

**HIGHLINE WATER DISTRICT
King County, Washington**

RESOLUTION 16-12-21C

RESOLUTION ADOPTING THE 2017 CAPITAL IMPROVEMENT PROGRAM

WHEREAS, the Capital Improvement Program (CIP) is a resource document to help plan directions the District will consider for the future; and

WHEREAS, Staff and the Board of Commissioners hold annual workshop meetings to establish an Operating Budget, a Capital Improvement Program and set Goals for the upcoming year; and

WHEREAS, the Capital Improvement Program is not a permanent fixed plan, but is a guideline or tool to help reflect future goals and future resources at the time budgets are being planned; and

WHEREAS, the commitment of funds and resources can only be made through the budget process.

NOW, THEREFORE, BE IT RESOLVED:

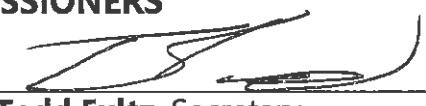
The Board of Commissioners hereby adopts the 2017 Capital Improvement Program, attached as Exhibit A and incorporated herein by this reference.

ADOPTED BY THE BOARD OF COMMISSIONERS of Highline Water District, King County, Washington, at an open public meeting held this **21st** day of **December 2016**.

BOARD OF COMMISSIONERS



Vince Koester, President



Todd Fultz, Secretary



Daniel Johnson, Commissioner



George Landon, Commissioner



Kathleen Quong-Vermeire, Commissioner



EXHIBIT A

2017



**CAPITAL
IMPROVEMENT
PROGRAM**



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EXECUTIVE SUMMARY

The District's Goal is to provide high quality and reliable water service to all customers in accordance with the regulations governing water purveyors. The District's Capital Improvement Program (CIP) is an on-going effort with the primary mission of improving the District's aging infrastructure with modern, more efficient, reliable technology and materials.

In the fall of each year, District staff prepares a draft CIP plan for review by management and the Board of Commissioners. The plan includes budgets and narratives for the proposed Capital Additions for the upcoming year. Each narrative includes a project description; the purpose and estimated costs; a breakdown of funding sources; and an estimated project schedule.

The draft CIP is presented to the Commissioners at a regularly scheduled Board meeting. Staff makes changes based on the Board's input and prepares a final draft. Typically, the final draft of the CIP and the District's annual Operations and Maintenance Budget are brought before the Board simultaneously. Any final comments are noted and updated prior to Board acceptance at a regularly scheduled meeting in December of each year.

In 2016, the District will be substantially complete with the following projects:

- *Project 13-1A Angle Lake Water Main Replacement (private properties along lake)*
- *Project 13-3 City of SeaTac 24th/28th Ave S Extension (S 200th St - S 208th St)*
- *Project 14-1 2015 Comprehensive Water System Plan Update*
- *Project 14-3 Manhattan View Water Main Replacement*
- *Project 15-1 Tye Well Rehabilitation (Pump Purchase and Installation)*
- *Project 16-5 S. 268th St Water Main Replacement Project*

The District completed approximately 20,500 LF, or 3.9 miles of water main replacements in 2016. The 2017 CIP includes one proposed construction project totaling 9,000 LF of AC main replacement. Other work includes the design and permitting for other capital projects and preparation for the Federal Way Link Light Rail Project by Sound Transit. The CIP projects for 2017 include:

- *Project 14-2 560 Zone Lakehaven South Supply Study and Design*
- *Project 16-2 Pump Station No 8 (Crestview)*
- *Project 16-3 Mansion Hill Reservoir Relocation*
- *Project 16-4 Mansion Hill Transmission Main Relocation*
- *Project 17-1 2017 AC Water Main Replacement*
- *Project 17-2 2018 AC Water Main Replacement*

The estimated Total Capital Additions for 2016, which includes CIP Expenditures, Small Works/Emergency Projects, Mitigation Improvements, Meters, Hydrants and Services, and Capital Asset Purchases, is \$6.6 million. For 2017, the proposed capital expenditure is \$5.9 million. All CIP projects scheduled for 2017 will be funded by a combination of water rates, connection charges from development, and developer reimbursements. See **Page 3** for overall capital addition funding and the body of this report for project narratives, budgets, and locations.

