

CIP White Paper Template

Department Name: SPU – Drainage and Wastewater Fund

Key Contact Person: Shane Muchow

Section 1 - Overview

Seattle Public Utilities (SPU) is responsible for maintaining the network of sewer and drainage systems throughout the City of Seattle. These systems include approximately:

- 948 miles of sanitary sewers *
- 477 miles of storm drains
- 472 miles of combined sewers *
- 68 pump stations
- 90 permitted combined sewer overflow outfalls
- 295 storm drain outfalls
- 189 stormwater quality treatment facilities
- 145 flow control facilities
- 38 combined sewer overflow control detention tanks/pipes

* Based on Permitted Use. In past years the statistics for Sanitary Sewers and Combined Sewers were determined based on "Probable Flow", which is a designation used by GIS and engineers for planning purposes and is not a precise classification used for issuing permits. "Permitted Use" is a better measure for statistical data and more accurate because this classification is used by the Department of Planning and Development (DPD) for issuing connection permits.

The Drainage and Wastewater (DWF) CIP is the vehicle for rehabilitating, replacing, improving and expanding this infrastructure, as well as constructing projects that protect, conserve, and enhance our region's environmental resources. Planned spending in the DWF CIP is approximately \$613 million over the next six years.

Historically, the DWF CIP has been funded primarily by revenue bonds serviced by ratepayers. However, DWF financial policies adopted in 2003 gradually increase cash contributions from the Utility to fund the CIP. By 2007, 25% of total CIP costs were funded by a cash contribution, with the remaining capital needs being debt financed.

Section 2 - Summary of Upcoming Budget Issues and Challenges

The biggest challenge for the Drainage and Wastewater Fund will be continuing to manage large priority projects while still accomplishing Mayoral priorities and complying with Environmental Protection Agency (EPA), Department of Ecology (DOE), and the National Pollutant Discharge Elimination System (NPDES) permits - all within the financial limitations of the fund.

The City of Seattle negotiated a consent decree this year between the City, the EPA, and the United States Department of Justice (DOJ) for compliance with the Clean Water Act and state regulations. The Consent Decree was entered in court on July 3, 2013, and includes deadlines for development and implementation of the Long Term Control Plan and will drive spending in the Combined Sewer Overflows (CSO) Reduction Program over the next several years. Additionally, an NPDES permit for stormwater, granted by the State government in 2007, will be renewed in 2013. This permit introduced

more prescriptive requirements to help protect local waterways and Puget Sound from damaging pollutants and excessive runoff. This increasing regulatory emphasis on protecting and improving water quality has resulted in the need for the City of Seattle to make substantial investments in detention, treatment, CSO retrofits, and Green Stormwater Infrastructure (GSI).

- Detention is the storage of stormwater and/or sewage during a rainfall event and can be accomplished through detention ponds or underground tanks. Detention can be added to the drainage system to offset the impacts of larger storms that overwhelm the conveyance capacity of the combined sewer system and can result in backups of sewage, localized flooding and releases of untreated sewage.
- Treatment is the removal of pollutants and can be accomplished through GSI or the use of technology such as specialized media filters. GSI is the use of green solutions to help reduce overflows by allowing stormwater to infiltrate slowly into the ground and cutting the volume of stormwater entering the system. GSI includes specific treatments that rely on specialized soils and plants that provide flow control and/or water quality benefits. The use of GSI is required through Seattle's NPDES permit and Stormwater Code.
- CSO retrofits are focused on optimizing the existing collection system using low-cost retrofits to reduce overflows to waterways.

CIP funding is also needed to improve the existing drainage system so that residents experience less flooding and fewer sewage backups. Sewer backups are prohibited and considered by our regulators to be a violation of our federal permits. Through prudent investment in capital projects and maintenance SPU will be closer to meeting this standard. In addition, this performance level benefits ratepayers by avoiding costly fines and damages.

The Combined Sewer Overflow (CSO) Reduction Program constitutes one of the major investments and challenges for the Drainage and Wastewater Fund in upcoming years. During heavy rains, the combination of stormwater (about 90 percent of the volume) and sewage may exceed the capacity of the combined sewer system and overflow into our waterways – causing a combined sewer overflow. CSOs spill a mixture of raw sewage and stormwater into local waterways at 90 outfalls throughout the City of Seattle. These spills violate water quality standards, create unacceptable risk to public health, contaminate sediment and habitat for endangered species and pollute Puget Sound. CSO spills are illegal and unacceptable under any standard of environmental care.

