

Report to Council



Date: October 19, 2020
To: Council
From: City Manager
Subject: Water Integration Project - Update
Department: Infrastructure

Recommendation:

THAT Council receives, for information, the report from the Infrastructure Division dated October 19, 2020, with respect to a Water Integration Project update;

AND THAT Council direct staff to increase the project fee from \$32 per month to \$40 per month beginning in 2021 and extend the project fee duration until 2022.

Purpose:

To provide Council with an update on the current construction and financial status of the Water Integration Project and identify upcoming project requirements.

Integration Phase 1

After extensive discussions between the City of Kelowna, the Provincial Government, and the South East Kelowna Irrigation District (SEKID), the parties jointly funded a Value Planning Study which culminated in a final report in February 2017 titled '2017 Kelowna Integrated Water Supply Plan'. This plan laid out the framework and skeletal high-level transmission network requirements for the ultimate integration of water purveyors within the City of Kelowna.

Subsequent to the study, the board of SEKID voted in favor of amalgamation with the City of Kelowna and a transition plan was developed with the dissolution of SEKID taking place by Provincial Order in Council on June 4th, 2018.

Supply upgrades to the City water supply infrastructure support the amalgamation of SEKID and the South Okanagan Mission Irrigation District (SOMID), ultimately leading to the Kelowna Water Integration Phase 1 project and a total project cost of \$86 million. This included funding from an unprecedented Federal and Provincial grant (\$43.9 million), City utility and DCC reserves, and a specific project fee and Local Area Service (LAS) charge for customers within the historic SEKID boundary and a LAS charge for those customers within the historic SOMID boundary.

A design-build (DB) contract was awarded in May 2018 to Emil Anderson Construction Inc, with construction starting in July 2018. Major components of the Phase 1 project include:

- 82 km of domestic transmission and distribution water mains
- Upgrades to 3 existing pump stations
- 1 new pump station
- 3 new reservoirs
- 12 new pressure reducing stations
- 815 new water services
- 2,129 new water meters

Since that time, approximately 480,000 total person-hours, or 230 person-years have been put into the project, along with 650 engineering drawings, 376 meetings and close to 23,000 construction photos. Once complete, the City of Kelowna domestic potable water system will have increased by 20 per cent in just 23 months and added over 2,000 new customers to the water utility.

Although work on the design-build contract is substantially complete, several items being completed separately are still in progress, such as the installation of separate irrigation services for larger properties and water meters. These will be completed in early 2021.

Integration Phase 2

The Provincial Government provided an additional \$12 million grant in September of 2018 to initiate the Phase 2 works, including transmission main and reservoir expansions, which will ultimately lead to supply resiliency and added strength of the overall network to accommodate city wide integration. This additional funding brought the entire project value to approximately \$98 million, with no additional capital cost to residents.

Phase 2 works include the Westpoint transmission main and the KVR reservoir upgrades currently in progress. These projects are scheduled to be complete in the Spring of 2021 and are anticipated to be complete within the project budget.

Water Restrictions

Given the size and complexity of the system and the short timeline for construction (driven by the grant deadlines), operational issues were anticipated during the 2020 transition year. However, the specific nature of the issues and the extent were unknown. Between July 17 and September 1, 2020 water restrictions on residential irrigation were put in place for the legacy SEKID area as well as for Crawford Estates due to our inability to ensure uninterrupted supply of water for domestic, sanitary and firefighting while meeting the high water demand. A higher than anticipated demand has been realized, and attributed to the following:

- 1) Many service lines in the former SEKID area have leaks on private property. As we implement new water meters in the larger lot areas, it is apparent that numerous leaks exist, with some being quite substantial. Most property owners are unaware of their water consumption (including leaks) until meters are in place. Operations staff are working with area residents to have the leaks addressed as they become known.