2017 CIP - OUTSTANDING FUNDING & DEBT SERVICE (2016-2020)
CAPITAL PROJECTS

CAPITAL PROJECTS		Project Title	Prior Years					Totals
CIP #			2016	2017	2018	2019	2020	
13-1A	Angle Lake Water Main Replacement Project	\$ 2,111,277	\$ 1,601,155				\$3,712,432	
13-3	Seatac 24th/28th Ave S Water Main Extension	\$ 42,689	\$ 177,368				\$220,057	
14-1	2015 Comprehensive Water System Plan Update	\$ 218,089	\$ 73,275				\$291,364	
14-2	560 Zone LUD South Supply		\$ 49,000	\$ 475,000			\$649,000	
14-3	Manhattan View Water Main Replacement	\$ 142,907	\$ 2,565,402				\$2,708,309	
14-4	40th Ave S Water Main Replacement	\$ 22,396	\$ 185,141				\$207,537	
15-1	Type Well Rehabilitation Project	\$ 154,058	\$ 173,500				\$327,558	
16-1	Emergency Power-Angle Lake Well and Des Moines Treatment Plant					\$ 100,000	\$100,000	
16-2	Pump Station No 8 (Crestview)		\$ 311,000	\$ 468,500	\$ 2,145,000		\$2,924,500	
16-3	Mansion Hill Reservoir Relocation		\$ 350,000	\$ 475,000	\$ 3,950,000	\$ 5,020,000	\$9,795,000	
16-4	Mansion Hill 30" Transmission Main Relocation		\$ 350,000	\$ 1,500,000	\$ 250,000		\$2,100,000	
16-5	S 268th St Water Main Replacement		\$ 595,566				\$595,566	
16-6	Mansion Hill Pump Station Project				\$ 350,000	\$ 1,610,000	\$1,960,000	
17-1	2017 Water Main Replacement Project		\$ 83,000	\$ 2,285,165			\$2,368,165	
17-2	2018 Water Main Replacement Project (Budget Allocation)		\$ 150,000	\$ 2,300,000			\$2,450,000	
18-3	Asset Management Plan Update			\$ 50,000			\$50,000	
19-1	2019 AC Water Main Replacement Project (Budget Allocation)			\$ 200,000	\$ 2,300,000		\$2,500,000	
20-1	2020 AC Water Main Replacement Project (Budget Allocation)				\$ 200,000	\$ 4,300,000	\$4,500,000	
Subtotal of Capital Projects		\$ 2,691,416	\$ 6,164,406	\$ 3,853,665	\$ 10,620,000	\$ 8,120,000	\$37,459,487	

*Developer Reimbursed

Small Works/Emergency Projects	\$ 157,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 1,557,000
Mitigation Improvements	\$ 40,000	\$ 40,000	\$ 40,000	\$ 40,000	\$ 40,000	\$ 40,000	\$ 200,000
Meters/Hydrants/Services (Refer to O&M Budget)	\$ 44,532	\$ 1,375,000	\$ 1,375,000	\$ 1,400,000	\$ 1,400,000	\$ 400,000	\$ 4,594,532
Capital Asset Purchases (Refer to O&M Budget)	\$ 188,000	\$ 239,363	\$ 225,000	\$ 230,000	\$ 230,000	\$ 230,000	\$ 1,112,363
Total Capital Additions	\$ 2,691,416	\$ 6,593,938	\$ 5,858,028	\$ 12,610,000	\$ 10,140,000	\$ 7,030,000	\$44,923,382

Less: Outside Funding Sources	2016	2017	2018	2019	2020	Totals
PWTF Proceeds	\$ 76,615					\$ 76,615
Developer Reimbursement	\$ 650,000	\$ 701,250	\$ 4,632,500	\$ 4,777,000	\$ 1,368,500	\$ 12,129,250
Midway Sewer Project 16-5 Reimbursement	\$ 581,072					\$ 581,072
GFC	\$ 650,000	\$ 350,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 1,900,000
Total Outside Funding	\$ 1,957,687	\$ 1,051,250	\$ 4,932,500	\$ 5,077,000	\$ 1,668,500	\$ 14,686,937

Debt Service	2016	2017	2018	2019	2020	Totals
PWTF Loans	\$ 1,229,374	\$ 1,091,532	\$ 1,013,370	\$ 713,060	\$ 708,087	\$ 4,755,423
Total Debt Service	\$ 1,229,374	\$ 1,091,532	\$ 1,013,370	\$ 713,060	\$ 708,087	\$4,755,423

Capital Additions + Debt Service (Total)	2016	2017	2018	2019	2020	Totals
	\$ 7,823,312	\$ 6,949,560	\$ 13,623,370	\$ 10,853,060	\$ 7,738,087	\$ 49,678,805

CAPITAL IMPROVEMENT PROGRAM GOALS AND OBJECTIVES

The District's Mission Statement is:

"Our mission is to provide high quality water and excellent customer service while effectively managing District infrastructure for a reliable water system today and for future generations."

The District's Goal is to provide high quality and reliable water service to all customers in accordance with the regulations governing water purveyors. The District's Capital Improvement Program (CIP) is an on-going effort with the primary mission of improving the District's aging infrastructure with modern, more efficient, reliable technology and materials.

In the fall of each year, District staff prepares a draft CIP plan for review by management and the Board of Commissioners. The plan includes budgets for the proposed Capital Additions for the upcoming year. The Capital Additions budget includes the following five components:

- **Capital Projects** – improvement projects identified in the approved Comprehensive Plan or other planning documents and capitalized over the life of the asset
- **Small Works/Emergency Projects** – funds allocated for improvement projects not identified or postulated during development of the annual CIP (e.g. a smaller main replacement project in advance of a city overlay project)
- **Mitigation Improvements** – funds allocated for improvements to District facilities to ward against man-made and natural disasters in support of the Hazard Mitigation Plan and the Security Vulnerability Assessment
- **Meters/Hydrants/Services** – funds allocated for the purchase and installation of new pipe/meters/hydrants/services installed by District personnel and capitalized over the life of the asset
- **Capital Asset Purchases** – specific asset purchases greater than \$5,000 per item used to replace aging assets or to increase production and efficiency (e.g. vehicles or equipment)

The plan includes narratives for the Capital Projects, the Small Works/Emergency Project and the Mitigation Improvement budgets. The narratives include a description for each project; the purpose and estimated project costs; a breakdown of funding sources; and an estimate of the project schedule. The annual *Goals and Objectives* and the *Operation and Maintenance Budget*, provides narratives and descriptions for the Meters/Hydrants/Services and Capital Asset Purchases.

