994 Callow Avenue Facility Plan.

4. Evaluation of the two existing inverted siphons under the Port Washington Narrows.

The Plan Update was submitted in final form to the Department of Ecology in October 2000. Ecology approved this plan in 2001.

As the CSO reduction improvements have been implemented, additional flow data has been evaluated to confirm the necessary improvements in the individual basins. Basin specific analysis and CSO Reduction Plan amendments have subsequently been submitted to DOE for review/approval. These amendments to the CSO reduction plan are as follows:

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1. Amendment to Anderson Cove CSO Reduction Facility and CSO Reduction Facility Plan Update, dated October 24, 2001. This amendment revised proposed improvements in the Anderson Cove and Callow Avenue Basins.

2. Amendment to 2000 CSO Reduction Plan Update, dated August 14, 2003. This amendment revised the proposed improvements in the Pacific Avenue Basin.

3. CSO Reduction Facility Plan Update – Amendment to Tracyton Beach Basin Improvements, dated August 25, 2004.

4. Anderson Cove CSO System CSO Plan Amendment, dated September 20, 2004.

5. CSO Reduction Plan – 2005 Amendment, dated February 10, 2005.

UPDATE OF WASTEWATER COMPREHENSIVE PLAN

Bremerton's Wastewater Comprehensive Plan update was completed and accepted by the Bremerton City Council on the 21st of September 2005. The Wastewater Comprehensive Plan has also been submitted to the Washington Department of Ecology, for their review and acceptance.

The Wastewater Comprehensive Plan ensures existing and future wastewater capacity, and also plans for wastewater system improvements. Also commonly referred to as the "general sewer plan" it fulfills the requirements of Washington Administrative Code (WAC)173-240-020 and minimum comprehensive plan content requirements outlined in WAC 173-240-050.

WATER QUALITY MONITORING

CSO Water Quality Monitoring began in 1995 with samples collected and analyzed on a water year schedule (October through September).

In water year 2006, the City collected five separate CSO site samples and 14 marine receiving water samples. Analyses performed on these samples depend on requirements specified in the PSA Consent Decree. CSO discharge samples were analyzed for nutrients, conventionals, fecal coliform, metals, petroleum products, and organics (volatile, semi-volatile, pesticides and PCBs). Marine receiving water samples were analyzed for nutrients, metals, and petroleum products.

Because the frequency and volume of CSO events have been drastically reduced at each site, the potential to collect samples has also been reduced. Automatic samplers require a minimum flow and duration before a sample can be collected. Fecal coliform samples are very difficult to collect due to EPA requirements mandating samples be collected as grab samples with a 6-hour holding time. It is extremely difficult for City personnel to be on-site during a CSO event to collect these grab samples, but the City has made efforts to meet this challenge. Water quality data are presented in Attachment 9.

DNR-00033841

PUBLIC EDUCATION AND COOPERATIVE APPROACH TO CSO PROGRAM

Support from informed customers is critical to the success of both wastewater and stormwater programs. City ordinance, revised in 1999, requires the separation of stormwater from the sanitary sewer and provides enforcement authority to the utility to help ensure property owners comply when requested. To provide a customer friendly approach to dealing with this and private property concerns, the City encouraged public involvement and provided public education through City-produced brochures, an internet site (www.cityofbremerton.com), displays at City Hall, programs on cable access television, and customer outreach activities such as tours of the wastewater treatment plant, involvement in the Kitsap Water Festival and Sinclair Inlet cleanup events. The City is also involved in a stormwater education program in coordination with Kitsap County, US Navy facilities, and other local cities to provide general non-point pollution prevention.

In 1999, Bremerton received a Centennial grant to educate customers and provide technical assistance to disconnect roof and driveway drains from the combined sewers. The "Cooperative Approach to CSO Reduction Program," was critical to the success of Bremerton's CSO reduction program. The goal of this program was to perform extensive public education about complex CSO issues and present possible solutions involving private property owners. A significant amount of rain enters the sanitary sewer system from roof drains connected to the sanitary sewer. Part of the CSO reduction solution is to redirect these drains to more appropriately discharge to the storm system. Bremerton property owners have been asked to remove their roof drain downspouts from the sanitary sewer system or pay a surcharge to keep the connections if permitted. A "How-To Disconnect Your Downspouts" brochure, video, and web site are available for customers, so they can learn about different solutions to the problem. Free technical help and site assessments were available until December 31, 2003. Residents were reimbursed for their disconnection work until December 31, 2002 and were eligible to receive from $25 to $500 depending on the complexity of their project, which was defined during a free site assessment. Funding for this part of the program came from the City's Wastewater Utility.

By the end of 2003, approximately 4,000 site assessments had been completed, resulting in 400 separations where stormwater was removed from the sanitary sewer system. This removed an estimated 460,000 square feet of impervious surface area and 290,000 gallons of stormwater per inch of rain from the sanitary sewer system. Program details are presented in Attachment 11.

In 2006, the Public Works & Utilities Department continued to work with property owners and focused on commercial properties throughout the City. Over 200 properties were inspected and 17 commercial properties were found to have their stormwater draining into the sanitary sewer system. These properties are now being charged the Improper Stormwater connection surcharge and separation of these properties will be addressed as needed. Some properties have been required to separate their stormwater runoff from the sanitary sewer system and more are anticipated to be asked to do the same.

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STORMWATER PROGRAM

Bremerton's stormwater program was established in 1993 through ordinances that provide a funding source and define enforcement authority. This allowed the City to assign staff to the stormwater maintenance crew and hire a development engineer whose responsibilities include stormwater plan review, training inspectors in erosion control, stormwater quality monitoring, and conducting an inventory and inspection of private stormwater systems. The program also provides funding for stormwater capital projects.

In December 1999, Bremerton City Council passed an ordinance prohibiting inappropriate stormwater connections that discharge to the combined sewer system, such as roof and driveway drains. Removing these inflow sources is critical to achieving regulatory compliance for CSO reduction. The ordinance gave affected residents and businesses until May 2002 to voluntarily remove these inflows to avoid an additional monthly stormwater surcharge. The surcharge for inappropriate inflows to the sanitary sewer were increased by 25% per year beginning at that time, and increased an additional 25% each year thereafter. As of May, 2005, customers with inappropriate stormwater connections paid a surcharge equal to 100% of their standard stormwater fee.

An illicit connection sampling program has been performed annually to track dry weather flows for the storm system since 1996. In 2006, 56 discharge points were examined and samples were collected at 12 sites with flow. These samples were analyzed for Ammonia, Nitrate, Total Phosphorus, Apparent Color, Copper, Fecal Coliform, Hardness, Potassium, Specific Conductivity, Temperature, pH, Chlorine, Surfactants and Turbidity. No illicit connections were found although some parameters showed deviations from expected ambient values. Two fecal coliforms were measured as TNTC in areas being studied by the Health District PIC program.

The City submitted an NPDES Phase II municipal stormwater "Notice of Intent" to the Washington Department of Ecology on March 7, 2003. A preliminary draft permit was issued by Ecology in 2005. The revised draft permit was issued January 17, 2007. The final permit is expected to be issued February 16, 2007.

CMOM PROGRAM

The City of Bremerton is complying with capacity, management, operation, and maintenance (CMOM) requirements for the collection system. The collection system consists of sanitary sewer laterals, sanitary sewer mains, wastewater pump stations, and the Eastside CSO Treatment Facility.

The City has completed smoke testing in older areas of Bremerton and documented deficiencies on private property and City right-of way pipelines. Corrective action has included contact with property owners and repair/replacement within the City's area of responsibility.

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Sanitary sewer main inspections have documented system deficiencies. Inspections have included smoke testing, hydraulic pressure, and TV camera. Serious deficiencies have been corrected with subsequent actions addressed in the City's Wastewater Comprehensive Plan.

Wastewater pump station improvements have significantly increased the reliability of the conveyance system. Improvements include construction upgrades to existing pump stations, installation of new control systems, dry-pit submersible pumps, emergency power generation systems, and new telemetry hardware and software systems. The City's pumping capacity to the WWTP has increased by 10,000 gpm. The Eastside CSO Treatment Plant (ESTP) activates during high precipitation events. Completed improvements to the Eastside Sanitary Sewer system will help assisted in reducing the number of startup events at the ESTP.

5) ENVVEST

The City has partnered with the Puget Sound Naval Shipyard and other stakeholders (Suquamish Tribe, Department of Health, Kitsap County Public Works, Kitsap County Health District, EPA, and Department of Ecology) to be part of the Navy's ENVVEST project in Sinclair and Dyes Inlets. Bremerton has shared CSO data and assisted with modeling, CSO and stormwater sampling efforts. ENVVEST is currently working with the EPA and DOE to develop the Fecal Coliform TMDL for Sinclair and Dyes Inlets. This effort will provide the base model for developing further TMDLs in the coming years. Following is an excerpt from the Executive Summary of the Technical Master Plan *(November 26, 2001)* detailing the purpose of the agreement:

> *"The U.S. Navy Puget Sound Naval Shipyard (PSNS), Region X of the U.S. Environmental Protection Agency (EPA), and the Washington State Department of Ecology (Ecology) have entered into an agreement to protect and improve the health of surface waters of Sinclair and Dyes Inlets and surrounding watershed by developing a more environmentally protective strategy for managing pollutant sources in the Inlets than the regulatory framework that is currently in place. This technical work master plan defines the goals, objectives, and technical approach planned for Phase I of the PSNS Project **ENV**ironmental In**VEST**ment (ENVVEST). Based on inputs from regulatory requirements, stakeholder involvement, community concerns, and available resources, the technical work master plan has been developed to meet the project goals and milestones defined by the ENVVEST Project Management Team.*
>
> *An approach to develop multiparameter and multimedia TMDLs and assess ecological risk at the watershed scale is being conducted to develop and demonstrate alternative strategies for protecting and improving the ecological integrity of Sinclair and Dyes Inlets. The watershed-based assessment is evaluating environmental problems at the proper scale, providing an integrated*

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framework for cooperative studies with stakeholders and partners, and developing linkages between problems and management options. The studies are providing data to address key issues identified by the working groups, improving the understanding of how the ecosystem functions, and increasing the ability to solve environmental problems. The Technical Working Groups are fostering partnering among stakeholders and establishing the technical and scientific basis to better protect and improve the health of the watershed."

Project ENVVEST has developed a water quality model that has defined the impacts of CSOs and other inputs on local water quality in Sinclair and Dyes Inlets. The model has shown that potential impact of CSOs to shellfish beds in Dyes Inlet is minimal. **This modeling effort provided the Washington State Department of Health with information needed to reopen several shellfish beds in Dyes Inlet to harvesting.** The model was calibrated using data collected in the field, which involved a drogue study, current/flow monitoring, general water quality analysis, and a dye release study from the ESTF. Preliminary results of the model show that during CSO events shellfish beds are not impacted.

A copy of the Technical Work group Master Plan can be requested from PAO@PSNS.Navy.Mil.

6) FUNDING

A table summarizing CSO project funding is included as Attachment 10. The City has obtained all required funding to complete all programmed CSO reduction improvements identified in the CSO Reduction Plan.

In addition to the State Revolving Fund (SRF) loan received for the design of the Callow Avenue Basin Priority 1 Improvements, a $2,500,000 loan was received for the construction of the Priority 1, Phase 2 improvements. The City received a loan for Priority 2 for $828,000 and a PWTF loan for $622,000. The City received $94,000 from the Centennial Clean Water Fund for CSO water quality monitoring in 1996 and 1997. The City also applied for but was unsuccessful in acquiring a Puget Sound Water Quality Action Team PIE Grant for CSO notification in 1997. The City was selected for an SRF Loan for $1,000,000 for the design and construction of the Anderson Cove CSO reduction project for Overflow sites 8 and 9. However, based on the Facilities Plan for this basin, Overflow Sites 10, 11, and 12 were added to the scope of the project. The SRF loan was rescinded because of this change in scope, and Bremerton had to re-apply for an SRF reimbursement loan in 2000. The City was successful in securing an SRF loan for nearly $1,000,000 for reimbursement of design and construction costs for the Anderson Cove Basin in 2001 and received the remaining $640,000 in 2002. In 1999, the City received a $200,000 CCWF grant to develop and implement a multimedia public education and assistance program called the "Cooperative Approach to CSO Reduction."

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The program encouraged public participation in CSO reduction efforts, provided free assistance and education on the topics of stormwater and combined sewer overflow impact and prevention.

The City received the three PWTF loans applied for in 1999; a $906,000 loan for design of CSO improvements in various basins, a $2,804,000 loan for design and construction of CSO improvements in various basins, and a separate $4,195,800 design and construction loan for Callow Avenue Priorities 3 and 5. The City also received a $575,000 SRF design loan for Callow Priorities 3 and 5 applied for in 1999. In 2000, the City applied for a $3,000,000 PWTF design and construction loan for the new CSO Treatment Plant and applied for two SRF loans. One SRF application was for $130,000 for an inflow and infiltration investigation in East Bremerton, and the other was for $750,000 for design of the new CSO Treatment Plant. Although the City was not successful in the two SRF applications, it did receive the $3,000,000 PWTF loan to partially fund construction of the Wet Weather CSO Treatment Plant.

In 2001, the City received 4 State Revolving Fund loans totaling $3,343,000 for design and construction of CSO reduction improvements for various basins, including Anderson Cove - Basin 12, Trenton Avenue, Cherry Avenue, and Tracyton Beach. Additionally the City received a $250,000 SRF loan to fund private sanitary/stormwater sewer and CSO reduction improvements. The City applied for a $9,750,000 Public Works Trust Fund loan that would have funded all remaining CSO reduction improvements, but was unsuccessful in obtaining it. The City did receive a $2,910,000 direct appropriation from the EPA to fund the Callow Avenue Priority 5 improvements, along with a separate $570,100 direct appropriation to partially fund the Callow Priority 3 improvements.

In 2002, the City received two SRF loans, one for $250,000 and one for $1,000,000, for design and construction of improvements for the Pacific Avenue Basin. The City additionally received a $200,000 SRF loan for an inflow and infiltration investigation in the Anderson Cove Basin. Also received by the City was a $475,000 PWTF loan to complete all CSO reduction improvements in the Anderson Cove Basin. Finally, the City received a $1,940,000 EPA grant to partially fund a wet weather upgrade to the City's WWTP. The City applied for a $2,945,000 PWTF loan to fund all remaining improvements in the Pacific Avenue Basin but was unsuccessful in obtaining it.

In 2003, the City received a $1,000,000 SRF loan to construct the Cherry Avenue Beach main replacement project, and the Shore Drive sewer rehabilitation project. The City additionally received a $5,500,000 loan to fund construction of all remaining necessary CSO reduction improvements in the Pacific Avenue Basin.

In 2005, the City submitted a $1,000,000 State Revolving Fund loan application to provide partial funding for the Charleston WWTP Upgrade. Also, in 2005, the City submitted a $525,000 Public Works Trust Fund Application to provide partial funding to allow construction of Pump Station CW1 in the Anderson Cove Basin to be completed. This pump station upgrade is necessary for completion of all Anderson Cove Basin improvements. The City was notified in the fall of 2005 that it was unsuccessful, and

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resubmitted the application in 2006. In 2006, the City additionally submitted a $3,000,000 PWTF application to complete the upgrades required for the WWTP upgrade.

A table summarizing CSO project funding is included as Attachment 10.

In addition to the State Revolving Fund (SRF) loan received for the design of the Callow Avenue Basin Priority 1 Improvements, a $2,500,000 loan was received for the construction of the Priority 1, Phase 2 improvements. The City received a loan for Priority 2 for $828,000 and a PWTF loan for $622,000. The City received $94,000 from the Centennial Clean Water Fund for CSO water quality monitoring in 1996 and 1997. The City also applied for but was unsuccessful in acquiring a Puget Sound Water Quality Action Team PIE Grant for CSO notification in 1997. The City was selected for an SRF Loan for $1,000,000 for the design and construction of the Anderson Cove CSO reduction project for Overflow sites 8 and 9. However, based on the Facilities Plan for this basin, Overflow Sites 10, 11, and 12 were added to the scope of the project. The SRF loan was rescinded because of this change in scope, and Bremerton had to re-apply for an SRF reimbursement loan in 2000. The City was successful in securing an SRF loan for nearly $1,000,000 for reimbursement of design and construction costs for the Anderson Cove Basin in 2001 and received the remaining $640,000 in 2002. In 1999, the City received a $200,000 CCWF grant to develop and implement a multimedia public education and assistance program called the "Cooperative Approach to CSO Reduction." The program encouraged public participation in CSO reduction efforts, provided free assistance and education on the topics of stormwater and combined sewer overflow impact and prevention.

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In 2003, the City received a $1,000,000 SRF loan to construct the Cherry Avenue Beach main replacement project, and the Shore Drive sewer rehabilitation project. The City additionally received a $5,500,000 loan to fund construction of all remaining necessary CSO reduction improvements in the Pacific Avenue Basin.

In 2005, the City submitted a $1,000,000 State Revolving Fund loan application to provide partial funding for the Charleston WWTP Upgrade. Also, in 2005, the City submitted a $525,000 Public Works Trust Fund Application to provide partial funding to allow construction of Pump Station CW1 in the Anderson Cove Basin to be completed. This pump station upgrade is necessary for completion of all Anderson Cove Basin improvements. The City was notified in the fall of 2005 that it was unsuccessful, and intends to revise and resubmit this application in 2006.

7) COMPLIANCE WITH NINE MINIMUM CONTROLS

Compliance with the Nine Minimum Controls required by the EPA CSO Policy is determined by professional judgment of the NPDES control authority, the Department of Ecology. The City's efforts to comply with these controls are described below.

PROPER OPERATION AND MAINTENANCE

The City's WWTP has a written operations and maintenance manual and a computerized maintenance management program. Adequate funding is budgeted for these activities. An emergency response procedure is in place. The City is in compliance with the CMOM regulations.

MAXIMIZATION OF COLLECTION SYSTEM STORAGE

Collection system components are properly operated, maintained, and inspected to ensure adequate capacity and reliability. In 1996, the City started an on-going evaluation and optimization program that started when overflow weirs were raised to increase use of available storage in the collection system. The City closely maintains sewer lines to reduce flow obstructions and continually upgrades and optimizes lift stations to improve pumping capacities.

