Appendix J
Responses to the
Environmental Advisory Commission Comments

PASADENA WATER AND POWER RESPONSES TO
THE ENVIRONMENTAL ADVISORY COMMISSION MEMORANDUM
DATED NOVEMBER 20, 2020
REGARDING DRAFT WATER SYSTEM AND RESOURCES PLAN

The EAC memorandum, dated 11/20/2020 expressed the following concerns regarding the Public Draft Water System and Resources Plan ("WSRP"):

1. *The draft report does not present engineering analyses required for the replenishment of the Raymond groundwater basin or how it is achieved. The WSRP does not evaluate potential impacts of climate change or a decrease in water supplied by MWD and how these events will further deplete the basin.*

Answer:

The Raymond Basin Management Board ("RBMB") and the State of California are the regulatory authorities overseeing the basin. RBMB represents and manages the groundwater basin for 16 water rights holders to pump from the Raymond Basin. Watermaster Service reports have reported the decline of the basin water levels and numerous technical studies have been completed. RBMB has changed policies and adjusted factors within its control as determined by the RBMB to manage the basin. The basin has been listed by the State in 2019 as low priority due to the management controls implemented by RBMB. Moreover, based on reports submitted to the State conclusion is that hydrographs are stable. Pasadena Water and Power ("PWP") has been working with the RBMB to implement management of groundwater levels.

Depending on where in the basin it is placed and how fast it might be lost to the lower Main San Gabriel Basin ("Main Basin"), groundwater levels can be increased by three means: the first is by adding more water to the basin, the second is by reducing the groundwater pumping, and the third is to reduce hydraulic differential of the lower basin to slow the rate of loss. Increasing water levels by pumping less groundwater and buying more imported water from the Metropolitan Water District of Southern California ("MWD") is expensive. The cost to increase the water levels by 50 feet is over $100 million.

Adding More Water to the Basin

The available water replenishment sources in the area are stormwater from rain precipitation and imported water from MWD. Imported water from MWD contains disinfectants and high mineral content which are not desirable for injection and

expensive for infiltration as evaporation and in-basin losses compound the inefficiency and carry heavy carbon footprint further exasperating water supply issues in California.

The WSRP report recommends for implementation three large scale projects that would help replenish the groundwater:

- *Pasadena Groundwater Storage Program* proposed to recharge imported MWD water in the Basin via infiltration.
- *Arroyo Seco Canyon Project* proposed to recharge approximately 1,000 AFY of stormwater in the Basin via infiltration and reducing pumping.
- *Arroyo Seco Pump Back Project* proposed to recharge approximately 1,000 AFY of stormwater captured from behind Devil's Gate Dam that otherwise would be released by LA County Flood Control District and discharged to the Pacific Ocean.

In 2019, RBMB approved PWP's in-lieu program and purchased 1,000 AFY of imported water for basin replenishment.

In addition, Pasadena led effort to work with the Main Basin agencies and the Main Basin Watermaster to reduce the loss of water from the Raymond Basin to the Main Basin. As the Main Basin is at a lower elevation than the Raymond Basin, the Raymond Basin is experiencing increased losses. It was estimated that an additional 6,000 to 10,000 AF of groundwater may be lost every year from Raymond Basin to the Main Basin through the Raymond Fault. Increasing water levels in the Main Basin appears to be a sound policy.

Pasadena supported the Main Basin agencies efforts to obtain additional water and MWD's Carson recycled water program to bring recharge water to the Main Basin. Continued coordination of the Pasadena and Upper San Gabriel Valley Municipal Water District may result in other mutually beneficial projects.

Coordination with neighboring agencies was not highly valued by the community members of the WSRP Stakeholder group and is an example of professional judgement departing from popular opinion for the benefit of the groundwater basin and the community.

Reducing Groundwater Pumping

Raymond Basin has an estimated volume of 820,000 AF. Of the 16 pumpers in the Basin, Pasadena is the largest water rights holder representing 42% of the total rights in the Monk Hill sub-area (4,464 AFY) and Pasadena sub-area (8,343 AFY) of the Basin.

