

# Staff Report

for the Regular Meeting of the Board of Directors, May 27, 2020

**TO:** Board of Directors

**FROM:** Doug Roderick, P.E., Engineering Manager  
Tonia M. Tabucchi Herrera, P.E. Senior Engineer

**DATE:** May 20, 2020

**SUBJECT:** E. George to Lake Wildwood Backbone Extension Project  
(FATR #2255)

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***ENGINEERING***

**RECOMMENDATION:**

Direct Staff to continue to move forward with the E. George to Lake Wildwood Backbone Extension Project and to bid Phase I of the Project.

**BACKGROUND:**

The E. George to Lake Wildwood Backbone Extension Project was developed to interconnect the E. George and Lake Wildwood Treated Water Systems (LWWTS) to provide a redundant, supplemental, and emergency treated water supply to LWWTS as part of a greater regionalization of the water system.

In addition providing the a redundant, supplemental and emergency treated water supply to LWWTS, the E. George to Lake Wildwood Project will provide the following benefits:

- Provide treated water to Rough and Ready, which is a disadvantaged community.
- Provide a redundant and emergency water supply to Lake Wildwood and Penn Valley.
- Provides approximately 35 fire hydrants and fire protection between Grass Valley and Penn Valley. 5.6 miles of new pipeline is to be installed within high fire-prone areas and will include fire hydrants spaced approximately 1000 feet apart.

- The selected pipeline route has the highest number of constructed conveyance parcels that can connect to treated water. This includes 13 parcels fronting the pipeline and 35 in the soft service area.
- This preferred pipeline route has the highest number of potential future treated water customers. This includes 145 parcels fronting the pipeline and 682 parcels within the soft service area.
- Provide operational flexibility for the Lake Wildwood Water Treatment Plant (LWWTP).
- Provides the necessary operational flexibility to enhance and support the LWWTP rehabilitation and upgrades.

On July 13, 2016, the Board of Directors (Board) approved a consulting contract with HDR to study the LWWTP as it was reaching 85% of capacity during peak demand days, warranting developing a capacity study and conducting an alternative analysis to provide additional capacity. Treatment plant capacity utilization of 85-90% is considered a sufficient inflection/trigger point for capacity upgrading. A pipeline from E. George to Lake Wildwood was noted as an alternative that would be considered.

On June 20, 2017, staff presented the HDR capacity study results and option analysis to the Engineering Committee. The report recommended a new pipeline along with water treatment plant upgrades. Staff concurred with the recommendation made in the report and began to move forward with the E. George to Lake Wildwood Project.

On August 7, 2018, the Administrative Practices Committee approved a consulting contract with ECORP for CEQA services for the E. George to Lake Wildwood Project. A Mitigated Negative Declaration (MND) was developed.

On August 14, 2019, the Board held a public hearing for the E. George to Lake Wildwood Project's MND. The Board unanimously adopted Resolution No. 2019-26, adopting an MND, approving the E. George to Lake Wildwood Project and the Mitigation Monitoring and Reporting Program (MMRP). Staff completed design for four (4) miles of pipeline of the project, from Hope Street to the intersection of Hell and Back Lane and Rough and Ready Road. Ongoing work includes right of way procurement for above ground pressure reducing stations.

The E. George to Lake Wildwood Project was included in the Capital Improvement Plan (CIP) that was presented to the Engineering Committee on August 20, 2019, and was included in the 2020 Budget that was approved by the Board on October 23, 2019.

On January 14, 2020, staff presented an informational item to the Engineering Committee to review the overall scope and costs of the E. George to Lake Wildwood Project. This discussion included consideration of phasing of construction of the approved E. George to Lake Wildwood Project over multiple

years by working within the CIP or for the potential to construct the entire project all at once by considering issuance of a bond. Since that meeting, staff has continued to finish up the design of the first phase and moved forward with procuring the necessary Right of Way (ROW) for a pressure reducing valve station that would be constructed as part of this first phase. Easement for a portion of the pipeline through Lake Wildwood Homeowner's Association property has been acquired.

The analysis performed by HDR considered costs related to the alternatives, with the recommended project requiring the highest capital investment among the three alternatives considered. The recommendation by HDR, and by staff, for the pipeline and treatment plant upgrade was for multiple reasons:

- The LWWTP has only one source of water supply, the Newtown Canal.
- The Newtown Canal is an open canal that is subject to water quality concerns as it meanders 14 miles through agricultural lands from Deer Creek to the LWWTP.
- The Newtown Canal is subject to water quality degradation occurring within Deer Creek as it travels through Nevada City.
- If the Newtown Canal fails, the LWWTP has limited emergency raw water storage that can only sustain max flows for two days.
- The distribution system provides for only 3 million gallons of treated water storage. Some water is restricted to its zone and cannot be transported throughout the LWWTS.
- Upgrading and increasing capacity in the LWWTP does not reduce the risk or liability of having only one source of supply.