- As of the first week of October, over 55 per cent of the meters have been installed, with 15 per cent of those showing continuous flow (indicative of leaks and/or 24-hour irrigation), an equivalent average daily flow for approximately 200 homes.
- 2) There are several agricultural properties that are irrigating large landscaped areas with potable water when non-potable water is currently available to them. Again, operations staff are working with these customers to modify their on-site plumbing to irrigate with non-potable water.
- 3) Just over 200 large residential properties have been approached to consider the installation of a small irrigation service for their landscaping. There has been an excellent response rate with 168 of these properties requesting a dedicated non-potable irrigation service. 133 have been installed as of the first week of October and are continually on-going. On-site plumbing modifications are required to be carried out by the property owner to isolate the irrigation system from the potable water.

In time, water demands are expected to drop significantly to expected levels based on resolving the issues noted above, and an increase in consumer awareness as former SEKID customers will receive bills based upon consumption, beginning in January 2021. Water meters and billing based on actual water use has been proven to be the most effective water conservation tool available.

To facilitate this reduction in demand, there are remaining project components which must be finalized. Completion of the meter installation will allow for any significant leak(s) on private property to be identified and the customer notified, and installation of the remaining irrigation services will allow those properties to irrigate with non-potable water. Nevertheless, consumption reductions may take years to be fully realized as we know it takes time to develop a culture of conservation and, ultimately, there will be users that will remain willing to pay for significant volumes of water.

Further to the above, the challenges of this past summer required staff to implement operational changes which improved and optimized the capacity of the system. The modifications included programming changes to optimize reservoir levels, programming of pump operations to meet peak timing requirements, and minor upgrades to valve operations.

We have also identified physical constraints and have identified upgrades required to improve operations through hydraulic improvements, resiliency and redundancy within the existing system and to increase pumping performance. A third pump at the Crawford pump station, piping modifications at the Lower Crawford and Dall Road reservoirs and the addition of variable frequency drives to the Field Road reservoir supply pumps are recommended.

Lastly, in addition to the above, in order to ensure an adequate supply of potable water in 2021 and into the future, supply upgrades are recommended. The new distribution system was designed and built in accordance with our bylaw requirements and has the capacity to deliver the high overall demand. However, there are components of the existing supply system that were not included within the Phase 1 upgrade contract, given the best information that we had at the time. Additional project components would have been included if complete / actual demand data would have been available at the outset. Inclusion of the works will mitigate future water restrictions.

These components include modifications to the Vector valve chamber, a transmission main along Westridge Drive and proposed system separation for 4 agricultural properties along Crawford Road to supply non-potable irrigation water.

Upgrades are proposed to be completed to meet the demand, prior to next irrigation season.

Budget

As the project nears completion, the majority of the estimated project costs are now known, as the assets are completed and commissioned. However, there are projects, as identified above that are still to be completed.

A \$32 per month project fee was instituted by the legacy SEKID board, coming into effect in July of 2018. Previous communications to SEKID customers was such that the \$32 per month project fee would be replaced by an annual LAS fee amounting to approximately \$40 per month in 2021.

As all project costs have not yet been determined, it is proposed to delay the implementation of the LAS until 2022. For 2021, staff recommend that the monthly project fee continue and that the fee be increased to \$40 per month.

Apportionment between the Water Utility, existing capital budgets and the LAS will take place once the projects are completed and final costs are calculated.

Financial/Budgetary Considerations:

For 2021, staff recommend that the monthly project fee continue and that the fee be increased to \$40 per month.

Internal Circulation:

Budget Supervisor
Financial Analyst
Divisional Director, Financial Services
Communications Advisor
Community Communications Manager
Utility Planning Manager
Utility Services Manager
Water Integration Project Manager
Infrastructure Delivery Manager
Divisional Director, Infrastructure

Considerations not applicable to this report:

Legal/Statutory Authority:
Legal/Statutory Procedural Requirements:
Existing Policy:
External Agency/Public Comments:
Communications Comments:

Submitted by:

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Infrastructure Delivery Department Manager

Approved for inclusion:



Alan Newcombe, Divisional Director, Infrastructure

Attachment 1 – Water Integration Project – Update, Presentation

cc: Divisional Director, Infrastructure
Divisional Director, Corporate Strategic Services
Divisional Director, Financial Services