While annual overflows have been reduced from 20-30 billion gallons per year by both the City and the County in 1970 to 100-200 million gallons per year by the City today, SPU is still not meeting regulatory mandates which limit overflows to one overflow per outfall location per year. SPU is required by state and federal law to achieve control of CSOs by 2025 through a Long Term Control Plan to be completed by 2015. SPU must also achieve significant permit milestones for the control of CSOs to Lake Washington by December 30, 2015.

Most recently, the DOJ on behalf of the EPA and Washington State DOE finalized a Consent Decree describing measures the DOJ will require of SPU to remedy violations of the Clean Water Act. The Consent Decree includes, among other significant requirements, completion of a Long Term Control Plan by 2015 and control of all CSOs by 2025. Continuing investments in CSO control will enable SPU to meet

current permit requirements including preparation of a Long Term Control Plan, accomplish required milestones to control CSOs into Lake Washington and achieve compliance with the 2025 goal.

SPU is expected to spend approximately \$283 million over the next six years (2014-2019) on CSO reduction projects. The projects will include a combination of underground storage tanks, GSI, system retrofits, and the development of a long-range plan for CSO projects to be constructed from 2016-2025. One of the biggest challenges of the program is siting wastewater facilities in a dense urban environment. SPU is addressing that challenge through an early and active community/stakeholder involvement process on each of its projects. Another challenge revolves around SPU's relationship with King County and maintaining an active partnership to operate the wastewater system and plan for potential joint CSO reduction projects.

The last big challenge for the DWF is ensuring basic service level programs, such as flooding and system capacity, are not stripped of funding as our regulatory requirements continue to grow. The separated drainage and wastewater system is at capacity during storm events at various locations across the City. The impacts can range from very serious (basement sewer back-ups) to nuisance (limited street or yard flooding) issues. SPU is moving forward to address the highest priority locations with capital improvements using available funding and staff resources. These highest priority projects include the South Park Pump Station project, the Thornton Confluence Improvement project, and Broadview Sewer and Stormwater Improvements project.

- The South Park Pump Station project will construct a pump station and water quality facility in South Park. The pump station will allow the existing storm drain trunk to meet the level of service adopted in the 2004 Comprehensive Drainage Plan. In turn, this allows for future projects to expand the collection system to address flooding complaints. The water quality facility will treat most stormwater flows from the basin, reducing pollutant loading to the Duwamish River. The project's engineering design is complicated by the tidal flows present in the Duwamish.
- The Thornton Confluence Improvement project will replace the road culvert at 35th Ave NE and restore the floodplain area at the confluence of the north and south forks of Thornton Creek. This will reduce local flooding impacts to roads and private property as well as enhance instream and riparian habitat in a critical segment of the creek.
- The Broadview neighborhood has experienced a long history of capacity-related backups and overflows. The Broadview Sewer and Stormwater Improvements project will test non-traditional solutions to these longstanding issues, with a goal of reducing sewer backups and stormwater flooding in the Broadview basin.

When making investments in capital facilities that will last decades, it makes financial sense to understand and consider incorporating the potential impacts of climate change on local precipitation and sea levels in Puget Sound. There have been four major storms (2006, 2007, 2010, and 2012) in recent years that have resulted in serious drainage and wastewater impacts related to capacity. Scientists indicate that there is a potential that storms will become more intense and more frequent in the near future. This variability requires the utility to have a much more in-depth understanding of how the system functions under different weather conditions. The utility will need to forecast impacts to the stormwater and combined systems on a much more localized level. This type of work will require more fully developed system models than in the past.

Section 3 - Thematic Priorities

The overriding goal of the DWF CIP is to construct facilities that reduce the frequency of flooding and sewer backups for customers and improve water quality and habitat in the environment by reducing sewage overflows and the impacts of stormwater pollution. Projects in the CIP are also guided by various federal regulations, City policies, long-term plan documents, and the SPU Asset Management Committee (AMC) benefit criteria. Many Drainage and Wastewater CIP projects are outlined in the Wastewater System Plan, Combined Sewer Overflow Reduction Plan, and the Comprehensive Drainage Plan. The Drainage and Wastewater Fund considers three main criteria when prioritizing work: public health and safety, environmental protection/regulatory requirements, and Mayor/Council priorities. Project timing can be influenced by opportunities or requirements to combine construction activity with other projects.

