Agenda Report

October 4, 2021

TO: Honorable Mayor and City Council

THROUGH: Municipal Services Committee (September 28, 2021)

FROM: Water and Power Department

SUBJECT: **APPROVE AND ADOPT THE 2020 WATER SYSTEM AND RESOURCES PLAN**

RECOMMENDATIONS:

It is recommended that the City Council:

1. Find that the proposed action is exempt from the California Environmental Quality Act ("CEQA") pursuant to State CEQA Guidelines Section 15262, Feasibility and Planning Studies; and
2. Approve and adopt the 2020 Water System and Resources Plan.

MUNICIPAL SERVICES COMMITTEE RECOMMENDATION:

On September 28, 2021, the Municipal Services Committee ("MSC") unanimously recommended the 2020 Water System and Resources Plan be adopted by the City Council. The MSC also recommended that Pasadena Water and Power Department ("PWP") work closely with the Raymond Basin Management Board ("RBMB") in developing policies, programs, and projects that address the safe-yield (amount of water that can be withdrawn from the basin without producing an adverse effect) and measures that would help the basin levels stabilize and recover. PWP should provide updates to MSC every six months on progress achieved with Raymond Basin activities.

EXECUTIVE SUMMARY:

The 2020 Water System and Resource Plan ("WSRP") is a 25- year strategic comprehensive planning guide meant to succeed the 2002 Water System Master Plan and the 2011 Water Integrated Resources Plan. It provides the City with a framework to evaluate future water supply programs and infrastructure investment to provide customers with superior service, safe, sustainable and reliable water at reasonable rates. The WSRP was developed by PWP in collaboration with a 14-member stakeholder group of customers and community interest groups. While the WSRP establishes policy and strategic guidance for future recommended City

Council actions, its adoption does not commit the City to undertake or fund the projects described.

The WSRP report, which is included as Attachment 1, evaluates six portfolios and identifies a preferred portfolio based on the values established by the stakeholders. It recommends implementing a number of projects with a total estimated cost of approximately $430 million over 25 years through 2045 to achieve the objectives identified by the stakeholders and community groups. This amount includes $250 million to address the existing backlog of repairs and replacements and additional projects to increase the groundwater basin sustainable capacity, improve the water system, and address uncertainties in supply, regulations and demand.

The projects and programs evaluated in the preferred portfolio include:

- Groundwater storage program
- Projects to increase groundwater recharge capacity
- Enhanced conservation programs that exceed state mandates
- Well rehabilitation/replacement and groundwater treatment projects
- Use of local non-potable resources for irrigation (use of recycled water from the Los Angeles Glendale Water Reclamation Plant is not recommended)
- Increased rehabilitation of distribution and storage infrastructure

The recommended portfolio of investments will provide the capability to effectively manage and increase groundwater storage and the use of local water, meet and exceed the State of California ("State") requirements for indoor and outdoor conservation, and support Pasadena's water demands for up to two years in the event of imported water curtailment as reflected in the Metropolitan Water District of Southern California's ("MWD") planning documents.

The WSRP is planned to be reviewed and updated every five years so as to adjust the course based on water supply conditions, operational needs, rates and legislative and regulatory requirements.

Raymond Basin - The Raymond Basin is an adjudicated basin and a shared resource with multiple groundwater producers with PWP being the largest. It is one of our most critical water supply assets. The current judgment and assigned operating safe-yield provide a framework from which the producers manage their individual pumping and recharge activities. It is anticipated that the RBMB and producers will re-evaluate the current operating plan and its impact on water levels in the basin and develop strategies and programs to prevent long-term overdraft. The policy guidance enumerated in the WSRP provide PWP with the necessary flexibility to adapt to changes in basin management.

PWP is committed to work closely with the RBMB in developing policies, programs, and projects that address safe-yield and measures that would help the basin recover. PWP will provide updates to MSC every six months on progress achieved with Raymond Basin activities.

Public Outreach - The WSRP development included extensive public engagement including opportunity for local students to participate. PWP conducted six meetings with the stakeholders, two public meetings, a mid-way update to Municipal Services Committee, and three meetings with the Environmental Advisory Commission. In addition, a presentation was made at Pasadena Community College and local high school students were engaged in the portfolio designs. Comments from EAC and Raymond Water Management Board are addressed in Appendix J and K of the WSRP report (Attachment 1).

