



**BUSINESS OF THE CITY COUNCIL
CITY OF MERCER ISLAND**

**AB 6530
October 1, 2024
Regular Business**

AGENDA BILL INFORMATION

TITLE:	AB 6530: Long-Term Water Infrastructure Response and Alternatives	<input type="checkbox"/> Discussion Only <input checked="" type="checkbox"/> Action Needed: <input checked="" type="checkbox"/> Motion <input type="checkbox"/> Ordinance <input type="checkbox"/> Resolution
RECOMMENDED ACTION:	Include the design and construction of a new 24-inch transmission line in the 2025-2030 Capital Improvement Plan and commence next steps including coordination with SPU on contract amendments and to identify long-term solutions to serve the Shorewood Apartments. Develop a project funding plan and prepare a capital funding request for the Washington State Legislature.	

DEPARTMENT:	Public Works
STAFF:	Jason Kintner, Public Works Chief of Operations Patrick Yamashita, City Engineer/Deputy Public Works Director Kellye Hilde, Deputy Public Works Director
COUNCIL LIAISON:	n/a
EXHIBITS:	1. Transmission Line Map
CITY COUNCIL PRIORITY:	3. Make once-in-a-generation investments to update and modernize aging infrastructure, capital facilities, and parks.

AMOUNT OF EXPENDITURE	\$ n/a
AMOUNT BUDGETED	\$ n/a
APPROPRIATION REQUIRED	\$ n/a

EXECUTIVE SUMMARY

The purpose of this agenda bill is to present recommended actions to improve resiliency of the permanent water transmission line from Seattle Public Utilities (SPU) through replacement of 3,500 feet of concrete cylinder pipe with 4,800 feet of earthquake resistant ductile iron pipe in a new alignment.

- On April 3, 2024, a leak from SPU’s 24-inch diameter water transmission line was discovered. The City Manager issued [Proclamation No. 327](#) Declaring a Local Emergency due to the reduction in the supply of incoming potable water to Mercer Island.
- The City Council ratified this Proclamation on May 7 ([AB 6466](#)). On May 1, the City Manager declared a second local emergency with [Proclamation No. 329](#) due to the reduction in potable water supply to Mercer Island caused by the aforementioned leak. The City Council ratified this Proclamation on May 21 ([AB 6471](#)).

- The 24-inch concrete cylinder water transmission line located in the SE 40th Street right-of-way was constructed in 1956 and has required several leak repairs over the years.
- The City and Shorewood Apartments are the two wholesale customers served by SPU’s water transmission line. The City is responsible for 97.2% of the costs associated with this transmission line, with the balance of cost responsibilities belonging to the Shorewood Apartments.
- Given the overwhelming cost responsibility held by the City, and the importance of this water transmission line, the City began exploring options to replace this segment of pipe with a stronger, earthquake resistant transmission line in an alternative alignment.
- The estimated planning level cost for this replacement, together with other related improvements, is \$19 million.

BACKGROUND

SPU is the sole provider of potable water to Mercer Island. On April 3, 2024, the City learned that the SPU 24-inch water transmission line to Mercer Island was leaking in the steep sloped area in the SE 40th Street right-of-way, just north of where Mercerwood Drive meets SE 40th Street. Consequently, SPU crews significantly reduced and then shut off flow to the transmission line, eliminating its use as the primary transmission line. Mercer Island received water through a smaller backup pipeline beginning April 4, 2024 and implemented emergency conservation actions due to the constrained supply.

SPU and their specialty contractor, in coordination and collaboration with the City, completed repairs and testing, restoring flow through the SPU transmission line on August 1, 2024. The repaired section was slip-lined with approximately 1,300 feet of structural liner, reducing its diameter from 24-inches to 17.4-inches. This loss of carrying capacity was analyzed to understand the impact on the water supply and deemed acceptable.

With the repair complete, the City Manager issued [Proclamation No. 344](#) ending the state of local emergencies related to the SPU water pipeline leaks, respectively declared in [Proclamation No. 327](#) and [Proclamation No. 329](#).

ISSUE/DISCUSSION

Challenges with the Existing Water Supply Transmission Line Segment

The development of the leak in this critical water transmission line highlighted several important issues. Access to the pipeline near the leak is very difficult, as it is located under a steep slope, and in close proximity to high- and low-pressure natural gas pipelines. The area to the east has a history of slope instability, requiring multiple repairs to joints in the pipeline since shortly after its installation in 1956.

The existing 24-inch pipe is comprised of a steel cylinder wrapped with a concrete casing. While this material composition was common in the 1950s, this style of pipe is recognized as being non-resilient in seismically active areas, and as demonstrated, in areas with even small and slow slope movement. This region has recognized the need to make incremental improvements to vulnerable life-line infrastructure in response to improved understanding of local earthquake risks.

Although owned and operated by SPU, the City bears 97.2% of the cost responsibility for this segment of pipe, without commensurate control over decision-making related to operations, maintenance, and long-term capital investment. SPU has been an excellent partner in water supply, but decisions related to large, on-island infrastructure are better made by local utility managers and policymakers.