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REVIEW OF PRETREATMENT REQUIREMENTS

Ecology administers the City's industrial pretreatment program. In 1996, Ecology finalized local limits for metals and coordinated the issuance of a waste discharge permit for the Puget Sound Naval Shipyard. PSNS is currently the only significant discharger identified by Ecology in the City's system. The City monitors and samples at the influent flows from PSNS and in manholes in commercial areas to track non-domestic discharges.

MAXIMIZATION OF FLOW TO THE WWTP

The Bremerton Westside Wastewater Treatment Plant is able to process all wastewater transported to it. . A Rerating Study was submitted to Ecology in July 2001, with a request that the Westside WWTP be rerated to a maximum month capacity of 14.1 MGD. It is still under review by Ecology, and may be implemented by amendment to the 2006 NPDES Permit. Pump station reliability has been improved with the integration of new control systems, scheduled cleaning and maintenance of the wetwells, and systematic replacement of existing long shaft pump assemblies with close-coupled dry-pit submersibles. The initial replacement effort was on smaller stations, and the City has begun to replace pump assemblies in the larger stations. This will continue to be an ongoing annual effort, until it is completed.

ELIMINATION OF DRY WEATHER CSOs

Bremerton has no ongoing problem with dry weather CSOs. A few CSO locations also serve as emergency overflows for wastewater pump stations. These rare sanitary sewer overflow events are handled according to the procedure in the City's NPDES permit.

FLOATABLE CONTROL

No evidence exists to indicate a problem with floatables from Bremerton CSO sites. The City has greatly improved catch basin and street cleaning activities over the past several years. All major City streets are swept every 6 to 10 weeks with special attention to commercial areas once each week. All City catch basins are cleaned annually.

POLLUTION PREVENTION PROGRAMS

Bremerton responds to reports of improper waste disposal into the storm and sanitary sewer systems and coordinates these activities with Ecology. The City implements an active grease trap and water conservation program. The above-mentioned catch basin and street cleaning program also reduces contaminants in the CSOs. The City, in addition to state and other local agencies, uses public education programs and materials to provide customer outreach on pollution prevention. In 1997, business-specific pollution prevention information was hand-delivered to businesses with the potential to generate hazardous waste. Businesses are now contacted through the ongoing cross connection program.

Kitsap County implements an effective pollution prevention program through the Solid Waste Division of the County Public Works Department and the Solid Waste Program at the Bremerton-Kitsap County Health District. Most residents and businesses are actively recycling. In 1996 the County opened its Moderate Risk Waste Facility to handle

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dangerous waste from homes and small generators. In 2000, all Bremerton wastewater customers received the bill insert, "Your Guide to Household Hazardous Waste."

Since 2001 Bremerton has participated in the "Kitsap County Stormwater Consortium," which provided pollution prevention information through brochures, web page information, and newspaper ads. The messages focused on local concerns and knowledge based on feedback from a scientifically conducted survey of County residents. The groups involved in the Consortium continue these coordinated stormwater education efforts and has focused on pet waste and leaking automotive fluids.

Bremerton also maintains an internet website located at www.cityofbremerton.com that provides pollution prevention, CSO, and water conservation information to a wide variety of interested cities, organizations and people. In 2006 there were over 40,000 visits to the website and more than 2,000 visits to the pollution prevention facts section.

PUBLIC NOTIFICATION

All CSOs discharge to marine waters where the main public health concern is shellfish harvesting. A notification procedure was implemented in 2003 to meet the needs of the Washington State Department of Health & Shellfish program requirements, so they could re-open several beds for harvesting in Dyes Inlet. The Bremerton-Kitsap County Health District will also post these areas when a CSO event occurs. A public education brochure designed by the City is used to describe its CSO reduction program. The City's "Cooperative Approach to CSO Reduction" program also educated residents through a multi-media approach. The web site, www.cityofbremerton.com, explains CSO's with detailed animations.

MONITORING TO CHARACTERIZE CSO IMPACTS

CSO Water Quality Monitoring began in 1995 and has continued each year since then. Samples are collected and analyzed during the water year, which is October to September. The City also coordinates monitoring efforts with the Navy ENVVEST project described above.

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8) CSO PROJECTS PLANNED FOR 2007

CONTINUED IMPROVEMENTS TO FLOW MONITORING

CSO site flow meters will continue to be integrated with the existing wastewater SCADA system over the next several years to improve system operations and reliability.

ANDERSON COVE BASIN

Construction of the upgrade to CW-1 will be completed in 2007 – this will complete all required CSO Reduction in the Anderson Cove Basin.

PACIFIC AVENUE BASIN

Construction of the upgrade to pump station CE6 is currently underway, and will be completed in 2007. The bid for construction of the major trunk storm drain line is currently being advertised, and will be under construction in 2007. This is a complicated construction project that is being constructed in conjunction with a major transportation improvement that is scheduled for a 20-month construction period – it is likely that the trunk sewer construction will not be completed until 2008. The City is currently designing a storm water collection system for this basin – this project will be under construction in 2007.

CHARLESTION WWTP UPGRADE

Design of the upgrade to the City's Charleston WWTP is currently underway with construction anticipated to begin in 2007. Completion of this project is anticipated in 2008.

DNR-00033851

9) ATTACHMENTS TO 2006 CSO REPORT

1. Map of Bremerton CSO Sites
2. Overflow Volume Data for 1994-2006
3. 2006 Cumulative Overflow Volume Measured, Mean and Upper 95% Con Level
4. 2006 Monthly Cumulative Volume by Site
5. Overflow Frequency Data for 2006
6. Overflow Frequency Data for 1995-2006
7. 2006 Cum Overflow Frequency Measured, Mean and Upper 95% Con Level
8. 2006 Monthly Cumulative Frequency by Site
9. CSO Water Quality Data for the 2004-2006 Water Year
10. CSO Funding Table
11. Cooperative Approach to CSO Reduction Program Summary

10) REFERENCES

1. City of Bremerton CSO Plan, 1992, and Update, 2000
2. City of Bremerton Baselines Review and Recommendations, 1996
3. City of Bremerton Final Report: CSO Water Quality Characterization Study, 1997
4. EPA Guidance for Nine Minimum Controls, 1995
5. Washington Department of Ecology Guidance for Chapter 173-245 WAC, 1990
6. Puget Sound Naval Shipyard Project ENVVEST Technical Work Master Plan, May 2002
7. NOAA Atlas 2, Precipitation, Western United States, Volume IX, Washington
8. City of Bremerton Wastewater Comprehensive Plan Update, 2005

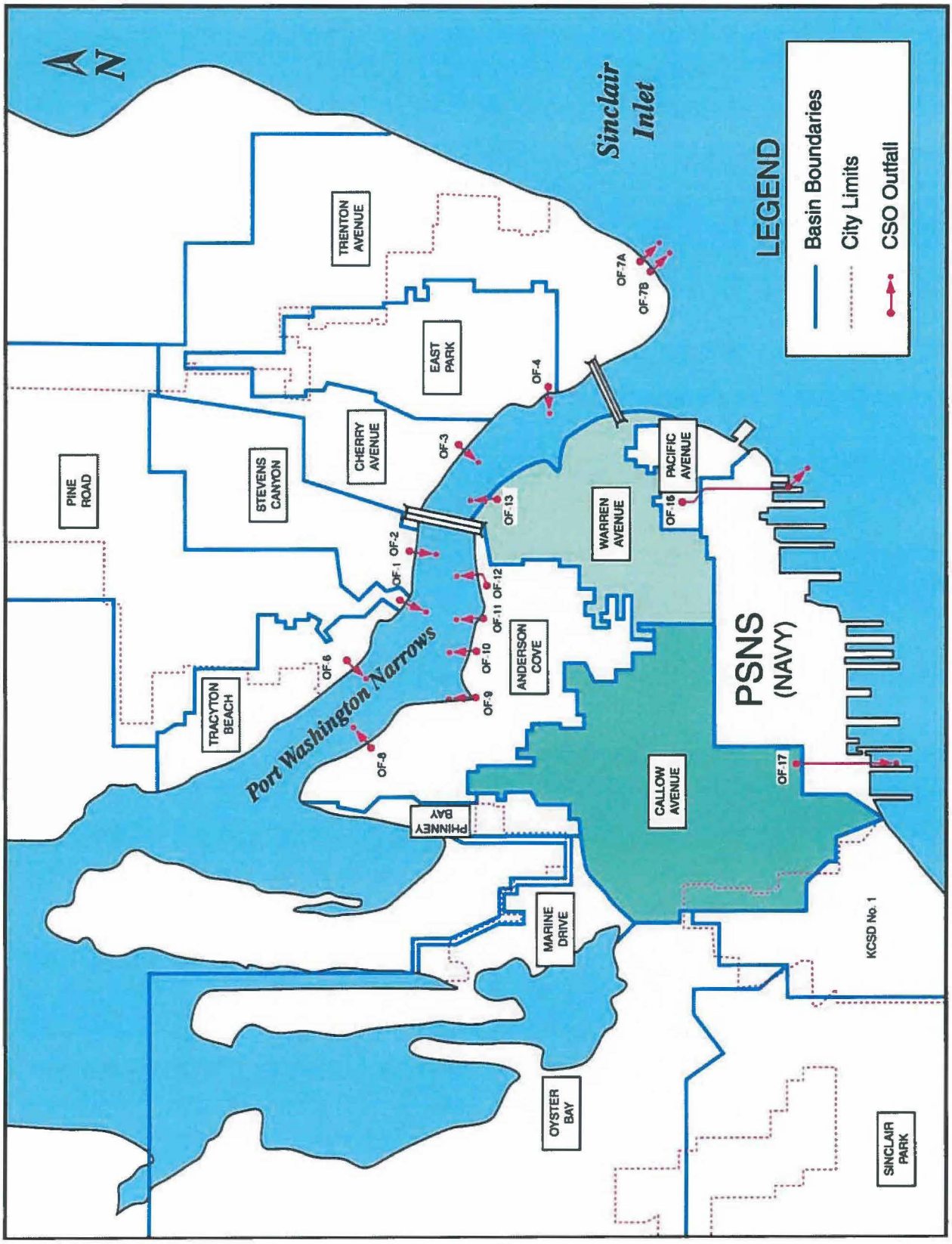
ATTACHMENTS

DNR-00033853

ATTACHMENT 1

Map of Bremerton CSO Sites

DNR-00033854



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ATTACHMENT 2

2006 Combined Sewer Overflow Report
Overflow Volume Data for 1994-2006

DNR-00033856

City of Bremerton Department of Public Works & Utilities

2006 Combined Sewer Overflow Report

Overflow data for 1994 to 2006

1994	AVG. Precip	OVERFLOW VOLUME IS SHOWN IN GALLONS																	% of Annual
		O/F 1	O/F 2	O/F 3	O/F 4	O/F 6	O/F 7A	O/F 7B	O/F 8	O/F 9	O/F 10	O/F 11	O/F 12	O/F 13	O/F 16	O/F 1797	O/F 1794	O/F 1781	Total	
January	2.86	0	5,110	18,757	382,332	21,691	223,955	12,854	83,324	34,303	14,571	0	53,446	537,243	0	93,519	1,043,868	338,918	2,863,891	2.0%
February	7.08	31	183,767	101,726	920,931	354,411	1,480,754	146,241	1,507,611	591,576	317,648	139,093	451,519	5,290,250	0	1,101,188	8,053,803	1,117,951	21,678,581	15.2%
March	3.90	3,564	8,769	18,319	872,473	108,407	532,564	45,607	437,326	44,857	86,436	0	151,194	2,807,946	0	392,677	3,229,759	530,210	8,469,309	5.9%
April	2.04	0	0	480	57,128	39,451	0	0	164,342	0	33,846	0	0	147,696	0	142,063	1,148,009	187,362	1,919,577	1.3%
May	1.32	0	0	2,223	21,199	0	0	0	0	0	0	0	0	70,825	0	6,494	281,194	54,289	436,224	0.3%
June	1.60	66,767	9,265	14,945	34,369	26,131	0	0	103,578	137	658	0	0	169,486	0	99,872	787,640	106,039	1,409,095	1.0%
July	0.05	0	0	570	0	0	0	0	0	0	0	0	0	0	0	0	0	0	570	0.0%
August	0.21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	744	0	744	0.0%
September	1.22	8,669	0	9,445	73,690	5,995	0	0	9,900	4	4,283	0	0	298,237	10,807	133,068	887,219	238,281	1,679,198	1.2%
October	4.08	205,962	26,012	37,677	56,342	16,644	586,235	51,303	758,869	17,720	83,752	35,747	168,193	1,191,885	861,619	668,220	4,520,717	820,406	10,107,304	7.1%
November	7.29	1,009,788	80,248	95,204	629,326	245,057	1,544,861	153,645	355,038	770,242	242,807	174,061	471,824	3,800,284	63,465	1,326,178	7,527,339	1,437,417	19,925,585	14.0%
December	12.72	3,159,621	710,158	404,354	2,466,625	1,960,822	3,162,450	324,725	9,083,327	3,497,135	1,638,237	2,444,289	984,172	17,531,731	0	2,783,454	20,881,125	2,742,077	74,174,302	52.0%
Total	44.35	4,454,402	943,330	703,700	5,514,415	2,778,208	7,530,818	733,776	12,903,317	4,955,175	2,420,638	2,793,190	2,280,348	31,045,582	936,091	6,736,932	48,361,426	7,572,950	142,654,395	100.0%

1995	AVG. Precip	OVERFLOW VOLUME IS SHOWN IN GALLONS																	% of Annual
		O/F 1	O/F 2	O/F 3	O/F 4	O/F 6	O/F 7A	O/F 7B	O/F 8	O/F 9	O/F 10	O/F 11	O/F 12	O/F 13	O/F 16	O/F 1797	O/F 1794	O/F 1781	Total	
January	7.71	315,257	17,257	95,135	1,591,497	127,546	1,671,088	166,442	1,734,601	550,861	163,083	264	511,805	5,797,946	0	689,931	6,355,534	466,544	20,254,791	13.3%
February	5.58	759,417	68,509	180,966	1,737,530	302,855	1,834,985	98,931	3,530,674	1,188,047	393,782	81,433	319,328	6,638,995	0	1,140,479	7,099,469	624,830	25,111,238	16.5%
March	7.45	14,931	9,225	67,359	2,918,749	104,846	1,592,569	158,109	1,154,620	288,179	57,697	0	496,935	2,083,376	0	641,227	6,535,928	701,705	16,815,454	11.0%
April	4.50	284,570	404,675	34,158	360,943	256,135	712,959	64,753	222,484	71,864	658,589	144,546	288,331	514,373	2,115,892	370,638	2,092,151	339,939	8,777,600	5.8%
May	0.77	0	0	1,061	11,694	0	0	0	0	0	243	0	0	0	0	4,176	129,349	0	146,523	0.1%
June	0.75	0	0	0	1,045	0	0	0	854	59	0	0	0	0	0	10,115	132,609	0	144,682	0.1%
July	1.12	0	0	906	9,632	0	0	0	0	56	641	0	0	15,678	0	91,796	826,686	17,324	962,630	0.6%
August	2.05	932	0	0	114,944	318	0	0	6,876	95	8,165	0	0	173,945	0	235,997	1,775,581	189,826	2,506,680	1.6%
September	1.11	20,631	14,807	4,354	24,842	17,590	0	0	29,159	350	4,949	0	0	41,662	0	52,499	455,508	14,860	683,209	0.4%
October	4.03	0	84	7,653	192,178	65,466	571,823	49,774	2,704	5,164	7,962	0	163,628	380,426	0	511,290	3,868,322	554,546	6,381,014	4.2%
November	11.33	1,066,534	100,476	181,365	2,390,125	772,923	2,749,486	280,895	1,381,249	905,540	680,955	235	853,370	1,588,589	45,860	2,211,423	15,458,812	1,984,377	32,572,210	21.4%
December	10.62	2,226,563	94,589	186,846	2,458,746	316,985	2,536,783	298,321	4,211,533	1,618,564	601,918	15,161	786,001	3,682,160	0	2,143,692	15,033,521	1,772,536	37,943,939	24.9%
TOTAL	57.02	4,688,837	709,622	681,823	11,811,925	1,964,664	10,869,687	1,077,225	12,274,754	4,628,779	2,577,984	241,639	3,320,398	20,917,137	2,161,752	8,103,262	59,763,390	6,586,494	152,299,372	100.0%

1996	AVG. Precip	OVERFLOW VOLUME IS SHOWN IN GALLONS																	% of Annual
		O/F 1	O/F 2	O/F 3	O/F 4	O/F 6	O/F 7A	O/F 7B	O/F 8	O/F 9	O/F 10	O/F 11	O/F 12	O/F 13	O/F 16	See note	O/F 17	O/F 1781	Total	
January	6.61	88,483	10,219	56,057	1,183,249	10,955	1,342,104	131,526	541,315	1,148,995	78,274	0	16,918	41,527	0	See note	1,867,877	1,832,808	6,749,506	8.4%
February	8.47	793,457	43,716	154,425	1,231,297	86,218	1,896,785	190,388	1,542,746	779,725	282,629	30,843	124,063	385,662	0	See note	1,529,807	1,375,780	10,366,661	12.8%
March	1.68	0	918	2,487	0	0	0	0	0	0	1,358	0	0	0	0	See note	11,879	120,825	137,467	0.2%
April	6.45	624,068	93,756	128,303	680,823	1,213,890	1,294,396	126,463	1,149,005	671,965	274,674	55,132	1,242	205,474	0	See note	1,218,078	1,882,436	8,739,784	10.8%
May	2.98	76,961	20,180	23,715	86,142	12,237	258,742	16,546	17,847	0	13,863	0	3,982	151,262	28,678	See note	224,211	360,880	1,294,846	1.6%
June	0.37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	See note	16,956	0	16,956	0.0%
July	0.51	0	0	0	2,956	3,111	9,767	0	9,001	0	2,440	0	0	23,662	0	See note	67,223	0	118,560	0.1%
August	1.12	86,377	26,121	618	85,458	18,127	8,212	1,782	33,997	0	5,593	0	6,516	75,298	0	See note	199,746	17,324	565,169	0.7%
September	2.15	121,448	3,116	25	86,953	1,317	26,754	740	8,432	17,324	41,825	0	2,764	13,956	138,020	See note	199,439	207,693	869,808	1.1%
October	5.26	239,846	9,852	0	158,857	3,599	0	0	5,119	16,407	39,387	864	4,159	2,569	48,001	See note	729,823	782,495	2,040,978	2.5%
November	3.79	583,694	28,113	0	217,939	19,629	19,984	0	171,313	67,304	55,656	0	0	27,065	23,767	See note	335,916	510,804	2,071,186	2.6%
December	14.22	1,494,836	26,331	93	948,927	908,896	4,154,045	500,013	6,358,498	2,028,824	830,878	734,608	1,137,386	4,593,186	62,454	See note	21,553,353	2,438,518	47,768,780	59.2%
TOTAL	53.62	4,109,170	262,322	365,723	4,692,201	2,277,569	9,010,710	967,457	9,838,023	4,729,744	1,624,969	821,447	1,297,832	5,439,661	300,922	See note	27,153,507	7,848,363	80,738,821	100.0%

NOTES

= Estimated data using the "mean" formula for the site in question. Estimates are used when actual monitoring data are not available due to flow monitoring equipment being off-line.