District staff presents the draft CIP to the Commissioners at a regularly scheduled Board meeting. Staff makes changes based on the Board's input and prepares a final draft. Typically, the Board considers the final draft of the CIP and the District's annual Operations and Maintenance Budget simultaneously. Any final comments are noted and updated prior to Board acceptance at a regularly scheduled meeting in December of each year.

Prioritization of Projects

Several issues confront a water system when evaluating and comparing which projects take precedent over others. When completing the District's Comprehensive Water System Plan, the District's Board, management, staff and consultants review the needs of the water system.

Specifically, per WAC 246-290, DOH requires the District to review the adequacy of its sources of supply, treatment facilities, storage, and distribution system. In addition, the District evaluates funding sources to ensure financial viability.

DOH places a priority on deficiencies in source, treatment and storage. Generally, distribution mains are only required to be upgraded by DOH if they cannot provide adequate fire flow to support future development. The District generally follows this priority strategy; however, the District puts additional effort into evaluating the distribution system. In addition to fire flow limitations, the District also considers historical issues of the water mains (main repairs, leaks, dead ends, water quality complaints, location, safety, potential property damage, looping, land use issues, etc.) when prioritizing replacement projects.

As of late, the District reprioritized the CIP for City initiated road and redevelopment projects. The District must relocate water mains to accommodate City owned infrastructure. In addition, many cities issue moratoriums on pavement cuts for up to five years after completion of a City project. It makes good "business sense" to replace mains with road construction projects as it reduces overall impact to the public. Some projects included with the City work may not be the District's highest replacement priority. However, partnering helps lower overall project costs and achieve the District's goal of replacing aging infrastructure. The result is continued reinvestment into the system at a lower cost and impact to the ratepayers.

Capital Addition Funding

The funding of projects is an important component of the process. Because of limited resources, the District cannot fund all projects contemplated in the Water System Plan. Capital Additions are typically funded from rates or from other outside sources (General Facility Connection Charges [GFC], revenue bonds, low-interest loans, or developer contributions/reimbursements.)

GFC revenue exceeded the anticipated \$350,000 budget for 2016. The projected revenue by the end of the year is \$650,000. Several projects suspended due to the economy requested service in 2016. In addition, the District approved a GFC increase from \$3,521 to \$4,000 effective January 1, 2017. Developers may take advantage of the existing rates before the end of the year. The 2017 budget for GFC revenue is \$350,000.

The District found the Public Works Trust Fund (PWTF) low interest loans to be an excellent way to reinvest in its infrastructure to reduce the financial burden to the ratepayers. Repayment periods are up to 30 years at interest rates as low as 0.25%, depending on the loan term, local funding match, and project completion incentives by the State. Typically, the District selects repayment schedules and local match funding to minimize interest over the life of the loan. As of late, the State Legislature eliminated funding for the PWTF.

Grant money opportunities for infrastructure projects are extremely competitive. The District seeks out grant funding, if available, and is made aware of funding opportunities via its association memberships.

Each year, staff works with the Board to determine availability of outside funding (PWTF loans, Federal grants, etc.) for CIP projects that do not have other funding sources. Staff evaluates the water system's needs and prioritizes projects for outside funding. Applications for outside funding sources are subject to approval by the Board of Commissioners.

CIP Project Implementation

As projects secure funding and accepted by the Board, the following general steps are taken to design and construct a scheduled CIP project. Please note that these steps do not necessarily apply to emergency repair work:

1. Staff may issue a Request For Proposals for more technically-challenging projects or may request information from consultants identified on the MRSC Consultant Roster.
2. Staff evaluates and/or interviews the consultants and recommends to the Board the most competent consultant to complete the project design.
3. Staff takes the consultant's proposal to the Board for approval.
4. Upon approval, the consultant begins working with staff to complete the design. At each regular meeting, the Board receives a status report for each project in the Manager's Report.
5. Upon completion of the design, staff informs the Board of the project's advertisement and bid opening dates for soliciting a construction contract.
6. District staff and the consultant review the bids and make a recommendation to the Board to award to the lowest, responsible bidder, per State Law.
7. The contract is then brought before the Board to approve at the next available Board meeting.
8. Construction of the project begins and the Board receives updates on the status of each project in the Manager's Report.
9. The Board must approve or deny any contract revisions over \$15,000 per contract that may occur.
10. Upon completion of the project, staff and the consultant make a recommendation to the Board to accept the project as complete. This recommendation is then approved or denied at the next available Board meeting.
11. If the project was an approved PWTF project or Federal grant, staff will complete the close-out of the project as required by the PWTF Board or Federal agency.

2017 Capital Addition Budget

For 2017, the District budgeted \$5.9 million in Capital Addition expenditures. The figure includes budget to complete the active and new capital improvement projects and to support the other four Capital Addition components. The District will fund the 2017 CIP through water rates, capital reserves, connection charges, and developer reimbursements. Please see **Page 3** for a breakdown of the overall capital additions and funding sources.