Considered Alternatives

“Do Nothing” SPU’s recent repair mitigated the immediate adverse impact on the City’s water supply and has an estimated “useful” life projection of approximately 50 years. Challenges remain, however, due to the transmission line’s location in an area with known slope movement, difficult access in some portions, and being constructed of materials that are not seismically resilient. Additionally, the City is responsible for the entire cost of the transmission line segment, despite having only secondary and negotiated control over infrastructure decisions.

“New City Owned Pipeline” Moving the critical 24-inch transmission line out of the SE 40th Street corridor, and converting to a City-owned asset would consolidate control with responsibility, provide a more resilient and reliable water supply line, and reduce risk in a vulnerable area. Multiple routes for construction of a replacement transmission line were reviewed, but topography and rights-of-way alignments constrain viable options.

The alignment from the Boat Ramp area, north on E. Mercer Way, west on SE 36th Street, and southwest up Gallagher Hill Road to SE 40th Street (see Exhibit 1) is the most feasible route. Hydraulic and planning level studies were conducted, evaluating different pipe sizes and materials. The alternative alignment is longer than the current alignment but is a more reliable route and will meet supply needs with a 24-inch transmission line. This alignment also has the advantage of simultaneously replacing an old asbestos-cement pipeline in Gallagher Hill Road that was scheduled for replacement in 2025. The following Table summarizes the planning level costs developed for this work, including the estimated cost to provide a new connection to Shorewood Apartments, which is discussed further below. These costs are planning level estimates and further refinement will occur with project design and contract negotiations pertaining to assuming ownership of the new infrastructure.

Description	Estimated Cost ¹
24” Restrained Joint Ductile Iron Pipe (RJDIP) Design, Construction Management, Admin, & Permitting ²	\$2,247,000
24” RJDIP Construction	\$8,981,000
Subtotal – New Supply Transmission Line Project	\$11,228,000
AC Pipe removal (currently in path of new transmission line) ³ Upsizing the 12-inch near the tanks	\$1,812,000
Replace 8-inch AC main along Gallagher Hill Rd ³	\$1,336,500
New vault with control valve and flow meter at boat ramp ³	\$2,314,500
Connect Shorewood Apartments at 88 th Ave SE and 90 th Ave SE ^{3,4}	\$2,082,000
Total project cost	\$18,773,000

Notes:

1. Costs are best estimate plus 50% values (Class 5 planning level opinion of probable cost).
2. Design and related services sum to be approximately 25% of the construction cost.
3. Estimates include design, Construction Management, Administration, Permitting and Construction.
4. Decision to proceed subject to discussion and approval from SPU, Shorewood Apartments, and City policymakers, and further evaluation of appropriate cost allocations.

This project will design and construct a new, City-owned 24-inch transmission line that connects to the current SPU infrastructure on 92nd Avenue SE, and west on SE 43rd Street where the SPU meter is located. These remaining segments of pipe (92nd Avenue SE and SE 43rd Street) are currently owned and operated by SPU and would necessitate negotiations with SPU to transfer this existing pipeline segment, for which the City

is currently 100% financially responsible, to the City. The City and SPU have had preliminary discussions about this option and this option is attainable.

Shorewood Apartments Supply

The SPU transmission line includes a combination of “reaches” or sections of pipe that are owned and operated by SPU. They include Reach 3 and Reach 4 and the Shorewood Apartment connection (see Exhibit 1). Currently, Shorewood Apartments is a direct customer of SPU, with water feeds coming from the 24-inch transmission line. In the most recent emergency, along with a previous water supply emergency in 2023, temporary connections to the Shorewood Apartments from the City’s distribution system were needed to maintain water supply. Fire flow protection during these periods was significantly impaired.

City engineering staff, with consultant support, evaluated several feasible options to provide service to the Shorewood Apartments in the future. The preferred option is to connect Shorewood Apartments via two new pipes and master meters fed from SE 36th Street on 88th and 90th Avenues SE. Should this proposed design move forward, Shorewood Apartments will need to become a direct customer of the City of Mercer Island.

The primary advantages to the City would be the elimination of the need to mobilize personnel to provide temporary connections whenever SPU supply is interrupted, and reduction of risk posed by Shorewood Apartment’s aging asbestos cement and cast-iron transmission pipelines on SE 40th Street, 90th Avenue SE, SE 37th Street, and 88th Avenue SE.

Alternatively, Shorewood Apartments can remain connected to SPU’s 24-inch transmission line and remain a SPU wholesale customer; however, the existing 24-inch transmission line would remain in service.

Any future solution will require additional discussion and negotiation between the City, SPU, and the owners of the Shorewood Apartments.

NEXT STEPS

The purpose of this agenda bill is to approve the inclusion of a project to design and construct a new 24-inch ductile iron transmission line in the 2025-2030 Capital Improvement Plan. This authorization allows staff to proceed to the next steps, which are further described below.