See note = The data for this site has been combined to that of Overflow 1794 to make Overflow 17. This was done to simplify analysis and reporting for the overflow sites due to their hydraulic connectivity.

DNR-000338857

City of Bremerton Department of Public Works & Utilities

2006 Combined Sewer Overflow Report

Overflow data for 1994 to 2006

1997	AVG. Precip	O/F 1	O/F 2	O/F 3	O/F 4	O/F 6	O/F 7A	O/F 7B	O/F 8	O/F 9	O/F 10	O/F 11	O/F 12	O/F 13	O/F 16	O/F 17	O/F 17B1	Total	% of Annual
		OVERFLOW VOLUME IS SHOWN IN GALLONS																	
January	8.06	3,514,601	1,033,978	0	302,929	536,807	2,317,460	102,481	6,136,921	2,557,518	225,324	1,677,228	618,259	1,578,038	2,483	8,216,303	16,092	28,826,422	17.5%
February	2.09	0	0	0	5,342	0	0	0	2,214	0	0	0	10,424	0	0	94,598	0	112,580	0.1%
March	11.56	4,757,646	857,058	0	2,494,974	796,172	2,564,357	257,101	4,763,634	2,935,457	1,464,273	2,755,602	842,344	1,092,055	0	15,889,934	42,130,296	84,340,546	51.2%
April	4.67	451,753	92,810	0	149,843	53,973	154,800	115	188,228	133,752	272,833	4,907	156,059	275,272	1,237	4,979,264	180,665	7,097,711	4.3%
May	3.15	221,996	42,695	3,909	114,002	31,105	33,895	116	72,411	41,322	142,628	8,465	99,951	84,548	872,473	3,076,983	20,404	4,865,905	3.0%
June	2.40	0	0	0	22,236	0	630	0	0	152	8,954	0	32,199	0	0	509,225	0	573,396	0.3%
July	1.74	944	4,345	0	41,018	12,984	10,882	0	3,879	832	78,288	11,772	60,501	2,448	0	162,043	14,860	404,808	0.2%
August	1.24	0	0	0	18,477	0	25,089	0	0	0	524	0	8,686	0	0	108,291	0	161,067	0.1%
September	4.59	105,908	5,982	143	190,399	8,271	31,954	9,759	13,271	53,692	28,535	0	156,418	29,234	678,843	3,391,630	42,275	4,656,306	2.8%
October	10.68	1,549,359	59,329	297	1,045,950	321,380	515,248	21,025	1,591,693	532,624	534,845	25,512	536,689	106,229	418,666	15,502,316	336,353	23,093,375	14.0%
November	5.41	69,983	5,948	161	231,370	29,156	46,806	0	147,439	27,049	94,825	1,452	134,169	0	0	3,071,716	82,812	3,942,086	2.4%
December	4.15	505,492	16,646	0	139,310	74,294	60,568	2,327	1,846,899	297,733	194,934	206	131,578	0	0	3,976,420	212,865	6,458,412	4.0%
TOTAL	59.66	11,176,794	2,118,791	4,510	4,755,858	1,866,062	5,761,599	392,924	13,956,589	6,580,131	3,045,163	4,485,144	2,787,279	3,167,808	1,973,642	58,888,723	43,021,962	164,632,614	100.0%

1998	AVG. Precip	O/F 1	O/F 2	O/F 3	O/F 4	O/F 6	O/F 7A	O/F 7B	O/F 8	O/F 9	O/F 10	O/F 11	O/F 12	O/F 13	O/F 16	O/F 17	O/F 17B1	Total	% of Annual
		OVERFLOW VOLUME IS SHOWN IN GALLONS																	
January	12.01	4,045,341	238,796	0	541,483	305,517	1,650,041	18,622	4,332,731	828,714	708,536	18,612	397,555	0	0	10,202,169	273,760	23,361,877	22.2%
February	6.15	7,520	0	0	84,599	787	218	1,898	43,701	3,973	21,398	0	53,856	0	0	1,237,378	42,583	1,497,911	1.4%
March	4.06	196,488	9,212	0	62,553	13,911	33,832	0	89,846	19,038	65,098	0	93,585	0	0	2,531,363	0	3,114,926	3.0%
April	1.05	0	0	0	0	0	0	0	0	0	0	0	987	0	0	345,094	0	346,081	0.3%
May	1.25	0	0	0	627	0	0	0	0	0	0	0	2,207	0	0	17,713	0	20,547	0.0%
June	0.84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
July	0.39	0	0	0	12,148	0	0	0	0	0	0	0	1,928	0	0	0	0	14,076	0.0%
August	0.55	49,420	13,459	951	53,101	5,460	640	206	12,043	13,428	141,553	7,068	45,919	33,464	613,394	1,817,638	0	2,807,736	2.7%
September	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
October	3.34	3,117	0	0	27,680	1,098	0	0	1,221	4,967	22,398	0	30,333	171,826	36,183	1,718,614	1,922	2,019,359	1.9%
November	12.77	3,328,119	494,754	0	746,262	408,596	1,066,715	25,094	686,340	1,017,816	651,749	0	29,640	0	0	14,124,133	498,556	25,077,774	23.8%
December	11.41	6,121,038	465,788	153	821,516	593,491	3,906,322	64,780	4,503,509	2,184,907	1,863,414	88,127	127,059	214,386	499,170	25,218,837	434,778	47,107,276	44.7%
TOTAL	54.24	13,751,053	1,222,009	1,104	2,349,969	1,328,860	6,657,768	110,600	9,469,391	4,072,843	3,474,146	113,807	783,069	419,676	1,148,747	59,212,921	1,251,600	105,347,563	100.0%

1999	AVG. Precip	O/F 1	O/F 2	O/F 3	O/F 4	O/F 6	O/F 7A	O/F 7B	O/F 8	O/F 9	O/F 10	O/F 11	O/F 12	O/F 13	O/F 16	O/F 17	O/F 17B1	Total	% of Annual
		OVERFLOW VOLUME IS SHOWN IN GALLONS																	
January	9.54	3,818,598	544,774	0	1,071,525	381,857	2,793,004	55,027	2,982,464	1,578,143	155,514	301,219	34,238	31,036	22,868	7,086,366	277,765	21,127,528	30.5%
February	13.54	4,922,250	833,825	6,074	2,056,452	270,775	5,819,258	271,984	5,186,081	2,613,247	505,833	985,465	15,225	484,464	680,163	9,308,942	484,061	34,364,040	49.6%
March	4.79	15,737	0	0	107,309	0	87,498	83	369,885	20,293	118	0	0	0	0	1,042,243	0	1,642,366	2.4%
April	1.34	21,554	0	0	18,077	0	0	0	1,650	0	0	0	0	0	0	19,483	0	60,764	0.1%
May	1.53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,744	0	6,744	0.0%
June	2.05	50,182	0	0	44,351	0	0	0	0	0	0	0	1,259	0	37,764	2,126,439	0	2,260,094	3.3%
July	0.73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
August	0.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
September	0.06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
October	3.18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8,992	0	8,992	0.0%
November	13.14	389,070	0	0	100,234	670	916,509	562	0	24,976	0	0	0	1,284	0	849,334	443,330	2,725,967	3.9%
December	7.83	1,821,289	21,974	0	444,866	168,769	421,701	19,450	619,951	0	63,417	0	0	0	151,497	3,203,361	197,601	7,133,875	10.3%
TOTAL	58.58	11,038,680	1,400,573	6,074	3,843,815	822,070	10,037,969	347,106	9,159,170	4,228,859	724,882	1,286,684	50,822	516,714	892,292	23,651,904	1,322,757	69,330,371	100.0%

NOTES = Estimated data using the "mean" formula for the site in question. Estimates are used when actual monitoring data are not available due to flow monitoring equipment being off-line.

DNR-00033858

City of Bremerton Department of Public Works & Utilities

2006 Combined Sewer Overflow Report

Overflow data for 1994 to 2006

2000	AVG.	OVERFLOW VOLUME IS SHOWN IN GALLONS																		% of
	Precip	O/F 1	O/F 2	O/F 3	O/F 4	O/F 6	O/F 7A	O/F 7B	O/F 8	O/F 9	O/F 10	O/F 11	O/F 12	O/F 13	O/F 16		O/F 17	O/F 17B1	Total	Annual
January	6.48	0	0	0	55,185	0	2,182	0	0	0	0	0	0	0	0	Overflow 1797 was removed from service on August 1, 1993	315,860	0	383,227	14.5%
February	5.34	39,341	0	0	43,548	3,959	108,875	0	0	0	22,753	0	0	0	0		330,578	89,405	638,452	24.1%
March	3.05	0	0	0	12,381	0	0	0	0	0	0	0	0	0	0		78,789	0	91,170	3.4%
April	0.96	0	0	0	686	0	0	0	0	0	0	0	0	0	0		0	0	686	0.0%
May	2.65	0	0	0	19,903	0	0	0	0	0	5,165	0	0	0	0		19,697	0	44,765	1.7%
June	2.12	0	0	0	162,127	0	27,193	1,282	0	0	0	0	0	0	0		6,958	0	197,481	7.5%
July	0.66	0	0	0	3,325	0	0	0	0	0	0	0	0	0	3,195		131,885	Note 1	138,406	5.2%
August	0.32	0	0	0	5,301	0	0	0	0	0	0	0	0	0	0		0	Note 1	5,301	0.2%
September	0.42	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	Note 1	0	0.0%
October	3.80	14,361	2,303	0	0	0	11,517	0	0	0	0	0	0	7,701	0		210,460	Note 1	246,341	9.3%
November	3.80	0	0	0	0	0	1,015	0	0	0	0	0	0	0	0		447,040	Note 1	448,055	16.9%
December	4.70	7,686	0	0	0	0	43,276	0	0	0	0	0	0	0	0		403,792	Note 1	454,754	17.2%
TOTAL	34.30	61,388	2,303	0	302,456	3,959	194,057	1,282	0	0	27,919	0	0	7,701	3,195		1,955,052	89,405	2,648,637	100.0%

2001	AVG.	OVERFLOW VOLUME IS SHOWN IN GALLONS																		% of
	Precip	O/F 1	O/F 2	O/F 3	O/F 4	O/F 6	O/F 7A	O/F 7B	O/F 8	O/F 9	O/F 10	O/F 11	O/F 12	O/F 13	O/F 16		O/F 17		Total	Annual
January	3.58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Overflow 1797 was removed from service on August 1, 1993	0	Overflow 1781 was removed from service on June 2, 2000	0	0.0%
February	2.64	0	0	0	0	0	0	0	0	0	0	0	0	5,825	70,047		170,102		245,974	1.3%
March	3.13	0	0	0	0	0	0	0	0	0	0	0	0	0	0		3,389,279		3,389,279	17.6%
April	2.72	0	0	0	0	0	0	0	0	0	0	0	0	0	0		111,904		111,904	0.6%
May	1.18	0	0	0	0	0	91,067	0	0	0	0	0	0	0	0		189,315		280,382	1.5%
June	2.85	0	0	0	0	0	0	0	0	0	0	0	0	0	7,492		457,797		465,289	2.4%
July	0.48	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
August	2.84	0	30,958	0	4,374	0	147,687	0	0	0	0	6,255	0	0	129,709		1,122,485		1,441,468	7.5%
September	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
October	3.39	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
November	12.81	0	1,444,614	0	0	13,608	206,842	0	0	0	0	0	0	5,726	0		1,703,391		3,374,181	17.6%
December	9.67	0	851,100	0	47,576	337,048	1,685,940	52,105	0	292,350	98,294	942,898	0	0	37,351		5,566,360		9,911,022	51.6%
TOTAL	44.99	0	2,326,672	0	51,950	350,656	2,131,536	52,105	0	292,350	98,294	949,153	0	11,551	244,599		12,710,633		19,219,499	100.0%

2002	AVG.	OVERFLOW VOLUME IS SHOWN IN GALLONS																		% of
	Precip	O/F 1	O/F 2	O/F 3	O/F 4	O/F 6	O/F 7A	O/F 7B	O/F 8	O/F 9	O/F 10	O/F 11	O/F 12	O/F 13	O/F 16		O/F 17		Total	Annual
January	10.64	0	3,453,083	0	101,635	649,050	2,626,801	294,851	52,181	1,220,355	229,478	1,837,719	0	0	39,307	Overflow 1797 was removed from service on August 1, 1993	6,630,769	Overflow 1781 was removed from service on June 2, 2000	17,045,229	93.6%
February	5.87	0	0	0	0	0	0	0	0	0	0	0	0	0	0		188,362		188,362	1.0%
March	3.70	0	0	0	0	0	11,973	0	0	0	0	0	0	0	0		437,437		449,410	2.5%
April	3.01	0	0	0	0	0	1,826	0	0	0	0	0	0	0	0		170,786		172,612	0.9%
May	1.04	0	0	0	0	0	41,602	0	0	0	0	0	0	0	0		59,248		100,850	0.6%
June	1.55	0	0	0	0	0	1,715	0	0	0	0	0	0	0	60,379		103,775		165,869	0.9%
July	0.34	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
August	0.04	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
September	0.62	0	0	0	0	0	0	0	0	0	0	0	0	0	65,832		0		65,832	0.4%
October	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
November	3.65	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
December	7.97	0	0	0	0	0	20,088	0	0	0	0	1,017	0	0	0		2,734		23,839	0.1%
TOTAL	38.03	0	3,453,083	0	101,635	649,050	2,704,005	294,851	52,181	1,220,355	229,478	1,838,736	0	0	165,518		7,593,111		18,212,003	100.0%

DNR-00033859

City of Bremerton Department of Public Works & Utilities

2006 Combined Sewer Overflow Report

Overflow data for 1994 to 2006

2003	AVG. Precip	OVERFLOW VOLUME IS SHOWN IN GALLONS																	% of Annual
		O/F 1	O/F 2	O/F 3	O/F 4	O/F 6	O/F 7A	O/F 7B	O/F 8	O/F 9	O/F 10	O/F 11	O/F 12	O/F 13	O/F 16		O/F 17		Total	
January	11.13	0	0	0	0	70,532	1,279,031	2,109	0	53,658	22,013	217,540	0	0	139,478	Overflow 1797 was removed	257,582	Overflow 1781 was removed	2,041,942	25.5%
February	1.19	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
March	8.75	0	0	0	0	21,658	735,003	0	0	48,233	3,337	102,529	0	0	660,131		202,535		1,773,426	22.2%
April	3.28	0	0	0	0	0	N/D	0	0	0	0	0	0	0	0		0		0	0.0%
May	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
June	0.46	0	0	0	0	0	N/D	0	0	0	0	0	0	0	0		0		0	0.0%
July	0.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
August	0.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
September	0.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
October	11.77	0	0	73,549	174,270	231,763	N/D	0	0	253,074	112,507	686,732	0	0	1,217,596		14,021		2,763,513	34.6%
November	7.45	0	0	0	0	209,374	N/D	0	0	110,951	51,104	649,244	0	0	392,873		0		1,413,546	17.7%
December	5.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
TOTAL	51.00	0	0	73,549	174,270	533,328	2,014,034	2,109	0	465,915	188,960	1,656,045	0	0	2,410,079		474,139		7,992,428	100.0%

NOTES: This site was offline due to CSO reduction construction and reconfiguration of the overflow structure. The flow meter was not operational so we used the liftstation high wetwell alarm to indicate whether a CSO event occurred or not.