Public Health and Safety: The overriding priority for the Drainage and Wastewater Fund is maintaining public health and safety. This will be accomplished through capital programs and projects including the 14th and Concord Combined Sewer System (CSS) Improvement project, the Localized Flood Control Program, the Broadview Sanitary Sewer Overflow (SSO) reduction program and the South Park Pump Station project. The primary Capital program is the sewer and drainage rehabilitation program. This program is focused on identifying and correcting defective or deteriorating infrastructure, including drainage and wastewater pipes, before failure which could result in sewer backups, roadway collapses or landslides.

Environmental Protection/Regulatory Requirements: The City of Seattle/SPU must meet state and federal regulatory requirements in order to comply with the Clean Water Act (CWA) and the Consent Decree that was entered in court on July 3, 2013, between the City, the EPA and DOJ. The two most significant regulatory drivers associated with the CWA are the NPDES Waste Discharge Permit (aka NPDES CSO Permit) and the NPDES Phase I Municipal Stormwater Permit (aka NPDES MS4 Permit).

- As required by the NPDES CSO Permit, Seattle developed a 2010 CSO Reduction Plan Amendment to describe the effort to reduce CSOs to the state standard of one overflow per outfall per year. As part of meeting these requirements, SPU will be constructing CSO reduction facilities at Windermere, South Genesee, and Henderson. DWF is committed to completing this program by 2025 at an estimated cost of \$500 million.
- As part of the NPDES MS4 Permit, Seattle is required to have a Structural Stormwater Control Program to address stormwater impacts that are not adequately controlled through other required permit actions. As part of meeting this requirement, SPU is constructing stormwater quality and flow control facilities including South Park Pump Station, the Capitol Hill Water Quality Facility, and Broadview sewer system improvements.

Mayor/Council Priorities: Projects in the 6-year CIP that address Mayor and/or Council priorities include the Venema Natural Drainage System (NDS) and Capitol Hill Water Quality Facility where green stormwater infrastructure will be used to reduce stormwater impacts while contributing to meeting sustainability goals.

- The Venema NDS project will construct natural drainage elements including large bioretention swales and permeable pavement in alleys. A swale is a specially designed area where stormwater can infiltrate into or through the ground or vegetation, depending on whether it is

designed primarily for water quality treatment or flow control. The result will be improved stormwater flow control and water quality treatment in the Venema basin which will improve hydrology and water quality in Venema Creek, a tributary of Piper's Creek.

- The Capitol Hill Water Quality project will result in an innovative regional scale stormwater facility. The facility will include vegetated bioswales which will provide stormwater treatment for a portion of the largest sub-basin draining to South Lake Union while providing a vibrant pedestrian-friendly streetscape. This project will be constructed in partnership with an adjacent land developed and includes new sidewalks and road surfaces.

Section 4 - Project Selection Criteria

SPU identifies candidate capital projects from several sources – planning (e.g. comprehensive plans, program plans), external projects and opportunities, and emergencies or other unexpected events. Under SPU's Asset Management system, projects must be justified through a business case process that establishes that a problem or opportunity is timely and important, and that the proposed solution is superior to alternatives based on a triple bottom line analysis (economic, environmental and social) of life cycle costs and benefits. The process also recognizes that a project may be a "must do" project (e.g. required by regulation).

SPU prioritizes its capital projects into three categories – Priorities 1, 2 and 3, with 1 being the most important and critical. Some projects are identified as part of an externally driven project. Typically, SPU lacks control over the timing of such projects. Priority rankings are based on the following set of criteria:

- **Regulatory Mandates, Legal Agreements:** The degree to which the project is driven by Federal, State, and Local laws, permit and regulatory requirements, and consent decrees; as well as by legal agreements with public and private parties. Examples of highly ranked projects in this category include the Windermere, South Genesee and Henderson CSO projects.
- **External Drivers:** SPU's responsiveness to, or engagement with, the projects of other Departments or Jurisdictions, and the specific mandates of the City Council and Mayor. Examples of highly ranked projects in this category include the Alaskan Way Viaduct and Mercer Corridor projects.
- **Infrastructure:** How a project addresses infrastructure conditions or vulnerabilities. Examples of highly ranked projects in this category include the Point Sewer Pipe Rehabilitation and Emergency Rehabilitation programs.
- **Level of Service:** The importance of this project in providing or improving services to customers. Examples of highly ranked projects in this category include the South Park Pump Station, Localized Flood Control program, Sanitary Sewer Overflow Capacity program, Point Sewer Pipe Rehabilitation, and Emergency Rehabilitation programs.
- **Other Factors:** Other important factors include high net present value or cost-effectiveness, social or environmental benefits not otherwise captured, a project already in progress or near completion, limited time opportunity, demonstration projects, community visibility, and outside

funding. Examples of highly ranked projects in this category include the North 107th and Midvale Drainage project (part of the Densmore Basin Drainage Improvements program) and the Long Term Control Plan.

Every project is rated against each criterion; criteria ratings are then considered in determining an overall project priority ranking, using expert judgment (rather than a formula). Priority rankings for the CIP are determined by the leads for each Line of Business (LOB), with review by key internal stakeholders. The ranking scheme and criteria are the same for all LOBs and are approved by the SPU Director and Asset Management Committee. Project priority rankings are used to clarify and document which projects are most important (and why), to help determine which projects at the margin will be included or excluded (or deferred) from the CIP, and which projects should receive priority attention if a staff or financial resource constraint should arise.

Section 5 - Aligning Infrastructure with Planned Growth

SPU is working to take better advantage of opportunities to incorporate improvements and repairs to our drainage and wastewater systems with major redevelopment and projects undertaken by others (e.g., private developers, other city departments, regional and state agencies). Currently, SPU is partnering with South Lake Union developers to build a regional GSI-based stormwater treatment facility to treat Capitol Hill stormwater runoff while also increasing green space in the public right of way. For the future, SPU will be ramping up long-range planning efforts to improve understanding of the existing conditions of our drainage and wastewater system, predicted growth areas, and possible impacts to the drainage and wastewater system. This better understanding will lead to more forward thinking decisions on where we need to better plan to for growth and allow us to better leverage both our investments and those made by others.

Section 6 - Future Projects/What is on the Horizon

The DWF CIP will increase programs to meet requirements and commitments outlined in the CSO Reduction Plan. The 2014-2019 Proposed CIP includes significant investments for the Windermere, South Genesee, and Henderson CSO reduction projects. Costs shifted for these projects from 2013 to 2014 and 2015 due to delays.

The six-year CIP also includes funding for the Long Term Control Plan, which will identify all remaining CSO projects throughout the City to achieve the Washington State requirement to reduce CSOs down to an average one untreated CSO per year per outfall. Funding to address those remaining CSO projects will need to be included in future CIP budget submittals. In addition, SPU has been authorized by the EPA to prepare an Integrated Plan, which will propose projects to reduce stormwater pollution into the environment. Integrated Plan projects will need to be funded and constructed between 2016-2025. The Integrated Plan itself is funded under SPU's pre-capital planning operations and maintenance budget. Finally, water quality requirements for stormwater will likely result in increases in capital investment requirements on both new projects and potential retrofits of the existing system.

The programmatic analysis and prioritization currently being done in the Flooding, Sewer Back-up, and Landslides business area will result in a comprehensive list of small to large CIP projects to be

constructed over the next 15 to 20 years. Projects will be similar to current projects such as 14th and Concord CSS improvements, Broadview sewer system improvements and the South Park Pump Station.

Additional stormwater and CSO facilities, both structural and green, will require growing levels of operations and maintenance support for inspection and maintenance.

Section 7 - CIP Revenue Sources

SPU's Drainage and Wastewater CIP is funded largely by Drainage and Sewer ratepayers. SPU issues bonds, serviced by ratepayers that cover approximately 75% of the CIP, with the remainder funded by cash. DWF rates were approved by the Executive and City Council last year for the three-year period of 2013-2015.

SPU also actively seeks grants and low interest loans. For example, SPU will be utilizing a low-interest loan on the Capitol Hill Water Quality project. Loans like this offer a lower interest rate than what SPU can borrow/issue debt and offset the need to draw down extra dollars from the construction fund.