In January 2008 RBMB adopted a resolution to put in place voluntary pumping reductions of 30% implemented over 5 years in the Pasadena subarea only. On July 1, 2009 the implementation began and by January 2014 the reduction was in full effect.

However, the reduced pumping did not increase the water levels. The drought, the increased losses to the Main Basin and the tail of previously established pumping rights have diminished RBMB efforts to stabilize the basin and initiate new management initiatives. In 2019 RBMB commissioned a study to evaluate the effectiveness of the voluntary reduction currently in place and consider additional measures to assist in groundwater recovery. Also in 2019, RBMB purchased 1,000 AF of water to augment the basin. Recent data indicates the current water levels in the basin are holding relatively steady in the short time with these efforts.

2. *WSRP goal of 10% conservation is not supported by thorough evaluation. More aggressive conservation goal is recommended.*

Answer:

The WSRP provides focus for long-term water use reduction building on the success achieved meeting the mandated goal of 20% conservation by 2020 under Senate Bill ("SB") X7-7 and the temporary measures imposed during the drought.

The WSRP anticipates new State requirements established under Assembly Bill 1668 and SB 606 and sets the objective to exceed those as an integrated demand management program providing flexibility to annual water supply and leveling peak demands, which not only save water but provide a financial advantage to rate payers. The City intends to roll off peak demand with an agile integrated supply portfolio.

The City Council members are the policy setters and community leaders that will ultimately determine an appropriate level for water use reduction and balance the appetite to support more costly imported water solutions. The new State regulations and the WSRP's 10% conservation goal establish the water demand to be reduced by 18% from year 2020 to year 2030. This goal will require innovative approaches which employ a combination of programs and policies focused on optimizing water use for landscapes through enhanced soil health and soil moisture retention, application of water based on plant water needs (water budget), enhanced irrigation efficiencies, and a rate structure tailored to meet the needs of the community.

The greatest impact for water use reduction identified is the single family residence customer using an average of 412 gallons per day per household from 2017 to 2020. Meeting the 18% reduction goal, household use would decrease to 338 gallons daily. Included in this is a 13% reduction in indoor water use sought by the State. This reduction represents reduced water use to the minimum required for health and

safety as established by State regulations. With approximately 28,000 households, the 18% reduction yields 2,300 AF of water.

Conservation gains do not correlate directly with reduced groundwater pumping.

3. *Evaluation of the best use of water with elevated nitrate – cost benefit analysis is not clearly presented to justify the use of the water for irrigation as best and most cost effective use.*

Answer:

The WSRP was based on planning level analysis of the costs and benefits of each program/project based on nine criteria and modeling. The nine criteria include cost effectiveness, degree of reliability, local control, energy efficiency, level of service, water quality protection, among others. The portfolio with the highest score was selected for implementation. The programs and projects in the selected portfolio will undergo thorough analysis and feasibility studies, including a cost benefit component, prior to implementation. However, nitrate removal for drinking water is extraordinarily expensive and only recently being considered by others in the region. Using local high nitrate groundwater for irrigation is orders of magnitude better environmental policy than using imported water, moreover, plants provide an effective mechanism to remove nitrate from the environment. This approach has been effectively used in many communities, including the City of Alhambra, for decades.

4. *Evaluation of Arroyo Seco stream and the water needed to sustain fish and natural resources should be conducted.*

Answer:

Several studies to consider the Arroyo Seco stream for fish and related habitat have been conducted. In 2018, prior to the initiation of the Arroyo Seco Canyon Project's ("ASCP") Environmental Impact Report, PWP retained the services of Psomas to study the impacts to riparian habitat as a result of the reduced flow in the Arroyo Seco from the project. The final report from the year-long study concluded that for representative average, dry and wet years "downstream reduced flows associated with ASCP diversions are not expected to result in any measurable effects on downstream riparian habitat."

In addition, PWP intends to remove the current fish barrier and upgrade the diversion and intake structure including features for the protection of future fish. PWP plans for additional features when connectivity from headwaters to the ocean is restored, contingent in part on LA County Flood Control District's retrofitting Devil's Gate Dam

to allow for fish passage and the removal of Brown Mountain Dam.