2004	AVG. Precip	OVERFLOW VOLUME IS SHOWN IN GALLONS																	% of Annual
		O/F 1	O/F 2	O/F 3	O/F 4	O/F 6	O/F 7A	O/F 7B	O/F 8	O/F 9	O/F 10	O/F 11	O/F 12	O/F 13	O/F 16		O/F 17		Total	
January	6.80	0	0	0	0	10,392	0	0	0	518	9,009	58,338	0	0	71,810	Overflow 1797 was removed	0	Overflow 1781 was removed	150,067	64.1%
February	3.36	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
March	2.26	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
April	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
May	2.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
June	0.46	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
July	0.54	0	0	0	0	0	0	0	0	0	0	0	0	4,344	15,260		0		19,604	8.4%
August	2.21	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
September	1.83	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
October	3.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
November	3.27	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
December	7.30	0	0	0	0	26,142	0	0	0	10,661	0	27,513	0	0	0		0		64,316	27.5%
TOTAL	34.40	0	0	0	0	36,534	0	0	0	11,180	9,009	85,852	0	4,344	87,070		0		233,988	100.0%

2005	AVG. Precip	OVERFLOW VOLUME IS SHOWN IN GALLONS																	% of Annual
		O/F 1	O/F 2	O/F 3	O/F 4	O/F 6	O/F 7A	O/F 7B	O/F 8	O/F 9	O/F 10	O/F 11	O/F 12	O/F 13	O/F 16		O/F 17		Total	
January	5.26	0	0	0	0	0	0	0	0	0	0	2,371	0	0	0	Overflow 1797 was removed	0	Overflow 1781 was removed	2,371	0.6%
February	1.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
March	4.26	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
April	3.92	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
May	3.35	0	0	0	0	0	0	0	0	0	0	22,444	0	30,903	112,356		130,242		295,945	72.9%
June	1.19	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
July	0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
August	0.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
September	0.51	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
October	3.48	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
November	5.61	0	0	0	0	0	0	0	0	0	0	3,627	0	0	0		0		3,627	0.9%
December	10.63	0	0	0	0	0	0	0	0	0	1,889	75,427	0	0	26,856		0		104,172	25.7%
TOTAL	40.75	0	0	0	0	0	0	0	0	0	1,889	103,869	0	30,903	139,212		130,242		406,115	100.0%

DNR-000338860

City of Bremerton Department of Public Works & Utilities

2006 Combined Sewer Overflow Report

Overflow data for 1994 to 2006

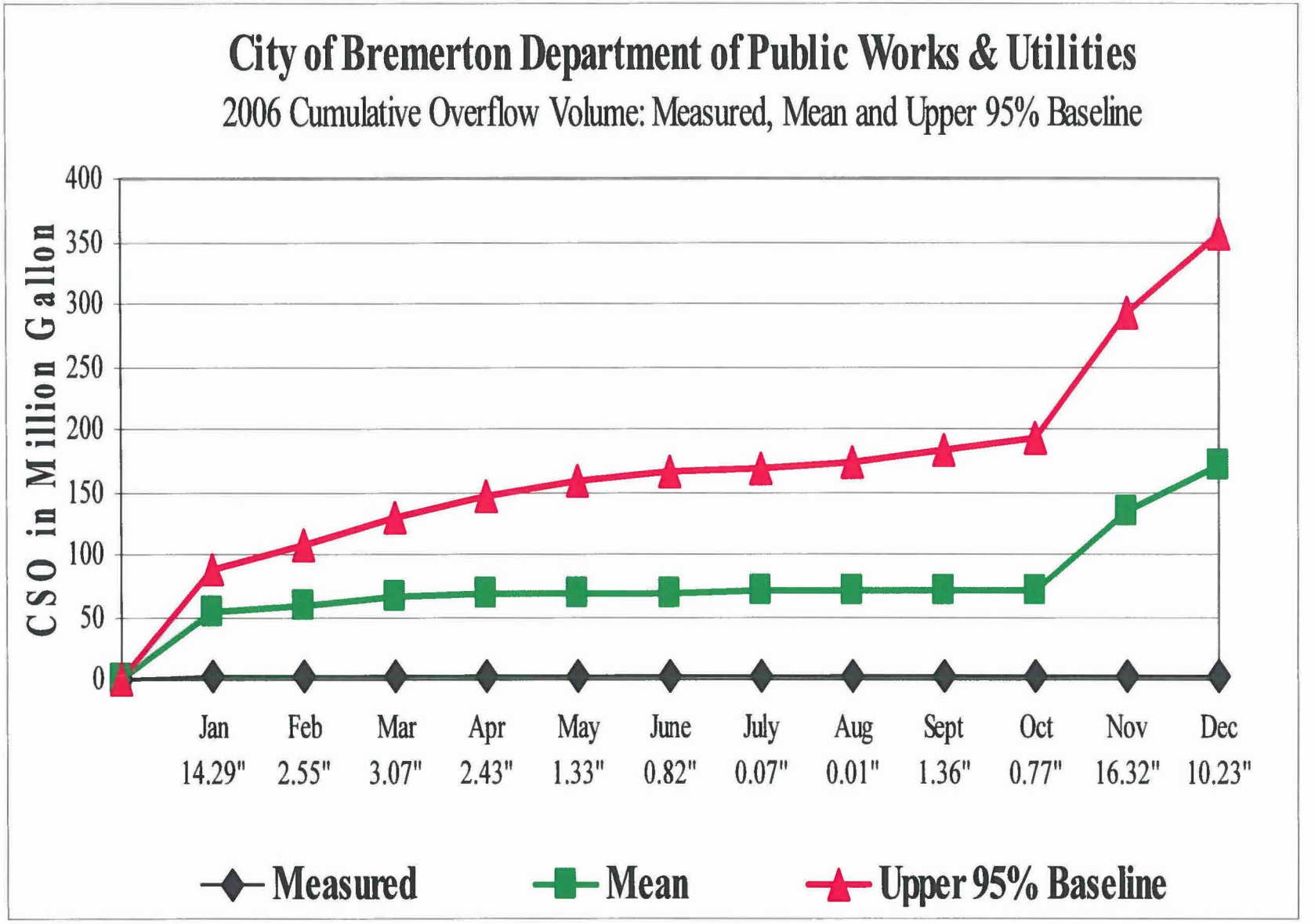
2006	AVG. Precip	OVERFLOW VOLUME IS SHOWN IN GALLONS																		% of Annual
		O/F 1	O/F 2	O/F 3	O/F 4	O/F 6	O/F 7A	O/F 7B	O/F 8	O/F 9	O/F 10	O/F 11	O/F 12	O/F 13	O/F 16		O/F 17		Total	
January	14.29	0	0	0	0	0	0	32,031	0	0	138,448	1,088,642	0	0	0	Overflow 1797 was removed from service in 1994	0	Overflow 1781 was removed from service in 1994	1,259,121	61.3%
February	2.55	0	0	0	0	0	0	0	902	0	0	8,013	0	0	0		0		8,914	0.4%
March	3.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
April	2.43	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
May	1.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
June	0.82	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
July	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
August	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
September	1.36	0	0	0	0	0	0	0	0	0	0	2,821	0	0	0		0		2,821	0.1%
October	0.77	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		0	0.0%
November	16.32	0	0	0	0	0	0	0	0	0	1,686	211,686	0	0	0		0		213,372	10.4%
December	10.23	0	0	0	0	0	0	13,544	6,990	0	54,033	443,871	0	0	52,032		0		570,471	27.8%
TOTAL	53.25	0	0	0	0	0	0	45,575	7,892	0	194,167	1,755,033	0	0	52,032		0		2,054,699	100.0%

DNR-00033861

ATTACHMENT 3

2006 Cumulative Overflow Volume Measured, Mean and Upper 95% Confidence Level

DNR-00033862

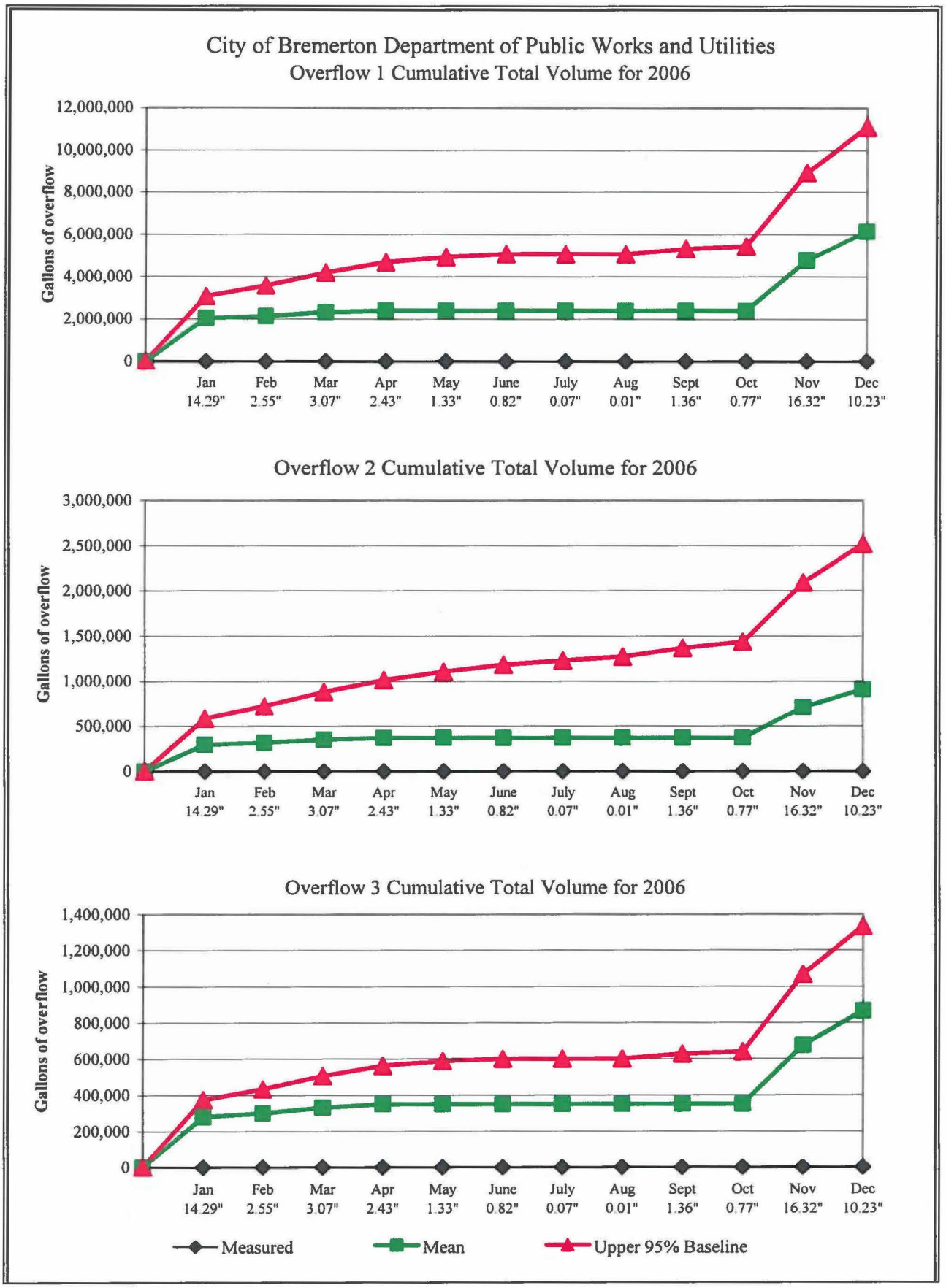


DNR-00033863

ATTACHMENT 4

2006 Monthly Cumulative Volume by Site

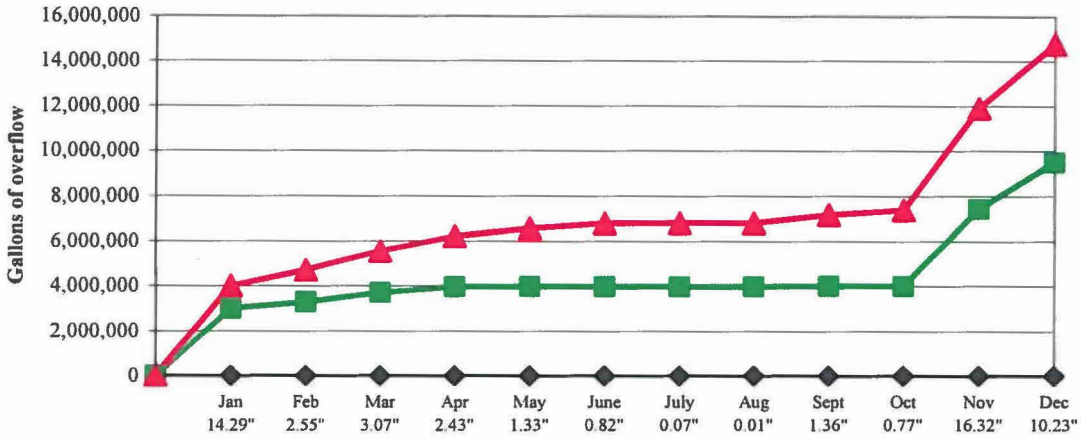
DNR-00033864



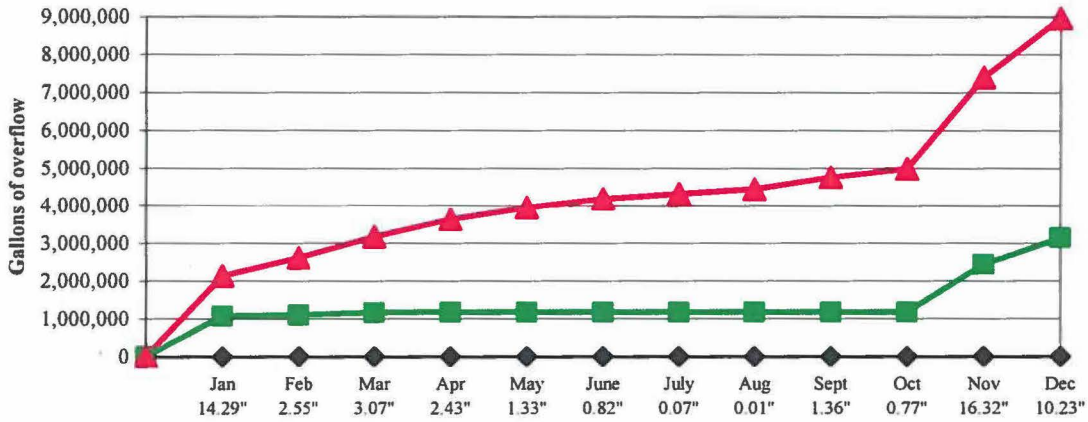
DNR-00033865

City of Bremerton Department of Public Works and Utilities

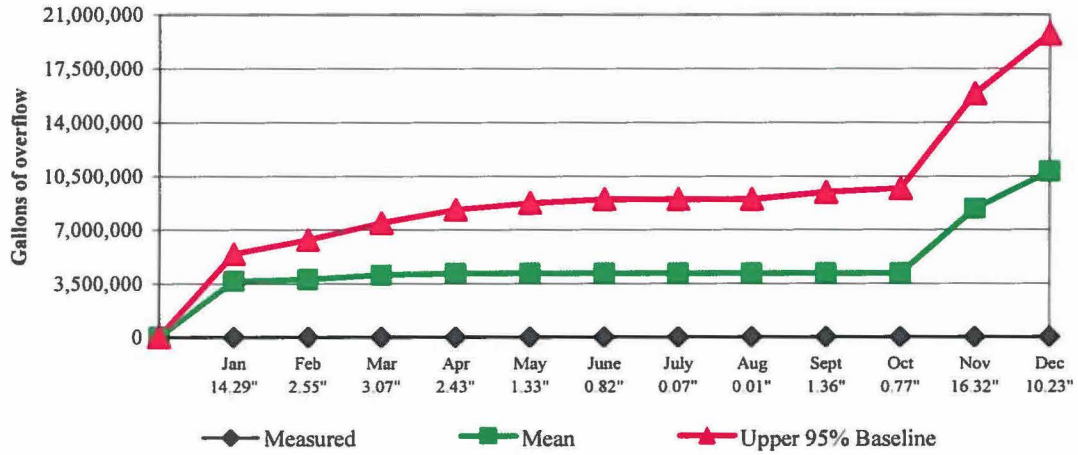
Overflow 4 Cumulative Total Volume for 2006



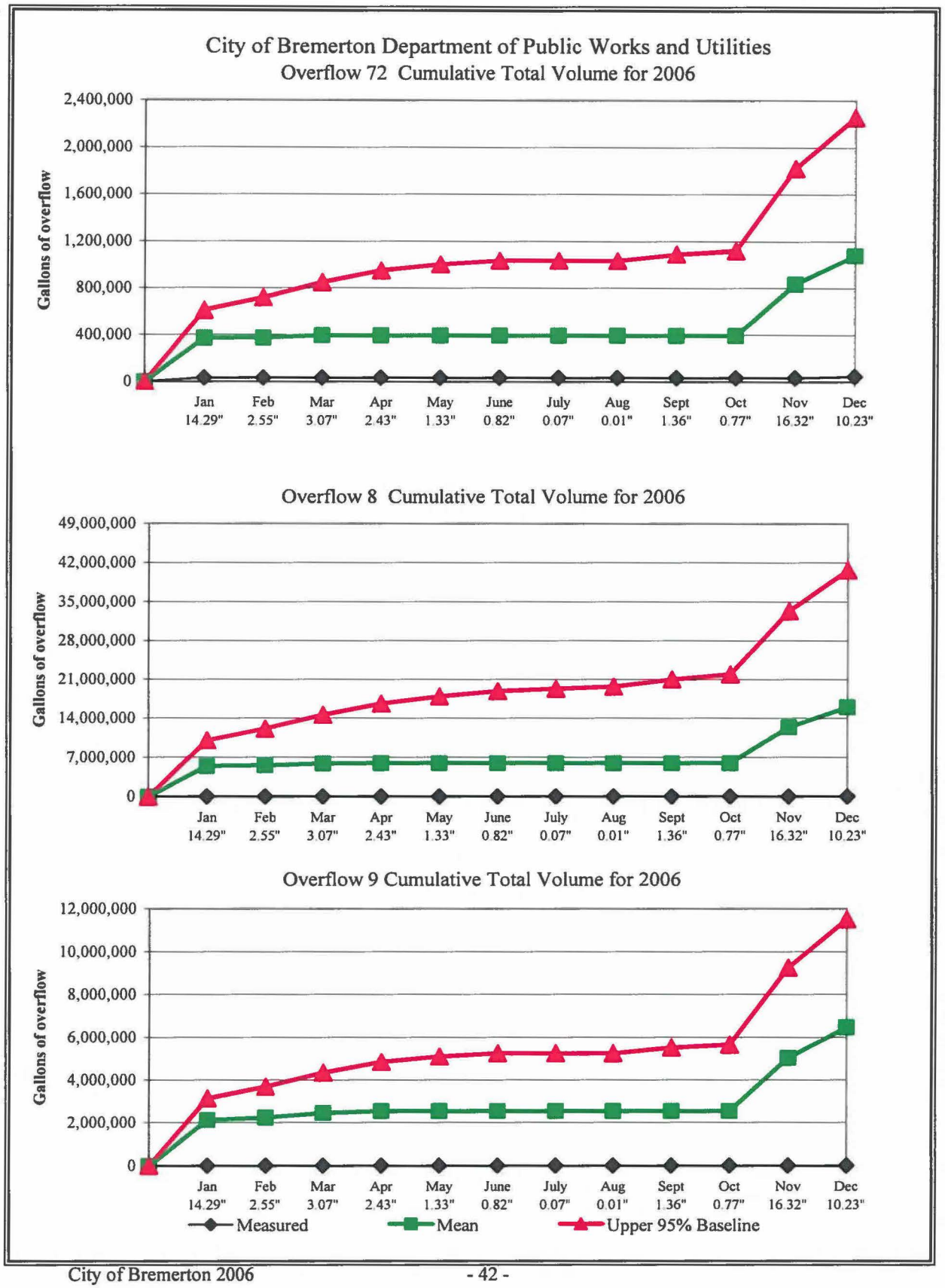
Overflow 6 Cumulative Total Volume for 2006



