GEI Consultants

Town of Paradise
Options Study Report

April 2022

WATER PROGRAMS Sacramento State

CALIFORNIA Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

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Town of Paradise
Options Study Report

Submitted to:

Sacramento State University, Office of Water Programs

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Acronyms and Abbreviations

ac-ft	acre-feet
ASADRA	Additional Supplemental Appropriation for Disaster Relief Act
BRIC	Building Resilient Infrastructure and Communities
CAA	Cleanup & Abatement Account
Cal OES	California Office of Emergency Services
CCP	Consensus and Collaboration Program
CEQA	California Environmental Quality Act
CVP	Central Valley Project
CWSRF	Clean Water State Revolving Fund
DAC	disadvantaged community
DDW	Division of Drinking Water
DFA	Division of Financial Assistance
DSOD	Division of Safety of Dams
DWR	California Department of Water Resources
DWSRF	Drinking Water State Revolving Fund
EDA	Economic Development Administration
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FY	fiscal year
HMGP	Hazard Mitigation Grant Program
LAFCo	Local Agency Formation Commission
MGD	million gallons per day
NEPA	National Environmental Policy Act
OWP	Office of Water Programs
PG&E	Pacific Gas & Electric
PID	Paradise Irrigation District
SCDW	Small Community Drinking Water
SDAC	severely disadvantaged community
SFWPA	South Feather Water and Power Agency
SFY	state fiscal year
SGMA	Sustainable Groundwater Management Agency

SRF	State Revolving Fund
SWP	State Water Project
SWRCB	State Water Resources Control Board
UWMP	urban water management plan
VOC	volatile organic compounds
WCWD	Western Canal Water District
WIFIA	Water Infrastructure Finance and Innovation Act
WTP	water treatment plant

Executive Summary

As a result of the Camp Fire in November 2018, Paradise Irrigation District (PID) lost approximately 90 percent of its connections in the community (Town) of Paradise making continued operations unsustainable. Subsequently, PID requested and received assistance from the California State Legislature, which agreed to provide interim support for two years through the State Water Resources Control Board (SWRCB). As part of this assistance, the Legislature mandated that the community perform an Options Study (Study) to evaluate options for improvements to its water system infrastructure and finances to ensure the long-term sustainability of the community's water system(s) and to support redevelopment of the community. Based on the mandate provided by the Legislature, and the work plan developed by the SWRCB through Sacramento State University, Office of Water Programs (OWP), the goal of this Study is to formulate and evaluate options that provide short- and long-term sustainability of water supply for the community of Paradise. These options and recommendations will be further reviewed and evaluated by PID for implementation. Water supply reliability, safe and affordable drinking water, short- and long-term financial sustainability, and supporting community redevelopment were formulated as objectives to support the goal of the Study.

Based on the challenges and constraints identified and opportunities evaluated as described in Chapter 3, 23 options were identified to achieve the objectives of this Study (Chapter 4). After preliminary evaluation, eight of the 23 options identified were eliminated if they were not feasible, redundant, not supported by stakeholders, or if those options will be implemented by PID regardless of the outcome of the Study, as described in Chapter 5. It was also estimated that none of the remaining options can meet the goals and objectives of the Study on their own. Accordingly, options that complement each other were combined to formulate portfolios which achieve the goals and objectives of the Study. Through this effort, six portfolios were formulated – Financial Claims Portfolio, Miocene Canal Portfolio, Chico Intertie Portfolio, Water Transfers Portfolio, Reorganizing PID into the Town of Paradise, and Reorganizing PID into South Feather Water and Power Agency (SFWPA).

Eight evaluation criteria as detailed in Chapter 6 of this report were used to evaluate the performance of all portfolios in Chapter 7 of this report. For each of the eight evaluation criteria, portfolios were ranked between 1 and 3 based on how they meet the Study objectives. Each of the portfolios has its own advantages and disadvantages towards meeting the goals and objectives of this Study.

Detailed explanation of the portfolios were scored are provided in Chapter 8. Based on the goals, objectives, and evaluation criteria established, the Financial Claim Portfolio had the highest portfolio score. While the probability and timeline of PID's claim with PG&E is currently unknown, this portfolio provides PID opportunities to not only recoup costs and damages suffered during the Camp Fire but also overcome the current operational financial deficit without needing to change the operations of PID.

The Water Transfer Portfolio had the next highest score as it provides opportunities for PID to raise revenue on existing water supplies that are not currently utilized, and that additional revenue may help defer the need for rate increases to PID's service area. Historically, water transfers have successfully been initiated by many other agencies in California and are a common water management practice when water is available. As PID's water supply is currently comprised of surface water, the sale of this water may also help other regions comply with groundwater requirements from SGMA.

The remaining four portfolios had similar low scores when considering the precision of the methodology. Both Agency Reorganization Portfolios would have a limited impact on efficiency from combining technical and managerial staffing. The primary benefit from reorganizing PID into another agency would be the ability to use the other agency's financial capabilities to meet the current operational financial deficit that PID is experiencing. However, additional studies would likely be needed to assess the impact to PID and its customers, as typically needed with any agency reorganization. Reorganization into the Town received a relatively higher rating than reorganization into SFWPA as a result of potential higher level of stakeholder acceptance and greater consistency with PID objectives. The Miocene Canal and Chico Intertie portfolios also received low scores as the cost and schedule requirements of these projects make them unable to address PID's current financial deficit within a reasonable timeframe.

While this Study does provide a quantitative scoring of portfolios, the evaluation criteria used in the scoring are by definition subjective and open to interpretation. As noted throughout this Study, the purpose of the Study is not to select the "best" option for implementation, but rather provide the relative ranking of portfolios which would facilitate the PID Board to choose a path forward to ensure a sustainable water supply for its customers.

1 Introduction

1.1 Study Area

Paradise Irrigation District (PID or District), located in central Butte County, California, was established in 1916 to supply water to an area of approximately 11,250 acres with a population of approximately 1,000 people. The population served by PID resides within the town of Paradise (Town), which has changed dramatically from the time the District was established in 1916, reaching a population of 26,400 as of January 2018 with major growth occurring in the 1970s. The Town is located on a ridge in the western foothills of the Sierra Nevada with elevations ranging from 1,500 to 2,200 feet above sea level.

1.2 Purpose of the Study

On November 8, 2018, the Camp Fire that started near the community of Pulga in Butte County burned a total of 153,336 acres throughout the Town, Pulga, Concow, Magalia, and the outskirts of east Chico. It was later determined by CAL FIRE that the Camp Fire was initiated by electrical transmission lines owned and operated by Pacific Gas and Electric (PG&E). The fire resulted in significant loss of life and property in the Town and surrounding communities. As a result of the Camp Fire, PID lost approximately 90 percent of its connections making continued operations unsustainable until recovery and rebuilding is completed.

Subsequently, PID requested assistance from the California State Legislature, which agreed to provide interim support for two years through the State Water Resources Control Board (SWRCB). As part of this assistance, the Legislature mandated that the community perform an Options Study (Study) to evaluate options for improvements to its water system infrastructure and finances to ensure the long-term sustainability of the community's water system(s) and to support redevelopment of the community. The SWRCB funded this Study under their Safe and Affordable Funding for Equity and Resilience (SAFER) Program though an Agreement with Sacramento State University, Office of Water Programs (OWP). The work was conducted under Technical Assistance Work Plan 6061 of that Agreement. This Study is a mandated requirement to ensure that PID can obtain state funding for its drinking water system improvements.

1.3 Plan Goal and Objectives

Based on the mandate provided by the Legislature and the work plan developed by the SWRCB, the goal of this Study is to formulate and evaluate options that provide short and long-term sustainability of water supply for the Paradise community.

The formulation of objectives is a key step within the context of this Study. Objectives presented here are formulated in response to the goal of the Study, existing conditions, and related water resources problems, needs, and opportunities of the Study area. These objectives are used to guide the development and evaluation of options to address these water resources management needs. The objectives of this Study are:

- **Water supply reliability** – the short- and long-term sustainability of water supplies for the Paradise community hinges on maintaining reliable water sources which are adaptive to climate change, changing demand, and other factors
- **Safe and affordable drinking water** – to maintain short- and long-term sustainability of water supplies, water supplies must be safe for consumption and affordable to customers
- **Short- and long-term financial sustainability** – PID must be financially solvent to continue to serve its customers
- **Support community redevelopment** – community redevelopment is critical for funding operations and system recovery

1.4 Communication and Engagement

To ensure that all relevant interests and affected communities are involved in the completion of the Study in an inclusive and transparent manner, it was determined that the study will include a significant stakeholder outreach component and consider the community as a whole within the overarching potential for future sustainability. The Consensus and Collaboration Program (CCP) of California State University, Sacramento was selected by OWP as the communication and engagement lead. For successful communication throughout the Study, the CCP prepared a communication plan (provided in Appendix A) that outlined the guiding principles of engagement, levels of engagement and participation, roles and responsibilities of the project convener, project team and the stakeholders group.

1.4.1 Levels of Engagement

The communication and engagement plan identified four levels of engagement as follows:

- Project Convener
- Project Team
- Stakeholders Group
- Public

1.4.2 Project Convener

California State University Sacramento, OWP is the project convener who is responsible for the administration of the Study. With the support of the project team, the project convener provides technical information that PID can use to make future decisions related to the water supply system.

1.4.3 Project Team

The Project Team is responsible for ongoing management of the study and is expected to develop all communications materials and conduct outreach and engagement activities. The Project Team is comprised of the following:

- **Office of Water Programs** will manage the Study as the Project Convener, to evaluate water system alternatives for the Paradise community.
- **Consensus and Collaboration Program** is responsible for the development and execution of the communication plan in consultation with the Project Team and the Stakeholders Group.
- **State Water Resources Control Board (SWRCB)** administers Proposition 1 and SAFER funds made available to support drinking water-related efforts, including this Study as administered by OWP. Divisions of SWRCB involved in the Study include the:
    - Division of Drinking Water (DDW)
    - Division of Financial Assistance (DFA)
    - Other Divisions may be included as needed
- **The Town of Paradise** and **Paradise Irrigation District (PID)** are the Technical Assistance recipients.
- **GEI Consultants, Inc**., is the consultant responsible for preparing the Study and for providing information to support the outreach and engagement throughout the Study development.
    - **Larsen Wurzel & Associates**, as a subconsultant to GEI Consultants, is responsible for developing and evaluating the financial aspects of the Study.

1.4.4 Stakeholder Group

The Stakeholders Group worked with the Project Team and provided input to define critical components of the Study. The Stakeholders Group served to represent the broader public on an ongoing basis, representing a range of key perspectives. Members were asked to share information and solicit input from their own networks to inform the Study. The Stakeholders Group met every

month and received general information about the status of the Study and provided input on all key components of the Study.

The Stakeholders Group includes representation of the following interests:

- State Water Resource Control Board
- Technical Assistance recipients
    - Paradise Irrigation District
    - Town of Paradise
- Local Government representatives
    - County of Butte
    - Butte County Local Agency Formation Commission
    - City of Chico
    - California State Assembly
- Local Non-Governmental Organizations representatives
- Local water representatives
- Local Union 228 – Yuba City
- Technical Assistance provider: OWP
- Environmental justice groups

1.4.5 Engagement Opportunities

In addition to routinely scheduled monthly stakeholder meetings, further outreach and engagement opportunities were conducted to coordinate and engage with the community regarding the planning and development of the Study. **Table 1-1** provides a list of all meetings conducted throughout the development of the Study.

Table 1-1: Stakeholder and Public Meetings

Date	Meeting	Purpose
2nd Thursday (Monthly) **August 2020 – March 2022 (Ongoing)**	PID Options Study Stakeholder Group Monthly Check-in Call	Inform the Stakeholders Workgroup on project progress and solicit input on key questions related to the development of the PID Options Study.
September 25, 2020	Stakeholder Group Meeting	Clarify and solicit input on engagement roles, draft Communication Plan, and draft RFP.
April 8, 2021	Stakeholder Group Meeting	Kickoff GEI Consultants work on the PID Options Study and solicit input from stakeholder group on options for consideration.
June 29, 2021	Informational Public Meeting	Inform community members about: • The PID Options Study purpose and scope • PID water supply system • Community engagement process • Timeline for Study completion
September 20, 2021	Informational Public Meeting	Provide an update on the Options Identification Report which outlines the PID Options Study goal, objectives, and list of options for further consideration.
November 18, 2021	Stakeholder Group Meeting	Provide an update on the Options Study focused on how options will be evaluated.
February 10, 2022	Stakeholder Group Meeting	Solicit input on the Stakeholder Draft Options Study Report.

1.5 Organization of Options Study

- **Executive Summary –** This chapter provides a summary of the Study goals, objectives, options and portfolios formulated, evaluation criteria and rating established, and portfolio scores.
- **Chapter 1 – Introduction:** This chapter provides a description of the Study area, discusses the purpose of the Study, Study objectives and communication and engagement.
- **Chapter 2 – Background:** This chapter provides background information regarding PID operations, pre-Camp Fire conditions, Camp Fire event and post-Camp Fire conditions.
- **Chapter 3 – Plan Formulation:** This chapter describes the problem identified along with existing opportunities and constraints.
- **Chapter 4 – Options Identification:** This chapter provides a brief description of options identified based on the Study objectives.

- **Chapter 5 – Portfolio Development:** This chapter provides a brief description of how some options were eliminated in the preliminary screening and explains how portfolios were formulated based on the remaining options.

- **Chapter 6 – Portfolio Evaluation Methodology:** This chapter provides a brief description of the evaluation criteria developed to screen and rank the portfolios.

- **Chapter 7 – Portfolio Evaluations:** This chapter explains in detail how the portfolios were evaluated based on the evaluation criteria established.

- **Chapter 8 – Portfolio Scoring:** This chapter explains in detail how the portfolios were scored based on the evaluation criteria established.

- **Chapter 9 – Summary and Conclusions:** This chapter provides the summary and conclusions of the Study.

- **Chapter 10 – References:** Reference documents that were used as part of the options Study.

2 Background

2.1 PID Operations

2.1.1 Water Source

PID provides water to most areas of the Town of Paradise. PID relies predominately on surface water sourced from the Little Butte Creek watershed. Although a perennial creek, Little Butte Creek receives a large amount of precipitation and resulting runoff during a few months of the year. The average runoff for the watershed is approximately 16,340 acre-feet (ac-ft) per year. Little Butte Creek conveys surface water and storm runoff into the Paradise Lake and Magalia Reservoir; the latter is located approximately one-half mile north of the community of Magalia and approximately one mile north of the PID's service area (**Figure 2-1**).

The District has three water supply right permits allowing diversion of water from Little Butte Creek: two storage rights and a direct flow right. **Table 2-1** below provides additional information regarding the three water right permits including the source or point of diversion, permitted quantity, and water availability timeframe. At the time of this report, PID is reinitiating efforts to go to license on its 1916 Priority Right, the terms of which will also include direct diversion (and not solely diversion to storage).

Table 2-1: Surface Water Supply Summary

Permit	Source or Point of Diversion	Permitted Quantity	Availability Timeframe
Pre-1914 Appropriative Right	Little Butte Creek at Magalia Dam	4.5 cubic-feet-per-second (accounting for losses) Estimated at 2,500 ac-ft per year	Year-round direct diversion Not available for storage Must be used first in priority for PID supply
1916 Priority Right	Paradise Lake and Magalia Reservoir	Paradise Reservoir – 6,700 ac-ft Magalia Reservoir – 2,800 ac-ft Total - 9,500 ac-ft	Year-round diversion to storage to Paradise Lake and Magalia Reservoir
1965 Priority Right	Paradise Lake	8,800 ac-ft	Oct 1 to May 31 Diversion to storage in Paradise Lake Subject to Term 91

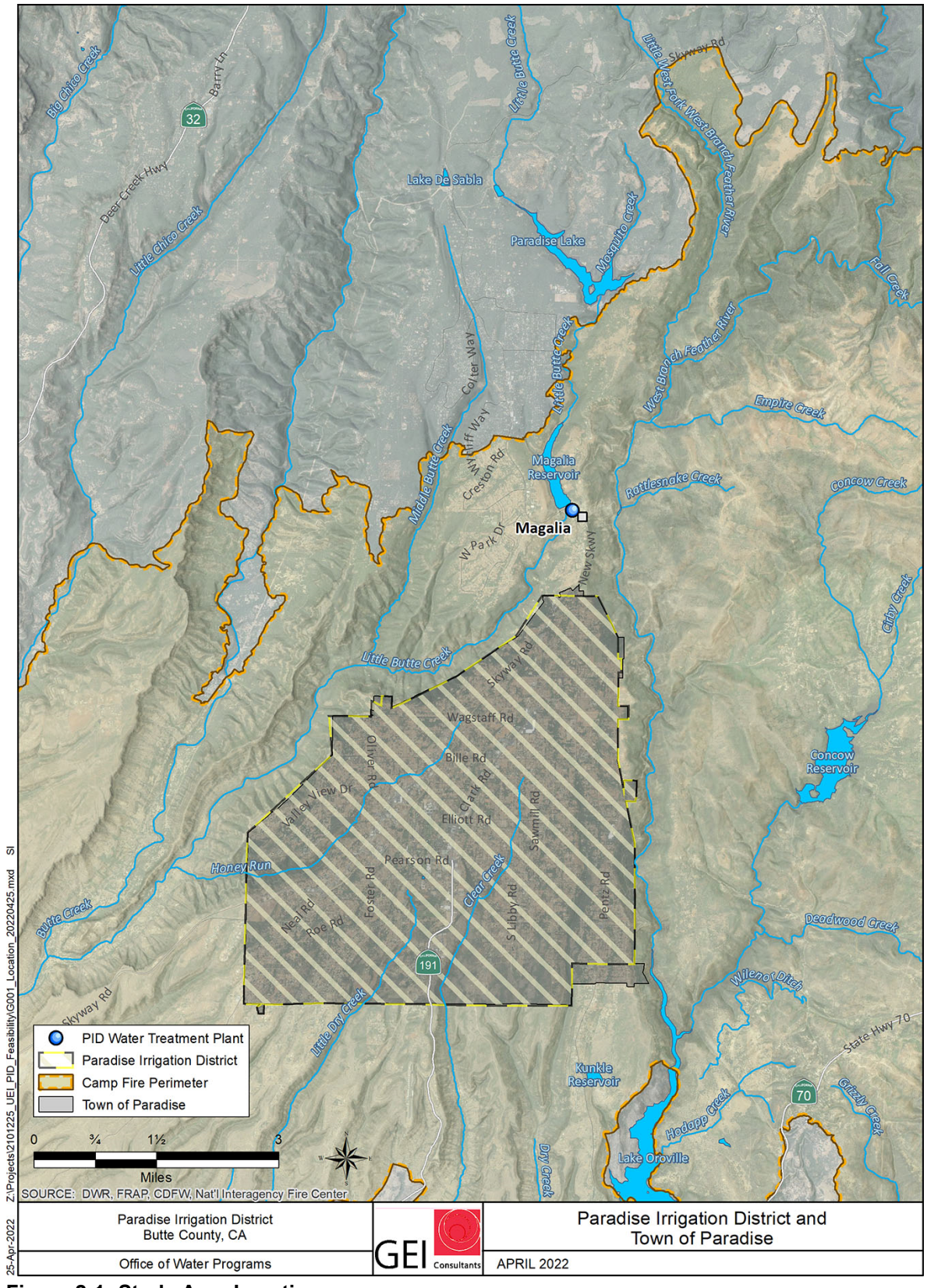

Figure 2-1: Study Area Location

PID's three water supply rights total a maximum of 20,800 ac-ft. Of this, 2,500 ac-ft are associated with a direct diversion at Magalia Dam (no storage), which must be used first in priority for PID supply. The remaining 18,300 ac-ft are associated with storage rights for Paradise Lake and Magalia Reservoir. Of that 18,300 ac-ft, 8,800 ac-ft are subject to Term 91. Term 91 requires water rights permit holders to cease diverting water during times when curtailments are needed to maintain Sacramento-San Joaquin Valley Delta (Delta) water quality and flow requirements. Currently, the total storage capacity of both reservoirs is approximately 12,300 ac-ft. The upstream reservoir, Paradise Lake, is the main storage facility with a storage capacity of approximately 11,500 ac-ft. Downstream of Paradise Dam, storage behind the Magalia Dam is presently restricted to approximately 800 ac-ft, as a result of the current maximum water surface elevation dictated by the Department of Water Resources, Division of Safety of Dams (DSOD). PID is planning a seismic retrofit of Magalia Dam that would bring the capacity of Magalia Reservoir to approximately 2,570 ac-ft. This would bring the total storage capacity to 14,100 ac-ft.

The average annual runoff of Little Butte Creek, the primary source of water supply for PID is approximately 16,340 ac-ft per year. This exceeds the pre-fire average annual water demand of 7,000 to 8,000 ac-ft per year. However, PID is vulnerable to potential water shortages during extended dry periods. The District has approximately 6,000 ac-ft of water rights that are not being utilized because of a lack of storage.

2.1.2 Water Supply

PID has historically relied entirely on their surface water rights and District-owned water treatment plant (WTP), which has provided reliable water in all year types to PID customers. Each year, PID takes advantage of its direct diversion water right allowance (Pre-1914 Appropriative Right) of 4.5 cubic feet per second before any other supply is utilized. This is a requirement of PID's supply portfolio, but also necessary since this supply is only available during the time of year when runoff is actively entering the reservoir. Following this first use, PID uses its additional water right permits (1916 and 1965 Priority Right) as necessary to store water for use later in the year when direct diversion is not possible.

PID operates a raw water intake at Magalia Reservoir that is pumped to PID's WTP with a capacity of 22.8 million gallons per day (MGD). Treated water is conveyed to PID's distribution system through a distribution network of over 170 miles of pressure pipe ranging from 1 inch to 36 inches in diameter.

PID also has a single groundwater well with a maximum output estimated at 350 ac-ft per year. The primary purpose of the well is to augment PID's water supply during times of drought or emergency, but under normal conditions well production is minimal and only operated for maintenance purposes. However, this well has been nonoperational since 2020 due to mechanical failure of the pump.

2.1.3 Water Transfers and Exchanges

PID maintains an agreement with their neighboring water purveyor, Del Oro Water Company, for the treatment and diversion of a limited quantity of water to serve the Paradise Pines District in nearby Magalia, north of the Town. This water supply originates in Paradise Lake, captured along with PID owned water and treated at the PID WTP. Once passing through the discharge meter at the WTP, the supplies are diverted to the Paradise Pines District. Terms of this agreement also allow for a small amount of water to be transferred to PID in an emergency.

An intertie at the southeast border of the PID service area exists between PID and the Lime Saddle area of Del Oro Water Company's service area. While this intertie is functional and capable of water transfer in an emergency, it is no longer operated for regular transfer of supply. If its function is to be operated again, physical updates to the metering equipment would be required to quantify transfers of supply. There is no current plan to use this intertie for water sales or transfers.

2.2 Pre-Camp Fire Conditions

Since its founding, the Town grew slowly before experiencing rapid population growth in the years leading up to incorporation in 1979. The Town became a place for retirees to settle, and in recent years, a younger demographic was also drawn to the area. Prior to the Camp Fire in November 2018, the Town had more than 13,000 housing units of about 70 percent single-family detached homes, 15 percent multifamily homes, and 15 percent manufactured homes.