Having a redundant supply is critical to ensuring that the LWWTP is able to meet demand during an emergency. The E. George to Lake Wildwood Project will also allow the LWWTP to be taken offline for up to 6 months, extending the life of the existing facilities until upgrades are made and will allow for easier upgrading of the LWWTP since it can be taken offline.

There is unused capacity within the E. George Water Treatment Plant (EGWTP). The District has already invested \$16.5 million in capital for upgrading and increasing the capacity of the EGWTP, which was completed in 2011. The approved project would allow the District to utilize this available capacity.

Intertie between E. George and LWW systems increases regionalization of the District's treated water systems, which already has interties between E. George and Loma Rica, and Loma Rica and Lake of the Pines systems and has shown great benefit to system operations and operational flexibility while in an emergency. Further, the E. George to Lake Wildwood Project meets the Backbone Extension Program criteria as it remedies existing problems in the system, creates redundancy for the existing system, and provides transmission main to growth areas beyond master-planned areas (soft service areas).

Staff recommends that the Board direct staff to move forward with the E. George to Lake Wildwood Backbone Extension Project and to bid Phase I of the Project.

This item is in alignment with Goals 1 and 4 of the District's Strategic Plan by using prudent and forward-thinking to ensure resilient and sustainable operation of our systems to the benefit of our customers and our community and to integrate proven practices and technologies to enhance reliability and quality of our water supply.

**BUDGETARY IMPACT:**

The Board approved a rollover of \$700,000 from the 2019 to the 2020 Backbone Extension Program (Account 10151-52911) on December 4, 2019, giving a total of \$1,700,000 available in the 2020 budget which is sufficient to construct the first phase of the project. There is currently \$1,692,208 available in Account #10151-52911. For the project to date, \$243,662 has been spent on administrative costs (engineering, drafting, and survey) and \$310,927 on consulting services (including the LWWTP Capacity Study).

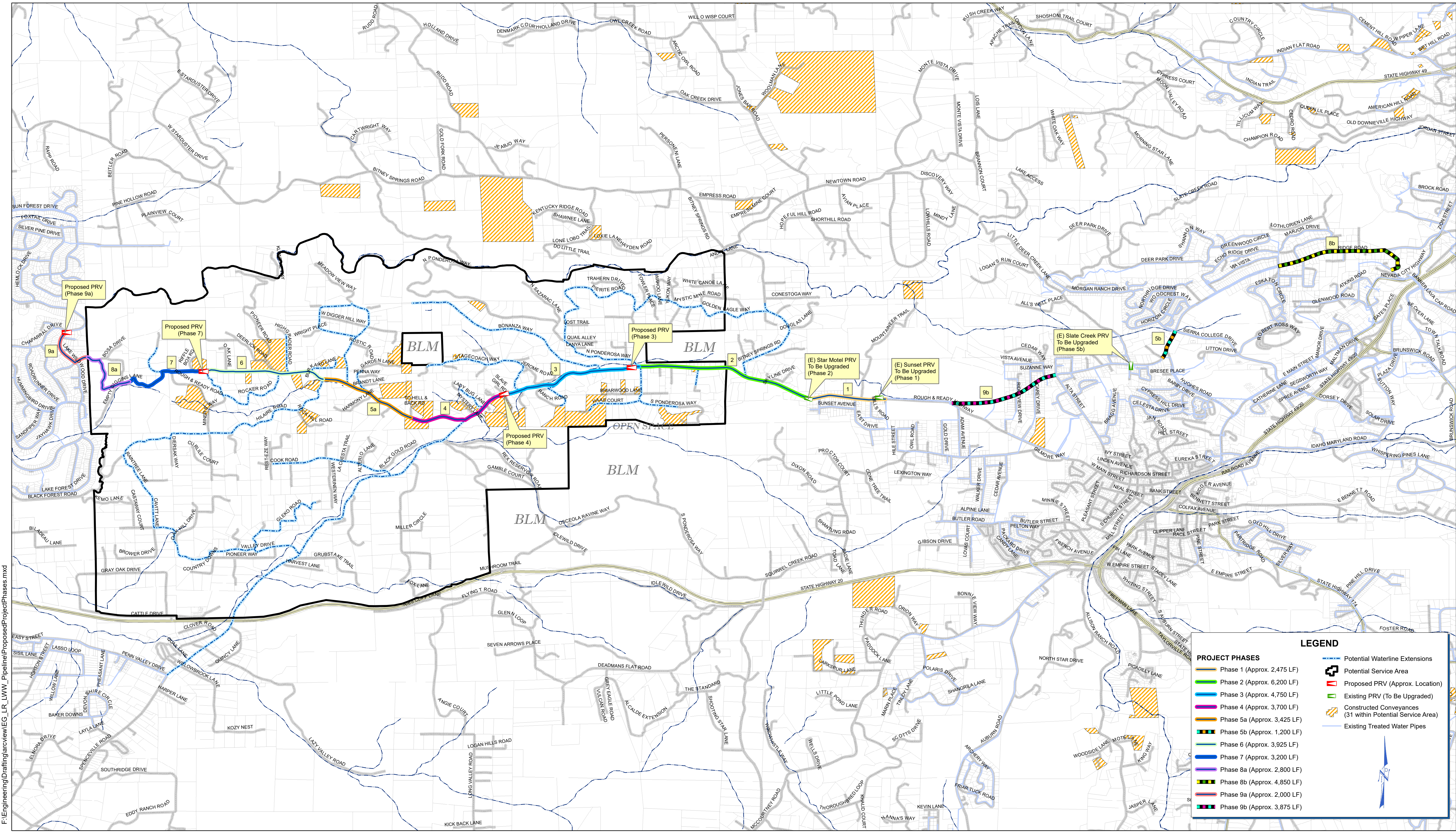
Overall project costs are estimated at \$19,380,180 for the pipeline and \$5,745,000 for the LWWTP upgrades (costs for LWWTP upgrades were adjusted based on ENR Construction Cost Index).