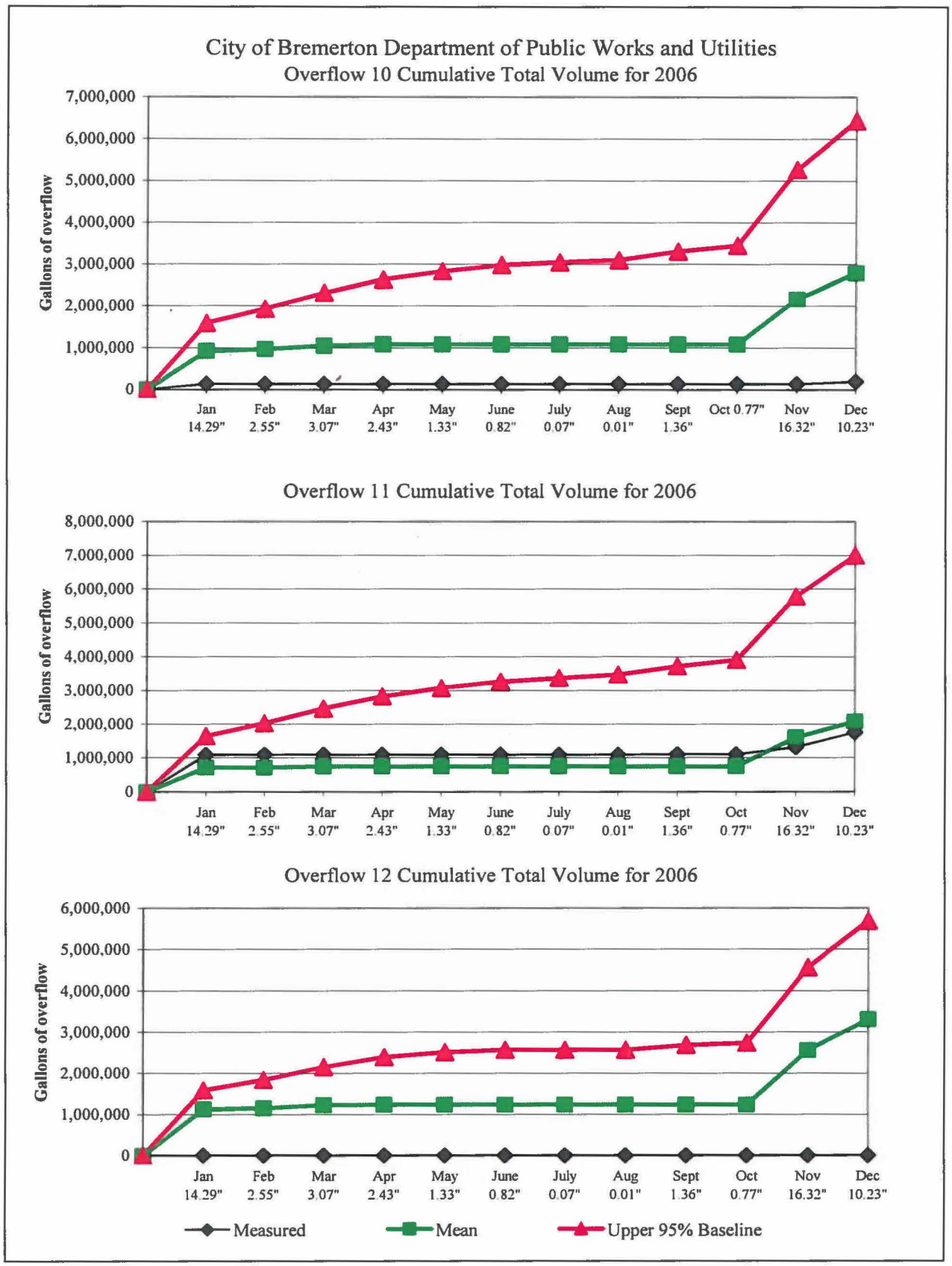
Overflow 71 Cumulative Total Volume for 2006



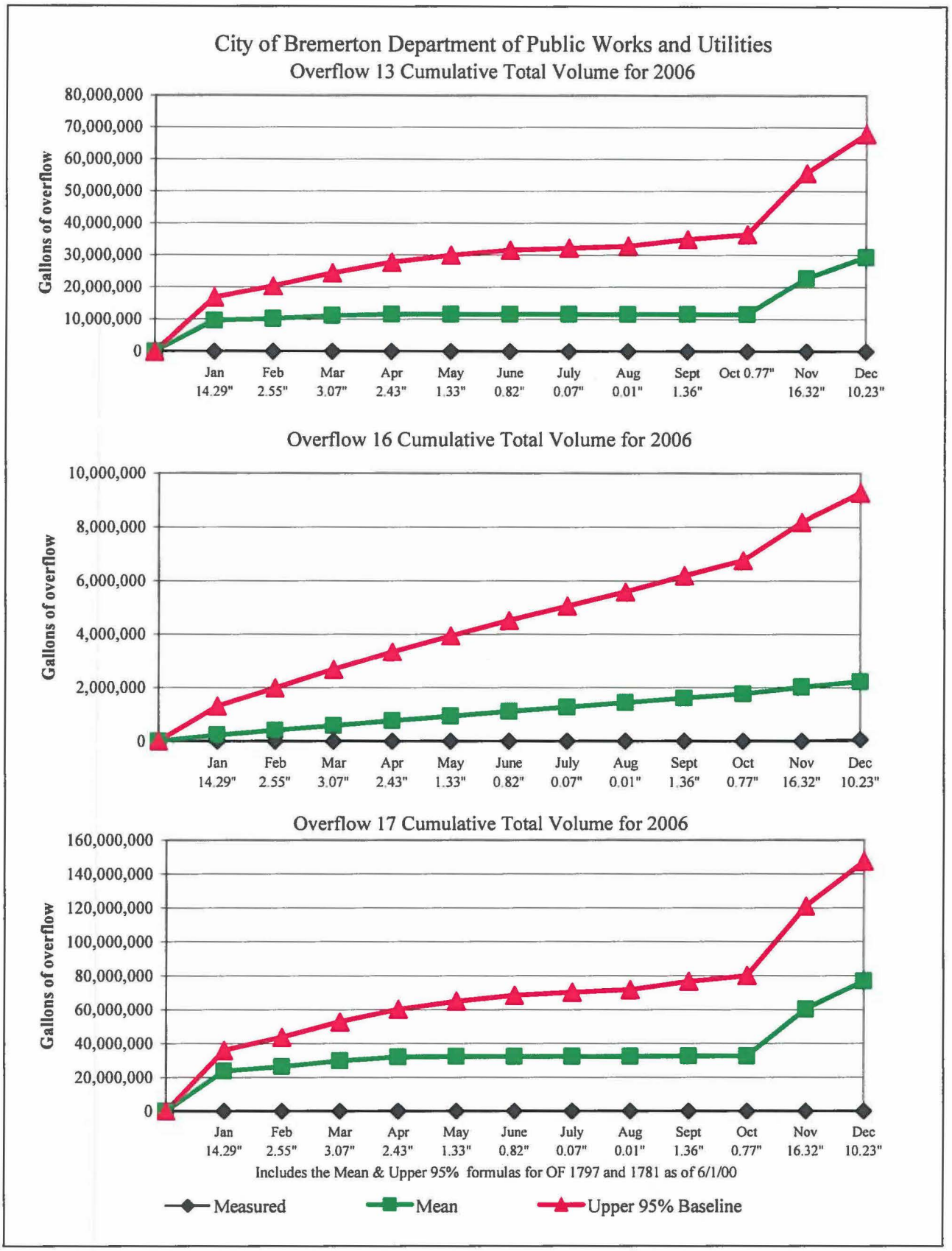
DNR-00033866



DNR-00033867



DNR-00033868



DNR-00033869

ATTACHMENT 5

2006 Combined Sewer Overflow Report
Overflow Frequency Data for 2006

DNR-00033870

City of Bremerton Department of Public Works & Utilities

2006 Annual CSO Report

Overflow Frequency Data

Tables include Measured events based on a 24 Hr midnight to midnight clock and the associated Mean and Upper 95% baseline

	Measured Rainfall	Measured OF-1	Measured OF-2	Measured OF-3	Measured OF-4	Measured OF-6	Measured OF-7	Measured OF-8	Measured OF-9	Measured OF-10	Measured OF-11	Measured OF-12	Measured OF-13	Measured OF-16	Measured OF-17	Totals
January	14.29	0	0	0	0	0	2	0	0	4	4	0	0	0	0	10
February	2.55	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2
March	3.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
April	2.43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
May	1.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
June	0.82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
July	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
August	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September	1.36	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
October	0.77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
November	16.32	0	0	0	0	0	0	0	0	2	2	0	0	0	0	4
December	10.23	0	0	0	0	0	2	1	0	4	5	0	0	1	0	13
Total	53.25	0	0	0	0	0	4	2	0	10	13	0	0	1	0	30

	Measured Rainfall	Mean OF-1	Mean OF-2	Mean OF-3	Mean OF-4	Mean OF-6	Mean OF-7	Mean OF-8	Mean OF-9	Mean OF-10	Mean OF-11	Mean OF-12	Mean OF-13	Mean OF-16	Mean OF-17	Totals
January	14.29	9	7	15	32	7	7	15	15	11	3	15	12	1	20	167
February	2.55	1	1	4	8	2	1	2	2	2	0	6	2	0	6	38
March	3.07	1	2	4	9	2	2	3	2	3	0	6	3	0	6	43
April	2.43	1	1	3	8	1	1	2	2	2	0	6	2	0	6	36
May	1.33	0	1	2	6	1	1	1	0	2	0	5	1	0	4	24
June	0.82	0	0	2	5	1	0	0	0	1	0	5	1	0	4	19
July	0.07	0	0	1	3	0	0	0	0	1	0	4	0	0	3	13
August	0.01	0	0	1	3	0	0	0	0	1	0	4	0	0	3	12
September	1.36	0	1	2	6	1	1	1	0	2	0	5	1	0	4	25
October	0.77	0	0	2	5	1	0	0	0	1	0	5	1	0	4	19
November	16.32	10	8	17	36	8	8	17	17	12	3	16	14	1	23	189
December	10.23	6	5	11	24	5	5	10	10	8	2	12	8	1	15	122
Total	53.25	29	26	64	146	29	27	50	49	45	9	87	45	4	98	708

	AVG Rainfall	Upper 95% OF-1	Upper 95% OF-2	Upper 95% OF-3	Upper 95% OF-4	Upper 95% OF-6	Upper 95% OF-7	Upper 95% OF-8	Upper 95% OF-9	Upper 95% OF-10	Upper 95% OF-11	Upper 95% OF-12	Upper 95% OF-13	Upper 95% OF-16	Upper 95% OF-17	Totals
January	14.29	11	10	19	47	11	12	20	20	18	5	32	17	2	31	256
February	2.55	2	3	5	15	3	3	4	4	6	1	15	4	1	10	76
March	3.07	3	3	6	16	4	4	5	4	6	1	15	5	1	11	84
April	2.43	2	2	5	15	3	3	4	4	6	1	14	4	1	10	75
May	1.33	1	2	4	12	2	3	2	2	4	0	13	3	1	8	58
June	0.82	1	1	3	10	2	2	2	1	4	0	12	3	1	7	50
July	0.07	0	1	2	8	2	2	1	0	3	0	11	2	1	6	39
August	0.01	0	1	2	8	2	2	1	0	3	0	11	2	1	6	38
September	1.36	1	2	4	12	2	3	2	2	4	0	13	3	1	8	58
October	0.77	1	1	3	10	2	2	2	1	4	0	12	2	1	7	49
November	16.32	13	11	21	53	13	13	22	22	20	5	35	20	2	35	287
December	10.23	8	7	14	36	9	9	14	14	14	3	26	13	2	24	194
Total	53.25	45	45	90	242	55	58	78	75	93	17	209	79	15	163	1,263

DNR-00033871

ATTACHMENT 6

2006 Combined Sewer Overflow Report
Overflow Frequency Data for 1995-2006

DNR-00033872

City of Bremerton Department of Public Works & Utilities

1995 - 2006

Overflow Frequency Data

1995	Rainfall	OF1	OF2	OF3	OF4	OF6	OF7	OF8	OF9	OF10	OF11	OF12	OF13	OF-16	OF-17	Totals
Jan-95	7.71	4	3	10	28	2	10	7	7	7	1	n/d	9	0	13	101
Feb-95	5.58	3	3	4	27	4	13	7	7	4	1	2	5	0	7	87
Mar-95	7.45	5	5	12	29	5	24	11	12	11	0	5	12	0	13	144
Apr-95	4.50	2	2	6	22	3	1	2	2	3	1	3	3	2	10	62
May-95	0.77	0	0	1	9	0	1	1	0	1	0	0	0	0	4	17
Jun-95	0.75	0	0	0	2	0	0	2	1	0	0	0	0	0	5	10
Jul-95	1.12	0	0	1	1	0	3	0	1	1	0	0	0	0	4	11
Aug-95	2.05	1	0	0	4	3	0	2	1	1	0	1	n/d	0	6	19
Sep-95	1.11	1	3	3	2	2	0	1	1	0	0	3	n/d	0	5	21
Oct-95	4.03	0	1	5	6	5	2	1	2	3	0	1	n/d	0	13	39
Nov-95	11.33	8	7	11	17	12	12	8	10	10	1	9	n/d	2	16	123
Dec-95	10.62	9	6	13	28	6	11	14	15	13	4	6	16	0	12	153
Total	57.02	33	30	66	175	42	77	56	59	54	8	30	45	4	108	787

1996	Rainfall	OF-1	OF-2	OF-3	OF-4	OF-6	OF-7	OF-8	OF-9	OF-10	OF-11	OF-12	OF-13	OF-16	OF-17	Totals
Jan-96	6.61	3	3	7	26	3	10	6	8	6	0	4	4	0	14	94
Feb-96	8.47	4	4	11	19	4	n/d	10	10	6	1	8	3	0	12	92
Mar-96	1.68	0	1	5	0	0	n/d	0	0	2	0	0	0	0	5	13
Apr-96	6.45	1	2	6	10	5	n/d	5	4	5	1	1	1	0	13	54
May-96	2.98	5	5	5	8	5	n/d	3	0	5	0	4	5	1	9	55
Jun-96	0.37	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Jul-96	0.51	0	0	0	1	2	1	1	0	1	0	0	1	0	1	8
Aug-96	1.12	1	1	1	1	1	1	1	0	1	0	1	1	0	1	11
Sep-96	2.15	2	2	1	2	1	2	2	1	2	0	1	1	2	7	26
Oct-96	5.26	4	2	0	8	3	0	2	2	8	2	3	1	1	8	44
Nov-96	3.79	2	1	0	5	2	1	2	2	4	0	0	2	1	14	36
Dec-96	14.22	5	2	1	13	6	6	10	6	7	3	14	4	1	10	88
Total	53.62	27	23	37	93	32	21	42	33	47	7	36	23	6	95	522

1997	Rainfall	OF-1	OF-2	OF-3	OF-4	OF-6	OF-7	OF-8	OF-9	OF-10	OF-11	OF-12	OF-13	OF-16	OF-17	Totals
Jan-97	8.06	4	3	0	13	3	7	13	12	8	2	11	6	1	9	92
Feb-97	2.09	0	0	0	3	0	0	1	0	0	0	4	0	0	2	10
Mar-97	11.56	3	3	0	16	4	6	10	10	8	2	15	4	0	8	89
Apr-97	4.67	2	2	0	6	1	3	2	3	3	1	8	1	1	7	40
May-97	3.15	1	1	1	3	1	1	1	2	3	1	4	2	1	4	26
Jun-97	2.40	0	0	0	1	0	2	0	1	2	0	3	0	0	3	12
Jul-97	1.74	2	1	0	1	2	1	1	1	3	1	3	1	0	1	18
Aug-97	1.24	0	0	0	2	0	2	0	0	1	0	5	0	0	1	11
Sep-97	4.59	3	1	1	3	2	2	3	3	4	0	6	2	2	6	38
Oct-97	10.60	6	5	3	11	6	5	8	6	7	5	12	4	4	9	91
Nov-97	5.41	3	1	1	6	3	5	5	3	4	1	9	0	0	6	47
Dec-97	4.15	1	1	0	4	0	2	2	2	2	1	4	0	0	4	23
Total	59.66	25	18	6	69	22	36	46	43	45	14	84	20	9	60	497

DNR-00033873

City of Bremerton Department of Public Works & Utilities

1995 - 2006

Overflow Frequency Data

1998	Rainfall	OF1	OF2	OF3	OF4	OF6	OF7	OF8	OF9	OF10	OF11	OF12	OF13	OF-16	OF-17	Totals
Jan-98	12.01	7	4	0	14	6	11	15	8	9	2	14	0	0	13	103
Feb-98	6.15	1	0	0	8	1	2	5	2	5	0	8	0	0	7	39
Mar-98	4.06	2	2	0	5	2	2	3	2	4	0	6	0	0	6	34
Apr-98	1.05	0	0	0	0	0	0	0	0	0	0	2	0	0	3	5
May-98	1.25	0	0	0	1	0	0	0	0	0	0	2	2	0	1	6
Jun-98	0.86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jul-98	0.39	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2
Aug-98	0.55	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14
Sep-98	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct-98	3.34	2	0	0	3	1	0	1	1	2	0	2	1	1	5	19
Nov-98	12.77	5	3	3	10	4	3	9	6	10	0	6	0	0	14	73
Dec-98	11.41	8	4	1	9	8	9	13	10	7	2	9	2	2	8	92
Total	54.24	26	14	5	52	23	28	47	30	38	5	51	6	4	58	387

1999	Rainfall	OF-1	OF-2	OF-3	OF-4	OF-6	OF-7	OF-8	OF-9	OF-10	OF-11	OF-12	OF-13	OF-16	OF-17	Totals
Jan-99	9.94	8	5	0	11	6	8	13	7	5	2	7	1	1	10	84
Feb-99	13.54	13	7	1	18	8	14	17	13	7	3	2	3	1	18	125
Mar-99	4.79	1	0	0	8	0	3	6	2	1	0	0	0	0	9	30
Apr-99	1.34	0	0	0	1	0	0	1	0	0	0	0	0	0	2	4
May-99	1.53	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Jun-99	2.05	0	0	0	1	0	0	0	0	0	0	1	0	1	2	5
Jul-99	0.73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aug-99	0.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sep-99	0.06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct-99	3.18	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Nov-99	13.14	2	0	0	9	1	5	0	1	0	0	0	1	0	6	25
Dec-99	7.83	4	1	0	8	2	5	2	0	2	0	0	0	1	6	31
Total	58.58	29	13	1	56	17	35	39	23	15	5	10	5	4	55	307