Prior to November 2018, for several decades, the Town's population held steady at around 26,000 people with approximately 10,600 water connections. Community sentiment and sewer capacity deficiencies resulted in a challenging entitlement process for multifamily uses, leading to limited development of this housing type with approximately 200 people added between 2010 and 2018.

2.3 Camp Fire Event

On November 8, 2018, the Camp Fire started near the community of Pulga in Butte County. The Camp Fire burned a total of 153,336 acres throughout the Town, Pulga, Concow, Magalia, and the outskirts of east Chico. The Town's geographical position on a ridge between two canyons and one route to the west made it particularly vulnerable. (Camp Fire Regional Economic Analysis, 2021).

The Camp Fire resulted in significant loss of life and property in the Town and the surrounding communities, with approximately 90 percent structure loss. Over 75 percent of the structures destroyed were in the Town, including approximately 11,400 housing units, comprising over 85 percent of the Town's housing supply, 450 commercial buildings, 5 schools, and thousands of utility structures. PID's distribution system sustained severe damage from the Camp Fire and fire-related cleanup activities.

2.4 Post-Camp Fire Conditions

The Camp Fire resulted in contamination of the Town's drinking water and pipes by volatile organic compounds (VOCs) including benzene. PID has managed the remediation process, in the short-term including warning consumers not to ingest or bathe in the contaminated water, distributing bottled water, and testing water for levels of contamination.

To address the root issue, PID:

- Sampled/tested all mainlines and service laterals to standing homes,
- Replaced service laterals at standing homes that were out of California drinking water standard compliance
- Is currently working on replacing service laterals at all burned lots over the next seven years

As of May 2020, PID has confirmed that all of it mainlines are free of contamination. Service laterals to surviving structures and new rebuilds have been tested or replaced to bring them into compliance, but water advisories still exist for burned lots. To date, PID continues to recover their system and promote projects that support the rebuilding of the Town.

Due to displacement from the Camp Fire, there are hundreds of parcels occupied through use of a temporary housing permit issued by the Town. Additionally, there is a constantly evolving number of parcels that are in various stages of rebuilding. While all service connections may not correspond with a structure that has been issued a certificate of occupancy, PID was still responsible for providing water to the 3,600 active connections in 2020. Based on the 2021 Post Camp Fire Regional Population and Transportation Study prepared for the Butte County Association of Governments (2021 BCAG report), it is estimated that approximately 4,600 people were served through these 3,600 connections in 2020.

2.5 PID Operations Deficit

The loss of PID's customer base had a devastating impact on revenue from water rates. PID's estimated annual baseline revenue deficit between FY 2021/22 and FY 2039/40 was estimated by taking the difference between PID's projected expenses and projected revenue. Annual projected revenue between FY 2021/22 and FY 2039/40 was provided by PID using estimates prepared for PID's claim against the Fire Victim Trust. The annual projected revenue between these fiscal years is projected to increase as a direct result of residential connections coming online, resulting in additional revenue from service charges and volumetric water usage. The projected revenue also assumes a 1.0 percent annual increase in revenue (BRG, 2022).

Annual projected expenses between FY 2021/22 and FY 2039/2040 were estimated assuming baseline expenses of $6.7 million in FY 2021/2022 and an annual escalation rate of 2.0 percent. The baseline

expense of $6.7 million in FY 2021/2022 was calculated by summing the average operations cost between FY 2019/2020 and FY 2021/2022 and the average cost of major capital/recovery projects (PID, 2020) (PID, 2021).

With these projections, an annual baseline deficit was developed as shown in Figure 2-2. This deficit between FY 2021/22 and FY 2039/2040 totals over $55 million, with an average annual deficit of over $2.9 million. Assuming there is no influx of any additional revenue, PID's expenses will exceed revenue in all years through the planning horizon.

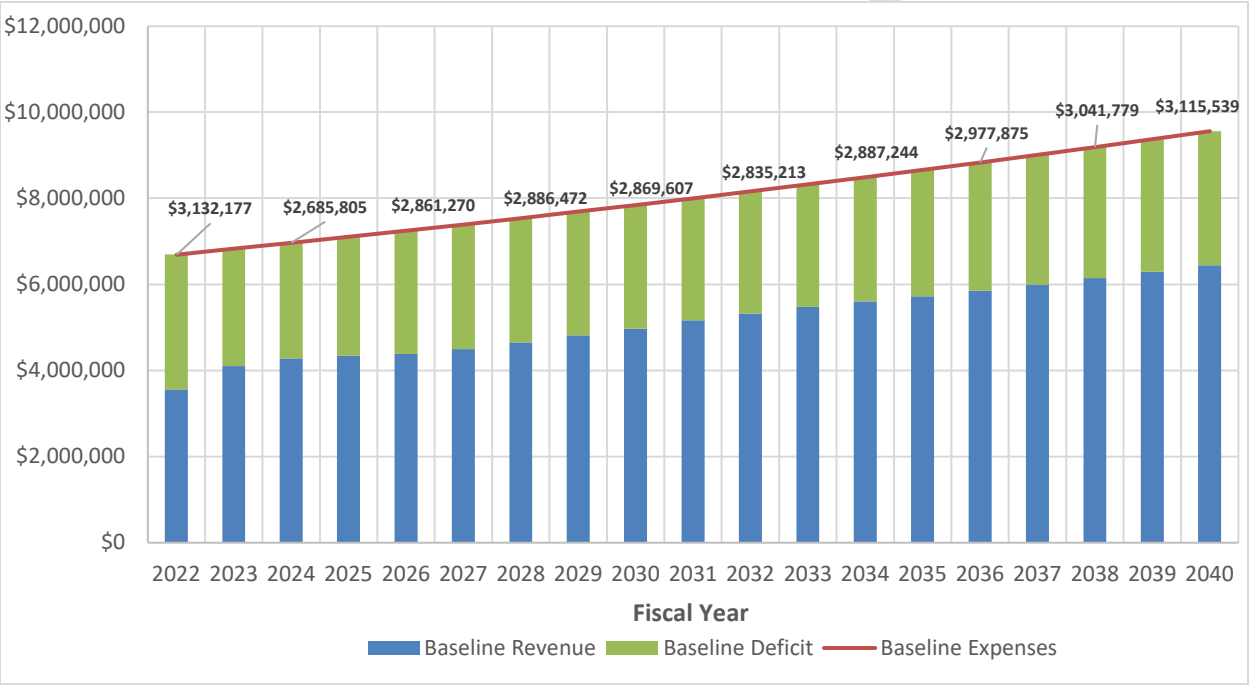

Figure 2-2: PID Baseline Revenue, Expenses, and Deficit FY 2021/22 to FY 2039/2040

2.6 Related Plans and Studies

Surface Water Supply Feasibility Study for California Water Service, Chico District, Phase 1-6: Between 2012 and 2019, West Yost Associates performed a six-phase surface water supply feasibility study for Cal Water's Chico District to identify surface water supply alternatives to assist Cal Water in diversifying its water supply portfolio. Numerous surface water supply conveyance opportunities were identified, including a potential partnership with PID. First identified during Phase 1 and carried through to Phase 6, the partnership would include delivering water from PG&E's Miocene Canal to PID's water treatment plant via a new raw water pipeline. PID's water treatment plant would be expanded to treat water via a new transmission main during normal and wet hydrologic years.

2020 Urban Water Management Plan: The 2020 Urban Water Management Plan (UWMP) was adopted by the PID Board of Directors in June 2021. The 2020 UWMP includes updates to previous UWMPs to incorporate how much water PID has on a reliable basis, anticipated demands for the

foreseeable future, PID's plan to meet those future demands, and any challenges that PID will face in the future especially pertaining to recovery following the 2018 Camp Fire. Priority water supply and reliability projects particularly related to recovery efforts are also identified.

2020 Paradise Sewer Project Technical Memoranda: In November 2020, the Town released information in the form of technical memoranda pertaining to the Paradise Sewer Project, which involves identifying and implementing a long-term solution for collection, treatment, and reuse/disposal of its wastewater. The goal of implementing this new wastewater management system is to improve the local economy while stopping degradation of groundwater quality caused by failed or failing septic systems.

Camp Fire Regional Economic Impact Analysis: In January 2021, the Camp Fire Regional Economic Impact Analysis was published to assess the effects of the 2018 Camp Fire on major population shifts, decline in regional housing supply, and economic hardships for local businesses. This report had the goal of providing information needed to make short-term decisions for business operations in the area by offering data on changed regional demographic and socioeconomic profiles after the Camp Fire; economic impacts of the Camp Fire in the Paradise Ridge, Chico, and the broader region; and potential residential and employment growth scenarios.

3 Plan Formulation

3.1 Challenges and Constraints

PID's mission is to deliver a safe, dependable supply of quality water in an efficient, cost-effective manner with service that meets or exceeds the expectation of its customers. As a result of the Camp Fire, PID lost approximately 90 percent of its connections, which resulted in revenue shortfalls of up to $4 million annually. These annual losses are projected to decrease as population within the PID service area increases and the water distribution network and related infrastructure are rebuilt.

Based on the 2021 BCAG report, it is estimated that the population could increase by approximately 475 persons per year with the population reaching 11,000 by 2025, 12,000 by 2030 and 14,000 by 2040. As regrowth of the Town continues, PID is actively working toward the reconstruction and recovery of critical infrastructure as well as ways to increase the reliability and quantity of future water supplies.

A large proportion of customers' water meters were damaged during the Camp Fire and post-fire recovery activities. As a result, PID is currently charging its customers a fixed fee of $42.98 per month regardless of the amount of water usage, which is also contributing to the revenue loss. PID is currently working on installing water meters at all locations where there is active water use.

Following the Camp Fire, it was determined that contamination resulting from the exposure of PID's distribution piping network to volatile organic compounds, or VOCs, had occurred. PID staff undertook a large-scale water quality sampling effort, collecting samples from over 6,000 locations and running over 400,000 individual tests to characterize the extent and nature of this VOC contamination. Overall, it was determined that 95 percent of the mains were clear and serving potable water. Approximately 50 percent of service laterals at burned properties were found to contain contaminants. As a result of these determinations, PID has undertaken a systematic program to replace service laterals for all destroyed structures where a rebuild will take place.

It is anticipated that in the absence of sufficient connections to generate revenue, continued operations and infrastructure improvements in support of redevelopment is not sustainable. PID has submitted Camp Fire related settlement claims to the Federal Emergency Management Agency (FEMA) and PG&E, which could be used to cover the operational losses sustained by PID and the needed improvements to the distribution system; however, the status of these claims is ongoing, and it is unclear how much or when PID will receive settlement awards.

PID has received approximately $15 million from the California 2019 Budget Act to support its operations, which was paid in two installments over the 2019-2020 and 2020-2021 fiscal years. This backfill funding is only expected to cover immediate shortfalls and will not cover any planned

significant infrastructure improvements. In the near-term (10 to 15 years), PID would need additional revenue sources to remain financially viable while recovery and rebuilding is completed.

The total volume of water that PID can store currently in Paradise Lake and Magalia Reservoirs together, approximately 12,300 ac-ft, which is anticipated to be sufficient to meet demands in all years through 2045 including extended drought conditions through water conservation measures. PID recognizes the vulnerabilities associated with climate change and extended drought conditions in a watershed dependent almost exclusively upon rainfall conditions from year to year and must identify viable long-term opportunities for interties, partnerships, transfers, or other means that would strengthen supply reliability.

Along with improving water supply reliability and enhancing and protecting water quality, PID must maintain a water supply that is affordable to its customer base. To do so, PID must explore funding mechanisms capable of supporting capital and Camp Fire-related improvements, long-term operations and maintenance of facilities, and any opportunities that would strengthen PID's long-term resiliency. These funding mechanisms could include grant funding, State-sponsored financing, interim commercial financing, and water-related fees.

3.1.1 Rate of Growth

The estimated 2020 population of the Town based on the 2021 BCAG report is 4,600. PID estimates that this population is served by approximately 3,600 connections as of December 2020. Even though there has been an increase in the population returning to the Town, with the current estimated rate of regrowth, the Town is only projected to reach a population of approximately 14,000 by 2040, much less than its pre-fire population of approximately 26,500. The significant loss of revenue due to the decrease in population and number of connections will continue to be a significant challenge for funding operations and system recovery.

3.1.2 PID Infrastructure Improvements

The Camp Fire caused significant damage to PID water distribution infrastructure. Approximately 4,600 damaged service laterals and over 79,000 linear feet of water main pipe, along with other appurtenant devices, are estimated to be replaced and/or repaired over the next seven years as a direct result of the Camp Fire. These infrastructure improvements will further constrain PID's operations and water supply reliability.

3.1.3 Magalia Dam Improvements

PID's ability to make full use of its water rights is currently limited by allowable storage capacity in Magalia Reservoir. Magalia Dam originally had a storage capacity of 2,574 ac-ft, but concerns related to dam stability and the presence of the Magalia fault resulted in a restriction on the water surface elevation. To comply with DSOD requirements, Magalia Dam was drawn down in 1997 and now has

a storage capacity of 796 ac-ft. The Magalia Dam Retrofit Project which would increase storage levels by 2,000 ac-ft, is in the design phase, but is not estimated to be completed until 2030.

3.1.4 Finances

Prior to the Camp Fire, PID was serving approximately 26,000 people with approximately 10,600 water connections. As a result of the Camp Fire, PID lost approximately 90 percent of its connections resulting in a significant revenue loss. In 2018, PID's pre-Camp Fire revenue was approximately $8.5 million whereas operational expenses were approximately $5 million. In 2020, due to the significant reduction in number of customers and connections, revenue decreased to $3.9 million whereas operational expenses increased to approximately $5.7 million, resulting in a financial deficit of $1.8 million annually. As a result of this financial deficit, PID's financially stability has been severely impacted to an extent that without financial assistance or additional revenue, the District's operations and sustainability could be severely impacted.

3.1.5 Time

Since PID is facing severe financial challenges due to loss of customers, the time needed to implement would be a critical factor for any option identified to assist PID.

3.1.6 Affordability

The Town is considered a disadvantaged community by the State of California and has a limited tax base, which has become even more constrained since the Camp Fire. Projects that would be funded through rate increases, assessments, or taxes, must consider the ability of PID's ratepayers to support these funding mechanisms.

3.1.7 Drought Reliability

Per Section 2.1, PID's main source of water supply is runoff from the Little Butte Creek watershed. The limited storage capacity, compared to runoff from the watershed leaves PID vulnerable to potential water shortages during extended dry periods. Historically, PID overcame this challenge successfully with water conservation measures. However, for long-term stability, PID must improve water supply reliability and resiliency.

3.1.8 Political Support

While there is currently a significant amount of attention being paid to PID and the Town by State agencies eager to see progress towards redevelopment of the community, the success of redevelopment will require an equal commitment by local officials to advance preferred option(s) and to secure funding for those projects. Local political and community support will be required to champion the continuation of this critical planning effort and the eventual implementation of options.

3.2 Opportunities

3.2.1 Available Water Supplies

PID's three water supply rights total 20,800 ac-ft of which 2,500 ac-ft are associated with a direct diversion right at Magalia Dam and the remaining 18,300 ac-ft are associated with storage rights for Paradise Lake and Magalia Reservoir. However, the current total storage capacity of both reservoirs is approximately 12,300 ac-ft with a potential increase to 14,100 ac-ft after retrofitting Magalia Dam. PID has approximately 6,000 ac-ft of water rights that are not being utilized due to a lack of storage.

The average annual runoff of Little Butte Creek, the primary source of water supply for PID, is approximately 16,340 ac-ft per year. This exceeds the pre-fire average annual water demand range of 7,000 to 8,000 ac-ft per year. At this pre-fire level of demand, PID is vulnerable to potential water shortages during extended dry periods. As shown in **Figure 3-1**, the 2000 water demand of approximately 8,000 ac-ft was reduced to nearly 4,300 ac-ft in 2015 due to conservation measures at the height of the drought that began in 2012. While demand rebounded in the years following 2015 to approximately 5,800 ac-ft in 2018, the overall water use in 2020 is estimated to have decreased to 4,370 ac-ft as a result of the Camp Fire.

PID's 2020 Urban Water Management Plan (UWMP) estimates that this demand will increase to approximately 5,100 ac-ft in 2040. This estimate is lower than the pre-fire water demand range of 7,000 to 8,000 ac-ft per year due to changes in plumbing codes, implementation of water use efficiency programs, and increased outreach and education of consumers about California drought conditions and conservation measures. Assuming normal hydrologic conditions and additional groundwater supply through the rehabilitation of PID's single groundwater well, PID estimates in their 2020 UWMP that supply in 2040 could outweigh demand by up to 16,100 ac-ft. It is anticipated that even if annual water use increases to pre-fire demand range of 7,000 to 8,000 ac-ft per year, there would be sufficient supply to meet the increased demand. This surplus would be reduced during multiple dry year scenarios; however, even in a third dry year, PID estimates that supplies would outweigh demands by nearly 7,500 ac-ft in 2040, and in a fifth dry year, PID would still have nearly 1,500 ac-ft in excess supplies (**Figure 3-2**). Note that these estimates are conservative in that they assume that PID would return to their pre-fire population of 26,500 by 2040. Recent estimates from the 2021 BCAG report project a population of 14,000 by 2040.

With the use of PID's water rights constrained by the amount of storage presently available and supplies in excess of demand, PID has the opportunity to generate revenue from the sale of treated drinking water and temporary or long-term transfers of a portion of their established rights, including:

- Transfer to local districts within Butte County
- Transfer to Sacramento Valley entities (north of Delta) outside of Butte County
- Transfer to south of Delta entities

Any potential water transfer opportunities will need to consider water availability, PID customer demands, and treated water capacity.

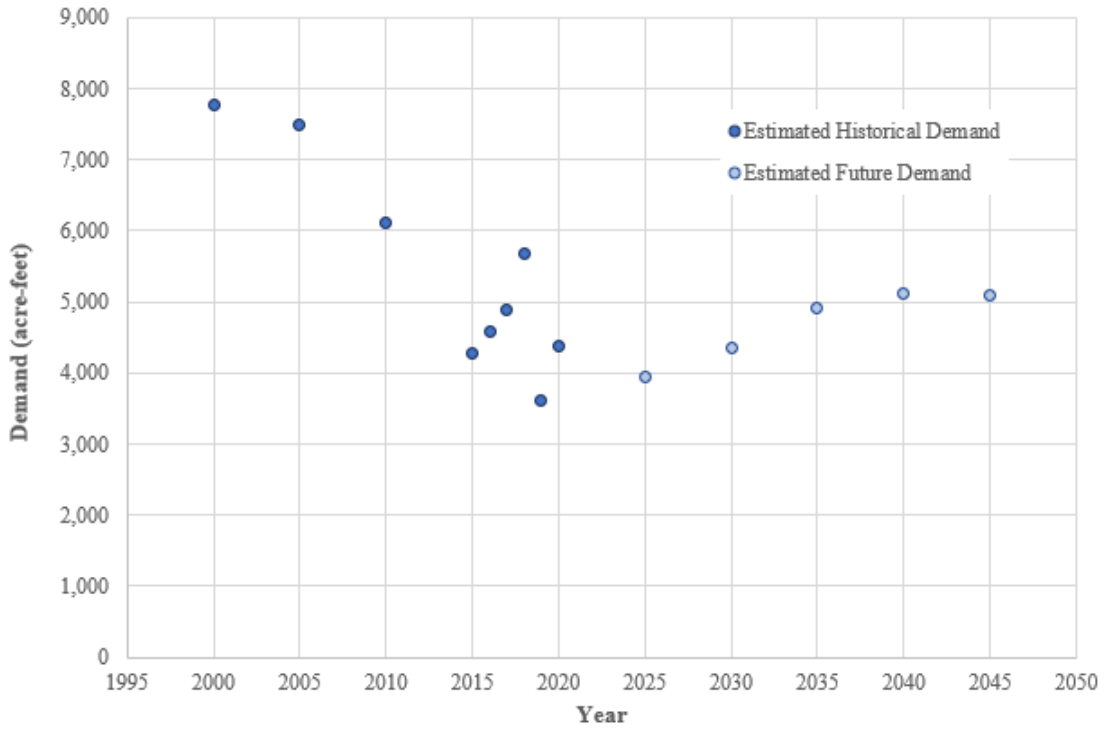

Figure 3-1: PID's Estimated Historical and Future Demand (Source: PID UWMP)

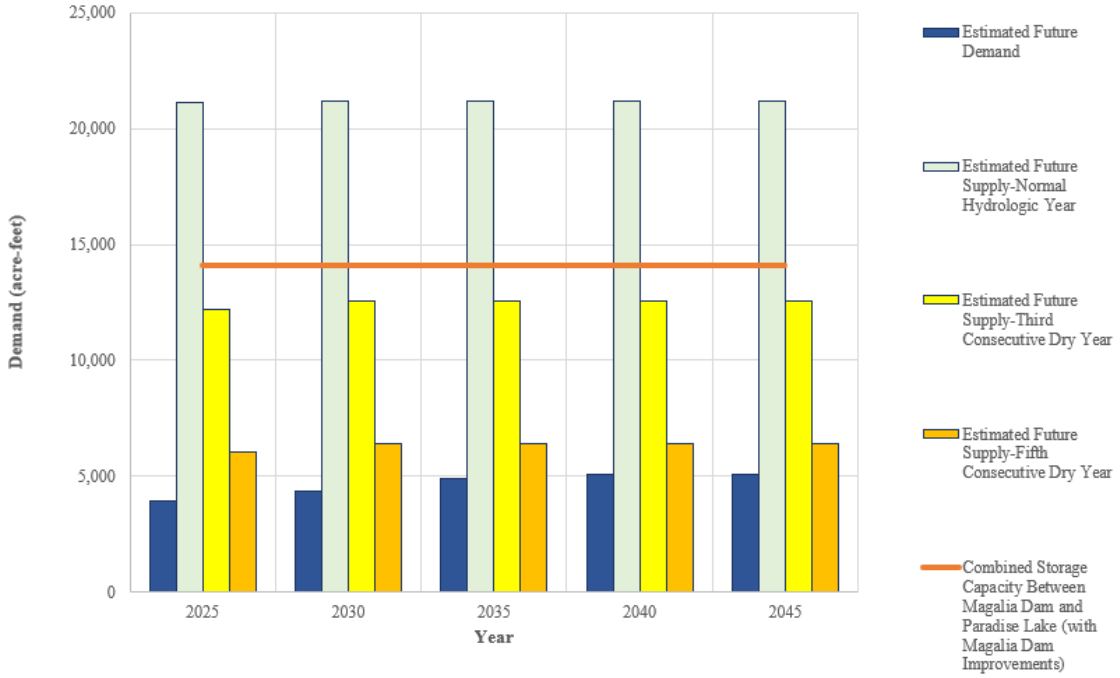

Figure 3-2: PID's Estimated Future Supplies Versus Demands (Source: PID UWMP)

3.2.2 Environmental Benefits

Water transfers occur for a variety of purposes, including supplementing agricultural, municipal, and industrial water supplies in other areas. Water transfers can be used for environmental purposes such as in-stream flow augmentation for environmental benefits. Supplemental flows could be used to improve habitat connectivity, riparian health, water quality, and water temperature during certain times of the year. These flows could be used to support the immigration, emigration, and/or rearing of Central Valley Steelhead depending upon the timing, duration, and magnitude.