**ATTACHMENTS: (2)**

Map of Construction Phases  
Estimated costs of Construction Phases

DR





**LEGEND**

	Potential Waterline Extensions
	Potential Service Area
	Proposed PRV (Approx. Location)
	Existing PRV (To Be Upgraded)
	Constructed Conveyances (31 within Potential Service Area)
	Existing Treated Water Pipes

**PROJECT PHASES**

	Phase 1 (Approx. 2,475 LF)
	Phase 2 (Approx. 6,200 LF)
	Phase 3 (Approx. 4,750 LF)
	Phase 4 (Approx. 3,700 LF)
	Phase 5a (Approx. 3,425 LF)
	Phase 5b (Approx. 1,200 LF)
	Phase 6 (Approx. 3,925 LF)
	Phase 7 (Approx. 3,200 LF)
	Phase 8a (Approx. 2,800 LF)
	Phase 8b (Approx. 4,850 LF)
	Phase 9a (Approx. 2,000 LF)
	Phase 9b (Approx. 3,875 LF)

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**NEVADA IRRIGATION DISTRICT**

NEVADA COUNTY -- PLACER COUNTY  
GRASS VALLEY, CALIFORNIA

**E. GEORGE - LAKE WILDWOOD BEP - PROJECT PHASES**

Drawn By: D. HUNT

Date: 1/7/2020

Scale: 1" = 1/3 mile @ 24x36

Sheet: 1 of 1



**PHASING OF E. GEORGE TO LAKE WILDWOOD BEP**

Phase	Description	Pipeline type	Goal	Estimated Cost	ROW required?	Comment 1	Comment 2
1	Hope Street to approximately 12390 Rough and Ready Highway (to Star Motel replacement) along Rough and Ready Highway	Parallel construction of 2475 lf pipeline	Additional infrastructure and upgrade of Sunset PRV to meet short term need of pipeline MDD and FF. Long term required for flows to LWW.	\$ 1,324,799	yes -- PRV location	EE was completed as project designed. Mob/demob estimated at 5%. Savings can be seen with mob/demob if phasing combined. Perhaps shorten timeline slightly. Lots of tie-ins but not services. I would expect that the cost of microresurfacing would go down if we allow a couple phases to be done.	Conduits and boxes for future comms were not included in estimate; however should be explored further.
2	Star Motel Replacement 12390 Rough and Ready Hwy to Ponderosa (to new PRV) along Rough and Ready Highway	Parallel and new construction of 6183 lf pipeline	Additional infrastructure and upgrade of Sunset PRV to meet short term need of pipeline MDD and FF. Long term required for flows to LWW.	\$ 2,931,107	yes -- PRV location	EE was completed as project designed. Mob/demob estimated at 5%. Savings can be seen with mob/demob if phasing combined. Perhaps shorten timeline slightly. Lots of tie-ins but not services. I would expect that the cost of microresurfacing would go down if we allow a couple phases to be done.	Could potentially shorten the run to Bitney Spring intersection and keep it all parallel construction only. Shorter run 34+75 to 58+97 -- 2422ft. Conduits and boxes for future comms were not included in estimate; however should be explored further.
3	Ponderosa PRV to Slave Girl Road (new PRV) along Rough and Ready Highway	New construction of 4748 lf pipeline	New construction, including PRV at Ponderosa	\$ 2,378,485	yes -- PRV location	EE was completed as project designed. Mob/demob estimated at 5%. Savings can be seen with mob/demob if phasing combined. Perhaps shorten timeline slightly. Lots of tie-ins but not services. I would expect that the cost of microresurfacing would go down if we allow a couple phases to be done.	Design is completed much further and site for PRV near Slave Girl Road not determined. Conduits and boxes for future comms were not included in estimate; however should be explored further.
4	Slave Girl PRV to Hell and Back Lane along Rough and Ready Highway then Rough and Ready Road	New construction of 3692 lf pipeline	New construction, including PRV at Slave Girl, portion of leg to Penn Valley.	\$ 2,027,676	yes -- PRV location	EE was completed as project designed. Mob/demob estimated at 5%. Savings can be seen with mob/demob if phasing combined. Perhaps shorten timeline slightly. Lots of tie-ins but not services. I would expect that the cost of microresurfacing would go down if we allow a couple phases to be done. Conduits and pull boxes not included in estimate. Rough and Ready Road is a narrow facility. There is a potential for requiring temporary easements for construction.	Site for PRV is approximate. No property owners have been contacted. End of pipe has a location for WQ flushing device. Conduits and boxes for future comms were not included in estimate; however should be explored further.