2000	Rainfall	OF-1	OF-2	OF-3	OF-4	OF-6	OF-7	OF-8	OF-9	OF-10	OF-11	OF-12	OF-13	OF-16	OF-17	Totals
Jan-00	6.48	0	0	0	7	0	1	0	0	0	0	0	0	0	3	11
Feb-00	5.34	1	0	0	4	1	2	0	0	1	0	0	0	0	1	10
Mar-00	3.05	0	0	0	3	0	0	0	0	0	0	0	0	0	1	4
Apr-00	0.96	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
May-00	2.65	0	0	0	4	0	0	0	0	1	0	0	0	0	1	6
Jun-00	2.12	0	0	0	2	0	1	0	0	0	0	0	0	0	1	4
Jul-00	0.66	0	0	0	2	0	0	0	0	0	0	0	0	1	1	4
Aug-00	0.32	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Sep-00	0.42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct-00	3.80	1	1	0	0	0	1	0	0	0	0	0	1	0	3	7
Nov-00	3.80	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2
Dec-00	4.70	1	0	0	0	0	1	0	0	0	0	0	0	0	1	3
Total	34.30	3	1	0	24	1	7	0	0	2	0	0	1	1	13	53

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City of Bremerton Department of Public Works & Utilities

1995 - 2006

Overflow Frequency Data

2001	Rainfall	OF-1	OF-2	OF-3	OF-4	OF-6	OF-7	OF-8	OF-9	OF-10	OF-11	OF-12	OF-13	OF-16	OF-17	Totals
Jan-01	3.58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb-01	2.64	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3
Mar-01	3.13	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
Apr-01	2.72	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
May-01	1.18	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2
Jun-01	2.85	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
Jul-01	0.48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aug-01	2.84	0	1	0	1	0	1	0	0	0	1	0	0	1	2	7
Sep-01	0.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct-01	3.39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-01	12.01	0	4	0	0	3	4	0	0	0	0	0	1	0	6	18
Dec-01	9.67	0	4	0	1	2	4	0	1	1	3	0	0	1	2	19
Total	44.99	0	9	0	2	5	10	0	1	1	4	0	2	4	19	57

2002	Rainfall	OF1	OF2	OF3	OF4	OF6	OF7	OF8	OF9	OF10	OF11	OF12	OF13	OF-16	OF-17	Totals
Jan-02	10.64	0	3	0	1	6	3	1	2	2	3	0	0	1	5	27
Feb-02	5.07	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Mar-02	3.70	0	0	0	0	0	1	0	0	0	0	0	0	0	2	3
Apr-02	3.01	0	0	0	0	0	1	0	0	0	0	0	0	0	2	3
May-02	1.04	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2
Jun-02	1.55	0	0	0	0	0	1	0	0	0	0	0	0	1	1	3
Jul-02	0.34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aug-02	0.04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sep-02	0.62	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Oct-02	0.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-02	3.65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dec-02	7.97	0	0	0	0	0	2	0	0	0	1	0	0	0	1	4
Total	38.03	0	3	0	1	6	9	1	2	2	4	0	0	3	14	45

2003	Rainfall	OF-1	OF-2	OF-3	OF-4	OF-6	OF-7	OF-8	OF-9	OF-10	OF-11	OF-12	OF-13	OF-16	OF-17	Totals
Jan-03	11.13	0	0	0	0	2	7	0	1	1	3	0	0	1	2	17
Feb-03	1.19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-03	8.75	0	0	0	0	2	4	0	2	2	4	0	0	2	4	20
Apr-03	3.28	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
May-03	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jun-03	0.46	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Jul-03	0.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aug-03	0.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sep-03	0.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct-03	11.77	0	0	1	1	1	6	0	1	1	1	0	0	2	1	15
Nov-03	7.45	0	0	0	0	2	1	0	1	1	2	0	0	1	0	8
Dec-03	5.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	51.00	0	0	1	1	7	20	0	5	5	10	0	0	6	7	62

DNR-00033875

City of Bremerton Department of Public Works & Utilities

1995 - 2006

Overflow Frequency Data

2004	Rainfall	OF-1	OF-2	OF-3	OF-4	OF-6	OF-7	OF-8	OF-9	OF-10	OF-11	OF-12	OF-13	OF-16	OF-17	Totals
Jan-04	6.80	0	0	0	0	2	0	0	1	2	2	0	0	1	0	8
Feb-04	3.36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-04	2.26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apr-04	0.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
May-04	2.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jun-04	0.46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jul-04	0.54	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
Aug-04	2.21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sep-04	1.83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct-04	3.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-04	3.27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dec-04	7.30	0	0	0	0	1	0	0	1	0	2	0	0	0	0	4
Total	34.40	0	0	0	0	3	0	0	2	2	4	0	1	2	0	14

2005	Rainfall	OF-1	OF-2	OF-3	OF-4	OF-6	OF-7	OF-8	OF-9	OF-10	OF-11	OF-12	OF-13	OF-16	OF-17	Totals
Jan-05	5.26	0	0	0	0	0	0	0	0	0	1	0	0		0	1
Feb-05	1.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar-05	4.26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apr-05	3.92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
May-05	3.35	0	0	0	0	0	0	0	0	0	1	0	1	1	1	4
Jun-05	1.19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jul-05	0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aug-05	0.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sep-05	0.51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct-05	3.48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-05	5.61	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Dec-05	10.63	0	0	0	0	0	0	0	0	1	3	0	0	1	0	5
Total	40.75	0	0	0	0	0	0	0	0	1	6	0	1	2	1	11

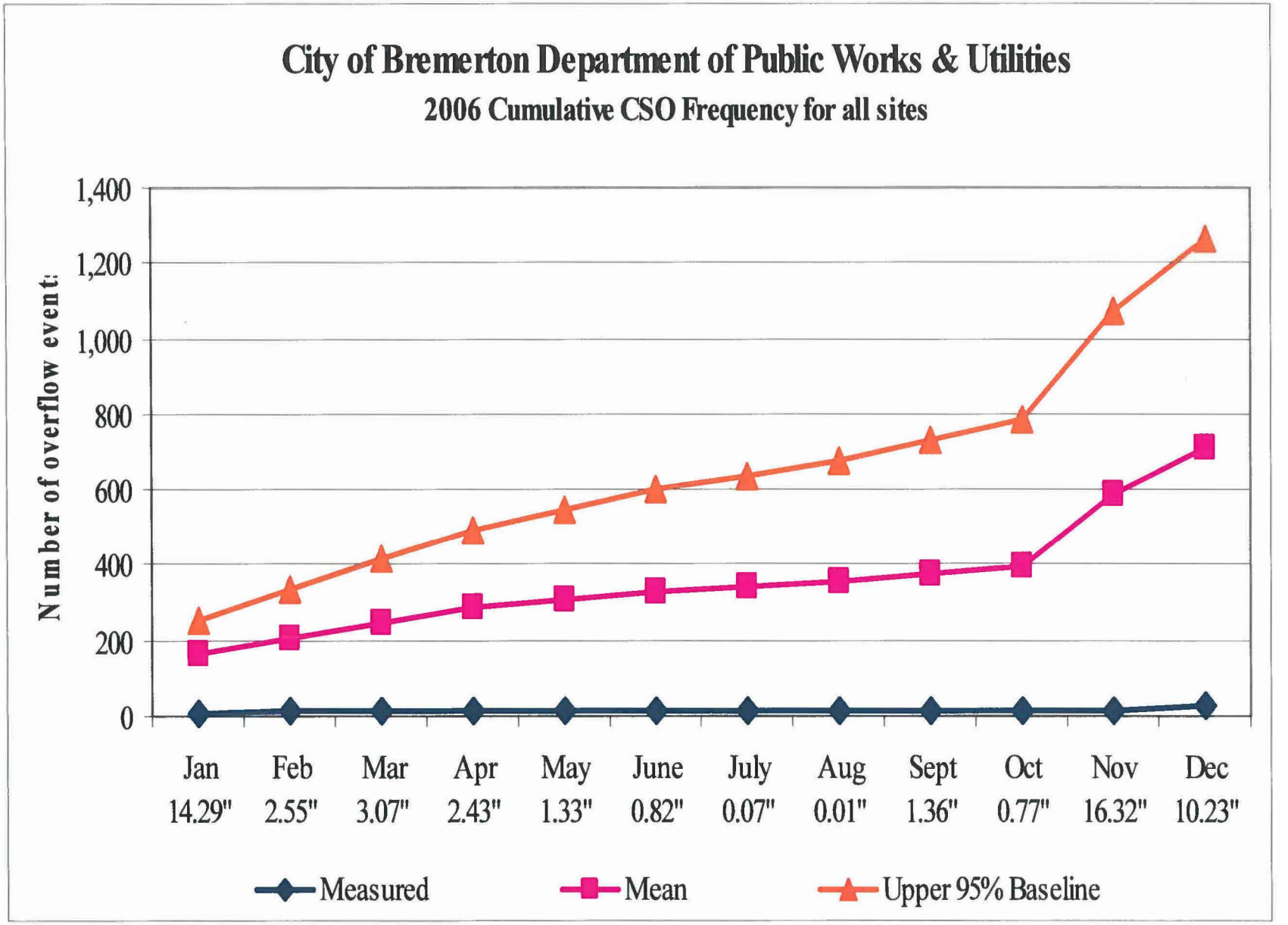
2006	Rainfall	OF-1	OF-2	OF-3	OF-4	OF-6	OF-7	OF-8	OF-9	OF-10	OF-11	OF-12	OF-13	OF-16	OF-17	Totals
Jan-06	14.29	0	0	0	0	0	2	0	0	4	4	0	0	0	0	10
Feb-06	2.55	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2
Mar-06	3.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apr-06	2.43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
May-06	1.33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jun-06	0.82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jul-06	0.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aug-06	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sep-06	1.36	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Oct-06	0.77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov-06	16.32	0	0	0	0	0	0	0	0	2	2	0	0	0	0	4
Dec-06	10.23	0	0	0	0	0	2	1	0	4	5	0	0	1	0	13
Total	53.25	0	0	0	0	0	4	2	0	10	13	0	0	1	0	30

DNR-00033876

ATTACHMENT 7

2006 Cumulative Overflow Frequency Measured, Mean and Upper 95% Confidence Level

DNR-00033877

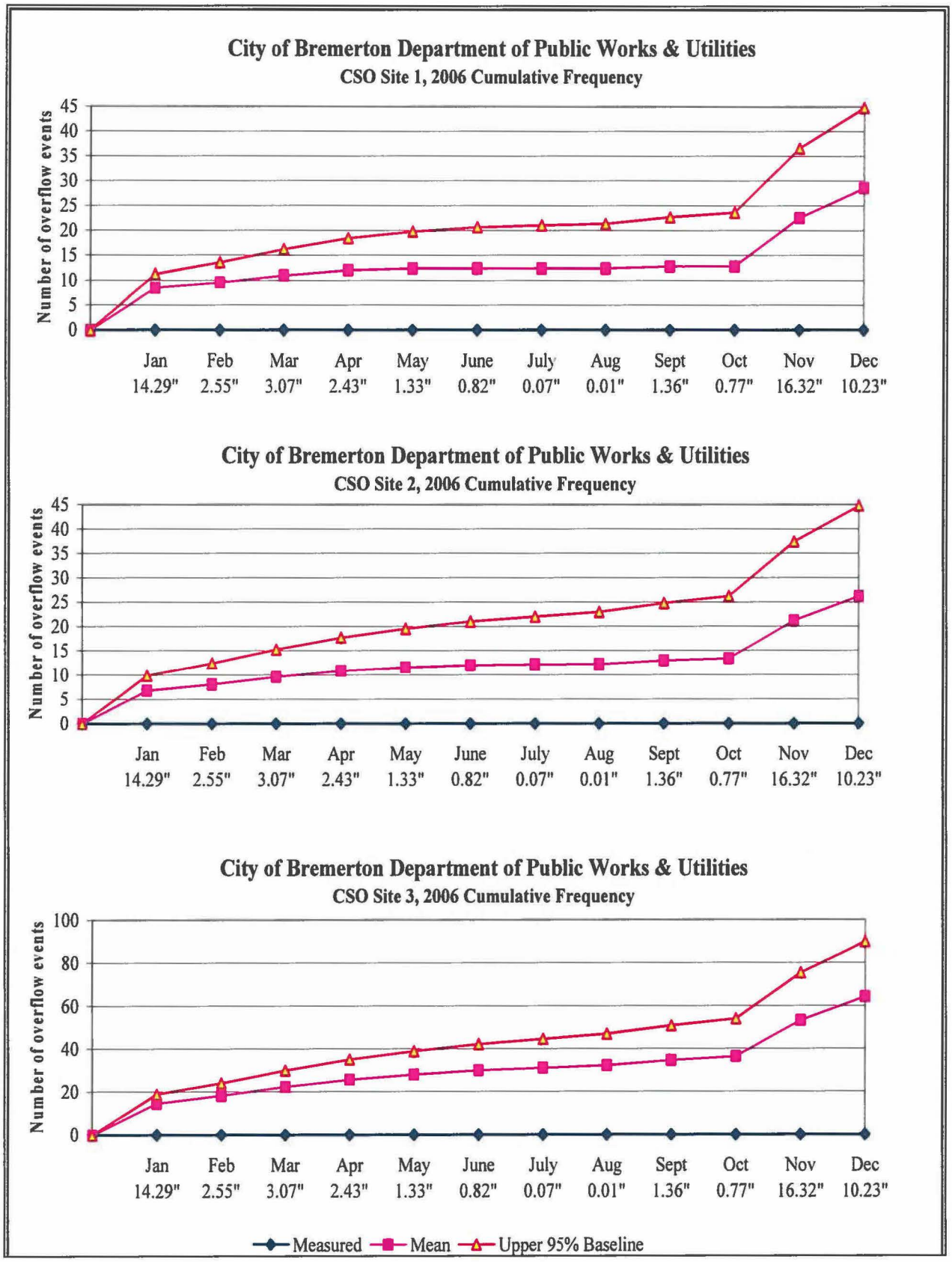


DNR-00033878

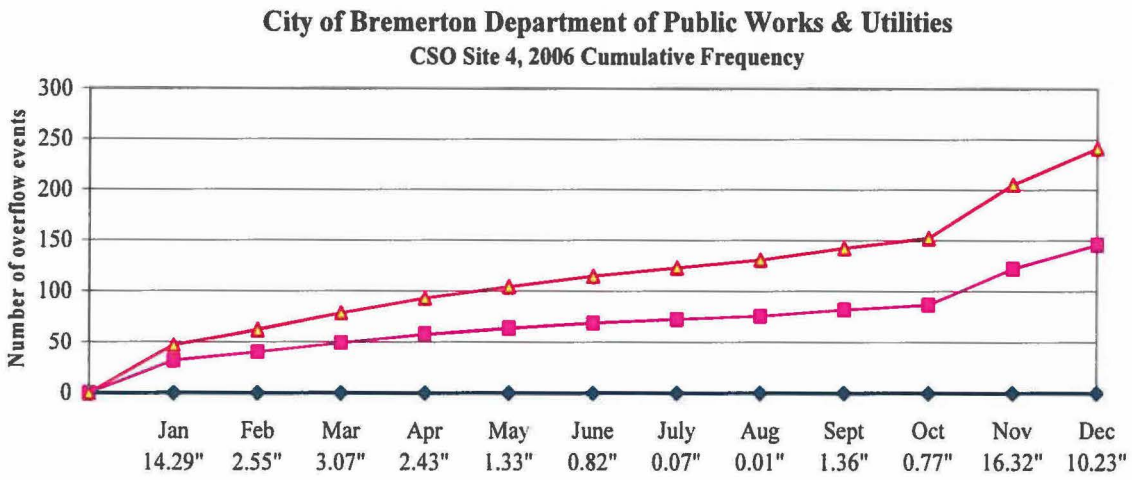
ATTACHMENT 8

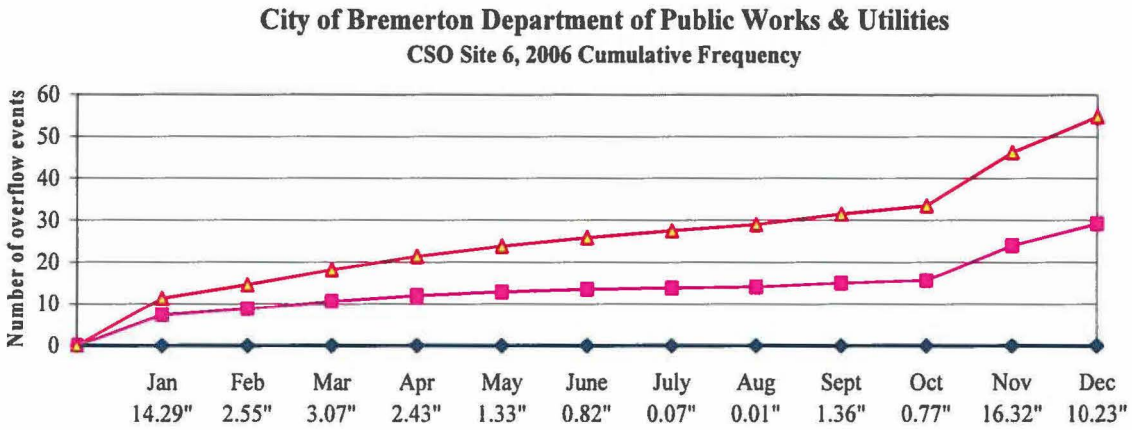
2006 Monthly Cumulative Frequency by Site

