Table 4 – 2014 IRWM Drought Solicitation Project Summary Table						
Drought Project Element		Project 1: Coulterville Second Water Source Well	Project 2: Coulterville Water Lines Improvements	Project 3: Yosemite West Second Water Source Well	Project 4: Yosemite West Water Lines Improvements	Project 5: Fish Camp Water Storage and Well Development
D.1	Provide immediate regional drought preparedness	X	X	X	X	X
D.2	Increase local water supply reliability and the delivery of safe drinking water	X	X	X	X	X
D.3	Assist water suppliers and regions to implement conservation programs and measures that are not locally cost-effective		X		X	X
D.4	Reduce water quality conflicts or ecosystem conflicts created by the drought		X		X	X
IRWM Project Element						
IR.1	Water supply reliability, water conservation, and water use efficiency	X	X	X	X	X
IR.2	Stormwater capture, storage, clean-up, treatment, and management					
IR.3	Removal of invasive non-native species, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands					
IR.4	Non-point source pollution reduction, management, and monitoring					
IR.5	Groundwater recharge and management projects					
IR.6	Contaminant and salt removal through reclamation, desalting, and other treatment technologies and conveyance of reclaimed water for distribution to users					
IR.7	Water banking, exchange, reclamation, and improvement of water quality					
IR.8	Planning and implementation of multipurpose flood management programs					
IR.9	Watershed protection and management					
IR.10	Drinking water treatment and distribution		X		X	X
IR.11	Ecosystem and fisheries restoration and protection					

Project Descriptions

Project 1: Coulterville Second Water Source

Implementing Agency: County of Mariposa

Brief Description: New well to provide additional water capacity and reliability for the community of Coulterville, including pump and control equipment and primary and backup power supplies.

Drought Discussion: The new well will provide immediate alleviation to the issues surrounding reliable water resources for drinking water and fire suppression. The results will be: (1) More reliable water sources available for the government-run water purveyors in addition to the private wells; (2) A dependable water backup source and a provision against future drought crises. The Coulterville well is over 50 years old and currently the only source of municipal water for this severely disadvantaged community. With these results, the Project will successfully fulfill the DWR's goals of: (1) Providing immediate regional drought preparedness, (2) Increasing local water supply reliability, (3) Assisting water suppliers to implement conservation programs, and (4) Reduce water conflicts created by the drought. In order to provide urgent relief to Coulterville community members, funding for this project must be expedient.

Project 2: Coulterville Water Line Improvements

Implementing Agency: County of Mariposa

Brief Description: Installation of new waterlines which transport domestic water from the water treatment plant to residents in the community of Coulterville.

Drought Discussion: The new waterline will provide immediate alleviation to the issues surrounding reliable water resources for drinking water. The results will be: (1) More reliable and sanitary water sources in addition to the private wells; (2) A dependable water backup source and a provision against future drought crises, while alleviating water loss due to leaking pipes and connections. With these results, the Project will successfully fulfill the DWR's goals of: (1) Providing immediate regional drought preparedness, (2) Increasing local water supply reliability, (3) Assisting water suppliers to implement conservation programs, and (4) Reduce water conflicts created by the drought. In order to provide urgent relief to Coulterville community members, funding for this project must be expedient.

Project 3: Yosemite West Second Water Source

Implementing Agency: County of Mariposa

Brief Description: New well to provide additional water capacity for the community of Yosemite West, including pump and control equipment and primary and backup power supplies.

Drought Discussion: The new well will provide immediate alleviation to the issues surrounding reliable water resources for drinking water. The results will be: (1) More reliable water sources available in addition to the private wells and government-run water purveyors; (2) A dependable water backup source and a provision against future drought crises. With these results, the Project will successfully fulfill the DWR's goals of: (1) Providing immediate regional drought preparedness, (2) Increasing local water supply reliability, (3) Assisting water suppliers to implement conservation programs, and (4) Reduce water conflicts created by the drought. In order to provide urgent relief to Yosemite West community members, funding for this project must be expedient.

Project 4: Yosemite West Water Line Improvements

Implementing Agency: County of Mariposa

Brief Description: Installation of new waterlines which transport domestic water from the water treatment plant to residents in the community of Yosemite West.