5a	Hell and Back Lane to Hilaire Road along Rough and Ready Road	New construction of 3418 lf pipeline	New construction	\$ 1,566,014	not anticipated	Rough and Ready Road is a narrow facility. There is potential for requiring temporary easements for construction.	Conduits and boxes for future comms were not included in estimate; however should be explored further.
5b	Sierra College Dr to Deeken Crt, Slate Creek PRV along Ridge Road and mainline valve installations on existing system	Replacement construction of 1210 lf pipeline	Existing system is 10". The pipeline replacement was previously identified as required for master plan flows.	\$ 654,000	yes -- PRV location	The area is developed and impacted with other utilities. ROW maybe required for the pipeline but the goal is to stay within the public row. The replacement PRV will require ROW.	Thought was to have 5a and 5b in same budget year.
6	Hilaire Road to Riffle Box Road (new PRV) along Rough and Ready Road	New construction 3914 lf pipeline	New construction	\$ 1,565,600	not anticipated	Rough and Ready Road is a narrow facility. There is potential for requiring temporary easements for construction.	Conduits and boxes for future comms were not included in estimate; however should be explored further.
7	Riffle Box Road PRV to LWW HOA property near Bosa Drive, portions are along Empty Diggins	New construction 3205 lf of pipeline	New construction, including PRV at Riffle Box	\$ 1,282,000	Yes -- all private	This area require easement acquisition along property lines and private roads. Tree removal will be required. Private roads are dirt and will require at minimum bump outs during construction.	Conduits and boxes for future comms were not included in estimate; however should be explored further.
8a	Property line from LWW HOA owned parcel, along Empty Diggins and the existing unnamed dirt road to Minnow Way	New Construction 2800 lf of pipeline	New construction	\$ 1,120,000	No - Row acquired	Empty Diggins is a private dirt road. The unnamed dirt road is on LWW HOA.	Conduits and boxes for future comms were not included in estimate; however should be explored further.
8b	Via Vista to Durbrow Rd along Ridge Road	replacement construction of 4850 lf pipeline	Existing system is 12". The pipeline replacement is required to meet project needs.	\$ 2,182,500	not anticipated	The area is developed and impacted with other utilities. ROW maybe required for the pipeline but the goal is to stay within the public row.	Thought was to have 8a and 8b in same budget year.
9a	Along Minnow Way and Lake Wildwood to Charparral Drive and new PRV	Parallel construction of 2000 lf	Parallel new construction	\$ 800,000	yes -- PRV location	The area is developed and impacted with other utilities. ROW maybe required for the pipeline but the goal is to stay within the public row. The new PRV will require ROW.	Conduits and boxes for future comms were not included in estimate; however should be explored further.
9b	Alta Street to Rough & Ready Highway along Ridge Road	Parallel construction of 3870 lf	Parallel new construction	\$ 1,548,000	not anticipated	The area is developed and impacted with other utilities. ROW maybe required for the pipeline but the goal is to stay within the public row. Further, the timing may require adjustment as the County has a potential traffic circle Project at Adams Ave/Ridge Road/Rough and Ready Highway.	Thought was to have 9a and 9b in the same budget year. Conduits and boxes for future comms were not included in estimate; however should be explored further.
Total estimated cost				\$ 19,380,180			