Upon approval of this project, staff will evaluate the optimal project delivery and funding approaches to ensure efficiency and effectiveness and return to the City Council with a recommendation and appropriation request to commence design. Staff will also begin negotiations with SPU to address ownership issues and further explore alternatives for service to the Shorewood Apartments. Finally, an amended Wholesale Service Contract and construction contract will be brought back to the City Council for review and approval.

Given the size, scope, and importance of this project, the City Manager is also recommending this project be included in a capital funding request to the Washington State Legislature. The recommended motion includes authorization for staff to prepare the necessary materials to proceed with this capital funding request.

RECOMMENDED ACTION

Move to direct staff to include the design and construction of a new 24-inch transmission line in the 2025-2030 Capital Improvement Plan; negotiate a preferred pipeline alignment and ownership from Seattle Public Utilities; identify long-term solutions to serve the Shorewood Apartments; prepare an amended Wholesale

Service Contract; and, return to the City Council with a recommended project funding plan. In addition, direct the City Manager to prepare a capital funding request for submission to the Washington State Legislature and include this request as part of the City's 2025 Legislative Priorities. Further, authorize the Mayor and Deputy Mayor to commence conversations with State legislative representatives about this project and the corresponding capital funding request.

OVERVIEW OF SPU SUPPLY LINE

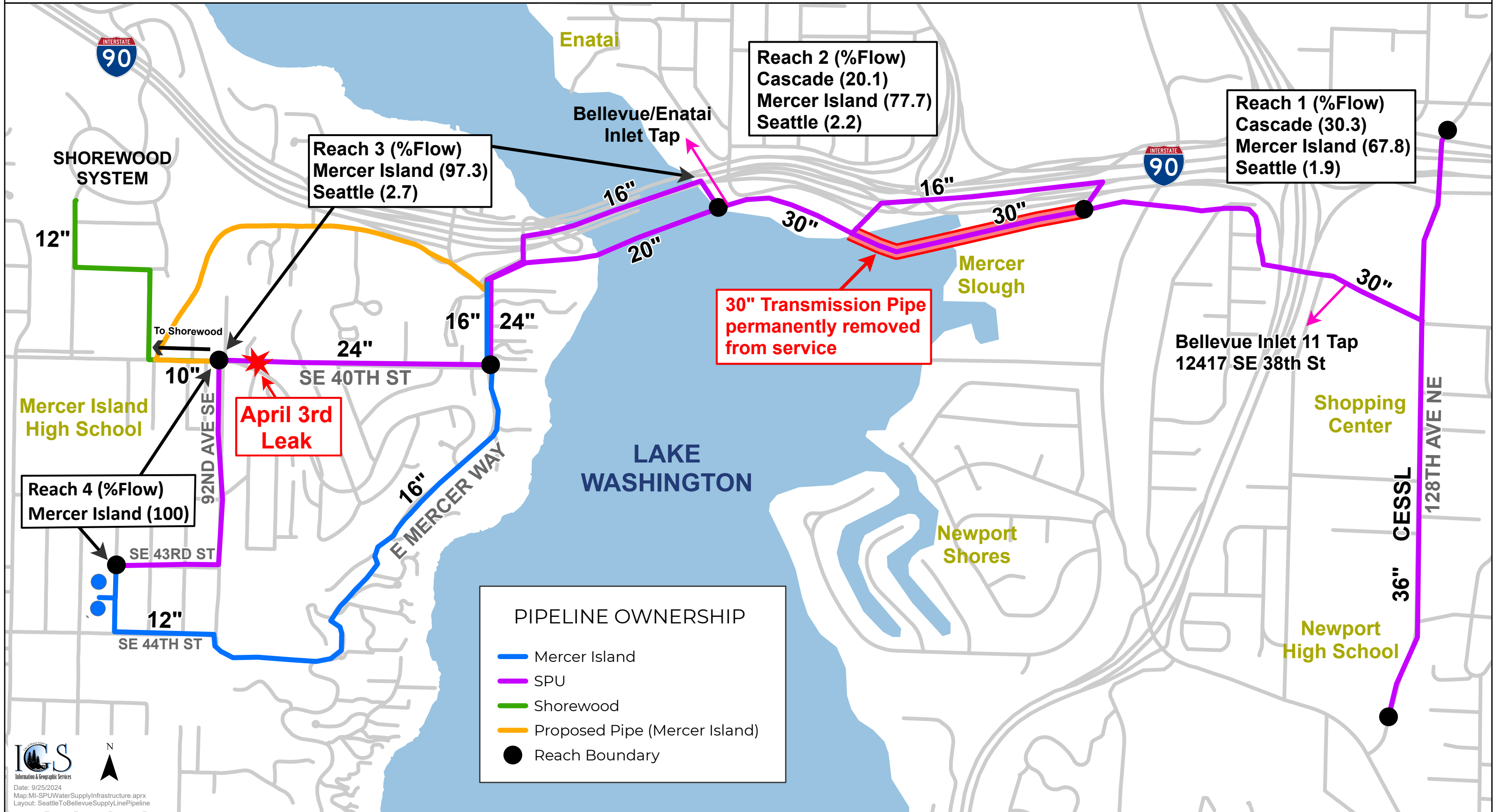


EXHIBIT 1