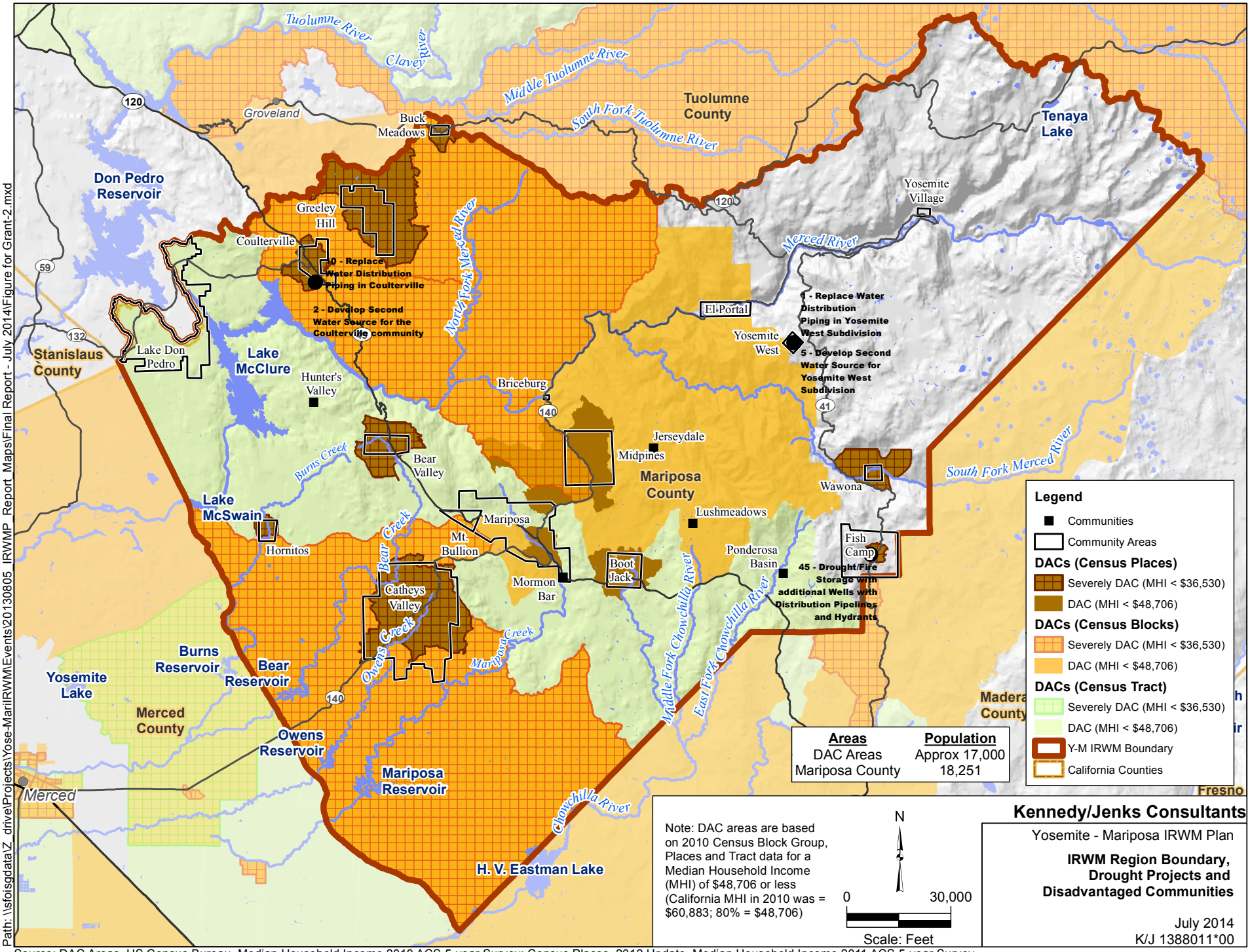
Drought Discussion: The new water line will provide immediate alleviation to the issues surrounding reliable water resources for drinking water and fire suppression. The results will be: (1) More reliable and sanitary water sources available in addition to the private wells and government-run water purveyors; (2) A dependable water backup source and a provision against future drought crises, while alleviating water loss due to leaking pipes and connections. With these results, the Project will successfully fulfill the DWR's goals of: (1) Providing immediate regional drought preparedness, (2) Increasing local water supply reliability, (3) Assisting water suppliers to implement conservation programs, and (4) Reduce water conflicts created by the drought. In order to provide urgent relief to Yosemite West community members, funding for this project must be expedient.

Project 5: Fish Camp Water Storage and Well Development

Implementing Agency: County of Mariposa

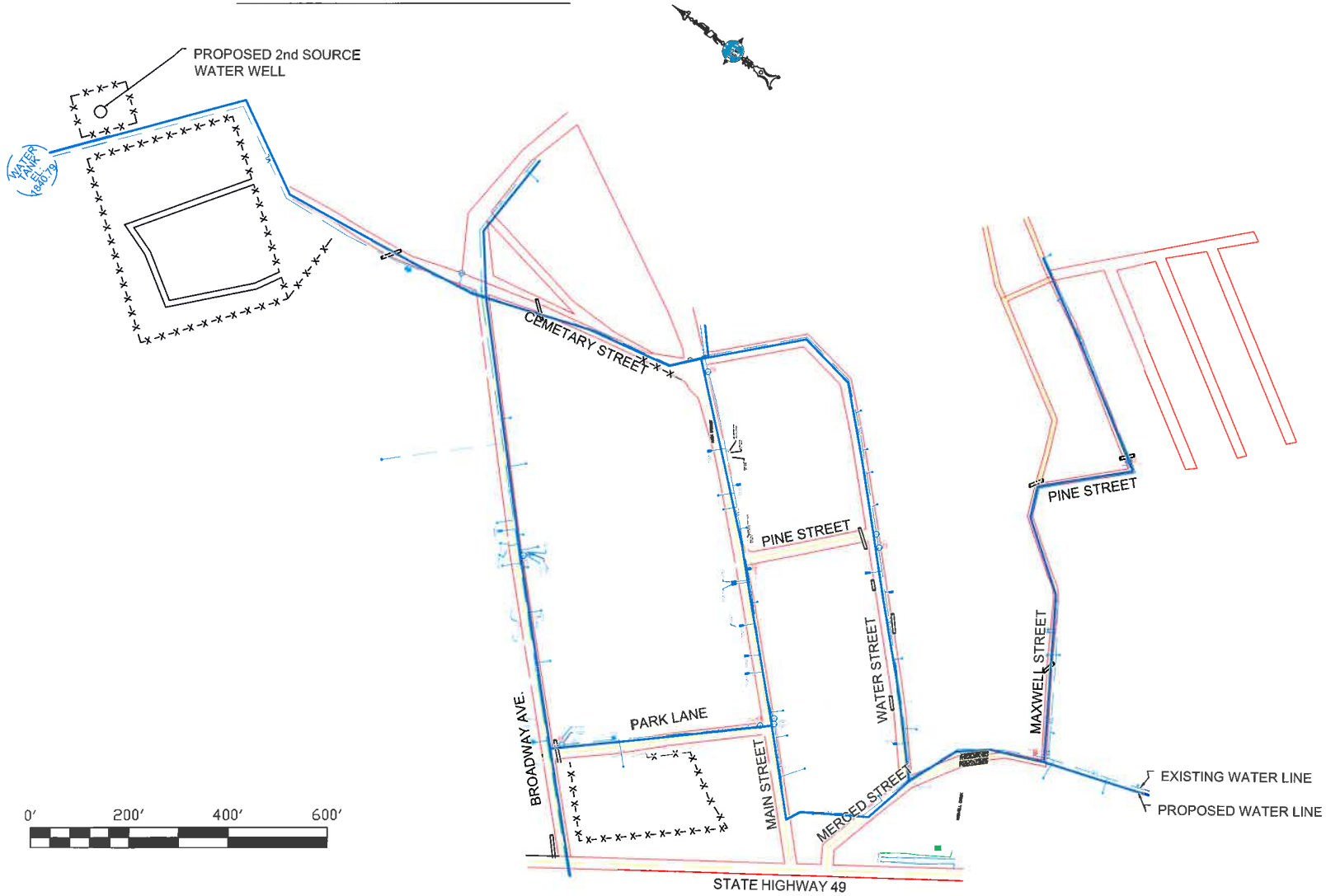
Brief Description: New water storage tank and well for additional storage and supply for the community of Fish Camp, to help in drought periods and fire suppression.