Section 8 - CIP Spending by Major Category

CIP Spending by Major Category
(In '000s; total may not sum due to rounding)

Drainage and Wastewater Fund	2014	2015	2016	2017	2018	2019	Total
PROTECTION OF BENEFICIAL USES	3,195	3,003	6,985	4,347	4,695	4,000	26,225
SEDIMENTS	3,423	4,396	1,491	1,410	11,610	11,610	33,940
COMBINED SEWER OVERFLOWS	47,697	39,584	49,239	46,988	40,627	30,400	254,534
REHABILITATION	11,864	12,360	12,880	11,520	11,520	11,520	71,664
FLOODING, SEWER BACKUP & LANDSLIDES	17,025	15,505	23,189	24,520	17,199	14,242	111,680
SHARED COST PROJECTS	14,196	8,550	12,116	14,035	13,789	9,742	72,428
TECHNOLOGY	9,196	8,929	6,884	6,149	6,443	4,778	42,379
Total	106,597	92,326	112,784	108,970	105,883	86,292	612,851

Protection of Beneficial Uses: This program makes improvements to the City's drainage system to reduce the harmful effects of stormwater runoff on creeks and receiving water bodies by improving water quality and protecting or enhancing creek habitat. The program includes projects to meet regulatory requirements. Funding in 2014 and 2015 will be focused on cost effective stormwater projects such as the Venema Creek Natural Drainage System (NDS) project, the Knickerbocker Floodplain Improvement project, and the Capitol Hill Water Quality (WQ) project. Two of these projects (Venema Creek NDS and Capital Hill WQ) were put on hold in 2009 due to financial constraints, but have since been re-instated.

Decreases in the **Protection of Beneficial Uses BCL** in 2014, compared to amounts adopted in 2013 in the 2013-2018 CIP, are primarily the result of a reduced scope for the Venema Creek NDS project and the Taylor Creek Culvert Replacement project construction being pushed out from 2014 to 2016. The Venema Creek NDS project no longer constructing swales on 2nd Ave NW between NW 122nd and 125th Streets due to community concerns. The Taylor Creek Culvert Replacement project is delayed and construction planned in 2014 is now pushed out to 2016 because the community engagement process is taking longer than expected.

Sediments: The City of Seattle is named as a Potentially Responsible Party (PRP) for the Duwamish River Superfund Site because of alleged contamination of sediments in the river from CSO and storm drain discharges. The City continues to work with the Washington State Department of Ecology, King County, and other PRPs on an assessment of contaminants and sources. The Sediments program provides funding for preliminary studies and analysis for cleanup of contaminated sediment sites in which the City is a participant, for actual cleanup of contaminated sites, for preliminary engineering for future cleanup efforts, and for liability allocation negotiations. Funding is used to develop studies and analyses required by regulatory agencies for determining the boundaries and cleanup requirements for specific action sites. The study phase of sediment remediation projects often requires multiple years before specific cleanup actions are defined. As regulatory agency cleanup requirements become clear, additional individual cleanup projects are included in subsequent CIP proposals.

Increases in the **Sediments BCL** for 2014, compared to amounts adopted in 2013 in the 2013-2018 CIP, reflect the latest schedule and estimates based on negotiations and agreements between parties for proposed actions needed. Overall projects were slightly delayed in 2013 which increased costs in 2014 and 2015 due to regulatory agencies (DOE and EPA) disagreement on the cleanup approach at the Gas Works site.

Combined Sewer Overflows: This program consists of projects that are mandated by state and federal regulations to control CSOs into the City's receiving waters. Projects include large infrastructure projects (e.g., storage structures, pipes, tunnels, wet weather treatment plants, stormwater separation, pump stations, etc.), smaller retrofits, construction of green infrastructure for CSO control, and development of regulatory required plans such as the Long-Term Control Plan. Key projects in the 2014 Budget include the Windermere, South Genesee and Henderson CSO projects. When completed, these projects will result in cutting CSO volumes into Lake Washington by about 14 million gallons per year, a reduction of about 60 percent from current overflows.

Compared to amounts adopted in 2013 in the 2013-2018 CIP, the **Combined Sewer Overflows BCL** is decreasing in 2014 reflecting revisions to the cash flow and schedules for the Windermere CSO project, which is now under construction. The Windermere CSO project had permitting delays that constrained finishing design and delayed the signing of construction contracts until late 2012, but now with

construction started, costs projections are more refined and certain. The increase in 2015 is driven by the CSO Facility Retrofit program. The phasing of the construction work for the Delridge CSO Retrofit project has been tightened to meet the permit deadline required in the 2011-2015 National Pollutant Discharge Elimination System (NPDES) Permit that improvements be completed at NPDES168 and NPDES169 by November 1, 2015.