3.2.3 Infrastructure Improvements

There are potential revenue generating opportunities for PID related to the Miocene Canal (Canal). The Miocene Canal system is a hydroelectric conveyance facility owned by PG&E and Cal Water. The system originates at the West Branch of the Feather River and terminates at Lake Oroville. The Upper Miocene Canal was damaged during the Camp Fire, preventing water from being delivered to the Lime Saddle and Coal Canyon powerhouses. PG&E is currently repairing the Canal, and if PID were to assume ownership, there is the opportunity for revenue generation through potential water transfers and operation of the existing powerhouses.

3.2.4 Meters

A large portion of customer water meters were significantly damaged during the Camp Fire and post-fire recovery activities, and as a result, PID is currently unable to measure customer water consumption. Currently, PID customers pay a fee for active water service ($42.98 per month) but are not charged for volumetric water usage, which comprises a considerable portion of PID's revenue. PID's goal is to install up to 4,000 meters for potable services by the end of 2022 when a return to metered service is expected, with another 2,500 meters installed over a 6-year period. Once these meters are installed, revenue is anticipated to increase. For customers with properties that do not need access to water at the moment, PID provides an option for ready-to-serve connection in the future for a fixed rate of $21.49 per month.

4 Options Identification

Based on the problem identified in Section 3.1 and evaluating the opportunities and constraints as explained in Section 3.2, options were identified to achieve the objectives of this Study. These options are grouped into the following categories that are explained in detail in the following sections.

- Baseline
- No Project
- Financial Claims
- Agency Reorganization
- Water Transfers
- Infrastructure
- Funding Augmentation
- Others

4.1 Option 1 - Baseline

Prior to the Camp Fire in November 2018, PID was serving safe, reliable, and affordable drinking water to a population of approximately 26,000 through 10,600 connections, generating $8.5 million revenue that exceeded the operational expense of $5 million. For the purpose of this Study, baseline refers to the pre-Camp Fire conditions, under which PID would continue to provide safe, reliable, and affordable drinking water while generating revenues to meet the operational expenses and maintaining a sustainable reserve fund for capital replacement and emergencies.

4.2 Option 2 - No Project

In addition to operational challenges, PID is facing severe financial deficit, currently estimated at $3 million annually due to higher operational costs and lower revenue generation. The No Project option represents a scenario where no action is taken, or no project is implemented.

4.3 Financial Claims

PID is currently pursuing several financial claims with various entities for the damages caused by the Camp Fire to assist in the Town redevelopment. It is currently in the process of claiming damages from PG&E, requesting public assistance from applicable FEMA programs, and is leveraging insurance claims as applicable to meet funding deficits and to rebuild PID's infrastructure equal to the level prior to the 2018 Camp Fire. If these claims are successful, PID would be able to rebuild its infrastructure and remain solvent until the population of the Town has recovered and PID's customer base has returned.

4.3.1 Option 3 - PG&E

Following PG&E's bankruptcy filing in January 2019, PID filed a proof of claim and participated in the bankruptcy proceeding. As part of its plan of reorganization, PG&E with the consent of the bankruptcy court created an independent Fire Victim Trust. Following adoption of the plan of reorganization and creation of the Fire Victim Trust, PID's claim against PG&E was "channeled" to the Fire Victim Trust, who is tasked with adjudicating the claims of the fire victims, including PID. In February 2021, PID submitted a claims questionnaire with the Fire Victim Trust that includes detailed information supporting a gross claim of over $300 million. After accounting for certain offsets as of February 2021, the claims questionnaire resulted in a total claim net of recoveries/offsets in the amount of nearly $277 million. Recently, representatives of the Fire Victim Trust and PID began discussions on resolution of PID's claim. Eventually, PID expects to receive a notice of determination from the Fire Victim Trust identifying the amount payable under PID's claim. The timeline for when these claims will be resolved is currently unknown. On a related note, the Town arrived at a settlement with PG&E for $219 million.

4.3.2 Option 4 - FEMA

PID is currently pursuing many projects that may qualify for FEMA funding. A summary of the projects that PID has pursued funding for through FEMA's standard lane funding programs, along with each project's estimated cost and the current status of the claim with FEMA, is provided in Table 4-1. Collectively, these projects are estimated at nearly $142 million, however, these projects require a local cost share and this estimate is not reflective of the total amount submitted to FEMA for reimbursement.

Table 4-1: Summary of PID's FEMA Claims (as of March 2022)

Project	Cost Estimate	FEMA Review Status (as of March 2022)
Service Lateral Replacement Project (replacement of 4,070 service laterals), including installation of backflow preventers	$45,854,811	Approved
Service Lateral Replacement Project (replacement of 492 service laterals)	$3,306,882	Obligated
Water Meters, Housing Boxes, and Automated Metering Infrastructure Replacement	$6,450,799	Approved
Main Line Replacement	$66,135,080	Approved
B Reservoir Replacement	$9,330,000	In negotiations
Road Culvert Replacement	$134,173	Obligated
Fencing Replacement	$578,655	Obligated
Paradise and Magalia Dams Burn Damage	$35,631	Obligated
Recovery Management Expenses	$13,500,000	Partially obligated

4.3.3 Option 5 - Insurance

A portion of PID's infrastructure damaged in the Camp Fire is covered by insurance carried by PID. PID is currently pursuing all reasonably available insurance proceeds.

4.3.4 Option 6 - Additional Supplemental Appropriation for Disaster Relief Act

The Environmental Protection Agency section of the Additional Supplemental Appropriation for Disaster Relief Act (ASADRA) includes $349.4 million in supplemental funding for the State Revolving Fund (SRF) programs - $53.3 million for the Clean Water State Revolving Fund (CWSRF) and $296.1 million for Drinking Water State Revolving Fund (DWSRF). These funds are available for wastewater treatment works and drinking water facilities impacted by natural disasters.

$42 million was awarded to California in 2020, and appropriations are administered through SRF programs by the SWRCB. The SWRCB drinking water funding priorities in State Fiscal Year (SFY) 2021-2022 focus on helping small Disadvantaged Communities (DACs) solve their drinking water problems, such as PID after the 2018 wildfires. Under the DWSRF, a small community is defined as a community with a population of no more than 10,000 persons. PID with its current population is eligible as a small DAC after the Camp Fire and has applied for $7 million through the DWSRF and is anticipating receiving funding from ASADRA.

4.4 Agency Reorganization

With the current challenges encountered by PID, there are some potential financial benefits if PID is reorganized with other agencies that have strong managerial, technical, and financial capabilities. PID can potentially be reorganized by restructuring PID into other agencies or other agencies into PID. Any agency reorganization would be performed in collaboration with the Butte Local Agency Formation Commission (Butte LAFCo) to ensure that all decisions are made locally.

4.4.1 Option 7 - PID into Other Agencies

Town of Paradise - Most of the population served by PID resides within the Town, incorporated in 1979. The Town offers its residents several services such as police and fire protection. However, the Town relies on PID for water treatment and distribution to serve its residents. Reorganizing PID into the Town would allow the two entities to leverage existing managerial and technical capabilities and existing funding, and optimize operating expenses, which would assist PID to overcome the financial deficit until their customer base returns.

South Feather Water and Power Agency - Formed in 1919, SFWPA is located approximately 20 miles southeast of the Town, in the Sierra foothills of southeast Butte County. SFWPA provides treated water service to the communities of Oroville, Palermo, and Bangor in Butte County, and operates the South Feather Power Project, a Federal Energy Regulatory Commission (FERC) licensed

hydropower project and serves residents within Butte County's First Supervisorial District. SFWPA is substantially larger than PID, and thus reorganizing PID into SFWPA would permit continued operations and an absorption of deficit until PID's customer base returns.

4.4.2 Option 8 - Other Agencies into PID

Del Oro Water Company ("Del Oro"), is an investor-owned utility established in 1963 and currently serves the water needs of multiple districts throughout the State of California. Paradise Pines, Lime Saddle, Magalia, and Buzztail districts surrounding the Town are currently served by Del Oro with approximately 6,000 connections. Reorganizing any of these districts or a combination of these districts would allow the two entities to leverage existing managerial and technical capabilities and optimize operating expenses, which would assist PID to overcome the financial deficit until their customer base returns.

4.5 Water Transfers

PID can enter into water transfer agreements for a variety of purposes that benefit both the receiving parties (the buyer) and PID (the seller). Water transfers can provide a source of revenue for PID as well as maintaining associated water rights during a period when the supply may otherwise be surplus to PID's needs.

Water available for transfer by PID will include the supply associated with water rights that are presently surplus to PID's needs as demand increases to pre-fire levels. It is estimated that PID would have between 3,000 to 5,000 ac-ft per year available for transfer. Actual amount of water available will be estimated during the evaluation process. This evaluation considers three types of transfer, based on geography, available to PID:

- Butte County
- North of Delta
- South of Delta

4.5.1 Option 9 - Butte County

In-county transfers would entail transfer to in-county entities such as the city of Chico or agricultural water supplies in the Sacramento Valley portion of Butte County. Water transfers to in-county entities can be conveyed through local facilities such as the Miocene Canal, a proposed intertie with the city of Chico, or through the Feather River and Lake Oroville. Transfers to offset groundwater use in the valley could contribute to the objectives of groundwater sustainability plans currently being developed.

In-county transfers can likely be facilitated annually and provide a consistent source of revenue. However, the revenue per ac-ft of transferred water is likely to be lower than water transfers to other north of Delta entities and even lower than to south of Delta entities.

4.5.2 Option 10 - North of Delta

Transferring PID water to entities out of County, but north of the Delta, could occur on an annual basis, depending on demand, through Lake Oroville and conveyance downstream of the reservoir. North of Delta water transfers can be implemented without any additional construction using existing conveyance if PID partners with an entity such as Western Canal Water District (WCWD) who can receive transfer water on Butte Creek and exchange that water with a like amount of water available to Western Canal from the Feather River and Oroville Reservoir. The water in Oroville Reservoir can then be released for water transfer partners both north and south of the Delta. Transfer partners could include entities in Sacramento, Yolo, and Solano counties that could receive water conveyed down the Feather River and then the Sacramento River. It is expected that water districts in these counties will be experiencing an increased need for supplemental water as Sustainable Groundwater Management Act (SGMA) requirements reduce the availability of groundwater. Districts in these counties will have a growing, albeit intermittent, demand for supplemental water and are likely to purchase water in the range of $300 to $500 per ac-ft, or potentially more depending on increasing demand for supplemental water brought on by SGMA.

4.5.3 Option 11 - South of Delta

Water transfers to entities south of the Delta have the potential to generate higher revenues during the years of transfer; however, due to constraints in the Delta these transfers have historically occurred less frequently.

In recent years, sellers north of the Delta have received $500 to $700 per ac-ft of water made available for transfers to south of the Delta entities. These higher prices reflect the higher demand for supplemental water in the San Joaquin Valley and metropolitan areas in southern California. In future years as groundwater supplies are reduced due to the implementation of SGMA, demand for supplemental water south of the Delta is expected to increase, with an expected increase in the price and the willingness to buy by south of Delta entities.

Current federal Endangered Species Act consultations for export of transfer water through Banks and Jones Pumping Plants covers the period of July through September, and transfers through the Delta are limited to this period. Limitations on Delta export operations in the early winter and spring months often result in the need to maximize State Water Project (SWP) and Central Valley Project (CVP) exports during July through September, which can further limit the available export capacity for water transfers. Historically, south of Delta transfers have occurred when the SWP allocation is between approximately 10 and 50 percent. During extremely dry conditions, export capacity is limited and reduces the export capacity for water transfers. During wetter periods, the transfer capacity is limited or eliminated as the SWP and CVP are able to maximize its export operations to the regulatory capacity.

4.6 Infrastructure

4.6.1 Option 12 - Miocene Canal

The Miocene Canal is a 25-mile-long man-made conveyance system comprised of ditches and wood-supported metal channels. The Canal is comprised of the Upper, Middle, and Lower Miocene Canals and is owned by PG&E (Upper and Middle Canals) and Cal Water (Lower Canal). Prior to the Camp Fire, water was diverted from the West Branch of the Feather River into the Upper Miocene Canal and then to Kunkle Reservoir, which is used by the California Department of Forestry and Fire Protection during wildfire incidents. From Kunkle Reservoir, water was conveyed to the Lime Saddle Powerhouse and the Middle Miocene Canal, which ultimately conveyed water to Cal Water's water treatment plant through the Coal Canyon Powerhouse and Cherokee Reservoir. Along with providing water for municipal use in Oroville through Cal Water and for the Canal's hydroelectric facilities, water from the Miocene Canal also provided water for nearby residential properties, groundwater recharge, and commercial agricultural uses.

A portion of the Upper Miocene Canal was destroyed during the Camp Fire. As a result, water that was diverted from the West Branch of the Feather River into the Canal cannot be conveyed to either of PG&E's powerhouses, which collectively have the potential to generate up to 3 megawatts of power. PG&E is currently in the process of repairing the Upper Miocene Canal and has been seeking opportunities to release ownership of its portion of the Canal. If PID were to assume ownership of the Miocene Canal and its facilities, revenue could be generated through the operation of the Lime Saddle and Coal Canyon powerhouses.

Assuming ownership of the Miocene Canal could also provide opportunities for revenue generation through the sale of treated drinking water and water transfer opportunities. As described above, the Miocene Canal is an unlined, leaky system that provides for groundwater recharge along its course when water is flowing. It is expected that water that was previously lost to the environment could be recovered and claimed by PID since the Upper Miocene Canal is expected to be a pipeline once repaired. Alternatively, PG&E's water rights could be included in the transfer of ownership of the Canal and its powerhouses. In either scenario, PID could benefit by selling this water to Cal Water, which currently uses 3,300 ac-ft of PG&E water from the Miocene Canal to meet local water demands in Oroville. This additional water that is acquired by PID through acquisition of the Miocene Canal could also be used to transfer water to users south of the Delta through Lake Oroville.

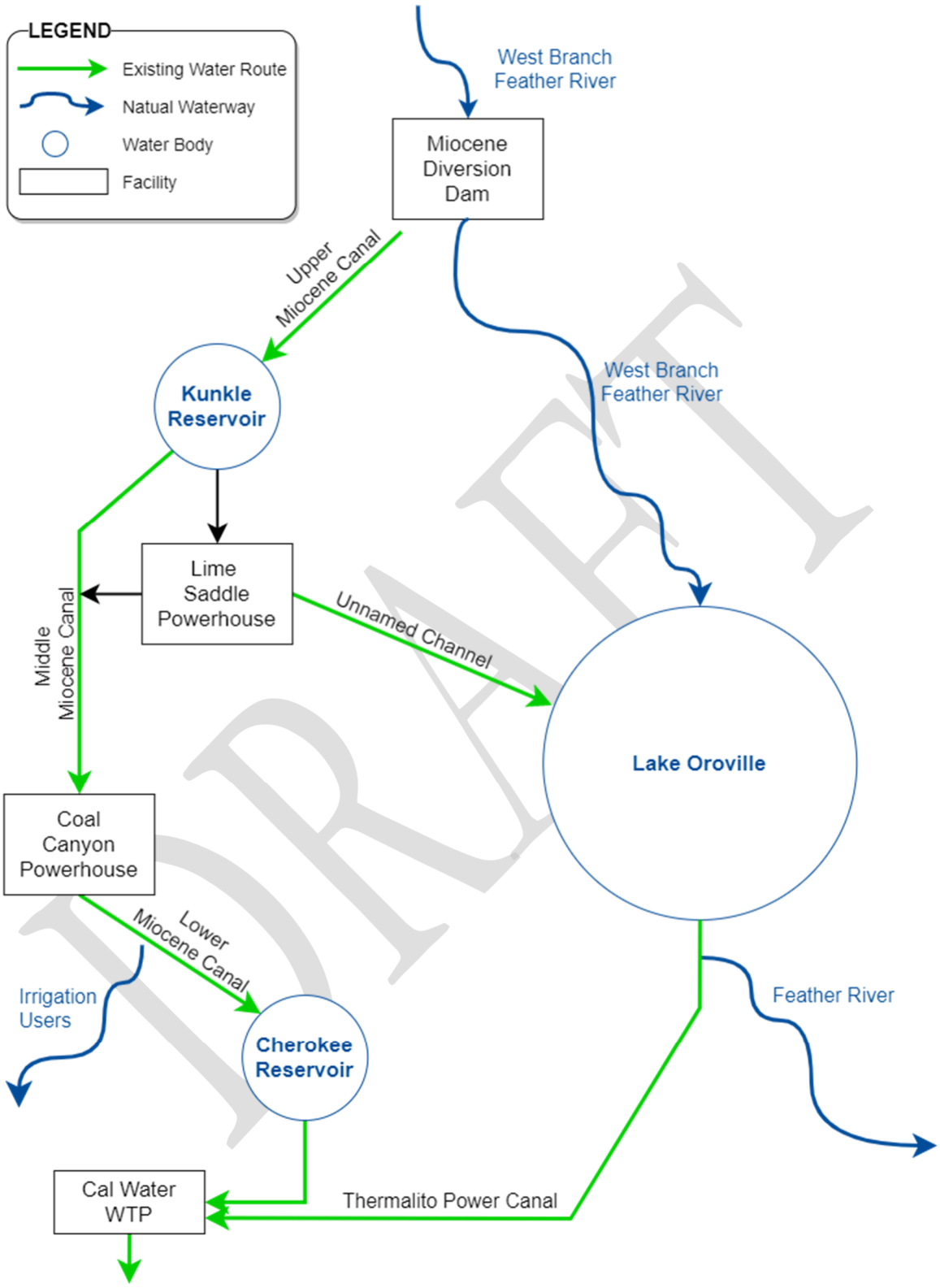

Figure 4-1: Miocene Canal Conveyance Schematic

4.6.2 Option 13 - Chico Intertie – PID WTP to Chico

A portion of PID's surface water supplies could be conveyed to the city of Chico through a potential intertie. This potential opportunity has been explored and considered by Cal Water and PID over the last five years but hasn't been pursued further because of cost and feasibility considerations. Currently, groundwater is the sole source of water supply for Chico, and as a result, an intertie with PID would help to improve water supply reliability and resiliency for the city. Treated water from PID's water treatment plant located in Magalia would be delivered to the city of Chico via pipeline, which could be constructed concurrently with the Paradise Sewer Project that is currently in the preliminary planning phase. This option may require expansion or modification of PID's water treatment plant to deliver water to the city during normal and wet years.

4.6.3 Option 14 - Magalia Dam Retrofit

The Magalia Dam Retrofit Project, which is still in the design phase, aims to re-establish the previous water surface elevation allowing full storage capacity in the reservoir. Once PID can secure funding and move forward with construction, a petition will be made to the DSOD to restore the original water surface elevation of 2,225.8 ft. The construction is anticipated to be completed by 2030. This option would increase storage levels by 2,000 ac-ft and the total storage capacity of PID to 14,100 ac-ft. This additional storage capacity could provide PID additional water supplies that can be transferred to other agencies within Butte County, north of Delta, and south of Delta.

4.7 Others

4.7.1 Option 15 - Paradise Sewer Project

Prior to the Camp Fire, the Town was the largest unsewered community in California. The need for a centralized wastewater treatment solution for the Town has been studied in several prior reports dating back to 1983. The need for a long-term solution for wastewater collection, transport, and treatment is needed primarily to improve the local economy in support of rebuilding efforts. The Paradise Sewer Project, currently in the preliminary planning phase, could serve nearly 1,500 parcels and would collect and convey raw wastewater from the Town to the water pollution control plant in the city of Chico via a single 18-mile-long pipeline. At the Chico Water Pollution Control Plant, wastewater from the Town will blend with Chico wastewater, then the combined flow will be treated before discharging to the Sacramento River.

Estimated to be constructed and on-line by 2027, this project would help attract businesses and stimulate growth in the Town, which is the primary service area of PID. Recovery would be spurred by providing wastewater disposal certainty to help businesses and jobs return to the Town and allowing for more densely populated and multifamily residential development to help increase affordable housing.

In addition to the growth of the Town that would subsequently result in increase of customer base and revenue to PID, PID could also take over the operations of sewer services as it can leverage managerial, technical, and operational capabilities and in return could also benefit from the revenue generated from sewer services.

4.7.2 Option 16 - Metering

Prior to the Camp Fire in September 2018, monthly usage for PID's 10,600 meters totaled 644 ac-ft, with monthly billings in service and consumption charges and service fees totaling over $868,000 (about $82 per month per customer on average). As mentioned previously in Section 3.2.7, a large portion of customer water meters were damaged during the Camp Fire and post-fire recovery activities, and PID customers currently pay a nominal fee for active water service ($42.97 per month) and are not charged for volumetric water usage. PID's goal is to install up to 4,000 meters for potable services by the end of 2022 when a return to metered service is expected, with another 2,500 meters installed over a 6-year period. The project includes the cost of hazard mitigation measures to prevent against future fire-related damages, including changing the meters from plastic to brass and changing the housing boxes from plastic to concrete. Once these meters are installed, revenue is anticipated to increase, which could help the financial challenges faced by PID to a certain extent.

4.7.3 Option 17 - Water Bottling

This option would involve working with a manufacturer to bottle and sell water using PID's water supply. This option could potentially generate revenue from the profits of the water bottle sales; however, currently no manufacturer has been identified to work with PID on further developing this option.

4.7.4 Option 18 - Voluntary Agreements

The SWRCB must protect beneficial uses and complete its update to the Bay-Delta Water Quality Control Plan to protect these beneficial uses in the Sacramento and San Joaquin Rivers and Bay-Delta. Many types of fish have experienced declines and many native fish species are now threatened with extinction. Voluntary agreements are being proposed as a result, as they are thought to help recover these fish species more efficiently than regulatory requirements. The framework provides for up 900,000 ac-ft of new flows in dry, below-normal, and above-normal water years and several hundred thousand ac-ft in critical and wet years, along with the creation of new and restored habitat and $5 billion in new funding for environmental improvements. Terms for voluntary agreements have been shortened from 15 years to 8 years. Under this option, PID would contribute an agreed upon amount of water in above-normal, below-normal, and dry years, which could be partially compensated at an agreed upon cost per ac-ft. For example, as of May 2021, Yuba Water Agency has developed a voluntary agreement proposal that includes a base contribution of 9,000 ac-ft in above-normal, below-normal, and dry years, and an additional contribution of 41,000 ac-ft in those same years, compensated at $290 per ac-ft (Yuba Water Agency, 2021).

4.8 Funding Augmentation

4.8.1 Option 19 - Rate Increases

A water rate increase would involve increasing the flat rate currently charged to PID customers or increase the unit price of water delivered if done in tandem with the metering option to help offset the current funding shortfall. Any rate increase would need to be approved by the PID board and would require approval of customers through a Proposition 218 protest proceeding.

4.8.2 Option 20 - Assessments

Options that provide direct benefits to residents of the Town could be partially funded through an assessment on benefactor properties. The assessment would be levied on the residents' annual property tax bill based on an assessment formula developed by the assessment engineer Any assessment would require a majority approval of property owners based on the weighted assessment ballot proceeding in accordance with Proposition 218.