2016 COMPLETED CAPITAL IMPROVEMENT PROJECTS

In 2016, the District completed the following CIP projects:

13-1A Angle Lake Water Main Replacement Project

The District maintained several small 4" and 6" diameter AC water mains along the northwest, south and east side of Angle Lake in the City of SeaTac. The mains crossed within existing easements on private property along the lake and within Military Road between 46th Ave S and S 198th St. Projects 13-1A and 13-1B included replacing approximately 8,900 LF of smaller diameter AC main with new, modern materials around the Angle Lake neighborhood that is nearing the end of its useful life.

In early 2012, the District awarded a consultant contract with BHC Consultants, Inc. The first phase of the project included preliminary engineering to determine feasible replacement alternatives. BHC completed the first phase in February 2013.



The second phase included design and contract document preparation for construction. The phase also included obtaining permits, easement acquisition, and community involvement. During the consultant scoping, the District elected to divide the project into two separate, smaller projects for efficiencies and schedule. *Project 13-1B Military Road S at Angle Lake* included the portion of the original project within city right-of-way along Military Road. Buno Construction completed Project 13-1B in early 2015. The remaining work within the easements around the lake was renumbered as Project 13-1A (this project).

Project 13-1A included the installation of approximately 6,900 LF of new water main, hydrants and appurtenances. In total, the District secured over 104 easements from the property owners around the lake.

The District awarded a construction contract to Kar-Vel Construction on July 21, 2015. Construction began in September 2015 and completed in July 2016. The Board authorized one change order adding approximately 580 LF of pipe along S 189th St to complete the remaining AC replacement after acquisition of the last easement. The final construction amount was approximately \$2.30 Million.

The District applied for low-interest Public Works Trust Fund loan to fund projects. The District received a loan for \$2.21 million to cover expenses in Project 13-1A and 13-1B. The remaining funding was paid through rates and existing capital reserves. The total project cost for Project 13-1A was approximately \$3.68 million. The combined total for both projects was \$4.86 million.

Project 13-3 City of SeaTac 24th/28th Ave S Extension (S 200th St - S 208th St)

The City of SeaTac identified the need to connect 28th/24th Ave S between S 200th St and S 208th St to support the SeaTac Regional Growth Center (STRGC). The project will be the last segment to complete a five lane principal arterial corridor with bicycle lanes and sidewalks from S 188th St to S 216th St. The project provides a vital connection within and between the STRGC, the City of Des Moines, the Port of Seattle, Sound Transit's 200th St Link Light Rail Station and the future SR 509. In addition, the project will create a parallel alternative to SR 99 for aviation support freight vehicles.



The District has several existing water mains at S 200th St and S 208th St but no pipes within the project segment. The estimated project length is 1,000 LF of 8" diameter DI water main. The new

alignment will have minimal water connections and primarily designed for fire suppression along the project. A significant portion of the project area is within the future SR509 interchange.

The District retained the services of Kennedy Jenks Consultants in 2014 for the design of the water project. The City anticipated construction in 2015; however, the City delayed the project to incorporate a new overpass in the design for the future SR509 highway.

Construction began in 2016. The City awarded a contract to Ceccanti, Inc. At the end of 2016, the water work was substantially complete except for minor punchlist items. The City will continue their work into 2017 before addressing final punchlist items for the water work. The estimated construction cost is \$130,000. The estimated total project cost is \$220,000. The project is funded by water rates and capital reserves.



Project 14-1 2016 Comprehensive Water System Plan Update

WAC 246-290-100 requires water purveyors to update their comprehensive water plan every six years. Highline Water District's current water system plan was formally approved by Department of Health (DOH) on July 20, 2009.

District staff contacted DOH to discuss a water industry proposal to change plan updates from a six year to a 10 year schedule. At the time, DOH stated there is momentum to change the requirement but it will take time to have the formal approval. DOH anticipates the final rule change to be effective in December 2016.

Recent trends in water demands and population are less than forecasted projection in the 2008 Water System Plan. The economy, reduction in new development, and changes in water use by existing customers caused the reduction. Because the trend is less than forecasted, the assumptions in the existing Plan appear conservative.

The District retained the services of Carollo Engineers to develop the new plan. The plan focused on a 10 year and 20 year planning horizon anticipating DOH will change to 10 year updates. In addition, Carollo updated the existing hydraulic model and evaluated several different supply scenarios to be used as part of a future Lakehaven Water and Sewer District supply. Also, FCSG reviewed the District's rates and capital connection charges.

The Board of Commissioners approved the final plan on September 19, 2016. King County Utilities Technical Review Committee (UTRC) recommended approval to the King County Council on October 20, 2016. The final plan is in review by DOH for approval. King County will approve the plan first quarter 2017. The final plan cost was approximately \$270,000. The District funded the plan by existing water rates and capital reserves.



Project 14-3 Manhattan View & 2nd Ave S Water Main Replacement



In 2012, the District selected the Manhattan area in Normandy Park as a candidate for a future CIP. The project area is generally bounded between 2nd Ave SW and 7th Place SW in the residential neighborhood north of SW Normandy Road. The area is served by approximately 10,500 LF of small diameter AC pipe ranging in size from 4-inch and 8-inch. The District experienced several small main breaks in the past due to relatively higher pressures in the area.