Drought Discussion: The new water storage capacity and development of a new well will provide immediate relief to the current drought situation. This project will provide additional well and 40,000+ gallon potable water storage. As a part of this project the distribution system will be interconnected, fire hydrants will added and isolation valves installed to reduce the need to shut the entire system for maintenance. The results will be: (1) A reliable water backup source in addition to the private wells and government-run water purveyors; (2) Suppression of the outbreak of wildfires in the area; (3) A preventative measure in place to safeguard against future droughts. With these results, the Project will successfully fulfill the DWR's goals of: (1) Providing immediate regional drought preparedness, (2) Increasing local water supply reliability, (3) Assisting water suppliers to implement conservation programs, and (4) Reduce water conflicts created by the drought. In order to provide urgent relief to Fish Camp community members, funding for this project must be expedient.



Source: DAC Areas, US Census Bureau, Median Household Income 2010 ACS 5-year Survey; Census Places, 2012 Update, Median Household Income 2011 ACS 5-year Survey.

COULTERVILLE WATER SYSTEM



DATE: 06/25/2014

DRAWN BY: PWD

COUNTY of MARIPOSA
DEPARTMENT of PUBLIC WORKS

PROJECT NO. PW-00-00

SHEET 1 OF 1

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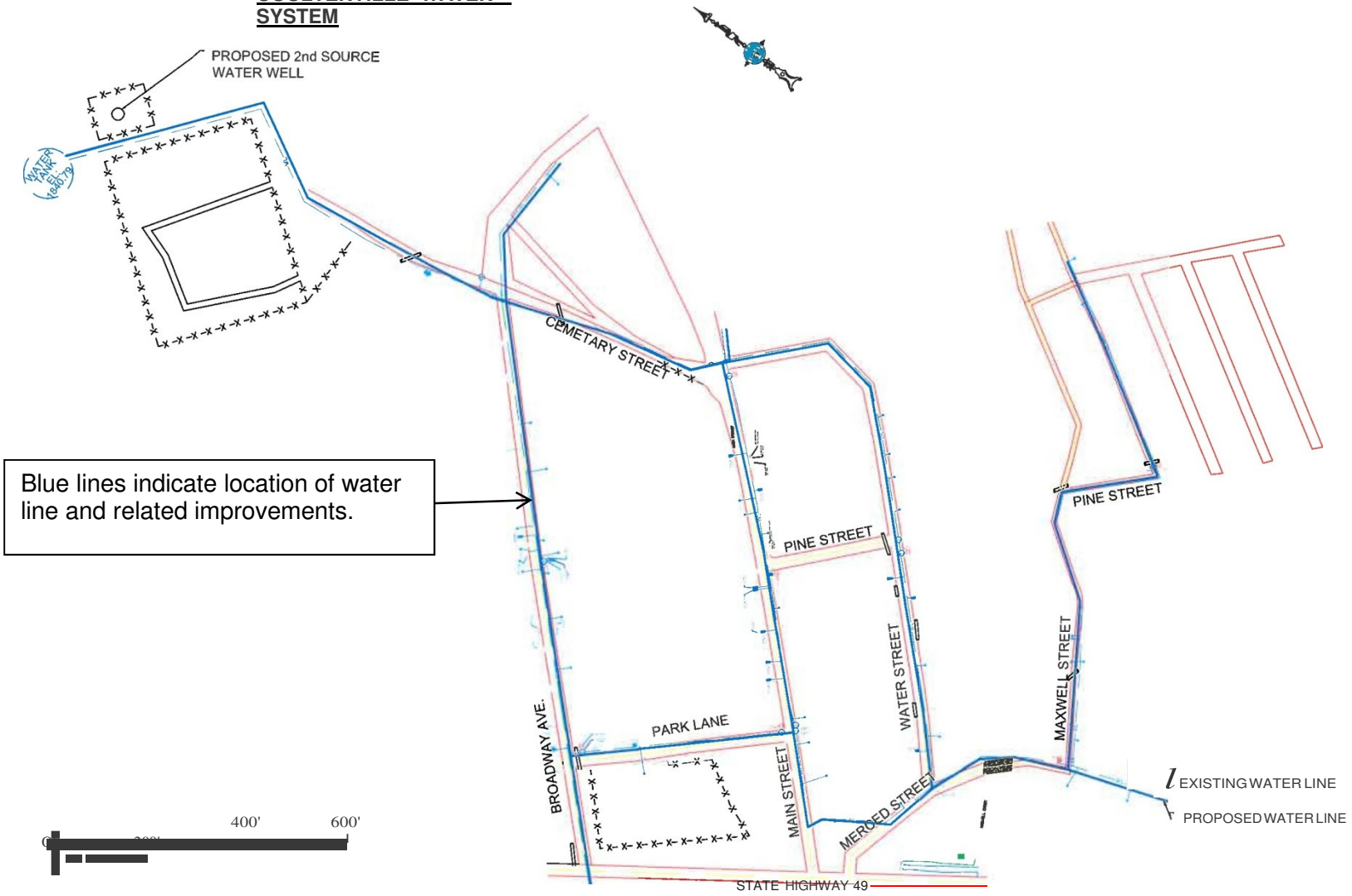
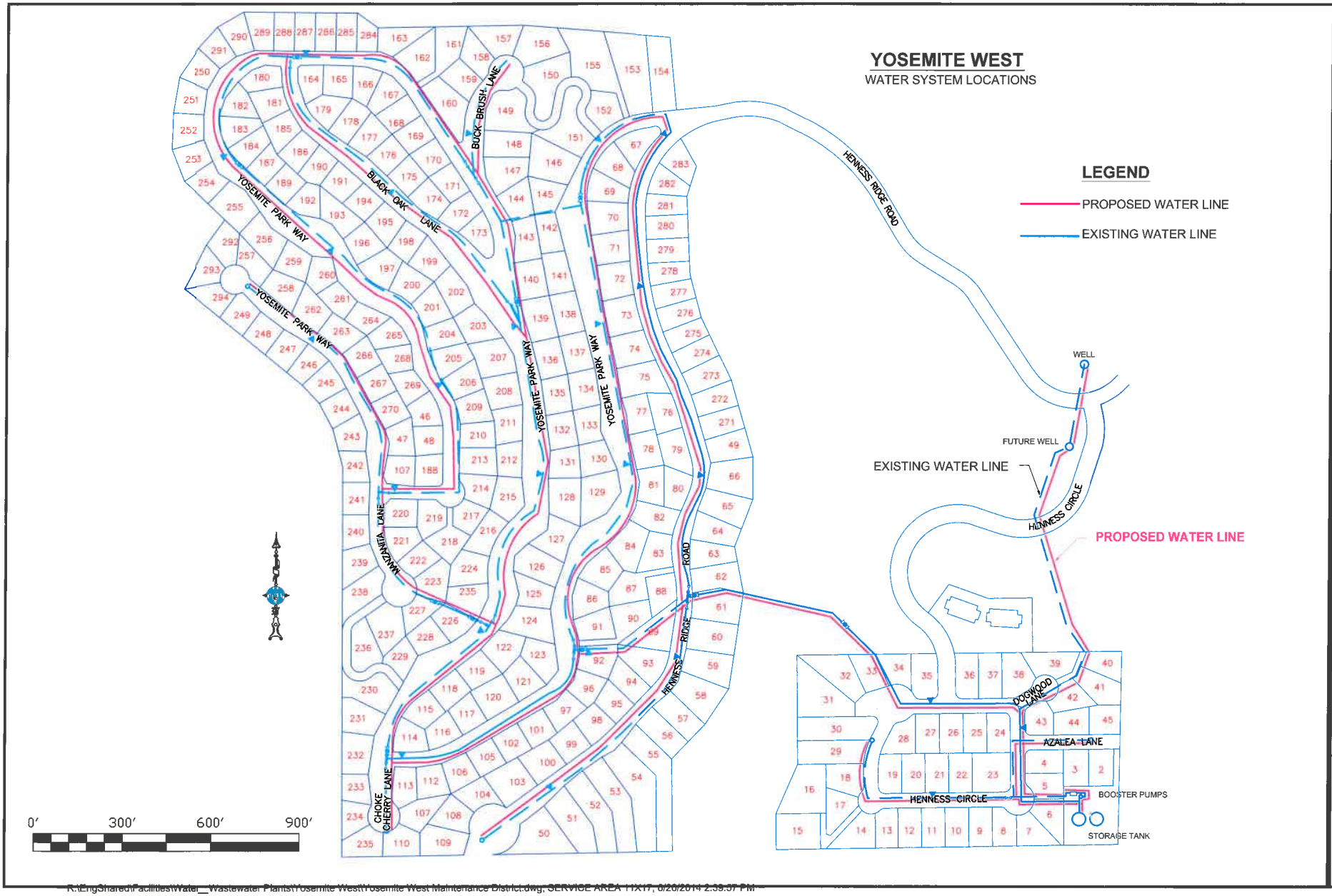
COULTERVILLE WATER SYSTEM



Blue lines indicate location of water line and related improvements.

COUNTY of MARIPOSA
DEPARTMENT of PUBLIC WORKS

DRAWN BY: PWD



DATE: 6/26/14

DRAWN BY: P.W.D.