4.8.3 Option 21 - Taxes

Taxes are another option for funding augmentation. While an assessment would be levied on property to pay for services that directly benefit that property, a tax applies more broadly and there does not need to be a direct relationship between how much tax a person pays and the benefit that is received. Two-thirds registered voter approval would be required to impose a new tax in accordance with Proposition 218.

4.8.4 Option 22 - Grants and Loans

PID could apply for several eligible grants that might provide funding to offset the costs of specific options evaluated in this Study. Some of the potential grant opportunities are summarized below:

- **Building Resilient Infrastructure and Communities (BRIC) 2021 -** FEMA and the California Office of Emergency Services (Cal OES) will review applications for BRIC funding that mitigates risk to critical infrastructure or otherwise achieves whole community risk-reduction. Priority for this funding is given to those who can demonstrate a project that addresses climate impacts including wildfire resiliency, so only those options that prioritize these should be considered for BRIC funding.

- **Hazard Mitigation Grant Program (HMGP) -** PID could utilize HMGP funding to implement ignition resistant construction as needed. In review of the options, it appears that the infrastructure section (4.6) as well as options 15 and 16 (Paradise Sewer Project and Metering, respectively) would benefit the most from the type of funding associated with the HMGP.

- **Emergency Drinking Water / Cleanup & Abatement Account Programs (CAA) -**The CAA Funding Program could benefit PID by allowing for the cleanup of VOCs that were left behind because of the Camp Fire (as identified in Section 4). These funds can be used both for clean-up and to address urgent drinking water needs. PID could use these funds to provide temporary water (Option 17 – Water Bottling) to residents to meet demand as the area begins the process of repopulation. Note: In some instances, a court judgement or settlement agreement will dictate specifically what these funds are allocated to.

- **FY 2021 - 2023 Economic Development Administration (EDA) Research and National Technical Assistance Program -** The U.S. Department of Commerce is offering grants of up to $1.5 million to support economic development and foster job creation in distressed regions. These awards may be a grant or a cooperative agreement at the discretion of the EDA. The primary focus of these grants, however, are on economic development, which may not make them suitable for construction or other water-specific components of the selected options.

PID is currently carrying approximately $4.3 million in debt with an annual debt service of $1 million. PID could apply for additional loans to cover revenue shortfalls through FY 2038/39 or to fund the costs of specific options evaluated in this Study. Some of the potential loan opportunities are summarized below:

- **California Drinking Water State Revolving Fund (DWSRF):** The California DWSRF is a low interest loan program administered by the State Board that provides financial assistance to help mitigate drinking water risks. The State Water Board's drinking water funding priorities in SFY 2021-2022 focus on helping small severely disadvantaged communities (SDAC) and DACs solve their drinking water problems. Under the DWSRF, a small community is defined as a community with a population of no more than 10,000 persons. DACs and SDACs are defined as under the CWSRF. The Fundable List is updated each SFY and identifies those projects with which the DFA intends to execute financing agreements. Provided they submit a complete application and meet all eligibility requirements, projects for small DAC/SDAC and for expanded small DAC/SDAC are automatically added to the Fundable List. Projects on the Fundable List are then ranked in priority order, with priority given to those that 1) address the most serious risk to human health, and 2) are necessary for compliance with the requirements of the Safe Drinking Water Act. Available funding for SFY 2021-2022 under the California DWSRF is anticipated to be at least $682 million, including $46 million in supplemental funds from the "Additional Supplemental Appropriations for Disaster Relief Act of 2019." These funds are available to help DWSRF entities who suffered impacts from the calendar year 2018 wildfires. DFA plans to execute financing agreements for SFY 2021-2022 by June 30, 2022.

- **Small Community Drinking Water (SCDW) Funding Program:** The SCDW Funding Program, administered by the State Water Board, is available to assist small DACs in

implementing drinking water infrastructure improvement projects. The SCDW Funding Program provides low-interest loans and other financing mechanisms, such as grants or principal forgiveness using federal and state funds, for the planning/design and construction of drinking water infrastructure projects that are needed to achieve or maintain compliance with federal and state drinking water statutes and regulations. Total available funding is estimated to be $50 million for SFY 2021-22.

- **Interagency Loans –** As financial sustainability is a critical challenge currently encountered by PID, a financial loan from any agency or source that has the capacity to provide the required amount could help PID to a great extent. This financial loan could be provided to PID at a mutually agreed upon interest rate and repayment duration. At the moment, no agency has been identified to provide this assistance and this option will be further explored during the evaluation process.

4.8.5 Option 23 - Backfill Funding Assistance

As explained in Section 3.1, PID has received approximately $15 million in backfill funding to support its operations from 2019 to 2021. This assistance is currently used to cover operational revenue shortfalls through December 2021. PID sought additional backfill funding in 2021 but was unsuccessful. PID may pursue additional backfill funds during the 2022 legislative session, however, further backfill funds are uncertain. If these funds are made available, this option could provide PID financial relief that would provide additional time for increase in population and demand.

4.9 Options Summary

Table 4-2 provides a summary of Options 1 to 23 identified above. These options can be potentially combined during the evaluation process to create a new option if combining more than one option can better achieve Study goals and objectives.

Table 4-2: Options Summary

Option Category	Option Number/Name
Baseline	1. Rebuild to pre-Camp Fire conditions
No project	2. Do Nothing
Financial Claims	3. PG&E 4. FEMA Funding 5. Insurance Reimbursement 6. ASADRA
Agency Reorganization	7. PID Into: • Town of Paradise • SFWPA 8. Into PID: • Del Oro
Water Transfers	9. Butte County 10. North of Delta 11. South of Delta
Infrastructure	12. Miocene Canal 13. Chico Intertie 14. Magalia Dam Raise
Others	15. Paradise Sewer Project 16. Metering 17. Water bottling 18. Voluntary agreements
Funding Agreement	19. Rate increases 20. Assessments 21. Taxes 22. Grants and Loans 23. Backfill Funding Assistance

5 Portfolio Development

5.1 Preliminary Screening

Based on preliminary evaluation, some of the options identified were eliminated based on four key criteria:

1. Feasibility, i.e., does this option advance the goals of the study
2. Redundancy, i.e., are there better options available to meet the same goals
3. Lack of stakeholder's support
4. Implementation is independent on this evaluation.

Below are the options that have been eliminated from further evaluation with a brief reason for their elimination:

- **Do Nothing –** (Eliminated due to feasibility) Not doing anything is not feasible for PID's short-term and long-term sustainability and PID is formulating a plan of action.

- **Insurance –** (Eliminated due to implementation) PID is continuing to make appropriate insurance claims to recover losses. These claims will not directly contribute to revenue to cover operating deficit but will be used towards making appropriate infrastructure improvements.

- **Butte County Transfers –** (Eliminated due to redundancy) Although stakeholders have expressed greater support for water transfers within Butte County over north of Delta and south of Delta water transfers, the project Team's preliminary analysis indicated that water buyers within Butte County have historically been limited. The demand for supplemental water within Butte County could grow in the future as SGMA implementation progresses.

- **Reorganizing Del Oro into PID –** (Eliminated due to feasibility) This option was deemed not feasible as Del Oro is a privately owned public utility company and has not expressed interest to sell their water systems surrounding PID.

- **Metering –** (Eliminated due to implementation) This option/effort is currently ongoing/implemented by PID and is supported by insurance claims.

- **Water Bottling –** (Eliminated due to feasibility) This option was deemed not feasible as no manufacturer has been identified and it is also not anticipated to provide a large enough revenue source to make a difference to the operating deficit.

- **Voluntary Agreements –** (Eliminated due to feasibility) This option was eliminated as the voluntary agreements process in the State is currently stalled with no tentative schedule for re-engagement.

- **Taxes** – (Eliminated due to stakeholder support) This option was eliminated as the likelihood of passing a general or special tax measure to fund any portion of water supply is highly unlikely.

In addition, rate increases and assessments that were formulated as two separate options were combined into a single option as the preliminary evaluation indicated that these two options go hand-in-hand as an assessment would decrease/replace the need for a rate increase, or the rate increase/structure could supplement the need for an assessment.

Table 5-1: Preliminary Screening of Options

Options Category	Option No.	Option Name
No Project	1	Do Nothing
Financial Claims	2	PG&E
	3	FEMA
	4	Insurance
	5	ASADRA
Infrastructure	6	Miocene Canal
	7	Chico Intertie
	8	Magalia Dam retrofit
Water Transfer	9	Butte County
	10	north of Delta (Outside of Butte)
	11	south of Delta
Agency Reorg	12	PID into: Town of Paradise
	13	PID into: SFWPA
	14	Into PID: Del Oro
Others	15	Paradise Sewer
	16	Metering
	17	Water Bottling
	18	Voluntary Agreements
Funding Augmentation	19/20	Rate Increases/Assessments
	21	Taxes
	22	Grants and Loans
	23	Backfill Funding Assistance

5.2 Options Priority

Based on the initial evaluation, it was determined that no single identified option can meet the goals and objectives of the Study. As a result, options that were not eliminated in the preliminary screening were categorized into three priority categories – Priority A, Priority B, and Priority C.

- Priority A – Options that provide significant benefits
- Priority B – Options that provide a modest level of identified benefits
- Priority C – Options that provide minimal or no benefits

Based on these definitions, Options were grouped into these priorities as follows:

Table 5-2: Options Priority Categories

Options Category	Option No.	Option Name	Priority
No Project	1	Do Nothing	N
Financial Claims	2	PG&E	A
	3	FEMA	B
	4	Insurance	N
	5	ASADRA	B
Infrastructure	6	Miocene Canal	A
	7	Chico Intertie	A
	8	Magalia Dam retrofit	B
Water Transfer	9	Butte County	N
	10	North of Delta (Not Butte)	A
	11	South of Delta	A
Agency Reorg	12	PID into: Town of Paradise	A
	13	PID into: SFWPA	A
	14	Into PID: Del Oro	N
Others	15	Paradise Sewer	B
	16	Metering	N
	17	Water Bottling	N
	18	Voluntary Agreements	N
Funding Augmentation	19/20	Rate Increases/Assessments	C
	21	Taxes	C
	22	Grants and Loans	B
	23	Backfill Funding Assistance	B

In summary, options that were not eliminated during the preliminary screening were grouped into the following priorities. The justification for each is included below.

Group A - Options that provide significant benefits:

- PG&E Settlement – The PG&E settlement has the capacity to meet the funding deficit for PID during the Study window.

- Miocene Canal – Assuming ownership of the Miocene Canal could also provide opportunities for revenue generation through the sale of treated drinking water and water transfer opportunities.

- Chico Intertie - A portion of PID's surface water supplies could be conveyed to the city of Chico through a potential intertie, which could serve as a stable revenue source for PID.

- Water Transfers - north of Delta (outside Butte) and south of Delta – Water transfers north and south of the Delta have the opportunity to raise more revenue than those in Butte and would be able to offset some of PID's existing funding deficit.

- Agency Reorg – PID into town of Paradise or PID into SFWPA – Reorganizing PID into either agency would transfer PID's existing revenue deficit to that agency which may be better suited to cover the deficit.

Group B - Options that provide a modest level of identified benefits:

- FEMA funding – FEMA grant opportunities provide cost share of at least 75 percent but is available for limited projects.

- ASADRA funding – ASADRA grant opportunities can support projects to restore infrastructure, which was damaged during the Camp Fire, but has limited opportunities beyond that.

- Magalia Dam Retrofit - This option would increase storage levels of Magalia Dam by 2,000 ac-ft with anticipated construction completion in 2030.

- Paradise Sewer – When Paradise Sewer project is completed and if PID takes over the ownership and responsibility of sewer services it may address the revenue deficit and also may help to quickly recover PID's customer base.

- Grants and loans – Grants and loans can be used to help pay for PID projects but would be dependent on current grant opportunities.

- Backfill funding assistance – Backfill funding assistance can help PID meet short term funding deficits if these funds are made available.

Group C – Options that provide minimal or no benefits:

• Rate Increases/Assessments – Rate increases, or assessments may be necessary to minimize PID's funding deficits but are generally not a favored approach with paying customers.

5.3 Portfolio Formulation

Based on the preliminary screening, it was identified that no single option formulated can meet the goals and objectives of the Study. As a result, options that complement each other were combined to formulate Portfolios to achieve the goals and objectives of the Study. Since options under Priority A provide significant benefits, portfolios were formulated around these options. Options from Priority A were used as the anchor for the portfolio with options from Priority B added to meet for the goals and objectives of this Study. Options from Priority C would be utilized in a portfolio to fill any remaining revenue deficit and are used only if the options from Priority A and B are not sufficient to meet the operation deficit.

As a result, six portfolios were formulated based on the four option categories as follows:

1 - Financial Claims
2 - Infrastructure

2a - Miocene Canal
2b - Chico Intertie

3 - Water Transfers
4 - Agency Reorganization

4a - PID into Town of Paradise
4b - PID into SFWPA

5.3.1 Financial Claim Portfolio

The Financial Claim Portfolio primarily relies on the $277 million financial claim that is currently in litigation with PG&E and serves as the primary source of revenue generation for this portfolio. However, the amount of compensation and timeline of the pending claim with PG&E is uncertain. Should PID be awarded a portion of or the full $277 million as part of its settlement, this funding can be used to cover the operation deficit. Any of the below listed Priority B and/or Priority C options could be pursued as needed until a settlement is reached with PG&E:

Priority B Options:

- FEMA funding
- ASADRA funding
- Grants and loans
- Backfill funding assistance

Rate increases/Assessments could be implemented as needed to generate revenue as a Priority C option.

5.3.2 Miocene Canal Portfolio

The reconstruction and transfer of ownership of the Miocene Canal from PG&E to PID serves as the primary source of revenue generation for this portfolio. Revenue as part of this portfolio is assumed to be generated from the Canal's hydroelectric facilities and potential water transfers utilizing the Miocene Canal.

Water transfers are another source of revenue generation within the Miocene Canal Portfolio. Transfers to north of Delta and south of Delta entities will be balanced based on water availability, outside demand, and water reliability objectives. Note that while water transfers to entities south of the Delta have the potential to generate higher revenues during the years of transfer, north of Delta water transfers within this portfolio are prioritized as a result of stakeholder/public feedback.

This portfolio also assumes that the Magalia Dam retrofit would be completed in 10 years, which would enhance water availability and the potential for additional revenue generation and water supply reliability increases.

Priority B options that could be implemented as needed include:

- FEMA funding
- ASADRA funding
- Grants and loans
- Backfill funding assistance

FEMA and ASADRA funding, along with grants and loans, will be used to fund or cost share the implementation of Priority A options (i.e., transfer of ownership of the Miocene Canal and the Magalia Dam retrofit) as the appropriate funding opportunities become available. Backfill funding assistance will be sought in the immediate years to continue to cover operations costs as options of this portfolio are implemented.

Rate increases/assessments could be implemented as needed to cover any remaining revenue shortfall as Priority C option.

5.3.3 Chico Intertie Portfolio

The Chico Intertie, which would allow for the sale of treated water to Cal Water in Chico, is the primary source of revenue generation for this portfolio. Water transfers are another source of revenue generation within the Chico Intertie Portfolio. Transfers will be balanced based on water availability, outside demand, and water reliability objectives. As part of this portfolio, a portion

of PID's water rights will be needed to supply treated water to Chico; therefore, transfers to north of Delta or south of Delta entities may be limited. Transfers may be focused on dry year transfers at higher prices to north of Delta entities to maximize revenues. Note that while water transfers to entities south of the Delta have the potential to generate higher revenues during the years of transfer, north of Delta water transfers within this portfolio are prioritized as a result of stakeholder/public feedback.

Priority B options that would be implemented as needed include:

- FEMA funding
- ASADRA funding
- Magalia Dam Retrofit
- Paradise Sewer Project
- Grants and loans
- Backfill funding assistance

FEMA and ASADRA funding, along with grants and loans, will be used to fund or cost share the implementation of specific options as the appropriate funding opportunities become available. Backfill funding assistance will be sought in the immediate years to continue to cover operations costs as options of this portfolio are implemented. This portfolio also includes:

- **Magalia Dam Retrofit** - This option is anticipated to be completed by 2030 and would enhance water availability and thus the potential for additional revenue generation, and water supply reliability increases.

- **Paradise Sewer Project** - This option is anticipated to be on-line by 2027 but the portfolio assumes that the design, construction, and funding of this project is not PID's responsibility and only assumed PID taking over operations of sewer services after construction, which would also help generate additional revenue. This would also help attract businesses and stimulate growth in the Town, thereby expanding PID's ratepayer base.

Rate increases/assessments could be implemented as needed to cover any remaining revenue shortfall as Priority C option.

5.3.4 Water Transfer Portfolio

Water transfers north and south of the Delta serve as the primary source of revenue generation for this portfolio. This portfolio is provided as a backstop should the Miocene Canal and Chico Intertie portfolios, which also include water transfers, be deemed infeasible. Water transfers would be maximized while still maintaining water supply reliability for PID customers. Note that while water transfers to entities south of the Delta have the potential to generate higher revenues

during the years of transfer, north of Delta water transfers within this portfolio are prioritized as a result of stakeholder/public feedback.

Priority B options that would be implemented as needed include:

- FEMA funding
- ASADRA funding
- Magalia Dam Retrofit
- Grants and loans
- Backfill funding assistance

FEMA and ASADRA funding, along with grants and loans, will be used to fund or cost share the implementation of specific options as the appropriate funding opportunities become available. This portfolio also assumes the Magalia Dam retrofit project would be completed by 2030, which would enhance water availability and thus the potential for additional revenue generation and water supply reliability increases. Backfill funding assistance will be sought in the immediate years to continue to cover operations costs as options of this portfolio are implemented.

Rate increases/assessments would be implemented to cover any remaining revenue shortfall as Priority C option. This option can be more heavily relied on within this portfolio, since there is limited opportunity for revenue generation using water transfers while maintaining water supply reliability.

5.3.5 Agency Reorganization Portfolio

The Agency Reorganization Portfolio primarily relies on reorganizing PID to overcome PID's revenue deficit. This could be achieved in two reorganization scenarios:

- PID reorganized into the Town

or

- PID reorganized into South Feather Water and Power Agency

Following reorganization, PID's existing revenue deficit would be transferred to either the Town or SFWPA. The following Priority B options could be implemented as part of this portfolio as needed to overcome the operating deficit over time:

Priority B Options:

- FEMA funding
- ASADRA funding
- Grants and loans
- Backfill funding assistance

Rate increases/assessments could be implemented as needed to cover any remaining revenue shortfall as Priority C option.

Water transfers and the Magalia Dam retrofit are not included in this portfolio to assess whether the transfer of ownership alone can satisfy PID's revenue deficit.

5.4 Summary

A summary of the proposed portfolios is provided below in **Table 5-3**.

Table 5-3: Summary of Portfolios

Options Category	Option No.	Option Name	Priority	Financial Claim	Miocene Canal	Chico Intertie	Water Transfers	Agency Reorganization
No Project	1	Do Nothing	N					
Financial Claims	2	PG&E	A	a				
	3	FEMA	B	a	a	a	a	a
	4	Insurance	N					
	5	ASADRA	B	a	a	a	a	a
Infrastructure	6	Miocene Canal	A		a			
	7	Chico Intertie	A			a		
	8	Magalia Dam retrofit	B		a	a	a	
Water Transfers	9	Butte County	N					
	10	N/O Delta (Not Butte)	A		a	a	a	
	11	S/O Delta	A		a	a	a	
Agency Reorganization	12	PID into: ToP	A					a
	13	PID into: SFWPA	A					a
	14	Into PID: Del Oro	N					
Others	15	Paradise Sewer	B			a		
	16	Metering	N					
	17	Water Bottling	N					
	18	Voluntary Agreements	N					
Funding Augmentation	19/20	Rate Increases/Assessments	C	a	a	a	a	a
	21	Taxes	N					
	22	Grants and Loans	B	a	a	a	a	a
	23	Backfill Funding Assistance	B	a	a	a	a	a

6 Portfolio Evaluation Methodology

6.1 Evaluation Criteria

All portfolios were evaluated for their performance of the Study objectives:

- Water supply reliability
- Safe and affordable drinking water
- Short and long-term financial sustainability
- Support community redevelopment

The evaluation criteria identified below directly addresses one or more of the Study objectives.

6.1.1 Technical Feasibility

The technical feasibility of each portfolio was assessed based on available information. For most of the options within each portfolio only conceptual information was available. Where no technical information was available or where only a conceptual discussion was available, GEI Team provided their professional opinion as part of the technical feasibility assessment.

Technical feasibility assessment considered the following elements:

- **Construction Requirements** - Can the portfolio be implemented with current state of engineering practice?
- **Consistency with PID Objectives** - Is the portfolio's technical feasibility consistent with PID operations and redevelopment objectives?
- **Water Supply Reliability** - Can the lifecycle of the portfolio provide short- and/or long-term reliability for PID water supplies and/or meet desired redevelopment objectives and timelines?

6.1.2 Economic Feasibility

The economic feasibility assessment of each portfolio included an economic analysis of the proposed portfolio relative to other considered portfolios. This assessment identified the degree to which the portfolio is cost-effective and the economic benefits that will be realized after implementation.

The economic feasibility assessment included the following information, as appropriate:

- Described the conditions that exist in the area and provide projections of the future with, and without, the project. Emphasis in the analysis was given to the contributions that the

plan could make toward alleviation of economic problems and the meeting of future demand.

- Included a cost comparison of portfolios, where information was available. Portfolios used for comparison were evaluated for technical feasibility first and developed with the same standards with respect to cost, funding, project financing, and project lifecycle.

- Where portfolios provide water supply reliability to PID, the benefits were measured relative to the cost of the other similar portfolios, if portfolios provide comparable levels of service.

- Where portfolios provide revenue without water supply reliability benefits (water transfers, for example), the benefits were measured relative to the cost of the other similar portfolios, assuming that compared portfolios provide comparable levels of service.

- Where portfolio benefits were difficult to quantify; for example, a drought tolerant water supply outside of PID, environmental benefits from streamflow augmentation, or other social or economic benefits. These benefits were documented and described qualitatively as completely as possible. These qualitative benefits were considered as part of the justification for a portfolio in conjunction with the comparison of project costs described above.

6.1.3 Financial Feasibility

The evaluation of financial feasibility for each portfolio included an assessment of funds available to cover the capital and lifecycle costs over the planning horizon. For those portfolios requiring capital and operational funding, the ability to achieve funding from the sources identified in Section 4.8, or others, was assessed. Included in this assessment is the projected timeline required to secure funding sources and the effect of that timeline on PID redevelopment objectives.

The financial feasibility also assessed the affordability to PID ratepayers, and all portfolios were compared relative to any potential change to existing rate structures.

6.1.4 Regulatory Feasibility

The assessment of regulatory feasibility considered all regulatory requirements for implementation of a portfolio, including an estimated timeline for regulatory approval. The assessment included the following regulatory categories:

- Environmental compliance and assessment of the environmental impacts to endangered species, cultural, and other resources that would result from portfolio implementation, consistent with the environmental review process established in the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) to receive federal funding, as applicable to the portfolio and its funding source.

- Regulatory requirements and constraints with implementation of portfolios, such as water transfers that require coordination with state and federal agencies.