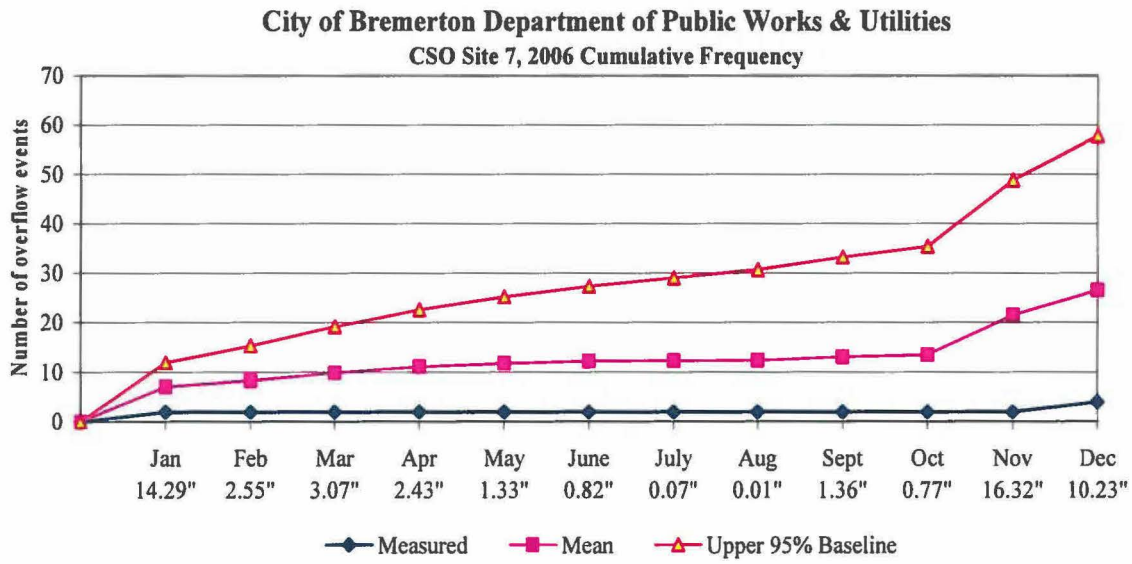
DNR-00033879



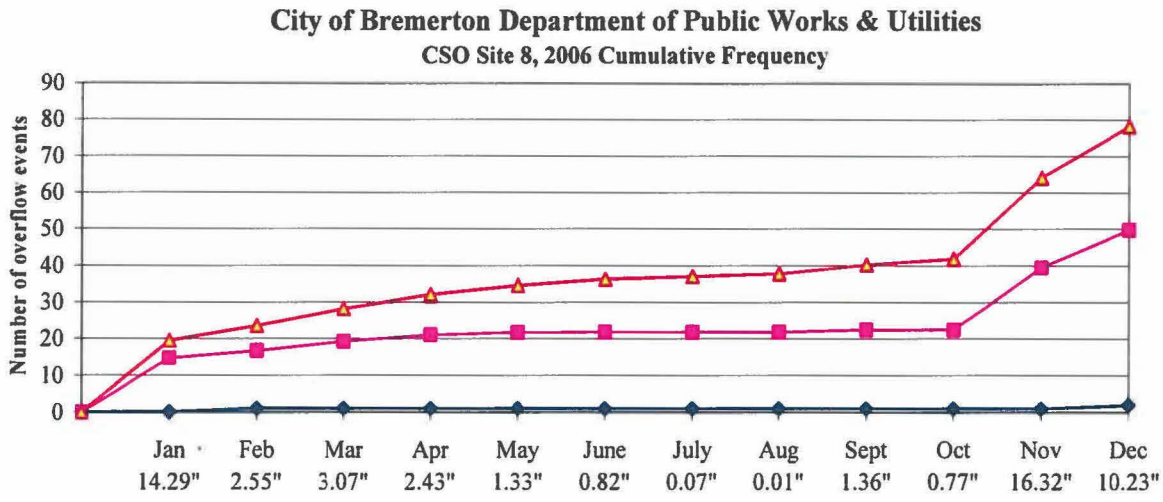
DNR-00033880

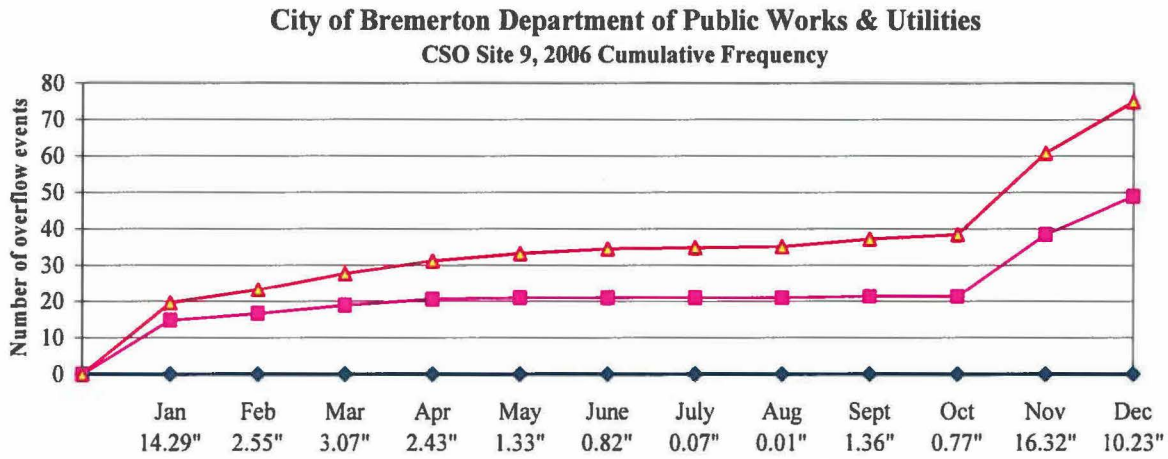


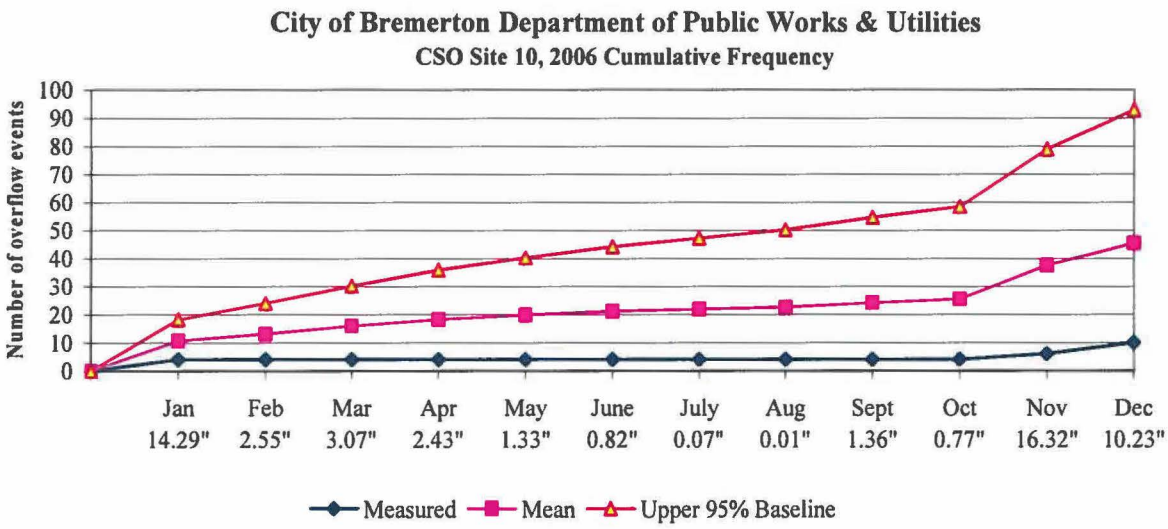




DNR-00033881







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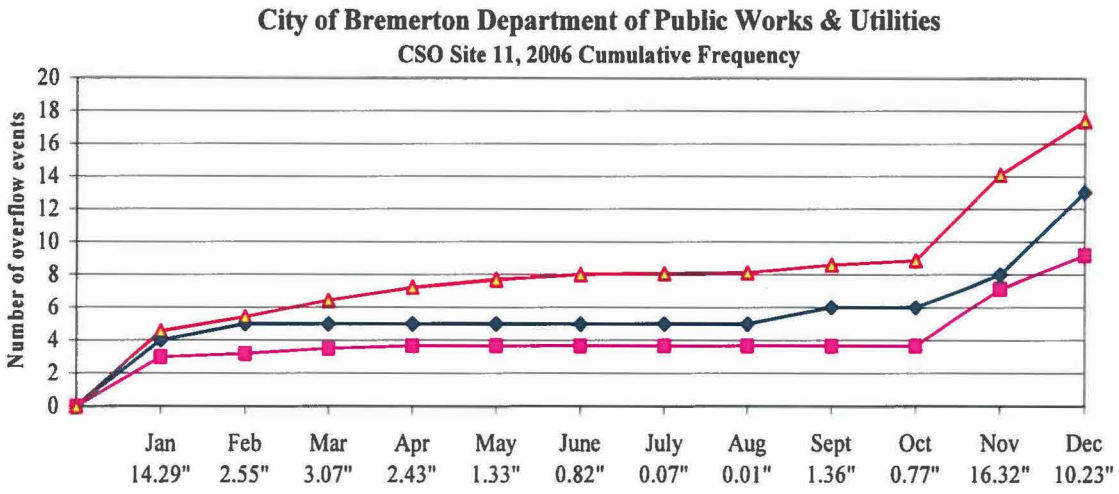
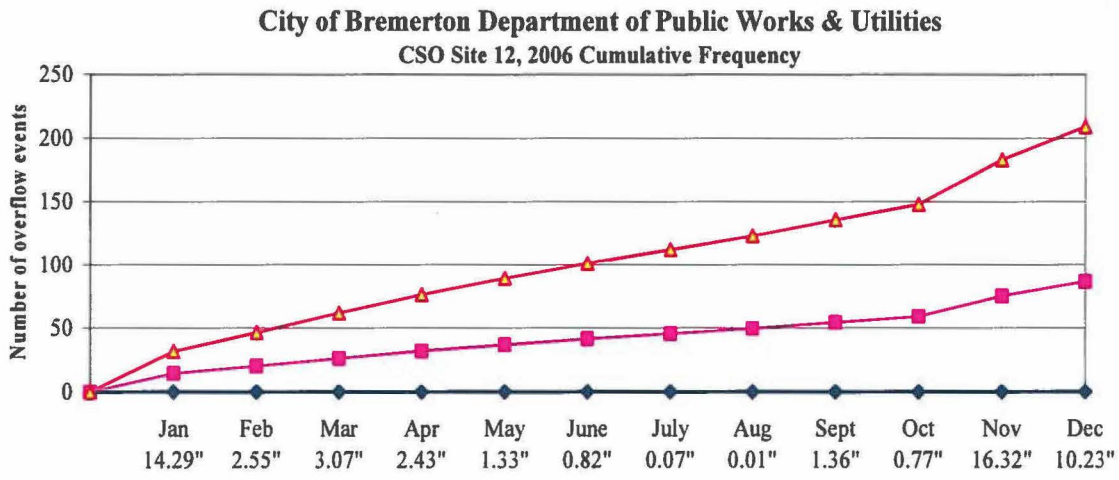
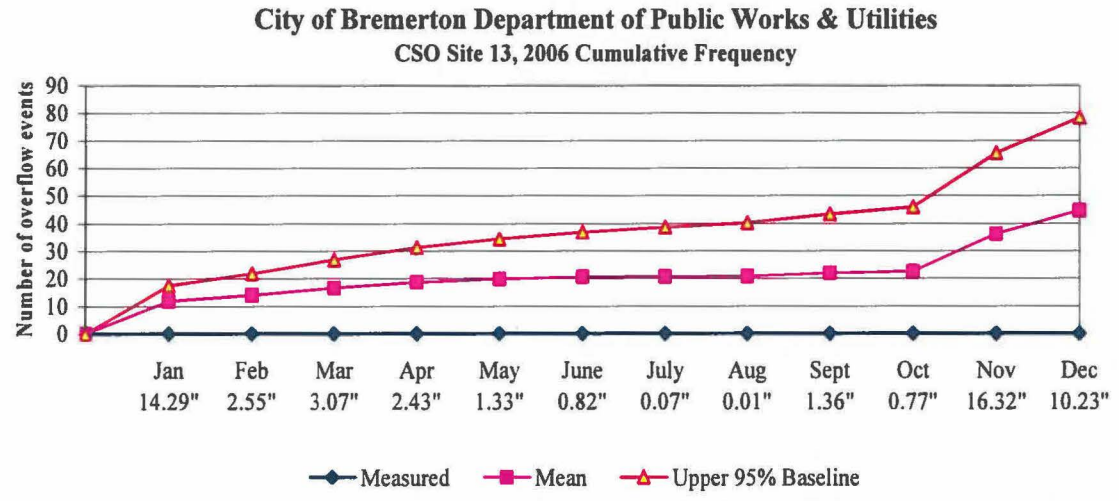
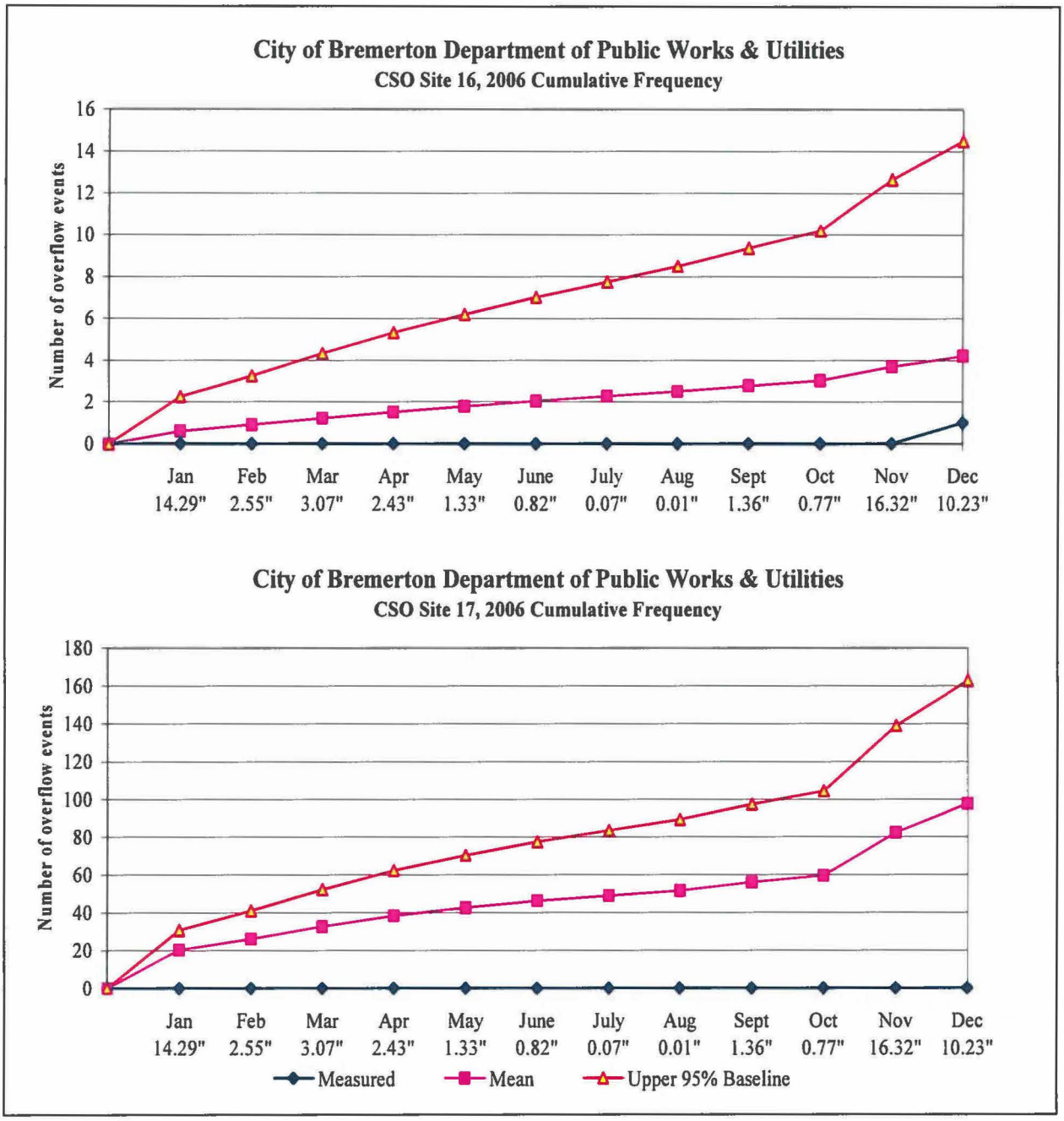






DNR-00033883



DNR-00033884

ATTACHMENT 9

CSO Water Quality Data for the 2004-2006 Water Year

DNR-00033885

City of Bremerton Water Year 2006 CSO Discharge Samples

Conventional Results

ID Number	Date	CSO Site	Fecals cfu/100ml	TSS mg/L	NH3-N mg/L	NO3+NO2 mg/L	T Phos mg/L	BOD mg/L	COD mg/L	DO mg/L
OF11-2005	11/4/2005	OF-11		615					820	
OF16-2005	12/22/2005	OF-16		259	0.12	0.07	0.81	13	77	
OF10-2005	12/24/2005	OF-10		12	0.15	2.33	0.19	2	10	
OF7B-2006	1/30/2006	OF-7B		24	0.26	1.53	0.23	7	22	
OF8-2006	2/4/2006	OF-8		398	0.38	1.48	0.92	106	46	

Notes:

- No overflow when sampler recovered
- Sufficient sample not available

DNR-00033886

City of Bremerton Water Year 2006 CSO Discharge Samples

Metals, Oils, Cyanides and Phenols Results

ID Number	Date	CSO Site	Diesel mg/L	Oil mg/L	Gas mg/L	Sb ug/L	As ug/L	Be ug/L	Cd ug/L	Cr ug/L	Cu ug/L	Pb ug/L	Hg ug/L	Ni ug/L	Se ug/L	Ag ug/L	Tl ug/L	Zn ug/L	Total Cyanide mg/L	Phenol mg/L
OF11-2005	11/4/2005	OF-11	>0.63	>0.63	<0.25	4.0	4.0	<1	<1	14.0	106.0	48	0.2	18.0	<2	5.0	<1	290	<0.005	<0.04
OF10-2005	12/24/2005	OF-10	<0.63	<0.63	<0.25	<2.0	1.1	<0.2	<0.2	2.2	6.7	5	<0.1	3.8	<0.5	<0.2	<0.2	30	<0.005	<0.04
OF16-2005	12/22/2005	OF-16	>0.63	>0.63	<0.25	6.0	2.3	<0.2	0.9	15.0	103.0	151	0.6	21.0	<0.5	3.6	<0.2	230	<0.005	<0.04
OF7B-2006	1/30/2006	OF-7B	<0.63	<0.63	<0.25		0.9			4.7	6.4	2	<0.1	2.8				16		
OF8-2006	2/4/2006	OF-8	<0.63	<0.63	<0.25		0.6			1.1	6.7	7	<0.1	3.0				151	<0.005	<0.04

Notes:

- Analyses not required for residential site.