COUNTY of MARIPOSA
DEPARTMENT of PUBLIC WORKS

PROJECT NO.
0912-071871

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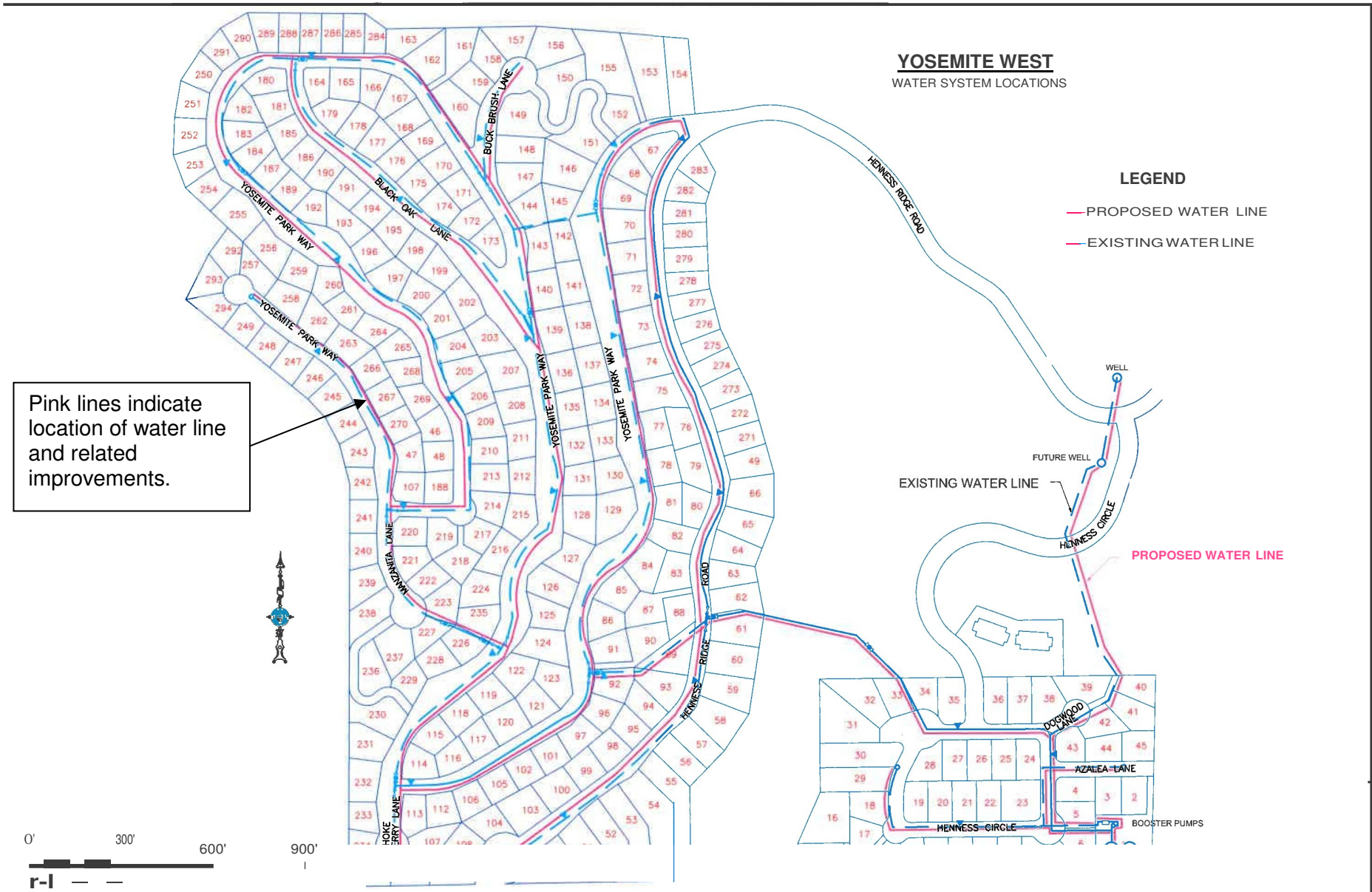
YOSEMITE WEST
WATER SYSTEM LOCATIONS
LEGEND
PROPOSED WATER LINE
EXISTING WATER LINE
Pink lines indicate location of water line and related improvements.
YOSEMITE PARK WAY
BLACK OAK LANE
BUCK BRUSH LANE
HENNESS RIDGE ROAD
MANZANITA LANE
WELL
FUTURE WELL
EXISTING WATER LINE
HENNESS CIRCLE
PROPOSED WATER LINE
DOGWOOD LANE
AZALEA LANE
BOOSTER PUMPS
0'
300'
600'
900'
COUNTY of MARIPOSA
DEPARTMENT of PUBLIC WORKS