- Regulatory requirements associated with local ordinance or planning objectives (such as SGMA) that govern or control the movement, storage, or extraction of water within or between jurisdictions.

6.1.5 Environmental Impacts

Each portfolio considered was evaluated for potential environmental impacts - both detrimental and positive. Based on available site and project specific information portfolios considered typical impacts associated with the NEPA and CEQA process such as biological resources, cultural resources, hydrology, transportation, water quality, and recreation.

In most instances sufficient project information is not available or defined enough to do a proper analysis that would meet the criteria for environmental documentation. A qualitative approach based on these factors was taken to capture potential impacts which may complicate or delay the environmental review process.

6.1.6 Legal Feasibility

The legal feasibility of each portfolio identified any legal or institutional requirements, or barriers to implementing the proposed portfolios. The assessment included the following criteria:

- Analysis of any water rights issues potentially resulting from implementation of a portfolio, as all proposed portfolios must comply with state water law.

- Discussion of legal and institutional requirements (e.g., contractual water supply obligations, water rights settlements, regional water quality control board requirements), state, and/or local requirements with the potential to affect implementation of a portfolio.

- Discussion of the need for multi-jurisdictional or interagency agreements, any coordination undertaken, and any planned coordination activities.

- Discussion of permitting procedures required for the implementation of a portfolio, and any measures that Study supporters can implement to speed the permitting process.

- Discussion of legal defensibility for any rate increase or assessments required for the implementation of a portfolio.

- Discussion of any unresolved issues associated with implementing a portfolio, how and when such issues will be resolved, and how the portfolio will be affected if such issues are not resolved.

GEI Consultants, Inc., as the primary author of this report does not represent that they are qualified or licensed to practice law in California, and this assessment does not qualify as a legal opinion.

6.1.7 Stakeholder/Public Acceptance

Each option within the portfolios were reviewed with the Stakeholder Group and public (Community of Paradise) to assess the level of support for the portfolio. Input was primarily solicited relative to the three Study objectives, but input was also solicited from other agencies where portfolios may provide other local or regional benefits.

6.1.8 Implementation

Many of the feasibility criteria mentioned above incorporate assessment of timelines for portfolio implementation, funding, or regulatory approvals. These timeline considerations were consolidated to develop an overall portfolio implementation timeline. That timeline was assessed against PID's objectives for redevelopment and the need for revenue generation.

6.2 Criteria Ranking

The framework for ranking each of the portfolios with respect to the eight evaluation criteria listed above was developed with consideration of the Study's objectives of water supply reliability, safe and affordable drinking water, short- and long-term financial sustainability, and community redevelopment.

For each of the eight evaluation criteria, portfolios were ranked generally as follows:

- **Rank 1 –** If the portfolio helps meet most or all the Study objectives
- **Rank 2 –** If the portfolio helps meet some of the Study objectives
- **Rank 3 –** If the portfolio does not meet most or all the Study objectives

6.2.1 Technical Feasibility

The factors identified in Section 6.1.1 were used to inform the ranking of each portfolio for technical feasibility. These factors include:

Construction Requirements - Construction requirements were ranked based on the need for new infrastructure and the level of complexity of construction. Portfolios were ranked as follows based on available qualitative information:

- **Rank 1 –** New construction with above average difficulty
- **Rank 2 –** New construction with average difficulty

- **Rank 3 –** No new construction

Consistency with PID Objectives - PID is dedicated to the business of producing and delivering a safe, dependable supply of quality water in an efficient, cost effective manner with service that meets or exceeds the expectation of customers. Additionally, PID remains committed to recovery and reconstruction of infrastructure damaged due to the Camp Fire and to further enhance PID's water supply reliability. Portfolios were ranked as follows based on available qualitative information:

- **Rank 1 –** Inconsistent with PID objectives
- **Rank 2 –** Consistent with PID objectives but do not support future growth
- **Rank 3 –** Meet PID objectives

Water Supply Reliability - This factor was ranked based on how the portfolios may increase the water supply reliability for PID and its customers. Portfolios were ranked as follows based on available quantitative information:

- **Rank 1 –** Do not increase water supply reliability
- **Rank 2 –** Increase either short-term **or** long-term water supply reliability
- **Rank 3 –** Increase short-term **and** long-term water supply reliability

Table 6-1 provides a summary of technical feasibility evaluation factors and their associated ranking.

Table 6-1: Technical Feasibility Evaluation Factors and Ranking

Factors	Ranking		
	1	2	3
Construction Requirements	New construction with above-average difficulty	New construction & typical level of difficulty	Requires no new construction
Consistency with PID objectives	Inconsistent	Consistent but do not support future growth	Consistent
Water Supply Reliability	Neither short- nor long-term water reliability	Short- or long-term water reliability	Short- and long-term water reliability

6.2.2 Economic Feasibility

The factors identified in Section 6.1.2 were used to inform the ranking of each portfolio for economic feasibility. These factors include the following.

Capital Cost - Estimated portfolio capital cost was used as a factor to assess the economic feasibility of each portfolio. However, a cost-benefit ratio was not calculated as benefits for most of the options

can only be estimated qualitatively. These qualitative benefits were estimated using various factors in other evaluation criteria. The total capital cost of each portfolio was estimated by combining the estimated capital costs associated with the Priority A and Priority B options included in each portfolio, as applicable. Portfolios were ranked as follows based on available qualitative information:

- **Rank 1 –** High capital cost relative to other portfolios
- **Rank 2 –** Average capital cost relative to other portfolios
- **Rank 3 –** Low capital cost relative to other portfolios

Grants – Since capital costs were used as a factor in the evaluation of economic feasibility, the likelihood of grants and loans to reduce the impact of capital cost were also evaluated as factors for economic feasibility.

Likelihood of grants available to reduce initial cost is provided as a Priority B option within each portfolio. Should a grant be required within any of the portfolios to cover PID's operating deficit, those portfolios were ranked as follows:

- **Rank 1 –** Limited grant opportunities to reduce initial capital cost
- **Rank 2 –** Grant opportunities available but no prior evidence of award of grants for similar projects
- **Rank 3 –** Grant opportunities available with prior evidence of award of grants for similar projects

Loans - Likelihood of loans available to support initial cost provided as a Priority B option within each portfolio. Should a loan be required within any of the portfolios to cover PID's operating deficit, those portfolios were ranked as follows:

- **Rank 1 –** Only commercial loans or subsidized loans with limited capacity are available
- **Rank 2 –** Subsidized loans available with sufficient capacity but no prior evidence of issuance for similar projects
- **Rank 3 –** Subsidized loans available with sufficient capacity and with evidence of issuance for similar projects

Table 6-2 below provides a summary of economic feasibility evaluation factors and their associated ranking.

Table 6-2: Technical Feasibility Evaluation Factors and Ranking

Factors	Ranking		
	1	2	3
Capital Cost	High (relative)	Average (relative)	Low (relative)
Grants	Limited opportunities	Available but no prior evidence	Available with prior evidence
Loans	Only commercial loans or subsidized loans with limited capacity	Subsidized loans available with sufficient capacity but no prior evidence of issuance for similar projects	Subsidized loans available with sufficient capacity with evidence of issuance for similar projects

6.2.3 Financial Feasibility

The factors identified in Section 6.1.3 were used to inform the ranking of each portfolio for financial feasibility. These factors include the following.

Impact to Annual O&M costs – The estimated impact of each portfolio on PID's annual O&M costs was used as a factor to assess the financial feasibility of each portfolio. Portfolios were ranked as follows based on available information:

- **Rank 1 –** Significant impact to annual O&M costs
- **Rank 2 –** Minimal impacts to annual O&M costs
- **Rank 3 –** No impact/increase to annual O&M costs

Debt Issuance – Loans are provided as a Priority B option within each portfolio. Should a loan be required within any of the portfolios to cover PID's operating deficit, the issuance of debt is also used as a factor to assess the financial feasibility of each portfolio. Portfolios were ranked as follows based on available information:

- **Rank 1 –** Long-term debt issuance is anticipated
- **Rank 2 –** Interim debt issuance is anticipated
- **Rank 3 –** No debt issuance is anticipated

Impact to Water Rates – Rate increases/assessments are provided as Priority C options within each portfolio. Should rate increases/assessments be required within any of the portfolios to cover PID's operating deficit, the overall impact to water rates is evaluated. Portfolios were ranked as follows based on available information:

- **Rank 1** – Significant increase in water rates and/or an annual assessment is required
- **Rank 2** – Moderate increase in water rates or an interim fee is required

- **Rank 3** – Minimal increase in water rates and no annual assessment is anticipated

Table 6-3 below provides a summary of economic feasibility evaluation factors and their associated ranking.

Table 6-3: Financial Feasibility Evaluation Factors and Ranking

Factors	Ranking		
	1	2	3
Impact to Annual O&M costs	Significant	Minimal	None
Debt issuance	Long-term debt	Interim debt	No debt
Impact to water rates	Significant	Moderate	Minimal

6.2.4 Regulatory Feasibility

Each portfolio includes options that may require a certain level of regulatory involvement from the following state, federal, and local agencies:

- California Department of Transportation (Caltrans)
- California Department of Fish and Wildlife
- SWRCB and/or Regional Water Quality Control Board
- California Department of Water Resources
- Division of Safety of Dams
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- LAFCo

Additionally, an option could require compliance with the California Environmental Quality Act (CEQA) if it is deemed a "project" and, in some instances, the NEPA if it involves federal approval and/or funding. Portfolios were ranked as follows based on available information:

- **Rank 1 –** Regulatory requirements could take more than 2 years to complete
- **Rank 2 –** Regulatory requirements could be completed between 1 and 2 years
- **Rank 3 –** Regulatory requirements could be completed in less than 1 year

Table 6-4 provides a summary of the regulatory feasibility evaluation factors and rankings. The rankings (one through three) consider the overall involvement of regulatory agencies and CEQA/NEPA compliance effort. Some options, like infrastructure, would require more time and thus have a lower ranking.

Table 6-4: Regulatory Feasibility Evaluation Factors and Ranking

Factor	Ranking		
	1	2	3
Regulatory Feasibility	More than 2 years	Between 1 and 2 years	Less than 1 year

6.2.5 Environmental Impacts

The factors identified in Section 6.1.5 were used to inform the ranking of each portfolio for environmental impacts. The rankings (one through three) consider the potential significance, if any, to environmental topics, such as biological resources, cultural resources, hydrology, transportation, water quality, and recreation.

Portfolios were ranked as follows based on available information.

- **Rank 1 –** Creates potentially significant impacts (e.g., permanent).
- **Rank 2 –** Creates potentially less than significant impacts (e.g., temporary).
- **Rank 3 –** Creates no adverse impacts or provides beneficial impacts

Similar to regulatory feasibility, some options, like infrastructure, would have potentially more environmental impacts and thus have a lower ranking. It should be noted that there is a direct correlation between the level of environmental impacts and regulatory involvement described in the preceding section. Table 6-5 provides a summary of the environmental impact's evaluation factors and rankings.

Table 6-5: Environmental Impacts Evaluation Factors and Ranking

Factor	Ranking		
	1	2	3
Environmental Impacts	Significant	Less than significant	No adverse impacts or provide beneficial impacts

6.2.6 Legal Feasibility

The factors identified in Section 6.1.6 were used to inform the ranking of each portfolio for legal feasibility. These factors include:

Legal and Institutional Challenges – associated with the Priority A and B options were used as a factor to assess the legal feasibility of each portfolio. Portfolios were ranked as follows based on available information:

- **Rank 1 –** Substantial legal challenges

- **Rank 2 –** Moderate legal challenges
- **Rank 3 –** Limited legal challenges

Changes to PID's Existing Water Rate Structure – Rate increases are provided as a Priority C option within each portfolio. Should a rate increase be required within any of the portfolios to cover PID's operating deficit, the required change to PID's existing water rate structure is evaluated. Portfolios were ranked as follows based on available information:

- **Rank 1 –** Significant changes to existing water rate structure with the potential for an annual assessment
- **Rank 2 –** Minor changes to the existing water rate structure with low potential for legal challenge
- **Rank 3 –** No changes required to the existing water rate structure

Table 6-6 below provides a summary of the legal feasibility evaluation factors and rankings.

Table 6-6: Legal Feasibility Evaluation Factors and Associated Ranking

Factors	Ranking		
	1	2	3
Legal and Institutional Challenges	Substantial	Moderate	Limited
Changes to PID's Existing Water Rate Structure	Significant	Minor	No change

6.2.7 Stakeholder/Public Acceptance

As identified in Section 6.1.7, overall support for each of the options were used to inform the ranking of each portfolio with respect to stakeholder/public acceptance. Portfolios were ranked based on the feedback received from the stakeholders and public from the monthly stakeholder meetings and regularly scheduled public meetings as follows:

- **Rank 1 –** Low stakeholder/public support
- **Rank 2 –** Moderate stakeholder/public support
- **Rank 3 –** High stakeholder/public support

Table 6-7 provides a summary of the stakeholder/public acceptance evaluation factors and rankings.

Table 6-7: Stakeholder/Public Acceptance Evaluation Factors and Ranking

Factor	Ranking		
	1	2	3
Overall support	Low	Moderate	High

6.2.8 Implementation

The factors identified in Section 6.1.8 were used to assess the implementation timeline of each portfolio. These factors include:

Portfolio Implementation Timeline – The overall timeline for implementation of each portfolio was used as a factor. This timeline includes considerations for funding, regulatory approvals, and construction; however, specific funding considerations related to Priority B and C options are also described below. Portfolios were ranked as follows based on available information.

- **Rank 1 –** Majority of the options are implemented by 2028
- **Rank 2 –** Majority of the options are implemented between 2024 and 2027
- **Rank 3 –** Majority of the options are implemented by 2023

Implementation Risk associated with securing grants/loans – Grants/loans are provided as Priority B options within each portfolio. Should a grant or a loan be required within any of the portfolios to cover PID's operating deficit, the implementation risk associated with securing said grants/loans is evaluated. Portfolios were ranked as follows based on available information:

- **Rank 1 –** Significant risk due to the level of effort and/or limited window of opportunity to secure the grants/loans
- **Rank 2 –** Moderate risk due to the level of effort and/or limited window of opportunity to secure the grants/loans
- **Rank 3 –** Minimal risk due to the level of effort and/or limited window of opportunity to secure the grants/loans

Table 6-8 provides a summary of the implementation timeline evaluation factors and rankings.

Table 6-8: Implementation Timeline Evaluation Factors and Ranking

Factors	Ranking		
	1	2	3
Portfolio Implementation Timeline	2028 or beyond	Between 2024-2027	By 2023
Implementation risk associated with securing grants/loans	Significant	Moderate	Minimal

7 Portfolio Evaluations

Each of the six portfolios were evaluated using the methodology discussed in Chapter 6 as detailed in the following sections. Each section provides the following information:

- An enhanced description of the portfolio providing an expanded overview to assist in the portfolio's evaluation
- Evaluation criteria that are applicable to the portfolio's evaluation
- Portfolio evaluation and ranking with respect to the applicable evaluation criteria

Potential revenue and costs associated with the primary revenue generating options in each portfolio were applied to the baseline deficit to determine PID's resulting financial need, which is met within each portfolio through Priority B and C options (i.e., grants/loans and rate increases/assessments). All these components are identified within each portfolio's expanded description.

7.1 Financial Claim Portfolio

7.1.1 Enhanced Portfolio Description

As mentioned previously, PID is currently pursuing financial claims with PG&E, FEMA, insurance reimbursements, along with backfill funding assistance and funding through ASADRA for the damages caused by the Camp Fire and to assist in redevelopment. The current status of each of these options is summarized below:

- **PG&E:** PID is currently pursuing a claim against the Fire Victim Trust. As of February 2021, the net amount of that claim was approximately $277 million. PID is in discussions with representatives of the Fire Victim Trust, but when the claim will be resolved satisfactorily to PID is currently unknown
- **FEMA:** PID is pursuing all reasonably available claims and reimbursements with FEMA and Cal OES.
- **Insurance:** PID is currently pursuing all reasonably available insurance proceeds with its insurance carrier.
- **Other funding sources:** PID is seeking all other financing opportunities, including potential additional state backfill funding and grants/loans such as funding from ASADRA.

7.1.2 Portfolio Evaluation

7.1.2.1 Technical Feasibility

Construction Requirements

The Financial Claims portfolio would not involve any new construction and as a result, this portfolio was rated a 3 for construction requirements.

Consistency with PID Objectives

The Financial Claims portfolio is consistent with PID's objectives of delivering safe and dependable water in a cost-effective manner, short- and long-term financial sustainability, and supporting community redevelopment. This portfolio was rated as a 3 for this factor.

Water Supply Reliability

While the Financial Claims portfolio would not result in any new water supplies, secure and adequate finances enhances water supply reliability by allowing PID to fund ongoing necessary maintenance, repair, and operation of PID's distribution system. This portfolio was rated as a 3 for this factor.

7.1.2.2 Economic Feasibility

Capital Costs

There are no capital costs associated with this portfolio. The additional costs to manage and administer the FEMA grant and ASADRA loan are offset by the proceeds and effectively result in a negative capital cost as compared to other portfolios. Therefore, this portfolio was rated a 3 for capital cost.

Grants - Likelihood of grants available to reduce capital cost

Applications for the FEMA grant and ASADRA programs are under development. Past annual federal appropriations indicate that FEMA grant programs will be available through 2040 to potentially fund additional capital projects through recovery to pre-Camp Fire conditions. Therefore, this portfolio was rated a 3 for this factor.

Loans - Likelihood of loans available to support capital cost

Although grants will significantly reduce capital costs, grants alone may not cover the revenue shortfall during recovery. Under this portfolio, PID would likely need to secure additional loans to cover the revenue shortfall. PID has successfully secured iBank loans in the past and should be eligible for iBank, SRF, or DWSRF loans for future capital projects. The loan proceeds would be dedicated to capital project but would free up general funds to cover the revenue shortfall. Therefore, this portfolio was rated a 3 for this factor.

7.1.2.3 Financial Feasibility

FEMA grants and ASADRA funding do not cover any operating costs incurred by PID. That said, potential backfill funding would reduce the revenue shortfall. However, the future availability of backfill funding is uncertain. Furthermore, the backfill funding may not cover the entire revenue gap and would consequently require PID to issue additional debt during the town's recovery. The additional debt service may require a future increase in water rates to provide financial sustainability beyond FY 2040/41.

As a result, with respect to financial feasibility, this portfolio was rated as follows:

- Impact to Annual O&M Costs: 3
- Debt Issuance: 2
- Overall Impact to Water Rates: 3

7.1.2.4 Regulatory Feasibility

There is no anticipated regulatory involvement associated with the Financial Claim Portfolio, and as such, the portfolio was rated a 3 for this factor.

7.1.2.5 Environmental Impacts

There are no anticipated environmental impacts associated with the Financial Claim Portfolio, and as such, the portfolio was rated a 3 for this factor.

7.1.2.6 Legal Feasibility

Legal and Institutional Challenges

The financial claims options within this portfolio do not pose any legal or institutional challenges. The grants and loan programs discussed above are well established and require minimal legal review to confirm to obligations that PID would take on upon award. Therefore, this portfolio was rated a 3 for this factor.

Changes to PID's Existing Water Rate Structure

The potential future increase in water rates would provide additional revenue to cover debt service for capital improvement loans. This purpose fits within PID's existing rate structure and would not require any revisions to the rate structure or PID's authority. Therefore, this portfolio was rated a 3 for this factor.

7.1.2.7 Stakeholder/Public Acceptance

The Financial Claim Portfolio has high stakeholder/public support and was rated a 3 for stakeholder/public acceptance.

7.1.2.8 Implementation

Implementation Timeline

While this portfolio's timeline is currently uncertain, it is assumed that the PG&E settlement, other financial claims, insurance reimbursements, and grants and loans could be resolved/pursued within the next five years. Therefore, this portfolio was rated a 2 for this factor.

Implementation risk associated with securing grants/loans

Both the FEMA grant and ASADRA loan are federal programs that follow the annual appropriations cycle preceding the start of the fiscal year on November 1. Federal agencies then release a notice of funding opportunity by January, evaluate applications and issue notice of awards by May, and execute funding agreements by October. In the meantime, the cycle begins again for the following fiscal year. Most subsidized loan programs follow a similar timeline. Some FEMA grant programs are "routine" annual programs, with others (e.g., HMGP) tied to natural disasters. However, these grant and loan opportunities are generally available every year, and the implementation timeline is established and can be planned for well in advance. Therefore, this portfolio rates a 3 for this factor.

7.1.2.9 Summary

A summary of the Financial Claim Portfolio evaluation and ranking is provided in Table 7-1.

Table 7-1: Financial Claim Portfolio Evaluation Summary

Criteria	Factors	Ranking
Technical	Construction requirements	3
	Consistency with PID objectives	3
	Water supply reliability	3
Economic	Total Estimated Portfolio Capital Cost	3
	Likelihood of grants	3
	Likelihood of loans	3
Financial	Impact to annual O&M costs	3
	Debt issuance	2
	Overall impact to water rates	3
Regulatory	Regulatory Feasibility	3
Environmental	Environmental Impacts	3
Legal	Legal and institutional challenges	3
	Changes required to PID's existing water rate structure	3
Stakeholder/ Public Acceptance	Overall support	3
Implementation	Overall portfolio implementation timeline	2
	Implementation risk associated with securing grants/loans	3

7.2 Miocene Canal Portfolio

7.2.1 Enhanced Portfolio Description

At the beginning of this Study, PG&E and PID were engaged in discussions to explore the potential for PID to assume ownership of the Miocene Canal and its hydroelectric facilities. These discussions have been confidential in nature, with very limited information shared publicly.

However, in December 2021, PG&E initiated discussions with Del Oro Water Company and is currently working with Luhdorff & Scalmanini Consulting Engineers to complete a feasibility study by mid-2022 to evaluate the potential extension of Del Oro's infrastructure to those who previously received water from the Miocene Canal. As a result, discussions related to the ownership transfer of the Miocene Canal from PG&E to PID have been suspended as of December 2021 (Mike Schonherr, personal communication, December 16, 2021).

The Miocene Canal Portfolio was originally formulated due to its potential to generate revenue via the Lime Saddle and Coal Canyon powerhouses along with water transfers primarily through the Miocene Canal. These sources of revenue generation would require PID to assume ownership of the Miocene Canal and its facilities. With the limited information available related to the discussion of PID assuming ownership of the Miocene Canal, along with discussions between PID and PG&E suspended for the foreseeable future, evaluation of this portfolio is severely constrained, which is reflected in the discussion in Section 7.2.2.

Without the Miocene Canal option, this portfolio relies on water transfers to generate revenue. These water transfers could be initiated in the short- and long-term using existing conveyance to users north and south of the Delta. The supply that would be used for these transfers would be augmented following the Magalia Dam retrofit in 2030.

While the magnitude of costs associated with PID assuming ownership of the Miocene Canal is unclear, estimated costs related to the Magalia Dam retrofit and north/south of Delta water transfers have been evaluated as part of this Study. Based on an estimate provided by PID for the 2013 Butte County Local Hazard Mitigation Plan Update, the estimated cost in December 2021 dollars for the Magalia Dam retrofit is approximately $163 million. The administrative, permitting, and legal fees associated with water transfers are estimated at $12,310 annually. See Section 7.4.2.3 for details on cost assumptions related to water transfers.