Fiscal Planning - For planning purposes, the estimated capital improvement costs in the WSRP are $430 million over 25 years, with $130 million anticipated over the first five years. In contrast, the five year workplan for all Water System capital projects in the FY2022 Capital Improvement Program ("CIP") approved by the City Council was approximately $126 million. Actual capital costs and associated rate impacts will vary depending mainly on funding sources and timing of project implementation schedules. It is anticipated that funding will be provided from a combination of sources, including revenue bonds, federal and state funding programs, pay-go funding from current customers and prudent use of capital reserves.

The FY2022 operating budget included a 3.7% system average rate increase to be effective January 1, 2022. The effective date of the FY2022 increase has been delayed due to the ongoing impacts of COVID-19 and the go-live schedule for the CIS project. There will likely be additional rate adjustments necessary due to water sales volumes and increased costs of imported water and operations. Funding for the WSRP projects will be developed as part of the five-year CIP budgeting process. Total water system average rate increases are estimated at 4-6% annually for FY2022-2026.

BACKGROUND:

PWP provides potable water to approximately 170,400 customers in the City of Pasadena, and neighboring communities in Los Angeles County with an annual demand of approximately 28,500 acre feet ("AF") in fiscal year 2020. PWP's water supply is a blend of 30 to 40% local groundwater with the remainder supplied by imported water from MWD.

To determine the water demands, the WSRP evaluated the distribution, storage, conservation, and supply/production components of the water system and other miscellaneous facilities to identify gaps between current and future demands and supply projected until the year 2045. These evaluations were performed by completing assessments to quantify the deficiencies.

Water Distribution System Assessment

PWP's water system consists of approximately 520 miles of pipelines (50 percent of which are more than 80 years old), 14 reservoirs with total capacity of 110 million gallons ("MG"), 23 pressure zones, 18 wells, 19 booster stations, five connections with MWD, and 27 interconnections with other neighboring water agencies. These are controlled and operated in a variety of series and sequences to achieve water

supply and water quality consistent with the State-issued drinking water permit and with the objectives of the PWP's mission statement.

A hydraulic model was used to evaluate whether the water system can provide uninterrupted and adequately pressurized supply to customers for current and projected supplies and demands through the year 2045. The evaluation, based on industry standards and six criteria (pressure, fire flow requirements, storage, supply, risk assessment among others) indicates that:

- 272 miles of pipes need to be replaced over the next 25 years at a rate of 10 to 11 miles per year.
- While many of the booster stations require improvements, the largest and most costly boosters have been replaced or refurbished in the last 20 years. However, increasing vulnerability to fires in the urban-wildland interface area is compelling incentive to continue robust funding of these facilities.

Other factors such as property redevelopment or important life safety facilities also influence the sequence of pipeline replacement. Approximately 95 miles were replaced since 2002 at a rate of about 5 miles per year.

Water Storage Assessment

The evaluation of reservoirs, boosters, and pressure reducing stations indicates that:

- Eight of the 14 reservoirs need significant repair/replacement or major seismic retrofit, including the complete replacement of the 15-million gallon Sunset Reservoir built in 1888 (Sunset unit 1) and 1900 (Sunset unit 2).
- Four additional reservoirs need minor repairs.

Water Supply Reliability Assessment

This assessment quantifies potential supply shortages under multiple limitations including full or partial curtailment of imported water for up to two years due to an earthquake. In addition, climate adaptation strategies are being coordinated with the County, MWD and other agencies.

A supply model was developed to quantify the reliability of the water supplies from years 2020 through 2045 based on historical production, annual weather factors, and historical hydrologic data. The system modeling results indicate that:

- Pasadena will not experience supply deficits during average and non-drought years.
- Between 2020 and 2045 PWP will meet its service area demands 91 percent of the time. The remaining nine percent of the time the projected supply shortage will be approximately 1,000 to 1,500 AFY and can be offset with temporary conservation measures.
- An earthquake of 7.8 magnitude (or greater) along the southern San Andreas Fault has a high likelihood of severing major aqueducts and interrupting imported water supply for six to 24 months.