DNR-00033887

City of Bremerton Water Year 2006 CSO Discharge Samples
Organics (Volatiles)

Volatile Chemicals Detected

(Analytes in ug/l)

CAS	Site Date	OF-7B 1/30/2006	OF-8 2/4/2006	OF-11 11/4/2005	OF-10 12/24/2005	OF-16 12/22/2005	
106-46-7	1,4 dichlorobenzene						
108-88-3	Toluene			1.3		1.1	
1330-20-7	m,p-xylene						
67-64-1	Acetone			7.3		10	
67-66-3	Chloroform			1.1			
108-90-7	Chlorobenzene						
78-93-3	2 Butanone						
99-87-6	4-isopropyl toluene						

- Not Detected

- Analyses not required for residential site.

DNR-00033888

City of Bremerton Water Year 2006 CSO Discharge Samples
Organics (Semi-volatiles)

Semi-volatiles Detected

(Analytes in ug/l)

CAS	Site Date	OF-7B 1/30/2006	OF-8 2/4/2006	OF-11 11/4/2005	OF-10 12/24/2005	OF-16 12/22/2005	
106-44-5	4-Methylphenol			9.0			
87-86-5	Pentachlorophenol					1.6	
106-46-7	1,4 dichlorobenzene						
108-95-2	Phenol			1.4			
117-81-7	bis (2-ethylhexyl)phthalate			12.0	5.9	7.7	
117-84-0	Di-n-Octyl phthalate					1.5	
84-74-2	Di-n-Butylphthalate			2.0			
129-00-0	Pyrene					2.7	
191-24-2	Benzo(g,h,i) perylene					1.0	
193-39-5	Indeno(1,2,3-cd) pyrene					0.9	
205-99-2	Benzo(b) Fluoranthene					1.6	
206-44-0	Fluoranthene					3.9	
207-08-9	Benzo(k) Fluoranthene					1.3	
218-01-9	Chrysene					1.7	
50-32-8	Benzo(a) pyrene					1.2	
56-55-3	Benzo(a) anthracene					1.1	
84-66-2	Diethylphthalate			1.2			
85-01-8	Phenanthrene					2.2	
85-68-7	Butylbenzylphthalate						
95-48-7	2 Methylphenol						

- Not Detected

- Analyses not required for residential site.

DNR-00033889

City of Bremerton Water Year 2006 CSO Discharge Samples
Pesticides and PCBs

Pesticides / PCBs Detected

(Analytes in ug/l)

CAS	Site Date	OF-7B 1/30/2006	OF-8 2/4/2006	OF-11 11/4/2005	OF-10 12/24/2005	OF-16 12/22/2005	
58-89-9	gamma BHC (Lindane)			0.0073			
5103-74-2	gamma Chlordane				0.0290	0.0490	
60-57-1	Dieldrin			0.0049			

- Not Detected

- Analyses not required for residential site.

DNR-00033890

City of Bremerton Water Year 2006 CSO Marine Receiving Water Samples

Conventional, Metals and Oils Results

ID Number	Date	CSO Site	Fecals cfu/100ml	TSS mg/L	NO2 + NO3-N mg/L	T Phos mg/L	BOD mg/L	COD mg/L	DO mg/L	Diesel mg/L	Oil mg/L	Gas mg/L	As mg/L	Cr mg/L	Cu mg/L	Pb mg/L	Hg mg/L	Ni mg/L	Zn mg/L
NS-12	1/11/2006	NS-12	7	18.4	0.40	0.18	<2	149	8.03	<0.63	<0.63	<0.25	0.002	0.005	0.007		<0.0001	0.01	<0.02
NS-14	1/12/2006	NS-14	24	8.0	0.45	0.18	<2	176	4.64	<0.63	<0.63	<0.25	0.002	0.004	0.008		<0.0001	0.01	<0.02
NS-15	1/12/2006	NS-15	<1	9.1	0.41	0.18	<2	163	7.44	<0.63	<0.63	<0.25	0.002	0.004	0.007		<0.0001	0.01	<0.02
NS16	1/12/2006	NS-16	1	8.4	0.44	0.18	<2	183	6.91	<0.63	<0.63	<0.25	0.001	0.004	0.007		<0.0001	0.01	<0.02
NS-17	1/11/2006	NS-17	<1	9.3	0.41	<0.16	<2	176	7.72	<0.63	<0.63	<0.25	0.002	0.004	0.007		<0.0001	0.01	<0.02
NS-18	1/11/2006	NS-18	<1	10.5	0.50	0.18	<2	129	8.13	<0.63	<0.63	<0.25	0.001	0.004	0.007		<0.0001	0.01	<0.02
NS-19	1/11/2006	NS-19	5	6.2	0.42	0.18	<2	156	8.02	<0.63	<0.63	<0.25	0.001	0.004	0.008		<0.0001	0.011	<0.02
NS-12	3/9/2006	NS-12	<1	15.1	0.41	0.066	<2	142	9.27	<0.63	<0.63	<0.25	0.001	0.026	0.013		<0.0001	0.016	<0.020
NS-14	3/8/2006	NS-14	14	20.2	0.44	0.082	<2	159	8.25	<0.63	<0.63	<0.25	0.002	0.004	0.012		<0.0001	0.011	<0.020
NS-15	3/8/2006	NS-15	9	11.2	0.40	0.106	<2	139	9.65	<0.63	<0.63	<0.25	0.002	0.003	0.017		<0.0001	0.012	<0.020
NS-16	3/8/2006	NS-16	1	7.3	0.42	0.086	<2	159	7.31	<0.63	<0.63	<0.25	0.002	0.003	0.011		<0.0001	0.012	<0.020
NS-17	3/9/2006	NS-17	2	10.8	0.44	0.082	<2	136	8.91	<0.63	<0.63	<0.25	0.002	0.003	0.011		<0.0001	0.012	<0.020
NS-18	3/9/2006	NS-18	1	9.9	0.41	0.096	<2	149	9.40	<0.63	<0.63	<0.25	0.002	0.006	0.011		<0.0001	0.012	<0.020
NS-19	3/9/2006	NS-19	<1	8.8	0.42	0.092	<2	146	9.09	<0.63	<0.63	<0.25	0.001	0.004	0.011		<0.0001	0.012	<0.020

DNR-00033891

ATTACHMENT 10

CSO Funding Table

DNR-00033892

CSO PROJECT FUNDING

Current

1/26/2007

PROJECT	TASK	PSA SCHEDULE	COMPLETION SCHEDULE	INITIAL ESTIMATE OF COST	ESTIMATED OR FINAL COST AS OF 1/5/2006	STATE (PWTF) Design Loan (1)	Multibasin (2)	Callow Dgn & Const (3)	E Brem CSOTP (4)	A.C. Basin 12 (14)	Pacific Ave (17)	WWTP Upgrade Design (20)	WWTP Upgrade Const. (21)	CW1 Upgrade (22)	FEDERAL (SRF & CCWF) Callow Dgn (5)	EPA Grant (6)	EPA Grant (7)	EPA Grant (8)	Trenton PS (9)	Trenton/ Cherry (10)	Tracyton Beach (11)	Anderson Cove, Basin 12 (12*)	EPA Grant (13)	Pacific Ave Sep'n (15)	Pacific Ave (16)	Cherry/ Trenton Final (18)	WWTP Upgrade (19)	UNFUNDED
MANETTE CSOTP	Design	N/A	2000	850,000	778,973 (F)	850,000																						$0
	Construction	N/A	2001	4,500,000	4,116,265 (F)		1,116,265		3,000,000																			$0
CHARLESTON HS DESIGN	Design	N/A	2001		587,907 (F)			587,907																				$0
	Construction	N/A																										$0
CHARLESTON WWTP UPGRADE	Design	N/A	2006	1,000,000	460,000							200,000						250,000										$10,000
	Construction	N/A	2008	4,500,000	5,500,000								3,000,000					1,498,000									1,000,000	$4,000
PAINE ROAD STORAGE	Design	1999	2000	(incl w/ CSOTP)	(incl w/ CSOTP)																							$0
	Construction	2000	2000	420,000	528,997 (F)		528,997																					$0
OF-21 MANETTE CONVEYANCE	Design	1999	2000	35,000	Incl with Const																							$0
	Construction	2000	2000	600,000	718,566 (F)		718,566																					$0
CALLOW 3 (PS-6)	Design	2001	2001	430,000	305,000 (F)										305,000		0											$0
	Construction	2002	2002	1,500,000	1,828,038 (F)			1,258,938									570,100											$0
CALLOW 3 (WW Upgrade)	Design	2001	2001	200,000	Incl with Const																							$0
	Construction	2002	2003	1,000,000	1,263,535 (F)			1,263,535																				$0
CALLOW 5 (Separation)	Design	2002	2001	430,000	563,493 (F)			293,496							270,000													$0
	Construction	2003	2002	3,000,000	3,439,177 (F)			439,177								2,910,000												$0
EAST PARK	Design	2000	2000	35,000	Incl with Const																							$0
	Construction	2001	2001	305,000	533,413 (F)		237,468	295,945																				$0
TRENTON AVE	Design	2001	2001	430,000	Incl with Const																							$0
	Construction	2002	2004	1,724,000	4,127,320 (F)		202,764												1,000,000	1,000,000						1,000,000		$924,616
CHERRY AVE	Design	2006	2001	80,000	Incl with Trenton																							
	Construction	2007	2005	320,000																								
TRACYTON BCH	Design	2003	2004	150,000	Incl with Const																							$0
	Construction	2004	2005	543,000	593,176 (F)																593,176							$0
ANDERSON COVE - BASIN 12	Design	2004	2002	130,000	170,000																	170,000						$0
	Construction	2005		320,000	1,000,000					475,000				525,000														$0
CE&MFM (574)	Dgn/Const	D-2006, C-2007	2004	3,096,000	750,000						500,000														250,000			$0
ROW SEPN (5005)	Dgn/Const	D-2006, C-2007	2004		55,000																			55,000				$0
POINT RPR (5006)	Dgn/Const	D-2006, C-2007	2004		70,000																			70,000				$0
TRUNK SO (572)	Dgn/Const	D-2006, C-2007	2005		2,000,000						25,000												1,100,000	125,000	750,000			$0
SO CONST (5007)	Dgn/Const	D-2006, C-2007	2006		1,150,000						517,500												632,500					$0
TOTALS				$25,738,000	$30,506,815	850,000	2,804,000	4,198,000	3,000,000	475,000	1,042,500	200,000	3,000,000		575,000	2,910,000	570,100	1,746,000	1,000,000	1,000,000	593,176	170,000	1,732,500	250,000	1,000,000	1,000,000	1,000,000	$938,616

FOOTNOTES

1 - CSO Reduction Projects Dgn; CLOSED at $901,000; 20% match req'd
2 - PW-00-691-009 - Multibasin CSO Reduction Projects - Combined Loan; $2,804,000; In hand, 30% match req'd, Closeout 7/5/05
3 - PW-00-691-013 - Callow Basin Design & Const - Combined Loan; $4,195,800; In hand, 30% match req'd, Closeout 7/5/05
4 - PW-01-791-007 - East Bremerton CSOTP - Combined Loan; $3,000,000; In hand; 5% match req'd. Closeout 7/5/05
5 - Callow Design; CLOSED at $575,000; no match req'd
6 - XP-97021901-0 - EPA Grant for Construction of Callow PS; 0% Match
7 - XP-97012-1-01-1 - EPA Grant for CSO Reduction Design and/or Construction; $570,100; In hand; 45% match req'd - match is PWTF Loan.
8 - EPA Grant for CSO Treatment Plant; $1,746,000; proposed; 45% match required; NEED TO EXECUTE GRANT; Project cost must be $3,154k min to use all of grant.
9 - L0300003 - Trenton Avenue Pump Station Improvements; SRF Step 4, $1,000,000, in hand; no match required
10 - L0300007 - Cherry/Trenton CSO Reduction Improvements; SRF Step 4, $1,000,000, in hand, no match required
11 - L0300004 - Tracyton Beach CSO Reduction Improvements; SRF Step 4, $593,000, in hand, no match required
12 - L0300005 - Anderson Cove - Basin 12; SRF Step 2, $300,000, in hand; no match required
13 - EPA Grant for Sewer Overflow Project; $1,940,000; 45% match required; NEED TO EXECUTE GRANT: Project cost must be $3.527 min to use all of grant
14 - PW-03-691-004Anderson Cove Basin 12 Loan; $475,000; in hand; 5% match (min)
15 - L0300034 - Pacific Avenue Basin - Separation; SRF Step 4, $250,000; in hand, no match required
16 - L0400003 - Pacific Avenue Basin; SRF Step 4, $1,000,000; in hand; no match required
17 - PW-04-691-010 - Pacific Ave CSO Reduction; PWTF; $4,960k, 5% minimum match; Anticipate final offer in Spring 2004
18 - L0500002 - Cherry/Trenton Basins - Final CSO Reduction; SRF Step 3; $1,075k
19 - WWTP Upgrade; SRF Step 4, $1000,000, Application submittal due October 2005, all funds proposed to be used for construction
20 - WWTP Design; PWTF Design, $200,000, Application Submitted 9/2005
21 - WWTP Construction; PWTF. Submittal required May +/- 2006
22 - CW1 Upgrade; PWTF, Submittal required May +/- 2006

CSO Plan Update: Project cost was $563k of which $245k was SRF Loan #L0100005 & $191,250 was CCWF Grant #G0100028

Min match for PWTF Loan is 10% of $850k + $563k = $141k. Match is CSO Plan Update, cost was $560k of which $245k was SRF Loan. Match is 25%.

DISTRIBUTION OF FUNDS

75% ($679,500) upon signing Agreement, 25% ($226,500) upon closeout
15% ($420,600) upon signing Agreement, 75% ($2,103,000) upon const NTP, 10% ($280,400) taken 12/03
15% ($629,370) upon signing Agreement, 75% ($3,145,650) upon const NTP, 10% ($419,580) taken 12/03
15% ($450,000) upon signing Agreement, 80% ($2,400,000) upon const NTP, 5% ($150,000) taken 12/03
REIMBURSEMENT
REIMBURSEMENT
REIMBURSEMENT
REIMBURSEMENT
REIMBURSEMENT
REIMBURSEMENT
REIMBURSEMENT
REIMBURSEMENT
REIMBURSEMENT
20% ($55,000) upon signing Agreement, 25% ($118,750) upon NTP, Remaining Undefined
REIMBURSEMENT
REIMBURSEMENT
20% ($1,100,000) upon signing Agreement, 25% ($1,375,000) upon NTP, Remaining Undefined
REIMBURSEMENT

ANDERSON COVE I&I - $290,000.

DNR-00033893

ATTACHMENT 11

Cooperative Approach to CSO Reduction Program Summary

DNR-00033894

DOWNSPOUT DISCONNECTION PROGRAM COSTS

(From February 2000 to December 2002)

Program summary Total 34 months

MANAGEMENT					
General administration	Staff $20,000	ordinance $1,500	database set-up $4,000	Grant accounting $2,500	$28,000
				Total cost for program management	**$28,000**

PUBLIC EDUCATION						
Workshops	Staff $2,800	Used Public buildings and Community theater: per workshop $25		workshops 12		$3,050
Logo	Staff $375	graphic design $300				$675
Computer	Staff $400	3 desktops $6,000	1 laptop $2,400	bonlight projector $5,775	Misc $150	$14,325
Software	Staff $300	Video editing $660	GIF Animation $300			$960
Video	Staff $6,500	production $9,000	development $1,400	1000 copies $3,135		$20,035
Website	Staff $5,400	development includes animations $6,840	internet hosting $20 per mo $480	domain name 4 yrs $133		$12,853
Brochures	Staff $2,800	develop $4,800	printing $6,177			$13,777
Advertising	Staff $400	billboards $1,160	newspaper ad $198	1 wk newspaper $923		$2,681

DNR-00033895

Staff and Postage for direct mail notification	Staff $4,800	11,000 notifications from in-house $4,000	Misc postage $1,200	$10,000

$78,356

SEPARATION					
Staff/Field Time	Staff $77,656				$77,656
Printing Forms	Site assessments $800	Stormwater Runoff $803	Doorhangers $438	inspection forms $1,100	$3,141
Right-of-Way Work	Contractor $11,950	City staff street dept. $7,402			$19,352
Cell Phone	$34 per month $1,156				$1,156
Vehicle	Maintenance $1,500	monthly costs $300	total months 34		$11,700
Materials	dye-30 gal. $532				$532
Total Cost for Downspout Disconnection Separation					**$113,537**

DNR-00033896

CUSTOMER REIMBURSEMENT					
Funds to property owners from the wastewater budget as authorized by City ordinance	$49,260				**$49,260**
	$121,431	Total for all staffing (this amount is approximate and may vary from DOE claims for re-imbursement)			
MANAGEMENT		**Grant funds** ($150K + $50K match) and approx $20,000 in excess of grant funds from Bremerton's wastewater utility funds			**$28,000**
PUBLIC EDUCATION					**$78,356**
SEPARATION					**$113,537**
CUSTOMER REIMBURSEMENT		Bremerton's Wastewater and Stormwater Utility funds			**$49,260**
Project Total	**$269,153**				

Program Results

Summary of Program accomplishments	
Notifications sent	10,983
Workshops completed	12
Phone calls	4,517
Site assessments completed	2,848
Separations completed	358
Separations that are pending	109
Area removed from the sanitary sewer system	417,212 ft^2
Estimated amount of water per inch of rain	260,062 gallons
Pending impervious surface to be removed	200,000 ft^2
Right-of-way separations paid for by the grant	44
Residential separation re-imbursements paid for by City utilities	307

The Program has achieved a 38% response to direct mail notifications, 22% of inspected properties were connected and 59% of those have completed separation work.

DNR-00033897