7.2.2 Portfolio Evaluation

7.2.2.1 Technical Feasibility

Construction Requirements - Can the portfolio be implemented with current state of engineering practice?

Miocene Canal - As previously discussed, PG&E has ceased discussion with PID related to the transfer of ownership of the Miocene Canal. It is unclear if this transfer of ownership in the future is still possible, particularly due to the recent conversations between PG&E and Del Oro Water Company. The potential scope of this transfer of ownership cannot be established at the time of this report, including any new construction that could be required as part of this transfer of ownership. As such, it is unclear whether this option can be implemented with current state of engineering practice, and this component of the Miocene Canal portfolio is not evaluated for this factor.

Magalia Dam Retrofit - Although the Magalia Dam retrofit is currently in the design phase, and it is likely that it can be implemented with the current state of engineering practice, it is also likely that this project will be complex in scope, relative to the other options presented in this Study.

Water Transfers – Water transfers can be implemented within this portfolio without any additional construction using existing conveyance if PID partners with an entity such as Western Canal Water District (WCWD) who can receive transfer water on Butte Creek and exchange that water with a like amount of water available to Western Canal from the Feather River and Oroville Reservoir. The water in Oroville Reservoir can then be released for water transfer partners both north and south of the Delta.

Due to the anticipated complex design requirements of the Magalia Dam retrofit which is a critical component of the portfolio, and the uncertainty of the facilities needed for the Miocene Canal this portfolio was rated as a 2 for construction requirements.

Consistency with PID Objectives - Is the portfolio's technical feasibility consistent with PID operations and redevelopment objectives?

Miocene Canal - While it is unclear whether the transfer of ownership of the Miocene Canal is still possible in the future, the operation and maintenance of the Canal would be less consistent with PID's current operations objectives relative to other options because PID does not currently operate any hydroelectric facilities. However, ownership of the Canal along with its hydroelectric facilities would generate revenue, which is necessary in support of PID's redevelopment objectives.

Magalia Dam Retrofit - The Magalia Dam retrofit would increase storage levels in the reservoir by 2,000 ac-ft, providing PID additional water supplies for enhanced water supply reliability. This project is already being pursued by PID and is consistent with PID operations and redevelopment objectives.

Water Transfers - Water Transfers yield additional revenue that would decrease PID's operation deficit, which will assist the PID's goal of providing affordable drinking water.

Based on the above factors, this portfolio was rated as a 2 for consistency with PID objectives.

Water Supply Reliability - Can the lifecycle of the portfolio provide short- or long-term reliability for PID water supplies and/or redevelopment objectives and timelines?

Miocene Canal – If the discussions between PID and PG&E resume in the future, PID could acquire additional water supplies through the transfer of ownership of the Miocene Canal. There is limited information available related to PID retaining this water for water supply reliability purposes and the infrastructure that would be necessary to do so.

Magalia Dam Retrofit - The retrofit of Magalia dam would increase water storage by 2,000 ac-ft and increase long-term water supply reliability to PID.

As a result of the factors mentioned above, this portfolio was rated as a 3 for water supply reliability.

7.2.2.2 Economic Feasibility

Capital Costs – Estimated capital costs of all options included in the portfolio

Miocene Canal – Since the discussions between PID and PG&E were suspended in December 2021, the magnitude of costs associated with PID assuming ownership of the Miocene Canal is unclear.

Magalia Dam Retrofit – Based on an estimate provided by PID for the 2013 Butte County Local Hazard Mitigation Plan Update, the estimated cost in December 2021 dollars for the Magalia Dam retrofit is approximately $163 million.

The capital cost of the entire Miocene Canal Portfolio cannot be assessed with the limited information available at the time of the preparation of this report. While it is not known at this time what portion of these costs PID would be responsible for, without the Miocene Canal option, this portfolio is likely to be:

- Higher in cost than the Financial Claim and Agency Reorganization portfolios, since neither of these portfolios include the Magalia Dam retrofit
- Similar in cost to the Water Transfer Portfolio
- Lower in cost relative to the Chico Intertie Portfolio, since the Chico Intertie project is estimated at $372 million

As a result of the above factors, this portfolio was rated as a 2 for capital costs.

Grants - Likelihood of grants available to reduce capital cost

Due to the limited information available regarding the transfer of ownership of Miocene Canal, it is unclear what elements of work, if any, would align with current grant opportunities. Therefore, this portfolio was rated as a 1 for this factor.

Loans - Likelihood of loans available to support capital cost

The availability of loans to fund the capital costs associated with this portfolio would greatly benefit from the ability to dedicate the revenue from hydropower generation. Given the uncertainty surrounding the transfer of ownership of the Miocene Canal, the revenue from hydropower generation has been excluded and the portfolio relies on additional revenue from water transfers. Annual revenue from water transfers would be inconsistent or intermittent over the long term and most likely not considered reliable by lenders.

Without the Miocene Canal revenue, there are few loan programs available that target the Magalia Dam retrofit project. The Water Infrastructure Finance and Innovation Act of 2014 (WIFIA) provides a subsidized loan program used to fund water storage projects. But WIFIA loans require similar creditworthiness and a dedicated revenue stream. Based on PID's current financial challenges, these loans would be difficult to qualify for without the power generation revenue associated with ownership of the Miocene Canal.

Therefore, PID would need to pursue a general loan, as discussed above in the Financial Claims portfolio. However, because the loan proceeds would need to be significantly higher, it is less likely that PID would qualify. For these reasons, this portfolio was rated a 1 for this factor.

7.2.2.3 Financial Feasibility

Impact to Annual O&M Costs

Miocene Canal - At the time of the preparation of this report, the magnitude of O&M costs that would be incurred by PID assuming ownership of the Miocene Canal is unknown. It would be assumed that the revenue from power generation would meet or exceed the additional O&M costs with the balance of the revenue dedicated to debt service. Therefore, with or without inclusion of the Miocene Canal within the portfolio, there is no impact to annual O&M costs.

Magalia Dam Retrofit - Retrofitting the Magalia Dam is not likely to result in notable impacts to PID's annual O&M costs as PID already maintains annual O&M costs for operating and maintaining the Magalia Dam and restoring the original water surface elevation would not impact these costs.

Water Transfers – The administrative, permitting, and legal fees associated with water transfers are estimated at $12,310 annually. See Section 7.4.2.3 for details on cost assumptions.

Funding augmentation needed as part of this portfolio to overcome PID's operating deficit including FEMA/ASADRA funding, grants/loans, backfill funding assistance, and rate increases/assessments will not impact PID's annual O&M costs since these options do not result in any new infrastructure that requires O&M.

As a result of the factors mentioned above, this portfolio results in minimal O&M impacts and was thus rated as a 2.

Debt Issuance

Based on the discussion above, without the Miocene Canal option for this portfolio, the eligibility for a loan to fund the Magalia Dam retrofit will be based on the creditworthiness of the PID. Furthermore, without offsetting revenue from power generation, the annual debt service would significantly impact water rates or require a special assessment. Therefore, this portfolio was rated a 1 for this factor.

Impact to Water Rates

As discussed above, without offsetting revenue from power generation, this portfolio will have significant impacts on water rates and likely require an assessment upon property owners to secure a loan for the capital cost of the Magalia Dam. Therefore, this portfolio was rated a 1 for this factor.

7.2.2.4 Regulatory Feasibility

As this portfolio includes upgrades to the Magalia Dam, along with construction of the Miocene Canal, the likelihood of regulatory involvement is high. Rigorous regulatory compliance is connected to the modification of water supply structures, especially those that provide flood protection, such as a dam. It is assumed that regulatory compliance, including obtaining environmental permits and completion of CEQA and NEPA, would require more than two years. Therefore, this portfolio was rated as a 1 for regulatory feasibility.

7.2.2.5 Environmental Impacts

Since this portfolio includes upgrades to the Magalia Dam, along with construction of the Miocene Canal, the likelihood of environmental impacts is significantly high. Not enough information is currently available to directly identify impact areas or exact resources; however, based on the information available on similar projects, impacts from construction may be significant to cultural and biological resources as well as air quality. Therefore, this portfolio was rated as a 1 for environmental impacts.

7.2.2.6 Legal Feasibility

Legal and Institutional challenges

Transferring ownership of the Miocene Canal from PG&E to PID along with PID's ongoing operation and maintenance of the Canal could very likely present legal and institutional challenges. These challenges cannot be evaluated at the time of the preparation of this report with the limited information available and the recent suspension of discussions between PG&E and PID.

However, relative to the other portfolios, it is likely that the Miocene Canal Portfolio could present more legal and institutional challenges than other portfolios, except for the Chico Intertie Portfolio. In comparison to the Chico Intertie Portfolio, the Miocene Canal Portfolio is likely to present similar legal and institutional challenges considering both portfolios include water transfers and the Magalia Dam retrofit, which could present water rights issues, the need for multi-jurisdictional or interagency

agreements, permitting, and/or other significant legal barriers for implementation. Therefore, this portfolio was rated as a 1 for legal and institution challenges.

Changes to PID's Existing Water Rate Structure

As discussed above, without the Miocene Canal aspects of this portfolio, this portfolio will have significant impacts on water rates and likely require an assessment upon property owners to secure a loan for the capital cost of the Magali Dam. Therefore, this portfolio was rated a 1 for this factor.

7.2.2.7 Stakeholder/Public Acceptance

As mentioned previously, discussions between PID and PG&E were suspended in December 2021, and it is currently unknown when those discussion would be re-initiated, or if they would be re-initiated. However, if the discussions were re-initiated and eventually Miocene Canal ownership is transferred from PG&E to PID, based on the stakeholder and public input received, it is assumed to have high support as it may provide additional water supply and generate additional revenue. As a result, this criterion was rated as a 3 for this portfolio.

7.2.2.8 Implementation

Implementation Timeline

The Magalia Dam retrofit is anticipated to be completed by 2030. Without the Miocene Canal, this portfolio relies on water transfers to generate revenue. These water transfers could be initiated in the short- and long-term using existing conveyance to users north and south of the Delta. Water transfers alone as part of this portfolio are insufficient to generate enough revenue to overcome PID's operating deficit, resulting in the need to pursue grants, loans, and a rate increase/assessment. Said grants and/or loans could be secured by 2023; however, it is likely that the timeline for a rate increase/assessment may be between 2024 and 2027. Although this portfolio's primary components (water transfers, grants/loans) could be implemented in the near-term by 2023, this portfolio was rated a 2 for implementation timeline due to the longer timeline for establishing a rate increase/assessment and retrofitting the Magalia Dam.

Implementation risk associated with securing grants/loans

The availability of loans will be based on the creditworthiness of the PID. Given PID's current financial challenges, the interest rate that PID may qualify for will be significantly higher than subsidized rates. Information regarding the estimated annual dedicated revenue from hydropower is not available to compare to the estimated interest rate for the loan.

Based on discussions above, while a direct evaluation cannot be performed for the portfolio, it is assumed that the portfolio would only be advanced if the hydropower revenue outweighed the additional annual O&M costs and annual debt service. Even so, given PID's current financial challenges, this portfolio was rated a 2 for this factor.

7.2.2.9 Summary

A summary of the Miocene Canal portfolio evaluation and ranking is provided in Table 7-2.

Table 7-2: Miocene Canal Portfolio Evaluation Summary

Criteria	Factors	Ranking
Technical	Construction requirements	2
	Consistency with PID objectives	2
	Water supply reliability	3
Economic	Total Estimated Portfolio Capital Cost	2
	Likelihood of grants	1
	Likelihood of loans	1
Financial	Impact to annual O&M costs	2
	Debt issuance	1
	Overall impact to water rates	1
Regulatory	Regulatory Feasibility	1
Environmental	Environmental Impacts	1
Legal	Legal and institutional challenges	1
	Changes required to PID's existing water rate structure	1
Stakeholder/ Public Acceptance	Overall support	2
Implementation	Overall portfolio implementation timeline	2
	Implementation risk associated with securing grants/loans	2

7.3 Chico Intertie Portfolio

7.3.1 Enhanced Portfolio Description

Chico Intertie Project - A pipeline connecting PID's treated water supplies to Cal Water's Chico District service area has been studied several times over the last decade as an approach to provide water supply to Chico. The most recent analysis of this project involved an expansion of PID's water treatment plant from 16 MGD to 20 MGD and construction of approximately 10 miles of 24-inch diameter gravity fed pipeline (West Yost, 2019). Deliveries would be made to Cal Water during wet and normal water years, to the extent excess supplies are available, and would likely not be possible during dry years.

A longer alignment of this pipeline with 15 miles of 42-inch diameter pipe was estimated in 2012 at $100 million for construction costs excluding expansion of the treatment plant. At the time of this

Study, it is unknown if and how PID can share the cost of this Project. However, for purposes of evaluation of this portfolio, it is assumed that Cal Water would be responsible for construction of the pipeline and PID would cover costs of upgrading the existing treatment plant if necessary. PID currently has excess capacity at their water treatment plant due to the current limited customer base as Paradise recovers and this portfolio will assume water treatment upgrades will not be needed during the Study duration.

Paradise Sewer Project - As discussed in Section 4.7.1, the Town may benefit from construction of a sewer line to the Chico Water Pollution Control Plant. Recovery for the Town may be expedited by switching the Town from a septic to a sewer system. Although the Town Sewer option would not be funded by PID, the Chico Intertie Portfolio may provide cost efficiencies to both projects if constructed concurrently. While the Paradise Sewer Project and the Chico intertie would be installed in separate trenches, cost efficiencies may be realized in engineering, right of way acquisition, mobilization, and construction costs. The Paradise Sewer Project is currently estimated at a cost of $184 million in 2020 dollars (HDR, Inc., 2020).

Magalia Dam Retrofit - As discussed in Section 4.6.3, the Magalia Dam retrofit estimated to be complete in 2030 would increase storage levels in the reservoir by 2,000 ac-ft, which could provide PID additional water supplies that can be transferred to other agencies within Butte County, north of Delta, and south of Delta. Estimated costs related to the Magalia Dam retrofit have been evaluated as part of this Study. Based on an estimate provided by PID for the 2013 Butte County Local Hazard Mitigation Plan Update, the estimated cost in December 2021 dollars for the Magalia Dam retrofit is $163 million.

Water Transfers - Prior to the construction of the Chico Intertie, this portfolio relies on water transfers to generate revenue. These water transfers could be initiated in the short- and long-term using existing conveyance to users north and south of the Delta. The supply that would be used for these transfers would be augmented following the Magalia Dam retrofit in 2030. Estimated costs related to water transfers have been evaluated as part of this Study. The administrative, permitting, and legal fees associated with water transfers are estimated at $12,310 annually. See Section 7.4.2.3 for details on cost assumptions.

7.3.2 Portfolio Evaluation

7.3.2.1 Technical Feasibility

Construction Requirements - Can the Portfolio be implemented with current state of engineering practice?

Chico Intertie Project - The Chico Intertie Project is a large construction project that would require significant design work.

Magalia Dam Retrofit - Although the Magalia Dam retrofit project is currently in the design phase and it is likely that it can be implemented with the current state of engineering practice, it is also likely that this project will be complex in scope relative to the other options presented in this Study.

Water Transfers – Water transfers can be implemented within this portfolio without any additional construction using existing conveyance.

Due to the anticipated complex design requirements of the Magalia Dam retrofit and the significant pipeline design involved in the Chico Intertie project, this portfolio was rated as a 1 for construction requirements.

Consistency with PID objectives - Is the portfolio's technical feasibility consistent with PID operations and redevelopment objectives?

Chico Intertie Project - The construction of the Chico Intertie provides an opportunity to increase revenues when PID has excess water supplies. This may allow for affordable water rates within PID's service area, which is consistent with PID's objectives.

Paradise Sewer Project - The Paradise Sewer Project would provide a mechanism to potentially increase the growth rate of the town and development of denser housing. This may help PID's operations to return to a state similar to prior to the Camp Fire.

Water Transfers – The Magalia Dam retrofit would increase storage levels in the reservoir by 2,000 ac-ft, providing PID additional water supplies for enhanced water supply reliability. This project is already being pursued by PID and is consistent with PID operations and redevelopment objectives.

As mentioned above, this portfolio meets many of the redevelopment objectives of PID and was thus rated as a 3 for consistency with PID objectives.

Water Supply Reliability - Can the lifecycle of the portfolio provide short- or long-term reliability for PID water supplies and/or redevelopment objectives and timelines?

The water transferred to Chico (Cal Water) could be used to generate revenue through the sale of treated drinking water. This option along with water transfers to other entities would provide long-term reliability for redevelopment objectives. Additionally, the retrofit of Magalia Dam would increase water storage and increase long-term water supply reliability to PID. This portfolio was thus rated as a 3 for water supply reliability.

7.3.2.2 Economic Feasibility

Capital Costs – The options in this portfolio with capital costs include the Chico Intertie, and the Magalia Dam Retrofit projects. However, for the evaluation of this Study, it was assumed that Cal Water would be responsible for the capital costs of the Chico Intertie project and the Magalia Dam

retrofit project is estimated at $163 million. In addition, this portfolio is also anticipated to have higher capital costs relative to other portfolios, and as a result was rated as a 1 for capital costs.

Grants - Likelihood of grants available to reduce capital costs

There are few grant programs available for dam rehabilitation but those that are available focus on high-hazard dams or dams constructed by the Soil Conservation Service. These programs have limited funding, increasing the competitiveness for awards. Therefore, it is unlikely that grant programs are available for retrofit projects that address dam safety issues.

However, grant programs are available to improve water supply reliability, particularly for projects that provide integrated water supplies and reduce reliance on groundwater. Given the water supply reliability benefits of this portfolio, it is likely that a portion of the preconstruction activities would be eligible for grants that would provide at least 50 percent cost share. Based on evidence of similar awards, this portfolio was rated a 2 for this factor.

Loans - Likelihood of loans available to support capital cost

As discussed above in the Miocene Canal Portfolio, there are few subsidized loan programs available for dam rehabilitation. However, based on the integrated water supply benefits of this portfolio, both federal and state subsidized loan programs exist to fund the capital cost of the PID water treatment plant expansion and the Chico Intertie pipeline. In addition, assuming the Chico intertie pipeline and the Paradise sewer pipeline could be installed under the same construction contract, the economic efficiencies and multi-agency participation would make the project more attractive to the agencies that administer these loan programs. Therefore, this portfolio was rated a 3 for this factor.

7.3.2.3 Financial Feasibility

Impact to Annual O&M costs

Chico Intertie - At the time of the preparation of this report, the magnitude of O&M costs that would be incurred by PID for the maintenance of the Chico Intertie and the Paradise Sewer Project is unknown. Both projects could be constructed in conjunction with other entities and O&M responsibilities would need to be negotiated. O&M costs may also increase slightly due to increased treated water deliveries to Cal Water.

Magalia Dam Retrofit - Retrofitting the Magalia Dam is not likely to result in notable impacts to PID's annual O&M costs as PID already maintains annual O&M costs for operating and maintaining the Magalia Dam and restoring the original water surface elevation would not impact these costs.

Water Transfers – The administrative, permitting, and legal fees associated with water transfers are estimated at $12,310 annually. See Section 7.4.2.3 for details on cost assumptions.

Funding augmentation needed as part of this portfolio to overcome PID's operating deficit including FEMA/ASADRA funding, grants/loans, backfill funding assistance, and rate increases/assessments will not impact PID's annual O&M costs since these options do not result in any new infrastructure that requires operation and maintenance. This portfolio has a greater potential for O&M needs than other portfolios and was thus rated as a 1.

Debt Issuance

The Chico Intertie pipeline and any associated PID water treatment plant expansions would require interim to long-term debt financing depending on the cost share arrangements between Chico and Paradise. However, the associated debt service would be passed on to water users in Chico and not PID customers. Assuming that the long-term water supply reliability to Chico is dependent on the Magalia Dam retrofit, this portfolio would require long-term debt to fund the dam retrofit. Potential revenue from water transfers are estimated to be insufficient to reduce the impact of long-term debt on water rates. Therefore, this portfolio was rated a 1 for this factor.

Overall Impact to Water Rates

As discussed above, the debt service associated with the Chico intertie pipeline and PID water treatment plant improvements are expected to be passed on to water users in Chico and not PID customers. With the added O&M revenue for treated water service to Chico, there may be a stabilizing effect on PID rates over the long term. However, the long-term debt issuance required for the Magalia Dam retrofit will have significant impact on rates, and the estimated revenue from water transfers is not sufficient to offset this debt issuance. For these reasons, the portfolio was rated a 1 for this factor.

7.3.2.4 Regulatory Feasibility

As this portfolio includes construction of the Chico Intertie and upgrades to the Magalia Dam, the likelihood of regulatory involvement is significantly high. It is assumed that regulatory compliance, including obtaining environmental permits and completion of CEQA and NEPA, would require more than two years. Therefore, this portfolio was rated as a 1 for regulatory feasibility.

7.3.2.5 Environmental Impacts

As this portfolio includes the Chico Intertie and upgrades to the Magalia Dam, the likelihood of environmental impacts is significantly high. Such potentially significant impacts may occur to cultural and biological resources as well as air quality. Therefore, this portfolio was rated as a 1 for environmental impacts.

7.3.2.6 Legal Feasibility

Legal and Institutional Challenges - The Chico Intertie Portfolio is likely to present legal and institutional challenges as this portfolio includes water transfers and the Magalia Dam retrofit that could both present water rights issues, the need for multi-jurisdictional or interagency agreements,

permitting, and/or other significant legal barriers for implementation. Therefore, this portfolio was rated as a 1 for legal and institution challenges.

Changes to PID's existing water rate structure

As discussed above, the debt service associated with the Chico intertie pipeline and PID water treatment plant improvements are expected to be passed on to water users in Chico and not PID customers. With the added O&M revenue for treated water service to Chico, there may be a stabilizing effect on PID rates over the long term. The long-term debt issuance required for the Magalia Dam retrofit will have significant impact on rates, and the potential revenue from water transfers are estimated to be insufficient to reduce the impact of long-term debt on water rates. Therefore, this portfolio was rated a 1 for this factor.

7.3.2.7 Stakeholder/Public Acceptance

Relative to the other portfolios, the Chico Intertie Portfolio has a moderate level of stakeholder/public support and was thus rated as a 2 for this factor.

7.3.2.8 Implementation

Implementation timeline

The Magalia Dam retrofit is anticipated to be completed by 2030. Current estimates for the Chico Intertie and Paradise Sewer Project are approximately 5 to 6 years from design through construction. It is unlikely that either of these projects will begin in the next year or so, and thus it is anticipated that most of the options in this portfolio could be completed after 2028, which rates this portfolio as a 1 for implementation timeline.

Implementation risk associated with securing grants/loans

The availability of loans will be based on the creditworthiness of the PID. Given PID's current financial challenges, the interest rate that PID may qualify for will be significantly higher than subsidized rates. Even with the additional level of effort required to secure a loan for the Magalia Dam retrofit, this portfolio was rated a 2 for this factor.

7.3.2.9 Summary

A summary of the Chico Intertie Portfolio evaluation and ranking is provided in Table 7-3.