- Water quality is a significant factor affecting water supply and is also addressed in the WSRP. Legacy contamination issues impact the water supply options available in many parts of the City. Water quality is always carefully monitored and the treatment technologies currently used are proven effective and will be expanded to more sites. In addition, new wells in areas less susceptible to contamination combined with treatment provides greater flexibility to produce more local water or to engage in storage programs offered by others.

WSRP Project and Program Portfolios

A total of 32 distribution, storage, conservation, and supply/production options were identified for consideration in the WSRP. These projects and programs were grouped into six "Portfolios" to meet the WSRP goals and address deficiencies in the CIP categories, as shown in **Attachment 2**.

The projects and programs in each Portfolio are grouped in four CIP categories:

1. **Supply/Production** (imported water, groundwater, wells, treatment of water and water conservation programs),
2. **Distribution** (pipelines, booster pumps, meters and services),
3. **Storage** (reservoirs), and
4. **Other CIP/Facilities** (new customer billing system, security, community conservation projects, software, improvements to the water quality lab, buildings and grounds).

Portfolio Evaluation Process

The six portfolios were compared using the water supply model and the nine criteria ranked by stakeholders and PWP: (1) reliability; (2) health and safety; (3) cost; (4) environmental stewardship; (5) self-sufficiency; (6) regional collaboration; (7) ease of implementation; (8) flexibility; and (9) community values/quality of life. Hydraulic and water supply models were used to determine resiliency and reliability for each portfolio. The result of the evaluation, summarized in Table I, indicates that:

- The recommended infrastructure upgrades are very similar for all portfolios except the first "Status Quo and Stormwater Capture" (current path portfolio). The main difference is in the Supply/Production category.
- The overall scores of the portfolios with maximum imported water are low, due to reliability and higher operation and maintenance ("O&M") costs even though their CIP costs are lower. The portfolios with maximum local water supply and conservation are the most expensive and have medium overall scores.
- **Portfolio F** scores the highest. This portfolio has medium cost, high local supply reliability, increased conservation, and the highest resiliency even with extended disruptions of imported water.

Table I – Summary of WSRP Portfolios Evaluated

Portfolio	Key Strategies	CIP Cost $M/Year	Rank
A – Status Quo & Stormwater Capture	Operate as historically, implement planned stormwater projects, meet conservation regulations	$8	5
B – Maximize MWD Supply/ Minimize Local CIP	Replace groundwater with imported water, abandon wells, little local supply enhancements, meet conservation regulations, low CIP cost, high O&M, lowest reliability	$14	6
C – Maximize Local Supplies	Reduce imported water, implement local projects, increase distribution and storage, highest CIP cost, high reliability	$21	2
D – Maximize Sustainable Sources	Reduced carbon footprint, aggressive conservation, green streets, maximize local supplies, maintain infrastructure, restore surface water treatment plant for drinking, high CIP cost	$20	3
E – Maximize Direct Use of Stormwater and Recycled Water	Meet conservation regulations, re-open surface water treatment plant for drinking, advanced treatment of recycled water for drinking, lower cost projects, high O&M costs, high reliability	$16	4
F – Preferred – Sustainable Groundwater, Conservation, Stormwater Capture	Upgrade infrastructure for responsible reliability, increase groundwater recharge, storage and treatment, store imported water for emergencies, additional conservation, build an irrigation system, moderate cost, high reliability, highest resiliency under extended disruption	**$17**	**1**

Portfolio F, the preferred portfolio, includes the following key strategies: replace vulnerable distribution pipelines ($294 million) by doubling the rate of the pipeline replacement from 5 to 10 miles per year; complete major repair/replacement and seismic retrofit of eight reservoirs ($42 million); create sustainable local groundwater supply by capturing stormwater on a large scale, well rehabilitation and treatment ($17 million); and, increase conservation efforts to exceed State mandates ($12 million).

Public Outreach

In addition to community outreach that also included engagement with local students, the public engagement process featured a stakeholder advisory group to pursue diverse considerations and ensure a comprehensive planning process in developing the WSRP. To obtain perspectives, ideas, and feedback on the planning process, the stakeholder group was comprised of 13 representatives from PWP's residential, commercial, and large water customers in addition to environmental and other interest groups.