Water is a vital natural resource and the ratepayers of Pasadena have made substantial investment to protect and develop this resource. Forgoing a local resource, preferring to exporting detrimental environmental impacts associated with imported water is not a sustainable practice or sound policy. Protections for fish and other resources are embedded in the permitting and regulatory practices to be addresses with any project.

5. *Evaluation of stormwater capture - PWP should work closely with the Department Public Works to incorporate a stormwater capture program into the WSRP.*

Answer:

PWP has been working with the Department of Public Works to utilize available funding including Proposition W moneys for projects that would increase stormwater capture in Pasadena. However, stormwater from streets and parking lots is not suitable for infiltration in the groundwater without treatment in one form or another which have ongoing maintenance obligations for Public Works or the property owners.

ENVIRONMENTAL ADVISORY COMMISSION MEMORANDUM

To: Pasadena Water and Power

From: Environmental Advisory Commission

Date: November 20, 2020

Subject: Draft Water System Resources Plan

The Environmental Advisory Commission (EAC) received a presentation from Pasadena Water and Power (PWP) on October 27, 2020 regarding the Draft Water System Resources Plan (WSRP). EAC ad hoc members also reviewed additional information to better understand water conditions including a 2018 report entitled *Raymond Basin Assessment* prepared by Zanjero. The EAC recommends that final plan address the comments below.

Respectfully submitted,

Daniel Rossman, Chair
The Environmental Advisory Commission

Attachment 1: EAC Comments on the Draft WSRP

Attachment 2: Declining Groundwater Levels in Pasadena

Attachment 1: EAC Comments on the Draft WSRP

Pasadena is in a water crisis evidenced by decades of declining groundwater levels in the Raymond Basin. The figure provided in Attachment 2 illustrates the historic water level measurements from a basin well. The water level has dropped approximately 300 feet as a result of the withdrawal of more water from the basin than is replenished. In a report entitled *Raymond Basin Assessment* (December 17, 2018), Zanjero concluded:

> *The Raymond Basin is not managed in a sustainable manner as evidence by the decrease in basin groundwater levels over the last 118 years, and is under threat of spreading contamination.* ***PWP and RBMB must change its course and take action to prevent permanent failure of the basin****.*

However, the Draft Water System Resources Plan (WSRP) does not present analyses required for basin replenishment or how it can be achieved. The WSRP does not evaluate potential impacts of climate change or a decrease in water supplied by Metropolitan Water District (MWD) and how these events could further deplete the basin. Furthermore, the selected WSRP Portfolio F, Maximize Value of Groundwater/Non-Potable Supplies with moderate water conservation is likely not appropriate for maintaining sustainable water supply. Consequently, prior to presenting the WSRP to the Municipal Services Committee (MSC), the Environmental Advisory Commission (EAC) recommends conducting engineering analyses to ensure a wholistic approach to managing Pasadena's water supply and replenishing the basin to provide a more resilient and flexible water plan. The recommended analyses are described below.

1. Engineering analysis of the groundwater basin

Slide 4 of PWP's WSRP PowerPoint presented to the EAC indicates that the primary goal is to "develop and manage sustainable water supplies" and the stated objectives are: to improve the health of the Raymond Basin, efficiently use available supplies, adapt to a changing climate, and enhance local supplies and support regional water supply programs.

However, there is a lack of information on how basin replenishment will be achieved and there is no determination of the volume of water needed to raise the level of groundwater in the basin. Basin replenishment is critical to protect water quality, prevent land subsidence, withstand drought and potential reduction of supply from MWD, and provide a reliable water supply in an emergency.

2. Thorough analysis of water conservation

An estimated sixty percent of water is used for residential irrigation. Calculations should be conducted for reducing household irrigation by 10%, 20%, 30%, 40%, and 50%, and the volume of saved water for each percentage of water reduction and the corresponding impact to the Raymond Basin groundwater level.

The stated goal of 10% outdoor conservation with 18% by 2030 is not supported by a thorough evaluation as to what this may accomplish and may be underachieving what is required to meet a sustainable water system.