Table 7-3: Chico Intertie Portfolio Evaluation Summary

Criteria	Factors	Ranking
Technical	Construction requirements	1
	Consistency with PID objectives	3
	Water supply reliability	3
Economic	Total Estimated Portfolio Capital Cost	1
	Likelihood of grants	2
	Likelihood of loans	3
Financial	Impact to annual O&M costs	1
	Debt issuance	1
	Overall impact to water rates	1
Regulatory	Regulatory Feasibility	1
Environmental	Environmental Impacts	1
Legal	Legal and institutional challenges	1
	Changes required to PID's existing water rate structure	1
Stakeholder/ Public Acceptance	Overall support	2
Implementation	Overall portfolio implementation timeline	1
	Implementation risk associated with securing grants/loans	2

7.4 Water Transfer Portfolio

7.4.1 Enhanced Portfolio Description

Hydrologic conditions, climatic variability, watershed use, and regulatory requirements often affect water supply availability in California. This variability strains water supplies, making advance planning for water shortages necessary and routine. In the past decades water transfers have become a common tool in water resource planning in California, as water transfers have been implemented from entities with available water supplies to entities needing supplemental water supplies to serve existing demands.

A water transfer involves an agreement between a willing seller and a willing buyer, and available infrastructure with capacity to convey water between the two parties. To make water available for transfer, the willing seller must take an action to reduce the consumptive use of water (such as idle cropland or pump groundwater in lieu of using surface water) or release additional water from reservoir storage. This water would be conveyed to the willing buyer for meeting beneficial uses of their existing demands. Many transfer agreements are for a single year, but longer-term agreements

can be entered into. In either case, transfers under existing water rights must receive approval by the SWRCB. Local water agencies have regularly participated in water transfers to south of Delta agencies, these include, but are not limited to, WCWD, Richvale Irrigation District, Butte Water District, Biggs West Gridley Water District, and SFWPA.

PID can support water transfers to willing buyers under its current and projected level of demand from available water in storage in Paradise Lake and Magalia Reservoir. The feasibility of water transfers and the frequency with which they can occur depends on many factors outside the PID service area and, indeed, outside of PID's control. However, water transfers are a viable and frequently used water management tool in California and can be implemented by PID to generate supplemental revenue in the short and long term while still maintaining adequate local water supplies to meet its water supply reliability objectives.

To evaluate the feasibility and frequency of water transfers from PID, a preliminary analysis was performed to determine the water available for water transfers. This analysis was based on available data from PID for Butte Creek historical hydrology (source: PID 1995-2020), projected local demands (source: 2020 UWMP), current operations at Paradise Lake and Magalia Reservoir (source: PID staff), and assumptions of water transfer demands and prices (source: GEI). This preliminary analysis also sought to balance water supplies available for transfer while maintaining a reliable water supply for PID, which for the purposes of this evaluation, is equal to two years of projected demand held in storage in Paradise Lake and Magalia Reservoir, collectively.

The preliminary water transfer availability analysis estimates that PID could transfer an average of 1,700 ac-ft in 69 percent of the years in the period of analysis. Table 7-4 provides an annual summary of the preliminary water transfer availability analysis. This analysis relies on historical hydrologic data for Butte Creek overlayed with projected PID demands and operating criteria for Paradise Lake and Magalia Reservoir. A significant assumption for Magalia Reservoir is that full storage capacity will be restored by 2030. To maintain PID's water supply reliability, this analysis maintained a minimum combined storage of 2-years of PID demand plus 1,000 ac-ft for account for deadpool in both reservoirs. The historical hydrologic period of 1995 to 2020 was used as an estimate of future hydrologic conditions and a general trend of water supply conditions. As such, while the analysis provides annual estimates, it is more appropriate to utilize trends or percentages to predict future conditions. For the 26-year period of evaluation, PID could support water average transfers of 1,700 ac-ft in 16 years, with a maximum transfer of 5,440 ac-ft and minimum of 1,010 ac-ft, during those years.

Table 7-4: Results of the Preliminary Water Transfer Availability Analysis

Year (Projected)	Butte Creek Flow (ac-ft)	PID Demand (ac-ft)	Potential Water Transfer (ac-ft)	Combined Paradise Lake and Magalia Reservoir Storage	
				Minimum (ac-ft)	Maximum (ac-ft)
2020	64,097	4,370	2,577	9,740	12,290
2021	52,549	4,287	3,179	9,575	12,290
2022	29,653	4,205	1,945	9,410	12,290
2023	9,222	4,122	3,556	9,247	12,290
2024	5,452	4,040	2,902	9,079	12,290
2025	8,592	3,957	3,013	8,914	12,290
2026	10,711	4,037	1,456	9,074	12,290
2027	10,731	4,117	1,421	9,233	12,290
2028	8,170	4,196	2,517	9,393	12,290
2029	16,682	4,276	1,338	9,552	12,290
2030	23,681	4,356	2,469	9,712	12,290
2031	36,097	4,468	4,014	9,935	14,000
2032	6,916	4,579	1,834	10,158	14,000
2033	8,515	4,691	2,119	10,382	14,000
2034	10,922	4,802	1,339	10,605	14,000
2035	17,954	4,914	1,701	10,828	14,000
2036	23,414	4,953	1,012	10,906	14,000
2037	17,017	4,992	0	11,186	14,000
2038	4,439	5,031	0	10,867	14,000
2039	7,788	5,070	0	10,783	14,000
2040	4,240	5,109	0	10,836	14,000
2041	19,685	5,104	0	11,260	14,000
2042	43,384	5,099	0	11,173	14,000
2043	11,561	5,094	0	10,577	14,000
2044	39,081	5,089	5,441	11,178	14,000
2045	2,810	5,084	0	9,961	13,330
Average Annual Transfer Volume:			1,686		
Total Transfer Volume			43,832		

Based on past, current, and estimated projections of demands for water transfers, the GEI Team estimated that transfer water can reasonably be valued at $500 per ac-ft for buyers either north or south of the Delta. Transfers to entities north of the Delta entities are estimated $300 to $500 per ac-

ft and transfers south of the Delta are estimated at $500 to $700 per ac-ft. Based on a total transfer volume of 43,830 ac-ft and assuming a value of $500 per ac-ft, water transfers would generate a total of $21,900,000 over the 26-year period for an annualized value of $843,000.

To facilitate water transfers, stored water would be released into Butte Creek where the releases could be picked up at existing diversion facilities owned and operated by WCWD. WCWD would utilize this water to meet local demands and would forgo a like amount of water from the Feather River and Lake Oroville. The inclusion of WCWD to facilitate water transfers would subject to negotiation which would likely require financial compensation or a portion of the water supply. This exchange of water into Lake Oroville would then be released for a predetermined buyer either north or south of the Delta.

It should also be noted that PID would need to adhere to the technical requirements for water transfers, as described in the California Department of Water Resources (DWR) Technical Information for Preparing Water Transfers Proposals (Water Transfer White Paper). The proposed transfer would be considered a Reservoir Storage Release water transfer, involving the release of stored water that would remain in storage in the absence of the water transfer. Storage reduction caused by a transfer must be refilled at a time when downstream users would not have otherwise captured the water. Through the preliminary water transfer availability analysis, it was estimated that the combined storage of Paradise Lake and Magalia Reservoir would be refilled at the end of every transfer event, thereby eliminating any potential downstream impacts. However, other conditions, including those in the Delta, would need to be fully considered since water transfer proposals are being considered.

The intent of this analysis is to assess the likelihood of implementing water transfers, while still meeting the water supply reliability goals of PID. A more detailed evaluation will be required to support an actual water transfer with known conditions and requirements for buyers and PID (the seller) and regulatory constraints, including, but not limited to, transfer quantity and timing of releases from storage, downstream conveyance and diversion capacities, and other constraints from SWP and Delta operations.

7.4.2 Portfolio Evaluation

7.4.2.1 Technical Feasibility

Construction Requirements - Can the portfolio be implemented with current state of engineering practice?

Water Transfers – In the initial years, water transfers could be implemented by releasing water into Butte Creek that could be picked up at existing diversion facilities owned and operated by WCWD, in exchange with water made available in the Feather River system, which can be managed for release to a downstream buyer (north of the Delta) by DWR. This scenario would not require the construction of any new facilities and would rely upon an existing diversion facility on Butte Creek.

Magalia Dam Retrofit - Although the Magalia Dam retrofit is currently in the design phase and it is likely that it can be implemented with the current state of engineering practice, it is also likely that this project will be complex in scope, relative to the other options presented in this Study.

Due to the anticipated complex design requirements of the Magalia Dam retrofit, this portfolio was rated as a 2 for construction requirements.

Consistency with PID objectives - Is the portfolio's technical feasibility consistent with PID operations and redevelopment objectives?

Water Transfers – Water transfers would utilize water supplies available after meeting local demands and maintaining water supply reliability objectives and generate an estimated revenue of up to $800,000 per year to support PID operating costs. Generating this additional revenue is necessary in support of PID's redevelopment objectives and would assist PID in achieving short- and possibly long-term financial sustainability and may allow for affordable water rates within PID's service area.

Magalia Dam Retrofit - The Magalia Dam retrofit would increase storage levels in the reservoir by 2,000 ac-ft providing PID additional water supplies for enhanced water supply reliability. This project is already being pursued by PID and is consistent with PID operations and redevelopment objectives.

As mentioned above, this portfolio meets many of the redevelopment objectives of PID and was thus rated as a 3 for consistency with PID objectives.

Water Supply Reliability - Can the lifecycle of the portfolio provide short- or long-term reliability for PID water supplies and/or redevelopment objectives and timelines?

Water Transfers – Water transfers could be implemented within a year based on hydrology and regulatory permits conditions. The preliminary water transfer availability analysis assumed that water transfers can only occur if two years of projected demands would be available in storage after the transfer, ensuring that PID would maintain its water supply reliability objective.

Magalia Dam Retrofit - The retrofit of Magalia Dam as part of this portfolio would increase water storage and increase long-term water supply reliability to PID.

As a result of the factors mentioned above, this portfolio was rated as a 3 for water supply reliability.

7.4.2.2 Economic Feasibility

Capital Cost

Magalia Dam Retrofit - The only option in this portfolio with associated capital costs is the Magalia Dam Retrofit, estimated at $163 million.

Relative to the other portfolios, the Water Transfer Portfolio is likely to be:

- Higher in capital cost than the Financial Claim Portfolio (since there are no expected capital costs associated with this portfolio) and the Agency Reorganization Portfolio (since this portfolio does not include the Magalia Dam retrofit)

- Similar in cost to the Miocene Canal Portfolio

- Lower cost relative to the Chico Intertie Portfolio

As a result of the above factors, the Water Transfer Portfolio was rated as a 2 for this factor.

Grants - Likelihood of loans available to support capital cost

There are more grant programs available for dam rehabilitation than for the infrastructure components that comprise the other portfolios. As a result, this portfolio was rated as a 3 for this factor.

Loans - Likelihood of loans available to support capital cost

There are few loan programs available that target the Magalia Dam retrofit project. However, in comparison with the Miocene Canal and Chico Intertie portfolios, there are no other infrastructure components associated with this portfolio that would require a loan. As a result, this portfolio was rated a 3 for this factor.

7.4.2.3 Financial Feasibility

Impact to Annual O&M costs

Water Transfers – The permitting/legal fees associated with water transfers are estimated to be approximately $20,000 pre-transfer. These estimated cost obligations for PID consist of the following:

- DWR application costs
- Environmental compliance (CEQA/NEPA)
- Monitoring and reporting
- Attorney and consultant representation

Typically, the coverage of administrative and compliance cost of water transfers are the subject of negotiations between the buyer and seller. In many instances the buyers cover a majority of these costs. However, it reasonable to assume that PID as a seller will incur some level of administrative costs in preparing and implementing a water transfer. The estimate of $20,000 represents the cost per water transfer that PID might expect to cover.

As estimated earlier, assuming that water transfers would occur in 16 of 26 years, the total cost of permitting/legal fees over 26 years of water transfer would be $320,000 or approximately $12,310 annually.

Magalia Dam Retrofit - Retrofitting the Magalia Dam as part of this portfolio is not likely to result in notable impacts to PID's annual O&M costs, since PID already maintains annual O&M costs for operating and maintaining the Magalia Dam and restoring the original water surface elevation would not impact these costs.

Funding augmentation needed as part of this portfolio to overcome PID's operating deficit including FEMA/ASADRA funding, grants/loans, backfill funding assistance, and rate increases/assessments will not impact PID's annual O&M costs since these options do not result in any new infrastructure that requires operation and maintenance.

As a result of the factors mentioned above, this portfolio results in minimal O&M impacts and was thus rated as a 2 for this factor.

Debt Issuance

The eligibility for a loan to fund the Magalia Dam retrofit will be based on the creditworthiness of the PID. The annual debt service would significantly impact water rates or require a special assessment. Therefore, this portfolio was rated a 1 for this factor.

Impact to Water Rates

The long-term debt issuance required for the Magalia Dam retrofit will have a significant impact on rates. Although water transfers could generate an estimated $843,000 per year, this revenue is insufficient to offset this debt issuance and existing deficit. For these reasons, the portfolio was rated a 1 for this factor.

7.4.2.4 Regulatory Feasibility

Relative to the other portfolios, the Water Transfer Portfolio is estimated to have less regulatory involvement than the Miocene Canal, Chico Intertie, and Agency Reorganization portfolios, but more regulatory involvement than the Financial Claim Portfolio. Therefore, this portfolio was rated as a 2 for regulatory feasibility.

7.4.2.5 Environmental Impacts

Relative to the other portfolios, the Water Transfer Portfolio is estimated to have less environmental impacts than the Miocene Canal and Chico Intertie portfolios, but more environmental impacts than the Financial Claim and Agency Reorganization portfolios. Therefore, this portfolio was rated as a 2 for environmental impacts.

7.4.2.6 Legal Feasibility

Legal and Institutional challenges - The Water Transfer Portfolio is likely to present some legal and institutional challenges. These challenges are likely to be less than those faced with the Miocene Canal and Chico Intertie portfolios. Therefore, this portfolio was rated a 2 for this factor.

Changes to PID's Existing Water Rate Structure

As discussed above, this portfolio will have an impact on water rates, and the estimated revenue generated by water transfers is insufficient to offset this impact. Therefore, this portfolio was rated a 1 for this factor.

7.4.2.7 Stakeholder/Public Acceptance

Although water transfers are feasible to agencies south of the Delta, there has been some stakeholder reluctance to transfers to south of Delta entities. Because of this, the overall stakeholder/public support for this portfolio was rated a 3.

7.4.2.8 Implementation

Implementation Timeline

Water transfers could be implemented within a year based on hydrology and regulatory permitting conditions, and the Magalia Dam retrofit is anticipated to be completed by 2030. Water transfers alone as part of this portfolio are insufficient to generate enough revenue to overcome PID's operating deficit, resulting in the need to pursue grants, loans, and a rate increase/assessment. Said grants and/or loans could be secured by 2023; however, it is likely that the timeline for a rate increase/assessment may be between 2024 and 2027. Since water transfers are the primary revenue generator within this portfolio and they could be implemented in the near-term by 2023, this portfolio is rated as a 3 for implementation timeline.

Implementation risk associated with securing grants/loans

The availability of loans will be based on the creditworthiness of the PID. Given PID's current financial challenges, the interest rate that PID may qualify for will be significantly higher than subsidized rates. That said, there is less risk associated with securing grants/loans for the Water Transfer Portfolio relative to the Miocene Canal and Chico Intertie portfolios. Therefore, this portfolio was rated a 3 for this factor.

7.4.2.9 Summary

A summary of the Water Transfer Portfolio evaluation and ranking is provided in Table 7-5.

Table 7-5: Water Transfer Portfolio Evaluation Summary

Criteria	Factors	Ranking
Technical	Construction requirements	2
	Consistency with PID objectives	3
	Water supply reliability	3
Economic	Total Estimated Portfolio Capital Cost	2
	Likelihood of grants	3
	Likelihood of loans	3
Financial	Impact to annual O&M costs	2
	Debt issuance	1
	Overall impact to water rates	2
Regulatory	Regulatory Feasibility	2
Environmental	Environmental Impacts	2
Legal	Legal and institutional challenges	2
	Changes required to PID's existing water rate structure	1
Stakeholder/ Public Acceptance	Overall support	3
Implementation	Overall portfolio implementation timeline	3
	Implementation risk associated with securing grants/loans	3

7.5 Agency Reorganization Portfolio

7.5.1 Enhanced Portfolio Description

7.5.1.1 PID Reorganized into Town of Paradise

The Town was incorporated in 1979 with a population of 26,400 as of January 2018. As a result of the Camp Fire in November 2018, the Town's population was reduced to approximately 4,600 by 2020. The Town is governed by a five-member Town Council elected at large by the community and currently employs nearly 50 full-time employees organized into several departments.

The Town provides the following services within the following departments, which are integral to operation of the Town and redevelopment:

- Building – provides inspection and permitting related services

- Code Enforcement – oversees compliance with the Town's municipal codes and land use requirements

- Finance – develops and monitors the Town's annual operating and capital budgets to ensure Town departments are able to make sound financial decisions

- Housing – provides housing assistance in the form of low-interest loans to eligible first-time home buyers and existing homeowners

- Planning – ensures that new development conforms to the Town General Plan, CEQA, and local zoning regulations

- Police – provides protection to the locals and contracts with CAL FIRE to provide fire protection services

- Public works/engineering – oversees the design, management, and implementation of capital improvement projects and maintains infrastructure within the Town

- Recovery – supports implementation of the Town's long-term community recovery plan

- Septic/onsite – oversees design, construction, maintenance, and monitoring of the Town's septic systems

PID is an independent special district that operates under the authority of Division 11 of the California Water Code. PID was formed by an election in 1916 and is governed by a five-member Board of Directors, elected at-large from within the PID's service area. PID currently employs 38 full-time employee positions organized into several departments. These employees are classified into the following employee types:

- **Contract** – PID's district manager, assistant district manager, and finance and accounting manager fall into this category. The district and assistant district managers oversee operations and are responsible for the development, maintenance, and improvement of PID facilities. These employees retain technical capabilities related to engineering and construction, water treatment and distribution principles, and other functions to achieve efficient operations and meet service goals. The PID finance and accounting manager plans, organizes, and directs the financial, accounting, and business-related administrative functions of the district, and maintains technical capabilities related to budgeting, accounting, finance, investment, and the development and maintenance of fiscal controls.

- **Management** – PID management staff include a district engineer, distribution superintendent, and other supporting roles. PID's assistant engineer generally retains the technical capabilities to plan, design, and construct PID structures and facilities. The

distribution superintendent generally oversees the operation, installation, maintenance, and repair of PID's distribution system.

- **General unit** – PID general unit employees include skilled craftsperson's and administrative staff. The skilled craftsperson's generally assist in the operation and maintenance of PID's meters, distribution system, and treatment plant. General unit administrative staff generally assist with recordkeeping, billing, and customer service.

Since the Town does not offer water supply services and currently does not have any staff with the technical and managerial capabilities to support these operations, it is anticipated that PID staff would be retained following the reorganization to continue to provide these technical and managerial capabilities.

For the Town to absorb PID into their operations, they would need to show excess General Fund of $3 million **annually** to sustain PID operations. Based on a review of the Town's annual operating and capital budgets and annual financial reports from 2014 through 2020, the Town's General Fund revenue has generally increased since 2014, with the General Fund ending balance in FY 2019-2020 at less than $4 million. That said, approximately $2 million per year of this revenue is allocated to the repayment of loans.

As previously mentioned, the Town has also received a settlement from PG&E in the amount of $219 million; however, it is currently uncertain how the settlement monies will be allocated and whether these monies could be used to support PID operations.

At the time of preparation of this report, it does not appear that the Town has an excess of $3 million per year in unallocated reserves to support PID reorganization into the Town, unless the Town's PG&E settlement could be allocated to support this reorganization.

7.5.1.2 PID Reorganized into South Feather Water and Power Agency

SFWPA is an independent special district that is also operated under Division 11 of the California Water Code. As previously mentioned, SFWPA provides treated water service to the communities of Oroville, Palermo, and Bangor in Butte County, and operates the South Feather Power Project, a FERC-licensed hydropower project that serves residents within Butte County's First Supervisorial District. SFWPA is governed by a five-member elected Board of Directors.

Except for their hydropower generation unit, SFWPA retains an organizational structure that is similar to PID. Based on SFWPA's organizational chart dated May 8, 2020, approximately 27 employees are assigned to SFWPA's water treatment and distribution unit (SFWPA, 2020). These employees generally oversee the operation and maintenance of SFWPA's treatment plant, perform system maintenance and service installation, and general facilities maintenance. SFWPA also has:

- A finance division that comprises a finance division manager and four accounting specialists/technicians

- An information systems group that comprises an information systems specialist and a manager of information systems

- An environmental health and safety / risk manager

- A hydropower generation unit that comprises 19 skilled craftsperson's, a manager, and a compliance and engineering employee

- A general manager

If PID is reorganized into SFWPA, there could be savings by sharing some technical and managerial staff. The savings would be limited since the service areas of PID and SFWPA are geographically disconnected. A more detailed analysis would be needed to quantify the savings. While significant efforts would be needed to reorganize PID into SFWPA, it is assumed that both organizations are presently operating functional billing systems, accounting software (General Ledger, Accounts Receivable and Accounts Payable, inventory control), geographic information and mapping systems, asset management programs, work order and maintenance management systems, etc., that could initially be operated separately and combined for cost savings and efficiencies over time.

Similar to the reorganization of PID into the Town, for SFWPA to absorb PID into their operations, they would need to show an excess General Fund of $3 million annually to sustain PID operations. Based on a review of SFWPA's annual operating and capital budgets and annual financial reports from 2014 through 2020, SFWPA's General Fund revenue has generally decreased since 2014, with General Fund revenue in FY 2019-2020 of approximately $1.5 million.

7.5.2 Portfolio Evaluation

7.5.2.1 Technical Feasibility

Construction Requirements – neither of the agency reorganization scenarios would involve any new construction, and as a result, both portfolios were rated as a 3 for construction requirements.

Consistency with PID Objectives – since the Town and PID essentially serve the same customer base, and elected officials both serve the same population, reorganization into the Town would be consistent with PID's objectives. For these reasons, reorganization into the Town was rated a 3. However, relative to the other portfolios, reorganization into SFWPA is the least consistent with PID's objectives, and thus this portfolio was rated a 1 for this factor.

Water Supply Reliability – reorganization into the Town or SFWPA would not result in any new water supplies and would not enhance water supply reliability. Both Agency Reorganization Portfolios were rated as a 1 for water supply reliability.

7.5.2.2 Economic Feasibility

Capital Costs

Neither of the agency reorganization scenarios would involve any new construction and as a result both Agency Reorganization Portfolios were rated as a 3 for this factor.

Grants - Likelihood of grants available to reduce capital cost

Both reorganization portfolios would result in the absorption of PID's deficit by either the Town or SFWPA. It is unlikely that any grants would be available to address this debt that is incurred by either the Town or SFWPA, and as a result, both portfolios were rated a 1 for this factor.