The District submitted the project in 2012 for PWTF funding. The project met the criteria

and the Public Works Board selected it for funding; however, the legislature decided not to fund the PWTF in the biennium. This caused the project to lose funding. The District believed the project remained a high priority and decided to prioritize it for replacement from existing water rates and capital reserves.

The Board authorized a contract with Gray and Osborne for survey and design. The District scheduled the project for construction in 2015; however the City of Normandy Park expressed concern over the multiple construction projects in the general Manhattan area in 2015. Subsequently, the District decided to postpone the project until early 2016.



Highline entered into an agreement with the City of Normandy Park to reimburse the cost of a half-street overlay. The City will use the District's \$276,000 contribution to restore the surface after the City performs storm related work in 2017.

The District bid and awarded the project to Miles Resources on March 22, 2016. Construction began in May and completed in August. The final construction amount was \$1.87 million. The Board accepted the project as complete on October 25, 2016.

Under the contract, the District awarded a change order to complete emergency work on 2nd Ave S between S 202nd St and S 204th St in Des Moines. The District experienced two breaks within three weeks on a 500 LF segment of AC main. Miles replaced the pipe and the subsequent road damage under the change order on at time-and-material basis. The construction cost for the emergency work was \$251,000. The final project cost including the emergency work was approximately \$2.57 million and funded by existing rates and capital reserves.

Project 15-1 Tye Well Rehabilitation (Pump Purchase and Installation)

The District commissioned the Tye Well and Treatment Plant in 2004. The facility's original capacity was for continuous operation at 750 gpm. Within the first year, production began to decrease due to the buildup of iron-related bacteria found within the well formation.

The bacteria chemically reduce iron found in the groundwater as its energy source and creates polysaccharide "slime" as a byproduct. The slime coats the inside of the well, the pump and any mechanical piping prior to pretreatment chlorination where it is removed within the filters of the treatment plant. Over time, the bacterial fills the annular space within the filter pack and piping causing the pump to work harder, become less efficient and uses more power to maintain a static production rate. If untreated, the bio-fouling will cause the mechanical components like the pump and motor to prematurely wear and fail.



The District implemented several well rehabilitation methods in the past, including, redevelopment in 2006 and a Hydropuls® impulse generation in 2008. The rehabilitation methods yielded short-term increases in production but the flow continued to decline over time.

In April 2015, the District contracted PumpTech to remove the well pump and motor. The equipment showed significant damage from the presence of iron-related bacteria. The pump was damaged beyond repair. The District retained RH2 Engineers to size a replacement pump and motor. PumpTech ordered the replacement pump and scheduled delivery in early 2016.



RH2 explored options to create a more permanent solution to increase production from the well. Unfortunately, there are few tested methods other than redevelopment to address the iron bacterial issue. The District did not select more experimental options that require the use of chemical additives to the groundwater.

Robinson Noble assisted in preparing contract documents for a well redevelopment prior to delivery of the new pump and motor. The Board contracted with Hokkaido Drilling to perform a mechanical and chemical well redevelopment. In addition, Hokkaido replaced the well surface seal. Rehab work was completed in October 2015. A well pump was reinstalled in July 2016.

The District invested approximately \$323,000 into rehabilitating the well, replacing the pump and motor, and investigation into project options. Current production is 500 GPM for 14 hours daily/6 days a week. Staff will continue to monitor and adjust accordingly. Funding for the project was by existing water rates and capital reserves.

Project 16-5 S 268th St Water Main Replacement Project

In March 2016, the City of Des Moines (City) informed local utilities of a Federal grant they received to install new sidewalk and stormwater improvements along S. 268th St. between 16th Ave S. and Pacific Highway S. in the Woodmont neighborhood. The City also stated their proposed improvements would conflict with the existing infrastructure of several utilities; therefore, the City exercised its Franchise right to require agencies move their facilities to accommodate the project.



The asbestos cement (AC) water main identified in conflict by the City is approximately 60 years old and 6-inch in diameter. The District's CIP prioritizes small diameter AC mains for replacement due to their higher susceptibility for failure compared to other pipe materials. Using the City project as an opportunity to replace aging infrastructure, the District decided to replace all AC mains within the Woodmont neighborhood. The total length of the project is 1,950 LF.

Upon learning the District's plan to replace the water mains, Midway Sewer decided to replace their aging infrastructure. The agencies entered into an Interlocal Agreement for the joint work. Highline would be the lead agency. In addition, the District will split the paving cost along S 268th St between PSE and Midway.

The District bid and contracted with SCI Infrastructure to install the improvements. The Board awarded the contract on May 4, 2016. SCI substantially completed the water and sewer work in September.

There are warranty issues regarding the paving work along two streets. The District is working with SCI to resolve the defective paving work. Due to the late timing in the year to complete paving, the final resolution will not happen until spring 2017. The anticipated construction costs for the water work is \$460,000. The District funded the project by rates and capital reserves.