Fish Camp Water Systems

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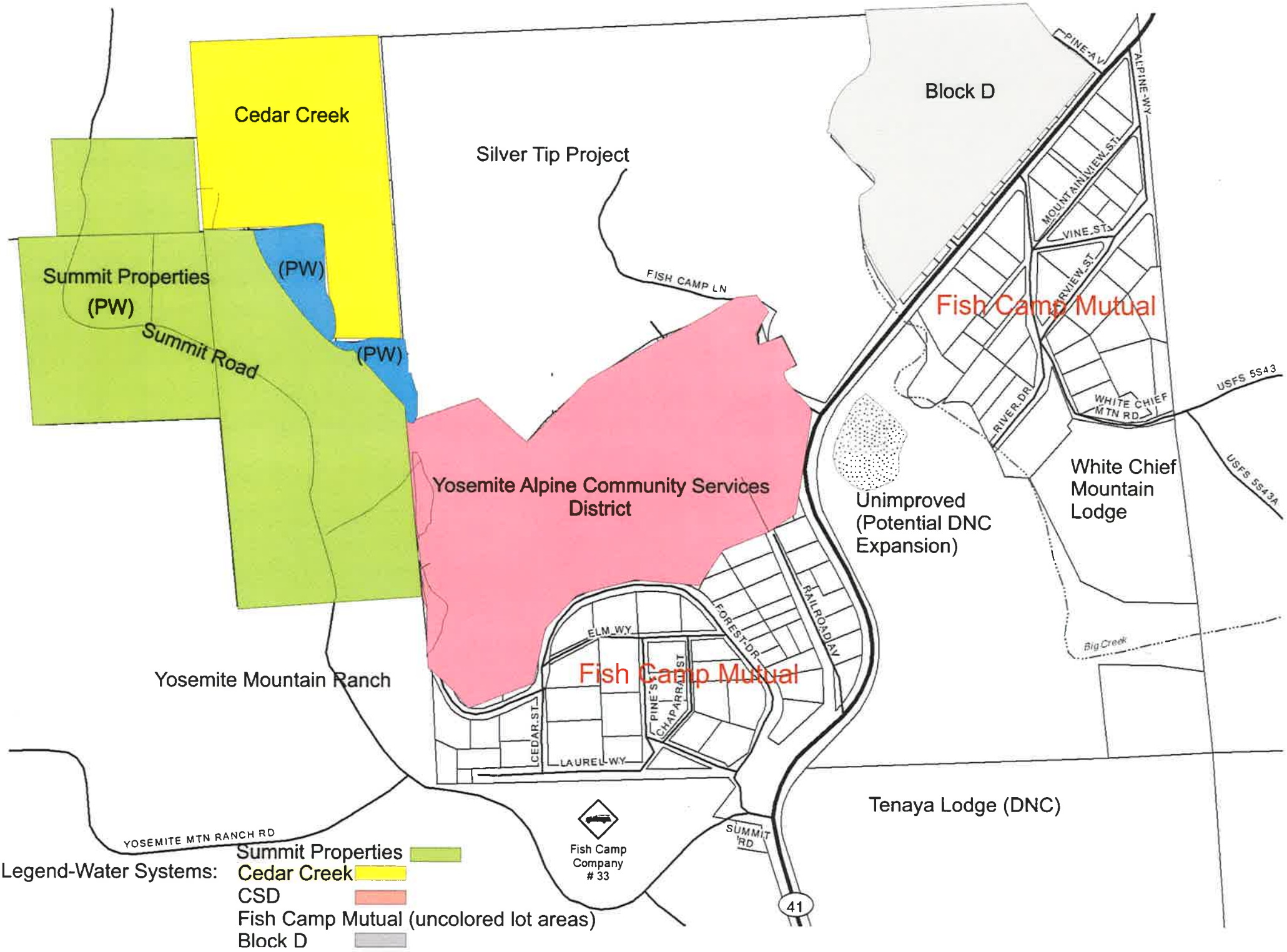

Table 5 – Annual Project Physical Benefits			
Project Name: Coulterville Second Water Source			
Type of Benefit Claimed: Compliance with Regulatory Mandate			
Units of the Benefit Claimed : Continued Operation of the Community Water District			
Additional Information About this Benefit: Precludes the Need to Drill Additional Wells			
(a)	(b)	(c)	(d)
	Physical Benefits		
Year	Without Project	With Project	Change Resulting from Project (b) – (c)
2014			
2015			
2016			
Etc.			
Last Year of Project Life			
Comments: Please refer to Att3_DG_ProJust_14ofXX for a discussion of the physical benefits.			

Table 5 – Annual Project Physical Benefits			
Project Name: Coulterville Water Line Improvements			
Type of Benefit Claimed: Stem Water Loss and Limit Repair Costs			
Units of the Benefit Claimed : Limit Water Loss, Improve Billing Revenue and Lower Maintenance			
Additional Information About this Benefit:			
(a)	(b)	(c)	(d)
	Physical Benefits		
Year	Without Project	With Project	Change Resulting from Project (b) – (c)
2014			
2015			
2016			
Etc.			
Last Year of Project Life			
Comments: Please refer to Att3_DG_ProJust_14ofXX for a discussion of the physical benefits.			

Table 5 – Annual Project Physical Benefits			
Project Name: Yosemite West Second Water Source			
Type of Benefit Claimed: Compliance with Regulatory Mandate			
Units of the Benefit Claimed : Continued Operation of the Community Water District			
Additional Information About this Benefit: Precludes the Need to Drill Additional Wells			
(a)	(b)	(c)	(d)
	Physical Benefits		
Year	Without Project	With Project	Change Resulting from Project (b) – (c)
2014			
2015			
2016			
Etc.			
Last Year of Project Life			
Comments: Please refer to Att3_DG_ProJust_14ofXX for a discussion of the physical benefits.			

Table 5 – Annual Project Physical Benefits			
Project Name: Yosemite West Water Line Improvements			
Type of Benefit Claimed: Stem Water Loss and Limit Repair Costs			
Units of the Benefit Claimed : Limit Water Loss, Improve Billing Revenue and Lower Maintenance			
Additional Information About this Benefit:			
(a)	(b)	(c)	(d)
	Physical Benefits		
Year	Without Project	With Project	Change Resulting from Project (b) – (c)
2014			
2015			
2016			
Etc.			
Last Year of Project Life			
Comments: Please refer to Att3_DG_ProJust_14ofXX for a discussion of the physical benefits.			

Table 5 – Annual Project Physical Benefits			
Project Name: Fish Camp Water Storage and Well Development			
Type of Benefit Claimed: Water Storage and Supply			
Units of the Benefit Claimed : Limit Water Loss, and Lower Maintenance			
Additional Information About this Benefit:			
(a)	(b)	(c)	(d)
	Physical Benefits		
Year	Without Project	With Project	Change Resulting from Project (b) – (c)
2014			
2015			
2016			
Etc.			
Last Year of Project Life			
Comments: Please refer to Att3_DG_ProJust_14ofXX for a discussion of the physical benefits.			

Technical Analysis of Physical Benefits Claimed

The County of Mariposa does not have data necessary to complete the Physical Benefits tables. In place of this data, this section provides not only an identification of the Primary and Secondary benefits of each project, but also a technical analysis and discussion of the challenges with identifying the necessary information.