Loans - Likelihood of loans available to support capital cost

Similar to the above, both reorganization portfolios would result in the absorption of PID's deficit by either the Town or SFWPA, and significant loans could be required to overcome this deficit. The Town has noted that if PID were to be consolidated into the Town, they would consider loaning money from their general fund to assist in operations as the Town's population rebuilds, with the money being repaid as population and revenues for PID grow. As a result, reorganization into the Town was rated a 3 for this factor. However, SFWPA has not made a similar assertion, and the likelihood of securing the loans necessary for reorganization into SFWPA is less likely relative to other portfolios. For these reasons, reorganization into SFWPA was rated a 1 for this factor.

7.5.2.3 Financial Feasibility

Impact to Annual O&M costs

Reorganization into either the Town or SFWPA would not result in any new construction that would impact annual O&M costs. However, either agency reorganization scenario would result in the absorption of PID's deficit by either the Town or SFWPA, which would likely require the Town or SFWPA to issue additional debt or forego using reserves for other purposes. The additional debt service may require a future increase in water rates to provide financial sustainability beyond FY 2040-41.

With respect to financial feasibility, both agency reorganization portfolios are rated as follows:

- Impact to Annual O&M Costs: 3
- Debt Issuance: 1
- Overall Impact to Water Rates: 1

7.5.2.4 Regulatory Feasibility

PID reorganized into the Town of Paradise

There were no fatal regulatory flaws identified with this reorganization scenario with County and State regulatory authorities. While there are regulatory requirements involved with reorganizing PID into the Town, it is common for incorporated municipalities to operate public water supply systems. Regulatory approvals must be obtained from the SWRCB to transfer water rights and public water supply permits. Approval must also be obtained from the Butte LAFCo.

While the service areas of PID and the Town are not precisely coincident, the two public entities essentially serve the same customer base. The "community identity" is common to both organizations. The elected officials of both organizations serve the same population. This option does not present an "island annexation" that can sometimes be problematic for gaining LAFCo approval.

It is estimated that regulatory approvals for this portfolio could take between one and two years, and as such, this portfolio was rated as a 2 for regulatory feasibility.

PID Reorganized into South Feather Water and Power Agency

There are no fatal regulatory flaws identified with this option with County and State regulatory authorities. While there are regulatory requirements involved with reorganizing PID into the SFWPA, it is not uncommon for public agencies with similar service function to merge. In this case, PID provides public water supply and SFWPA provides both power production and water supply. Both entities are regulated by the SWRCB (Division of Drinking Water and Division of Water Rights).

In addition, SFWPA is regulated by the FERC. Regulatory approvals must be obtained from the SWRCB to transfer water rights and public water supply permits from PID to SFWPA. Approval must also be obtained from the Butte County LAFCo. It is assumed that Butte County LAFCo would function as the lead LAFCo agency (where the public customer base for both agencies reside), but SFWPA's hydroelectric facilities are located in Butte, Plumas and Yuba Counties.

A potential hurdle for this alternative is the creation of geographically separate service areas for the combined entity. LAFCo planners are generally concerned with non-contiguous mergers for a number of reasons. There are questions regarding proper representation of both service areas on the future elected Board of Directors. The two major communities served have different "identities," quite different than the situation with reorganizing PID into the Town, where the customer bases of the two merging entities are essentially identical. The existing offices of the two agencies are over 20 miles apart, roughly a 30-minute drive by car. While a larger operations staff would allow some flexibility in covering vacancies, it would not be convenient to 'share' operating staff. It is estimated that regulatory approvals for this portfolio could take more than two years, and as such, this portfolio was rated as a 1 for regulatory feasibility.

7.5.2.5 Environmental Impacts

There are no anticipated environmental impacts associated with either Agency Reorganization portfolio, and as such, both were rated a 3 for this factor.

7.5.2.6 Legal Feasibility

Legal and Institutional challenges

PID reorganized into the Town of Paradise

While there would be legal costs incurred with reviewing and modifying (if necessary) documents and regulatory applications, it is common for municipalities to operate public water supply systems and it is assumed that the water utility functions of PID could be incorporated into the municipal structure of the Town without fatal legal impediments. That said, reorganization that would result in single ownership of physical infrastructure, water rights, real property, contractual obligations, and fiscal assets and liabilities is likely to present some legal and institutional challenges. Thus, reorganization of PID into the Town was rated as a 2 for legal and institutional challenges.

PID reorganized into South Feather Water and Power Agency

While there would be legal costs incurred with reviewing and modifying (if necessary) documents and regulatory applications, it is common for entities operating public water supply systems to combine or consolidate. It is assumed that the water utility functions of PID could be incorporated into the water supply and power production operations of SFWPA without fatal legal impediments. That said, reorganization that would result in single ownership of physical infrastructure, water rights, real property, contractual obligations, and fiscal assets and liabilities is likely to present some legal and institutional challenges. Thus, reorganization of PID into SFWPA was rated as a 2 for legal and institutional challenges.

Changes to PID's Existing Water Rate Structure

Both reorganization portfolios would result in the absorption of PID's operation deficit, with an issuance of long-term debt likely. The additional debt service may require a future increase in water rates to provide financial sustainability beyond FY 2040-41. Reorganization into the Town may require less changes to PID's existing water rate structure than reorganization into SFWPA. As a result, reorganization into the Town was rated a 2 for this factor, and reorganization into SFWPA was rated a 1 for this factor.

7.5.2.7 Stakeholder/Public Acceptance

Overall Support - <u>PID reorganized into the Town of Paradise</u>

The data available to evaluate public's acceptance of reorganizing PID into the Town is very limited. The only information available was the support expressed by a few individuals during the regularly scheduled public meetings. Informal anecdotal information received to date has suggested that the public will either be strongly supportive, or strongly opposed of the reorganization into the Town. Neither is the probable case, as stakeholders and the public are more likely interested in supporting the best option that can provide a safe and reliable water supply at the lowest responsible cost.

<u>PID reorganized into South Feather Water and Power Agency</u>

There are no data available for reorganizing PID into SFWPA as neither support nor opposition was expressed by any individuals during these meetings. Further, it is assumed that customers of SFWPA would be concerned that resources of their present water provider might be diluted with the need to deal with perceived issues with the water system at PID.

No statistically significant survey data were available for evaluating public support for either of the reorganizing options. When incorporated municipalities or public agencies intend to operate public water supply systems an extensive public outreach to inform and educate stakeholders happens, which has not occurred for either of these options.

Relative to other portfolios, reorganization into SFWPA has the least stakeholder/public support and was rated a 1 for this factor. Support for reorganization into the Town has marginally more stakeholder/public support and was rated a 2 for this factor.

7.5.2.8 Implementation

Implementation Timeline

<u>PID reorganized into the Town of Paradise</u>

A swift process to combine PID into the Town would assume the following:

- Both entities fully support the prospect and dedicate the money and resources to complete the required application processes with haste

- There is no organized opposition from other stakeholders or entities who object, desire a different outcome, and have resources to commit.

The major factors in typical timeframes involve a common desire for local officials to hold at least one noticed, focused workshop before voting to consolidate, preparing the application to LAFCo and the SWRCB, legal review, outside agency review time (30 to 60 days is not uncommon with longer

times for additional data requests), a likely public hearing by LAFCo, and final approval by both local agencies.

On the opposite end of the spectrum, attempts at combining public agencies can take several years, particularly those that are poorly conceived, have limited outreach, face organized opposition, or proceed on split, marginal majorities of the involved elected officials. Even following many years of attempts, if election cycles place new officials supported by opposition factions, an agency combination effort can fail mid-stream. In general, the time to implement an agency combination depends largely on the level of support from the existing elected officials representing the agencies. The process does not begin until at least a majority of elected officials of both entities support the process.

Though the implementation timeline is difficult to estimate, particularly lacking information on public perception and the position of current elected officials at PID and the Town, it is likely that this portfolio could be implemented between 2024 and 2027. As a result, this portfolio was ranked a 2 for implementation timeline.

PID reorganized into South Feather Water and Power Agency

The estimated timeline for this option is expected to be longer and potentially more likely to extend due to the need to document benefits to both entities and the need to overcome hesitancy regarding the significant separation of service areas. The major factors for a speedier timeframe would assume the following, which are unknown at the time of this Study:

- Both entities fully support the prospect and dedicate the money and resources to complete the required application processes with haste
- There is no organized opposition from other stakeholders or entities that object, desire a different outcome, and have resources to commit.

For this option to proceed, there would be a need to show that SFWPA was the best available option for reorganization, and if combining with the Town was still viable, that might be quite difficult. Again, the process does not begin until at least a majority of elected officials of both entities support the process.

Though the implementation timeline is difficult to estimate, particularly lacking information on public perception and the position of current elected officials at PID and the Town, it is likely that this portfolio could be implemented between 2024 and 2027. As a result, this portfolio was ranked a 2 for implementation timeline.

Implementation risk associated with securing grants/loans

Relative to the other portfolios, either Agency Reorganization Portfolio has a moderate implementation risk associated with securing the loans that are likely to be needed by either the Town or SFWPA to address the debt that is incurred by the absorption of PID's deficit. As a result, both portfolios were ranked a 2 for this factor.

7.5.2.9 Summary

A summary of the Water Transfer Portfolio evaluation and ranking is provided in Table 7-6.

Table 7-6: Agency Reorganization Portfolio Evaluation Summary

Criteria	Factors	PID Reorganized into Town of Paradise Ranking	PID Reorganized into SFWPA Ranking
Technical	Construction Requirements	3	3
	Consistency with PID objectives	3	1
	Water supply reliability	1	1
Economic	Total Estimated Portfolio Capital Cost	3	3
	Likelihood of grants	1	1
	Likelihood of loans	3	1
Financial	Impact to annual O&M costs	3	3
	Debt issuance	1	1
	Overall impact to water rates	1	1
Regulatory	Regulatory Feasibility	2	1
Environmental Impacts	Environmental Impacts	3	3
Legal	Legal and institutional challenges	2	2
	Changes required to PID's existing water rate structure	2	1
Stakeholder/ Public Acceptance	Overall support	2	1
Implementation	Overall portfolio implementation timeline	2	2
	Implementation risk associated with securing grants/loans	2	2

8 Portfolio Scoring

8.1 Evaluation Criteria Weighting

As described in Chapter 7, each portfolio was assessed against each of the evaluation criteria. These evaluation criteria can have different levels of importance to successful execution of a project that can sometimes be subjective. To support qualitative weighting of the eight evaluation criteria the Stakeholder group (as described in Section 1.4.4) was provided an opportunity to rank the criteria in order of importance from 1 (most important) to 8 (least important). Responses from this survey were very limited and did not provide a clear outcome.

The GEI Team developed the evaluation criteria weight factors based on limited input from a stakeholder survey, provided during the Stakeholder Group monthly meeting, and the GEI Team's research and prior experience on similar projects. Table 8.1 below provides the weighting for the eight evaluation criteria that totals to 100%.

Table 8-1: Evaluation Criteria Weighting

Evaluation Criteria	Weighting
Technical Feasibility	20%
Economic Feasibility	15%
Financial Feasibility	10%
Regulatory Feasibility	10%
Environmental Impacts	10%
Legal Feasibility	10%
Stakeholder/Public Acceptance	15%
Implementation	10%
Total	100%

8.2 Portfolio Scores

To calculate an overall portfolio score, the weighting factor was multiplied by the average of the factors for a given evaluation criterion, and then these scores were summed together to determine final Portfolio scores. For example, the Technical Feasibility Evaluation criterion has three contributary factors - construction requirements, consistency with PID objectives, and water supply reliability.

Each portfolio was evaluated for these factors and rated between 1 and 3. The Miocene Canal Portfolio was rated as a 2 for both construction requirements and consistency with PID objectives and rated as a 3 for water supply reliability. The average of these three numbers is 2.3, which is then multiplied by 0.2, the weighting factor for technical feasibility, resulting in a value of 0.5. The values for remaining evaluation criteria were calculated similarly and the sum of all these values was assigned as the portfolio score. Based on this calculation, the maximum score possible for a portfolio is **3.0**.

Table 8-2 provides an example of how the portfolio score was calculated for the Miocene Canal Portfolio.

Table 8-2: Portfolio Scores Calculation for Miocene Canal Portfolio

Evaluation Criteria	Weight	Factors	Rating	Average Rating	Score (Weight*Avg Rating)
Technical	20%	Construction requirements	2	2.3	0.5
		Consistency with PID objectives	2		
		Water supply reliability	3		
Economic	15%	Total Estimated Portfolio Capital Cost	2	1.3	0.2
		Likelihood of grants	1		
		Likelihood of loans	1		
Financial	10%	Impact to annual O&M costs	2	1.3	0.1
		Debt issuance	1		
		Overall impact to water rates	1		
Regulatory	10%	Regulatory Feasibility	1	1.0	0.1
Environmental	10%	Environmental Impacts	1	1.0	0.1
Legal	10%	Legal and institutional challenges	1	1.0	0.1
		Changes required to PID's existing water rate structure	1		
Stakeholder/ Public	15%	Overall support	2	2.0	0.3
Implementation	10%	Overall portfolio implementation timeline	2	2.0	0.2
		Implementation risk associated with securing grants/loans	2		
Total					1.6

As shown in Table 8-3, the total portfolio scores for each portfolio were estimated as follows:


Financial Claims: 2.9


Water Transfer: 2.4


PID reorganized into Town of Paradise: 2.2


PID reorganized into SFWPA: 1.7


Chico Intertie: 1.6


Miocene Canal: 1.6

High Score: The **Financial Claims Portfolio** has the highest score as this portfolio does not rely on any infrastructure projects and would leverage litigation and other funding sources to meet any PID deficits.

Medium Score: The **Water Transfer Portfolio** has the second highest score due to the limited infrastructure requirements and the ability to raise revenue from water transfers to help reduce potential deficits or water rate increases. The **PID reorganized into Town of Paradise** also scored relatively high due to the higher public acceptance, closer alignment with PID, and stated willingness to provide loans to cover PID's operational deficit.

Low Scores: The remaining three portfolios had similar scores when considering the precision of the methodology. The PID reorganized into SFWPA portfolio scored fairly low due to geographic separation from the service area, and limited public support. The two infrastructure solutions, the Miocene Canal and Chico Intertie, are the lowest rated portfolios largely because of the relatively high-cost projects with funding uncertainties, and the long implementation periods.

Table 8-3: Portfolio Scores

Evaluation Criteria	Weight	Factors						
Technical	20%	Construction requirements	3	2	3	3	1	2
		Consistency with PID objectives	3	3	3	1	3	2
		Water supply reliability	3	3	1	1	3	3
Economic	15%	Total Estimated Portfolio Capital Cost	3	2	3	3	1	2
		Likelihood of grants	3	3	1	1	2	1
		Likelihood of loans	3	3	3	1	3	1
Financial	10%	Impact to annual O&M costs	3	2	3	3	1	2
		Debt issuance	2	1	1	1	1	1
		Overall impact to water rates	3	1	1	1	1	1
Regulatory	10%	Regulatory Feasibility	3	2	2	1	1	1
Environmental	10%	Environmental Impacts	3	2	3	3	1	1
Legal	10%	Legal and institutional challenges	3	2	2	2	1	1
		Changes required to PID's existing water rate structure	3	1	2	1	1	1
Stakeholder/ Public	15%	Overall support	3	3	2	1	2	2
Implementation Timeline	10%	Overall portfolio implementation timeline	2	3	2	2	1	2
		Implementation risk associated with securing grants/loans	3	3	2	2	2	2
Total Portfolio Score			2.9	2.4	2.2	1.7	1.6	1.6
			High Score	Medium Scores		Low Scores		

9 Summary and Conclusions

9.1 Summary

As a result of the Camp Fire in November 2018, PID lost approximately 90 percent of its connections making continued operations unsustainable until recovery and rebuilding is completed. This Study is a mandated requirement by the SWRCB to ensure that PID can obtain state funding for its drinking water system improvements. Based on the mandate provided by the Legislature, and the work plan developed by the SWRCB, the goal of this Study was to formulate and evaluate options that provide short- and long-term sustainability of water supply for the Paradise community. To support the goal of the Study, water supply reliability, safe and affordable drinking water, short- and long-term financial sustainability, and supporting community redevelopment were formulated as objectives of the Study.

Based on the challenges and constraints identified in Section 3.1 and evaluating the opportunities as explained in Section 3.2, 23 options were identified to achieve the objectives of this Study. After preliminary evaluation, eight of the 23 options identified were eliminated if they were not feasible, redundant, not supported by stakeholders, or if those options will be implemented by PID regardless of the outcome of the Study. It was also estimated that none of the remaining options can meet the goals and objectives of the Study on their own. As a result, options that were not eliminated in the preliminary screening were categorized into three priority categories:

- Priority A – Options that provide significant benefits
- Priority B – Options that provide a modest level of identified benefits
- Priority C – Options that provide minimal or no benefits

Options that complement each other were combined to formulate portfolios to achieve the goals and objectives of the Study. Since options under Priority A provide significant benefits, portfolios were formulated around these options. Options from Priority A were used as the anchor for the portfolio with options from Priority B to meet the operating deficit for PID. Options from Priority C were utilized in a portfolio to fill any remaining revenue deficit and are used only if the options from Priority A and B are not sufficient to meet the operation deficit. As a result, six portfolios were formulated - Financial Claims Portfolio, Miocene Canal Portfolio, Chico Intertie Portfolio, Water Transfers Portfolio, Reorganizing PID into the Town, and Reorganizing PID into SFWPA.

All portfolios were evaluated for their performance based on the Study objectives using the eight evaluation criteria described in detail in **Chapter 6**. For each of the eight evaluation criteria, portfolios were ranked between 1 and 3 based on how they meet the Study objectives. **Chapter 7** describes a detailed process by which each of the six portfolios were evaluated based on the eight evaluation criteria. However, these evaluation criteria can have different levels of importance to

successful execution of a project that can sometimes be subjective. As a result, evaluation criteria weighting was prepared, and portfolio scores were estimated as explained in **Chapter 8**.

9.2 Conclusions

As described in Chapter 7, each of the portfolios has its own advantages and disadvantages towards meeting the goals and objectives of this Study. Table 9-1 provides a summary of the advantages and disadvantages of each of the portfolios.

Based on the goals, objectives, and evaluation criteria established, the Financial Claim Portfolio had the highest portfolio score. While the probability and timeline of PID's claim with PG&E is currently unknown, this portfolio provides PID opportunities to recoup costs and damages suffered during the Camp Fire without needing to change the operations of PID.

The Water Transfer Portfolio had the next highest score as it provides opportunities for PID to raise revenue on existing water supplies that are not currently utilized, and that additional revenue may help defer the need for rate increases to PID's service area. Historically, water transfers have successfully been initiated by many other agencies in California and are a common water management practice when water is available. As PID's water supply is currently comprised of surface water, the sale of this water may also help other regions comply with groundwater requirements from SGMA.

Both Agency Reorganization Portfolios would have a limited impact on efficiency from combining technical and managerial staffing. The primary benefit from reorganizing PID into another agency would be the ability to use the other agency's financial capabilities to meet the current operational financial deficit that PID is experiencing. However, additional studies would likely be needed to assess the impact to PID and its customers, as typically needed with any agency reorganization. Reorganization into the Town received a higher rating than reorganization into SFWPA as a result of potential higher level of stakeholder acceptance, greater consistency with PID objectives, and noted ability and willingness of the Town to provide loans to cover PID's operational deficits.

The infrastructure-based portfolios also had the low scores as the cost and schedule requirements of these projects make them unable to address PID's current funding deficit within a reasonable timeframe. If PG&E or Cal Water initiate discussions with PID over these projects, there may be a benefit to PID, but additional detailed studies would be needed on the impact of these projects on PID's operations.

9.3 Next Steps

While this Study does provide a quantitative ranking of options and portfolios, the portfolio evaluation criteria, i.e., the ranking system and evaluation criteria weighting factors, used in the scoring are by definition subjective and open to interpretation. As noted throughout this Study, the purpose of the Study is not to select for implementation the "best" option, but rather provide

information to facilitate discussions amongst the Town of Paradise, PID and other stakeholders in the process of selecting and implementing projects and actions to ensure a sustainable water supply for the Town of Paradise.

Table 9-1: Portfolio Summaries

Scoring		Portfolios	Advantages	Disadvantages
High score		Financial Claims	• Lowest cost of all portfolios • Has the potential ability to meet all revenue deficits	• Significant unknowns regarding likelihood of success • Does not provide additional benefits
Medium score		Water Transfers	• Limited infrastructure improvements • Can quickly begin generating revenue	• Water transfer opportunities are limited until Magalia Dam retrofit completed • Does not meet short-term funding deficiency alone
Low scores	 	Agency Reorganization	• Provides some technical and managerial cost efficiencies • Reorganization into Town is consistent with PID objectives	• Existing funding deficit will be passed to agency
		Chico Intertie	• Multi-benefit opportunities • Provides reliable method to sell water	• Highest cost option • Longer implementation timeline • Water transfer opportunities are restricted until Magalia Dam retrofit completed • Does not meet short-term funding deficiency alone
		Miocene Canal	• Multi-benefit opportunities • May provide additional water supplies • Hydroelectric power generation potential	• Higher cost option • Longer implementation timeline • Water transfer opportunities are restricted until Magalia Dam retrofit completed • Does not meet short-term funding deficiency alone

10 References

BRG. 2022. PID Business Income Claim Against Fire Victim Trust.

Butte County. 2021. Miocene Canal – Preliminary Questions regarding Acquisition. Memorandum.

Economic & Planning Systems, Inc., Industrial Economics, Incorporated. 2021. Camp Fire Regional Economic Impact Analysis. https://3coreedc.org/wp-content/uploads/2021/03/Camp-Fire-Regional-Economic-Impact-Analysis-January-2021.pdf

HDR, Inc. 2020. Paradise Sewer Project Phase 1 Executive Summary. https://paradisesewer.com/wp-content/uploads/2021/02/6c-Attachment-1-HDR-Engineering-Phase-1-Executive-Summary.pdf

Paradise Irrigation District (PID). 2015. Final Cost of Service and Water Rate Plan. https://pidwater.com/docs/rates-fees/31-cost-of-service-plan-2015/file

PID. 2015. Urban Water Management Plan.

PID. 2020a. Urban Water Management Plan. https://pidwater.com/docs/about-your-water/water-supply/2001-pid-2020-urban-water-management-plan/file

PID. 2020b. FY 2020-2021 Budget. https://pidwater.com/docs/district-operations/budgets-audits/budgets/1845-2020-2021-budget/file

PID. 2021. FY 2021-2022 Budget. https://pidwater.com/docs/district-operations/budgets-audits/budgets/2029-2021-2022-budget-final/file

South Feather Water and Power Agency. 2020. Organizational Chart. https://southfeather.com/about/org-chart/

West Yost Associates. 2012. Surface Water Supply Feasibility Study for Cal Water's Chico District – Summary of Surface Water Delivery Estimate and Evaluation of Preliminary Surface Water Conveyance Projects.

West Yost Associates. 2019. Surface Water Supply Feasibility Study for Cal Water's Chico District – Phase 6.

Yuba Water Agency. May 2021. Collaborative Conservation on the Yuba River Voluntary Agreement Proposal. https://www.yubawater.org/DocumentCenter/View/4074/Voluntary-Agreements-Fact-Sheet-PDF?bidId=

Appendix A Communication Plan