ONGOING PROJECTS IN 2016 AND 2017

The current projects that will continue into 2017 include:

Project 14-2 560 Zone Lakehaven Utility District South Supply

Lakehaven Utility District (LUD), a regional partner in the Tacoma Treatment Plant, began receiving filtered water from the source in 2015. LUD approached the District to discuss selling an average of 2.0 MGD to Highline.

The benefit of purchasing water from LUD is to have a redundant source of supply at a lower cost than Seattle Public Utilities (SPU), to help boost the hydraulic grade line in the southern portion of HWD, and to give additional operational flexibility to the District. The District gave a 5-year notice to SPU in August 2011 of its intention to purchase water from LUD in the future, as required by the Partial Services Contract between the agencies.

Prior to purchasing water from LUD, the District will require the approval from the Department of Health. Planning work, including a blending study will help determine the feasibility of the proposal. The District contracted with Confluence Engineering for the blending study in 2016. Staff anticipates the results by the end of 2016. From the report, the District can determine the necessary capital improvements and the Board can evaluate whether to proceed with the project.

The District allocated \$50,000 in the 2016 budget for studies and evaluations. The budget for 2017 includes \$125,000 for studies/evaluations/approvals and \$475,000 in 2018 for any needed capital improvements. Upon completion of the initial study effort, the District can perform a more detailed budget of the necessary expenditures and a revised timeline of proposed improvements. The Board can then determine whether to proceed with the project and enter into contract negotiations with LUD. The initial funding for the project is by rates and capital reserves.

Project 16-2 Pump Station No 8 (Crestview)

The District's two primary water sources for the 560 Pressure Zone are Pump Station No 6 (PS6) and Pump Station No 1 (PS1). A major component for storage in the 560 Zone is the 7.6 MG Crestview Reservoir. Source water from Seattle Public Utilities and storage in the Crestview Reservoir must pump through PS6 to serve the 560 Pressure Zone.

From the 2016 Water System Plan, a second pump station serving water from the Crestview Reservoir and SPU into the 560 Pressure Zone would significantly improve redundancy in the system. The first phase was preliminary engineering and feasibility. The District selected RH2 Engineering to perform the preliminary services. Subsequent phases in 2017 will be design and construction. At the end of 2016, the District is preparing a draft professional services agreement with RH2 for approval by the Board of Commissioners.



The District executed the purchase of the Harper property at 16032 42nd Ave S on November 16, 2016. In 2017, staff and the consultant will be working with the City of Tukwila for an unspecified use permit, which requires approval by the City Council. Pipeline work will be within existing right-of-way within the City of SeaTac.

The District allocated \$311,000 in the 2016 budget and \$2.61 million in 2017/2018 for design and construction. Staff will revise the

budget upon final completion of the preliminary engineering and scoping. Project funding will be from existing rates and capital reserves.

Project 16-3 Mansion Hill Reservoir Relocation
Project 16-4 Mansion Hill Transmission Main Relocation

In late 2015, Sound Transit (ST) selected the SR509/I-5 route for the Federal Way Link Light Rail Project. The proposed alignment passes adjacent to the District 5.0 MG 490 Zone reservoir at Mansion Hill. The close proximity of the light rail will require the relocation of the tank.

The first phase of work is preliminary engineering, including survey, geotechnical investigation, planning, permitting and overall project scoping. The work also includes contract negotiations with ST for cost reimbursement. The District executed an Interlocal Agreement for preliminary engineering with ST and a separate consultant contract with Stantec. Preliminary work should be complete by March 2017.



The preliminary investigation determined the reservoir can be replaced with a 4.5 MG reservoir; however, the new location will conflict with the existing 0.25 MG elevated tank. A future project will construct a pump station to replace the elevated tank [slated for preliminary design in 2019 (Project 16-6).]



Subsequent phases will include design, permitting, construction inspection and administration. The District must complete the reservoir work by early 2019 to avoid conflicts with ST construction.

For Project 16-3 (Reservoir), the District budgeted \$350,000 for the first phase of work in 2016. The 2017, 2018 and 2019 budgets for design and construction are \$475,000, \$3.95 million, and \$5.02 million, respectively. These estimates are preliminary and subject to change as the project scope becomes further defined and subject to agreements between ST and the District. The budget assumes 85% reimbursement by ST.

In 2017, the District will begin *Project 16-4 Sound Transit Transmission Main Relocation* as a separate project from the reservoir relocation. The project will replace approximately 2,000 LF of existing transmission main in conflict with the proposed light rail alignment. The District will begin the design for the Project 16-4 in 2017. The District budgeted \$350,000 for 2017, \$1.5 million in 2018 and \$250,000 in 2019.

As of November 2016, the preliminary estimate for the project work at Mansion Hill for all projects is \$13.8 million. ST's reimbursement estimate is \$12.2 million. The difference is District funding for "betterments" not considered the responsibility of ST.