Project 1: Coulterville Second Water Source

Primary Benefit: Production of an additional, reliable water supply

Secondary Benefit(s): Saving of energy and reduction in greenhouse gas emissions; reduction in ecosystem conflicts; availability of water supply for fire protection

Narrative Description of Physical Benefits and Challenges: Coulterville is a remote rural community having a domestic water system serving less than 90 customers. Emergency water would need to be trucked approximately 35 miles minimum over a narrow and dangerous mountain road. The County of Mariposa has limited supplies that could be used for this purpose.

Coulterville's only source of water is one 50-year-old well. The only feasible way to provide great assurance of continuing water service is to prove-up an additional well, located within the service district.

The State Water board has notified The County of Mariposa that a second source will be required.

Project 2: Coulterville Water Lines Improvements

Primary Benefit: Improvements to deliver a reliable water supply

Secondary Benefit: Reduction in loss of water due to old, inadequate infrastructure

Narrative Description of Physical Benefits and Challenges: Coulterville is a remote rural community having a domestic water system serving less than 90 customers.

The existing water system is approximately 50 years old. The existing water meters are obsolete and not easily repaired and are of questionable accuracy. There are an insufficient number of isolation valves in the system and the ones that do exist need constant maintenance. Parts are difficult to get.

The meter at the well head is equally old and inaccurate. The district has no accurate means of establishing the quantity of water being lost, but the best estimates are in the 1-2 million gallons per year range. This represents about 20 percent of a total of approximately 10 million gallons per year at the upper range.

Repairing the house service and the valves will reduce this loss to something closer to 4 percent per year—approximately 400,000 gallons per year—and the upgrades to the monitoring will allow the district to monitor and the system in real time.

From a construction standpoint this is a simple job with all of the repairs made adjacent to the existing roads. The excavations are shallow and will be opened and closed one at a time.

Project 3: Yosemite West Second Water Source

Primary Benefit: Production of an additional, reliable water supply

Secondary Benefit(s): Saving of energy and reduction in greenhouse gas emissions; reduction in ecosystem conflicts; availability of water supply for fire protection

Narrative Description of Physical Benefits and Challenges: Yosemite West is a remote rural mountain community (above 5,000 feet in elevation) having a domestic water system serving less than 150 customers. Emergency water would need to be trucked approximately 35 miles minimum over a narrow and dangerous mountain road. The City of Oakhurst, located in another county, has limited supplies that could be used for this purpose.

Yosemite West's only source of water is one 46-year-old well. The only feasible way to provide great assurance of continuing water service is to prove-up an additional well, located within the service district. Water is extremely hard to find in quantities approaching 100 gallons per minute.

The existing well is 1,500 feet below the storage tank and energy costs to raise the water to the tank is excessive.

The State Water board has notified The County of Mariposa that a second source will be required.

Project 4: Yosemite West Water Lines Improvements

Primary Benefit: Improvements to deliver a reliable water supply

Secondary Benefit: Reduction in loss of water due to old, inadequate infrastructure

Narrative Description of Physical Benefits and Challenges: Yosemite West is a remote rural mountain community (above 5,000 feet in elevation) having a domestic water system serving less than 150 customers.

The existing water system is approximately 46 years old. The existing water meters are obsolete and not easily repaired and are of questionable accuracy. There are insufficient number of isolation valves in the system and the ones that do exist need constant maintenance. The fire hydrants are no longer being manufactured and parts are impossible to get. Embedded in the system are a series of pressure relief valves to maintain house pressures at reasonable levels. These valves will be placed within vaults to simplify maintenance.

The distribution system is composed of the original transite (cement asbestos) pipe and PVC pipe that has been installed to repair failures.

Functioning and repairable fire hydrants are mandatory to maintain insurability of the structures.

The meter at the well head is equally old and inaccurate. The district has no accurate means of establishing the quantity of water being lost, but the best estimates are in the 1-2 million gallons per year range. This represents about 20 percent of a total of approximately 10 million gallons per year at the upper range.

Repairing the house service and the valves will reduce this loss to something closer to 4 percent per year—approximately 400,000 gallons per year—and the upgrades to the monitoring will allow the district to monitor and the system in real time.

From a construction standpoint this is a difficult job because the site is remote, the roads are narrow and the building season is very short.

Project 5: Fish Camp Water Storage and Well Development

Primary Benefit(s): Production of an additional, reliable water supply; availability of water supply for fire protection

Secondary Benefit(s): Saving of energy and reduction in greenhouse gas emissions; reduction in ecosystem conflicts

Narrative Description of Physical Benefits and Challenges: The Community of Fish Camp is located adjacent to State Route 41 (dangerous mountain road) approximately two miles south of Yosemite National Park.

The community located within the Big Creek Watershed of the Merced River obtains all of its water from fractured rock as there is no reachable ground water. The Yosemite Alpine Community Service District presently is providing water from two relatively shallow wells which have shown significant drop in production because of the drought.

This project will provide additional well and 40,000+ gallon potable water storage. As a part of this project the distribution system will be interconnected, fire hydrants will added and isolation valves installed to reduce the need to shut the entire system for maintenance.

Water meters will be installed on all services.

Substandard piping will be replaced to meet current standards.

Fish Camp has a very short building season, requiring the work to be done concurrently. This short season as well as the remoteness of the site will increase supervision and control.