PWP's WaterSmart indicates that the average household uses 343 gallons per day (GPD) with three occupants. Thus, the average water use is 114 GPD per person. Using a population of 70,500 that live in single-family households (Pasadena's population of 141,000 with 50% living in multifamily dwellings), yields 8,037,000 GPD, which equals approximately 2.9 billion gallons per year. Implementing a 30

percent conservation measure, would result in saving 870,000,000 gallons (2,670 acre-feet) per year, excluding apartment dwellers.

EAC believes more aggressive conservation measures should be evaluated to combat continued basin depletion and to support long term water resilience. Conservation methods and water savings should be presented and implemented to reduce demand for imported water and to reduce basin water withdrawal.

3. Evaluation of the best use of water with elevated nitrate

The WSRP recommends using water with elevated nitrate levels for irrigation of municipal property. However, a cost benefit analysis is not clearly presented to justify that this is the best and most cost-effective use of the water.

4. Evaluation of the Arroyo Seco stream

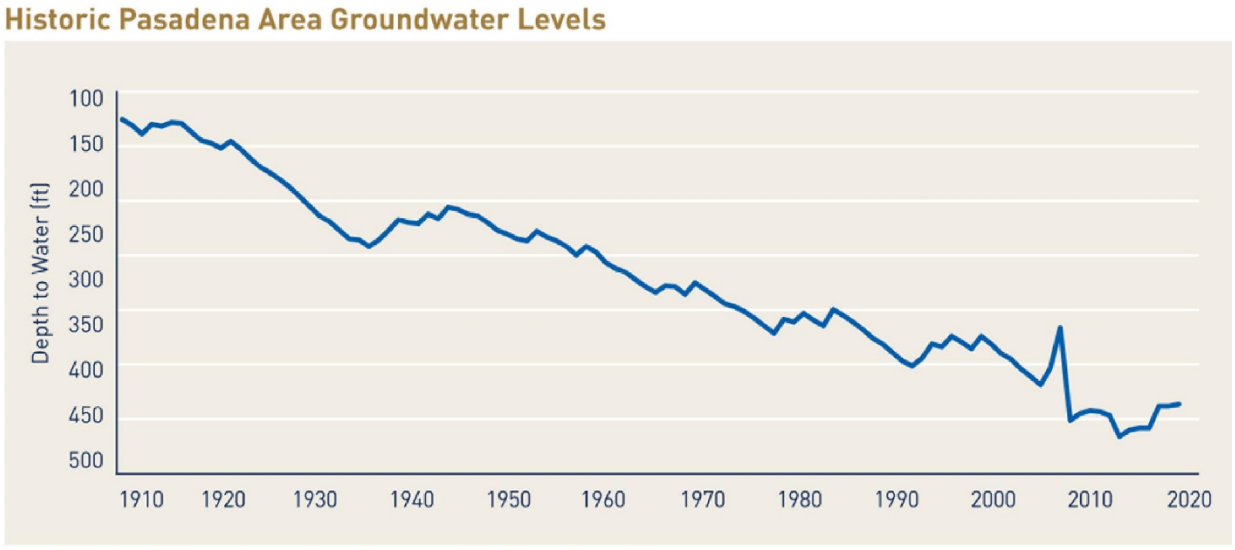
An evaluation of the Arroyo Seco natural stream and the quantity of water needed to sustain the native fish and natural resources should be conducted. Alternatives that provide environmental benefits to the stream and spread the water to percolate into the Raymond Basin beneath Pasadena should be fully evaluated and presented.

5. Evaluation of stormwater capture

Stormwater capture is an opportunity to provide water to the Pasadena's system that would otherwise flow through the city. The state, county, and CalTrans provide funds for such projects (e.g., Proposition 1 and Measure W). PWP should work closely with the Department of Public Works to incorporate a stormwater capture program into the WSRP for long term resilience.

Attachment 2: Declining Groundwater Levels in Pasadena

Declining Groundwater Levels



Source: RMBM, Draft Opportunities to Enhance Groundwater Levels in Pasadena Subarea.

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