NEW CIP PROJECTS IN 2017

The following projects will be new Capital Improvement Projects for 2017:

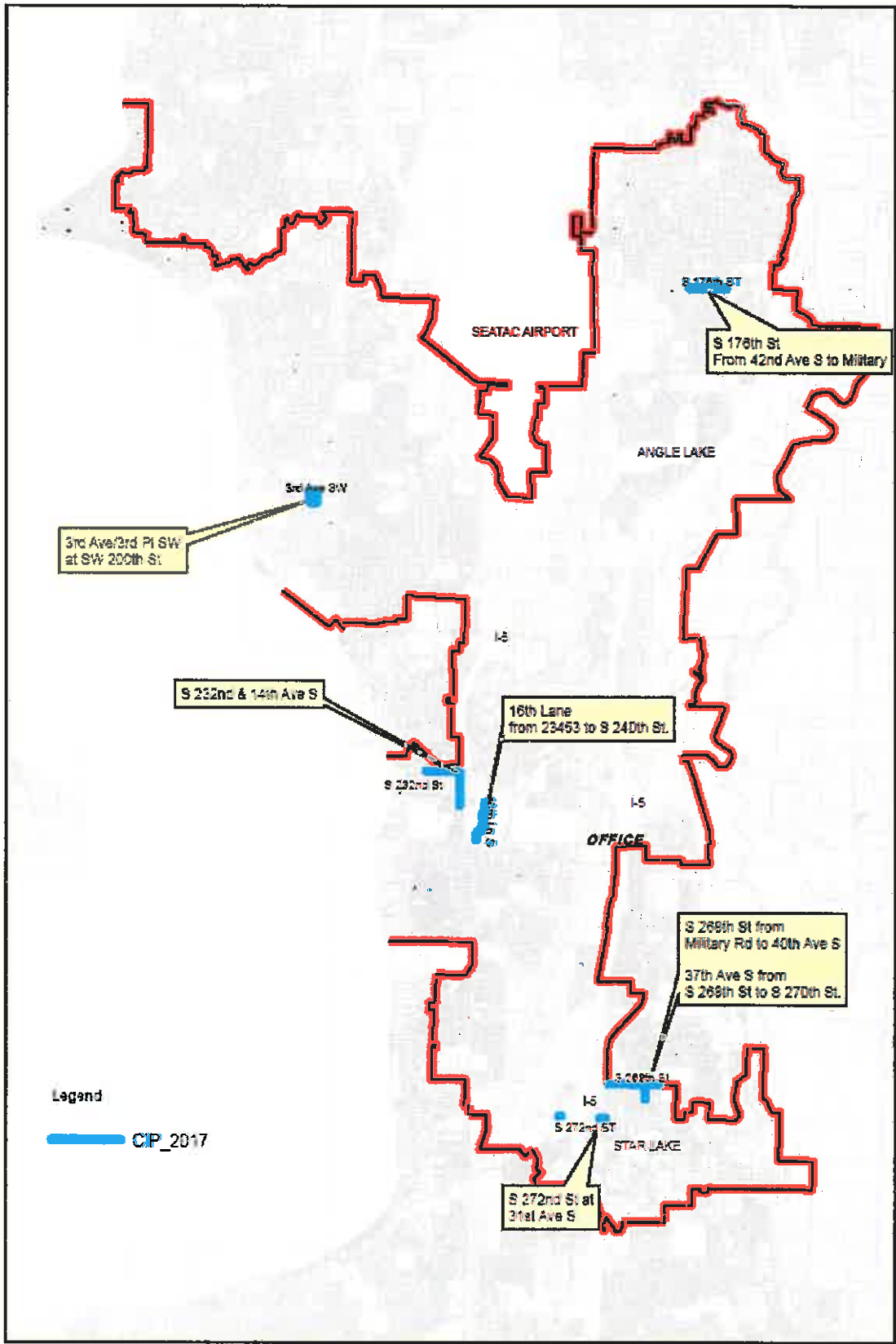
Project 17-1 2017 AC Water Main Replacement

The District selected Gray and Osborne to design an AC water main replacement project for the 2017 construction season. The Board authorized the project in October 2016.

There are six project locations. They are as follows:

- S 176th St from 42nd Ave S to Military Rd S
- 3rd Ave SW/3rd Pl SW at SW 200th St
- S 232nd St & 14th Ave S
- 16th Lane from 23453 to S 240th St
- S 268th St from Military Rd S to 40th Ave S
37th Ave S from S 268th St to S 270th St
- S 272nd St at 31st Ave S

This project will replace approximately 9,000 lineal feet of existing AC water mains with new, ductile iron water mains, in addition to new services, hydrants, services and appurtenances. The project locations were selected due to recent water main breaks, anticipation of city overlay projects and identified pipe segments in the Water System Plan. The District allocated \$2.37 million for the project costs and will be funded by rates and capital reserves. The project should be complete by the end of summer 2017.



2017 AC WATERMAIN REPLACEMENT
PROJECT AREAS

Project 17-2 2018 AC Water Main Replacement

Project 17-2 is a budget allocation for a future main replacement project. Specific project locations are not yet determined. The District allocated \$150,000 in the 2017 budget for preliminary engineering services. The intent would be to identify, design and award a project by spring 2018 to receive the most favorable bids for the 2018 construction season.

SMALL WORKS / EMERGENCY PROJECTS

The Small Works / Emergency Projects budget is an allocation of funds set aside for capital projects not specifically identified during the budgeting process but arise during the year. It is typically used for smaller sized projects, such as a short main replacement in anticipation of a City driven overlay project. In addition, the District can also use the budgeted money to fix facilities that have immediate maintenance issues or improve system efficiency.