Table 6 – Cost Effective Analysis **Project name:** Coulterville Second Water Source Well	
Question 1	**Types of benefits provided as shown in Table 5**
	Production of an additional, reliable water supply
Question 2	**Have alternative methods been considered to achieve the same types and amounts of physical benefits as the proposed project been identified?**
	Yes, but limited alternatives exist in the community that may or may not achieve the same level of benefits.
	If no, why?
	Not applicable
	If yes, list the methods (including the proposed project) and estimated costs.
	By providing a long-term reliable solution for the community, the proposed project is clearly the only reasonable, cost effective alternative to address the current situation. The only alternative that may even approach the necessary level of physical benefits would be trucking of water. Even this option would very likely be cost prohibitive given the travel distance and topography of the community. In other geographically-similar parts of Northern California, trucking of water has more than doubled in cost over the past year and will likely be triple very soon. For a DAC, this is an economic impact that cannot be absorbed, particularly when there is no certain end to drought and the situation could persist for years into the future.
Question 3	**If the proposed project is not the least cost alternative, why is it the preferred alternative? Provide an explanation of any accomplishments of the proposed project that are different from the alternative project or methods.**
	In the very short-term (likely 1–2 years), trucking of water could cost less than the funding request in this proposal. However, that difference is likely to be very small. Clearly, given the multiple decades life of the proposed project, there is no real comparison of the benefits of the preferred alternative.
Comments:	

Table 6 – Cost Effective Analysis **Project name:** Coulterville Water Line Improvements	
Question 1	**Types of benefits provided as shown in Table 5**
	Improvements to deliver a reliable water supply; reduction in water loss
Question 2	**Have alternative methods been considered to achieve the same types and amounts of physical benefits as the proposed project been identified?**
	Yes, however the only alternative is a "No Build" alternative.
	If no, why?
	Not applicable
	If yes, list the methods (including the proposed project) and estimated costs.
	The only option is a "No Build" alternative which would keep the inadequate water in place, resulting the increased loss of critical water in a DAC, likely increasing economic costs to residents in the form of more energy to pump additional water to compensate for the loss.
Question 3	**If the proposed project is not the least cost alternative, why is it the preferred alternative? Provide an explanation of any accomplishments of the proposed project that are different from the alternative project or methods.**
	Because this is a DAC, the likely increasing costs to residents to keep the current inadequate infrastructure in place is not a viable alternative. Therefore, the request for funding for this project will be the most cost effective and beneficial to the DAC.
Comments:	

Table 6 – Cost Effective Analysis **Project name:** Yosemite West Second Water Source Well	
Question 1	**Types of benefits provided as shown in Table 5**
	Production of an additional, reliable water supply
Question 2	**Have alternative methods been considered to achieve the same types and amounts of physical benefits as the proposed project been identified?**
	Yes, but limited alternatives exist in the community that may or may not achieve the same level of benefits.
	If no, why?
	Not applicable
	If yes, list the methods (including the proposed project) and estimated costs.
	By providing a long-term reliable solution for the community, the proposed project is clearly the only reasonable, cost effective alternative to address the current situation. The only alternative that may even approach the necessary level of physical benefits would be trucking of water. Even this option would very likely be cost prohibitive given the travel distance and topography of the community. In other geographically-similar parts of Northern California, trucking of water has more than doubled in cost over the past year and will likely be triple very soon. This is an economic impact that cannot be absorbed, particularly when there is no certain end to drought and the situation could persist for years into the future.
Question 3	**If the proposed project is not the least cost alternative, why is it the preferred alternative? Provide an explanation of any accomplishments of the proposed project that are different from the alternative project or methods.**
	In the very short-term (likely 1–2 years), trucking of water could cost less than the funding request in this proposal. However, that difference is likely to be very small. Clearly, given the multiple decades life of the proposed project, there is no real comparison of the benefits of the preferred alternative.
Comments:	

Table 6 – Cost Effective Analysis **Project name:** Yosemite West Water Line Improvements	
Question 1	**Types of benefits provided as shown in Table 5**
	Improvements to deliver a reliable water supply; reduction in water loss
Question 2	**Have alternative methods been considered to achieve the same types and amounts of physical benefits as the proposed project been identified?**
	Yes, however the only alternative is a "No Build" alternative.
	If no, why?
	Not applicable
	If yes, list the methods (including the proposed project) and estimated costs.
	The only option is a "No Build" alternative which would keep the inadequate water in place, resulting the increased loss of critical water in the community, likely increasing economic costs to residents in the form of more energy to pump additional water to compensate for the loss.
Question 3	**If the proposed project is not the least cost alternative, why is it the preferred alternative? Provide an explanation of any accomplishments of the proposed project that are different from the alternative project or methods.**
	The likely increasing costs to residents to keep the current inadequate infrastructure in place is not a viable alternative. Therefore, the request for funding for this project will be the most cost effective and beneficial to the community.
Comments:	

Table 6 – Cost Effective Analysis **Project Name:** Fish Camp Water Storage and Well Development	
Question 1	**Types of benefits provided as shown in Table 5**
	Production of an additional, reliable water supply; availability of water supply for fire protection
Question 2	**Have alternative methods been considered to achieve the same types and amounts of physical benefits as the proposed project been identified?**
	Yes, however the only alternative is a "No Build" alternative.
	If no, why?
	Not applicable
	If yes, list the methods (including the proposed project) and estimated costs.
	There is no additional water storage capacity in the community to provide for reliability for residents and fire protection needs, so this project provides this benefit. Even if alternatives such as trucking of water were considered, there is no additional storage capacity for the imported water.
Question 3	**If the proposed project is not the least cost alternative, why is it the preferred alternative? Provide an explanation of any accomplishments of the proposed project that are different from the alternative project or methods.**
	Because this is a DAC, the likely increasing costs to residents to keep the current inadequate infrastructure in place is not a viable alternative, particularly when the risks of decreased fire protection are taken into account. Therefore, the request for funding for this project will be the most cost effective and beneficial to the DAC.
Comments:	