PWP conducted six meetings with the stakeholders from October 2018 to October 2020, two public meetings on November 17, 2019 in the Jackie Robinson Center and November 29, 2019 at Victory Park, and three meetings with the Environmental Advisory Commission on November 12, 2019, January 14, 2020 and October 27,

2020. In addition, a presentation was made at Pasadena Community College and local high school students were engaged in the portfolio designs.

The draft WSRP report was posted on PWP's website in September 2020; the final report was posted in December 2020. Some of the comments received from the public review include: (1) acceptable infrastructure replacement needs, (2) more aggressive water conservation is needed; (3) stabilize and increase groundwater levels. Attachment 3 is a two-page summary of the WSRP.

Funding Sources and Rate Considerations

While some of the recommended projects are already included in PWP's approved CIP, new projects identified in the WSRP will be defined and included in future CIP budget recommendations. All projects will be subject to prioritization and funding availability, and will be recommended for adoption by the City Council.

It is anticipated that WSRP projects approved for design and construction will be funded by a combination of revenue bonds (debt), federal and state grants and loans, pay-go funding from current customers and prudent use of capital reserves. A portion of funding for the WSRP projects will be provided from existing customers through water rates, primarily the Capital Improvement Charge ("CIC"). Revenues from the CIC are dedicated to funding debt service payments and a portion of capital costs. The CIC rate is set and adjusted by a formula as approved in the Water Rate Ordinance, subject to the public hearing requirements of Proposition 218. The CIC rate will be impacted by the capital funding levels approved by the City Council for projects identified in the WSRP.

Additional conservation and O&M costs for new local projects will be included in the annual O&M budget recommendations.

In addition to the rate implications for the CIC, rate increases are anticipated for the Commodity Charge for purchased water and the Distribution and Customer Charge for increased operating expenses, pay-go for capital investment and to fund required reserves. Although future rates will be based on cost-of-service requirements, total water system average rate increases are estimated at 4-6% annually for FY 2022-2026.

COUNCIL POLICY CONSIDERATION:

The proposed action is consistent with the General Plan Public Facilities Element and supports City Council's goal to improve, maintain, and enhance public facilities infrastructure, and implement capital improvements that will maintain and rehabilitate infrastructure.

ENVIRONMENTAL ANALYSIS:

The proposed action is approval and adoption of the WSRP as a planning study, and does not constitute approval or commitment to a particular set of projects or a definite course of action; nor does the proposed action restrict the City from considering any feasible mitigation measures or alternatives. Future commitment to any projects or

definite course of action will come from further planning, funding and approval by City Council and would be subject to appropriate CEQA review. Accordingly this action has been determined to be exempt from CEQA pursuant to State CEQA Guidelines Section 15262, which exempts a project that involves only feasibility or planning studies for possible future actions to which the lead agency has not yet approved, adopted or funded from the requirement to prepare an Environmental Impact Report or a Negative Declaration.

This exemption does require consideration of environmental factors. However, environmental stewardship was one criterion used to evaluate the portfolio options.

As the City progresses with the projects in the WSRP, each one will be subject to the appropriate environmental review and approval process. As the proposed WSRP is a planning study for possible future actions and includes consideration of environmental factors, the approval and adoption of the WSRP does not require further environmental documentation.

FISCAL IMPACT:

The recommended actions to approve and adopt the WSRP as a planning document will have no immediate fiscal impact. The total estimated capital investment projected in the WSRP is approximately $430 million over 25 years, averaging $17.2 million annually. Funding for this action will be addressed by current and recommended future appropriations for existing and newly created CIPs for the specified water system improvements in the annual CIP budget.

In addition to the capital expenditures identified for WSRP projects, funding will be required to support automation initiatives including the CIS Project, GIS enhancements, AMI and communication networks.

Table II represents the estimated annual capital outlay for the WSRP for FY2022 – 2026. Although future rates will be based on cost-of-service requirements, system average rate increases are currently estimated at 4-6% annually for FY 2022-2026.

Table II – Estimated FY 2022–2026 WSRP Costs ($ millions)

Fiscal Year	2022	2023	2024	2025	2026	Total
WSRP CIP Estimate	$22	$26	$45	$22	$15	**$130**

Respectfully submitted,

GURCHARAN S. BAWA
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Attachments:

Attachment 1 – WSRP Final Report is available at PWP at: https://PWPweb.com/WSRP
Attachment 2 – Portfolios
Attachment 3 – WSRP Handout