The District had three emergency projects in 2016. The first was the repair of the roof of the 2.5MG Mansion Hill Reservoir. During routine inspection and replacement of the vent screens, the District discovered significant corrosion for the structural supports at the center of the tank. The Board declared an emergency and authorized the contractor, Streich Bros to make the necessary repairs on a time-and-material basis. The final construction amount including the vent work was approximately \$135,000.

The second emergency project was 2nd Ave S Water Main replacement. The District had two failures within three weeks along the section of road between S 202nd St and S 204th St. The District declared an emergency and retained Miles Resources under Project 14-3 (Manhattan AC Water Main Replacement) to make the necessary repairs. The final cost was approximately \$251,000 and included in the project cost for Manhattan.

The third emergency declared by the Board was the valve replacement at the Des Moines Treatment Plant. During routine work by the District crews, a valve and fitting failed causing the loss of operation to Pump Station 2, Des Moines Treatment Plant, Angle Lake and Des Moines Wells. The facilities are critical to the proper function of the District. The Board authorized SCI Infrastructure to make the necessary repairs under Project 16-5. The final cost was yet to be determined during preparation of this report.

For 2017, the District has allocated \$350,000 for the Small Works budget. The District will continue to work with the local Cities to determine the replacement of water mains in conjunction with road improvement projects.

FUTURE UNSCHEDULED IMPROVEMENTS

Per the District's 2015 Comprehensive Plan Update, the following needs were assessed:

1. Source/Treatment: The District's contract with SPU satisfactorily addresses source of supply needs through 2060.

The District will continue to explore the feasibility of purchasing water from Lakehaven Utility District (LUD). LUD is a stakeholder in the Tacoma Public Utilities filtration plant that became operational in 2015. LUD has approximately 2.0 MGD excess water supply available for purchase. The District allocated funding under Project 14-2 to further study the source, perform a blending study and to make capital improvements to the system in anticipation of purchasing LUD water.

2. Storage: There are no significant short-term storage deficits.

3. Distribution System: The District will continue to use its 2008 Asset Management Plan to use as a guide to create prioritization strategies for future projects to evaluate water mains that will soon begin to meet the end of their useful life and need to be replaced. The next scheduled update of the Asset Management Plan is 2018.

In 2012, staff discussed with the Board the goal to replace AC water mains within in the District over the next 30 years. The District will focus efforts replacing small diameter mains adjacent to sensitive/critical areas like steep slopes or wetlands. In addition, the District will work to replace mains identified in the comprehensive plan to improve fire suppression. The District will continue to work with Cities to replace water mains in consort with City projects to reduce costs.

MITIGATION IMPROVEMENTS FOR 2017

The District allocates funding for improvements to District facilities to ward against man-made and natural disasters. Improvements include security cameras and technologies, fencing, security software, access control devices and other types of security improvements. In recent years, the District upgraded security cameras at the District headquarters and added cameras to the Pump Station 7 site. In 2016, the District upgraded the access control software. The budget for 2017 includes \$40,000 for mitigation improvements.

METERS, HYDRANTS AND SERVICES BUDGET

The Meter, Hydrants and Services budget is an allocation of funds used for new or replaced capital assets performed by District personnel. Typically, the assets are pipe, meters, hydrants and/or water services. For example, a small water main replacement project that would be performed by District crews would be funded from this budget. The costs will be capitalized over the life of the asset. The budget is evaluated annually by reviewing the goals and objectives for the subsequent year and comparing the figures with the overall annual budget.

For 2017, the budget includes \$1,400,000 for the meters, hydrants, and services. The budget includes the replacement of approximately 25 hydrants, 50 water services, and three (3) small water main replacement projects for the field crew. In 2017, the budget also includes funding to replace approximately 6,000 small diameter meters across the District. The small diameter meter replacement is the first of a three year project. Please see the *2016 Goals and Objectives* document for more specific information on specific goals by the field crews for capital improvements.

APPENDIX
CIP CONSTRUCTION PHOTOS

PROJECT 13-1A ANGLE LAKE AC WATER MAIN REPLACEMENT



PROJECT 13-3 CITY OF SEATAC 24TH/28TH AVE S EXTENSION (S 200th St - S 208th St)



PROJECT 14-3 MANHATTAN VIEW WATER MAIN REPLACEMENT



PROJECT 15-1 TYEE WELL REDEVELOPMENT



PROJECT 16-5 S 268TH ST WATER MAIN REPLACEMENT



Agenda Item No.: 5.3
Agenda Date: 12/21/16
Reviewed By: M.E.

Subject: Adopt 2017 Capital Improvement Program

CATEGORY	
<i>Executive</i>	<input type="checkbox"/>
<i>Administrative</i>	<input type="checkbox"/>
<i>Engineering/Operations</i>	<input checked="" type="checkbox"/>

FINANCIAL			
<i>Expenditures?</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
<i>Budgeted?</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
<i>Amount: \$</i>			<u> </u>
<i>Plus WSST</i>			

- Attachments**
1. Resolution #16-12-21C
 2. Exhibit A – 2017 Capital Improvement Program

COMMENTS:

Each year staff and the Commissioners review the needs of the District and establish a Capital Improvement Program (attached to the resolution as Exhibit A).

Staff recommends approval of this resolution.