Rehabilitation: This program consists of projects to rehabilitate or replace existing drainage and wastewater assets in-kind to maintain the current functionality level of the system. Projects include pump station structures, major mechanical and electrical components, and force mains; drainage and wastewater control structures and appurtenances; and pipes and culverts. Individual projects are defined by the type and method of rehabilitation and/or replacement and include emergency rehabilitation, no-dig pipe and maintenance rehabilitation, point sewer pipe rehabilitation by crews, and point sewer pipe rehabilitation by contract.

Increases in the **Rehabilitation BCL** for 2014, compared to amounts adopted in 2013 in the 2013-2018 CIP, are driven by the strategic plan process which increased baseline funding for the Pump Station Improvements program as well as the CSO Outfall Rehabilitation program. Over the next two years efforts in these areas will focus on sites with the highest risk as well as those prioritized to fulfill regulatory NPDES permit commitments that will restore original pipe capacity and address issues with discharge points of selected outfalls where these characteristics have been diminished, as well as increasing capacity to Pump Stations to meet Consent Decree requirements.

Flooding, Sewer Back-up, and Landslides: This program is responsible for preventing and alleviating flooding and sewer backups in the City of Seattle, with a primary focus on the protection of public health, safety, and property. The program area is focused on planning, design, and construction of channels, pipes, roadside ditches, culverts, detention ponds, and natural drainage systems that control and/or convey storm runoff to receiving bodies. This program also involves protecting SPU drainage and wastewater infrastructure from landslides and providing drainage improvements where surface water generated from the city right-of way is contributing to landslides. Finally, this program includes the Broadview Long Term Plan, which aims to reduce sewer backups and stormwater flooding in the Broadview basin.

Increased funding for the **Flooding, Sewer Back-up, and Landslides BCL** in 2014 compared with amounts adopted in 2013 in the 2013-2018 CIP are driven primarily by a delay in the start of construction for the Thornton Confluence Improvement project due to last year's CIP prioritization process, which shifted costs into 2014. Additionally, the Broadview Long Term Plan is planning to do more work upfront than initially planned and shift design and construction up from 2016 to 2015. The Broadview infiltration reduction project is a high priority project and the local community is supportive of the project moving more quickly.

Shared Cost Projects: This program includes individual capital improvement projects which typically benefit multiple lines of business (e.g., the Water line of business and the Drainage and Wastewater line of business) where costs are "shared," or paid for, by more than one of SPU's utility funds. In 2014, the Shared Cost program includes funding for a number of interdepartmental projects including the Alaskan Way Viaduct and Seawall Replacement, Yesler Terrace, Mercer Corridor and Sound Transit Link Light Rail. Funding is also included for SPU's Heavy Equipment Purchases, the Integrated Control Monitoring Program and a number of smaller projects.

Increased funding in the **Shared Cost Projects BCL** for 2013, compared to amounts adopted in 2013 in the 2013-2018 CIP, are driven primarily by the Yesler Terrace project that will provide infrastructure improvements and utility relocations. These investments provide sufficient wastewater and drainage capacity in the affected neighborhood. In addition, the increase is driven by the Other Major Transportation Projects program, specifically the SR-520 Bridge Replacement project. Washington State Department of Transportation (WSDOT) is moving ahead with design of the West Approach Bridge North segment in 2014. WSDOT is proceeding with the design of a reroute of a 24" SPU combined sewer.

Technology: This program category is presented in the separate "Technology CIP" section of SPU's 2014-2019 Proposed CIP. The 2014-2019 Proposed CIP has increased in 2014 and 2015 compared to the 2013-2018 CIP. The Drainage and Wastewater Utility's share of the overall 2014 Technology CIP is 38% based on the Drainage and Wastewater Utility's share of benefit. SPU will focus technology spending on the highest priority business needs. These include budget and financial management (Budget Planning and Forecasting, Summit Upgrade), customer contact and billing (Utility Customer Billing System/CCSS), and science and system performance (Integrated Supervisory Control and Data Acquisition Information Management System (I-SCADA IMS) Enhancements).