



PARADISE IRRIGATION DISTRICT

"Paradise Irrigation District (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 our customers."

Please consider how this agenda item relates to our mission.

TO: Board of Directors
FROM: Jim Ladrini
DATE: September 4, 2018
RE: Automated Meter Reading Infrastructure Upgrade
09/19/2018 Board of Directors Meeting

The original equipment used in the Automated Meter Reading system utilized by the Paradise Irrigation District was installed to meet the topographical nature of Paradise. The system operates on a 2g network that does not have the ability to upgrade and includes a rather robust infrastructure primarily due to the broadcasting power limitations of its components.

It has recently come to our attention that T-Mobile will be ending the use of the 2g network currently available in Paradise. While T-Mobile has stated they plan on keeping the 2g network in operation until 2020, there is no guarantee of that. In an effort to address this problem, staff has worked diligently with Zenner USA in developing a plan that will not only resolve the issue of losing the 2g network, but will also help us keep up with often changing network speed issues.

Zenner USA has developed a plan that will not only address the loss of 2g, but offers other benefits as well. They are working on a path to make their equipment, which operates on a 3g system, upgradable when that technology becomes extinct. In addition to solving the 2g dilemma, the proposed plan to upgrade our AMR infrastructure provides other benefits as well.

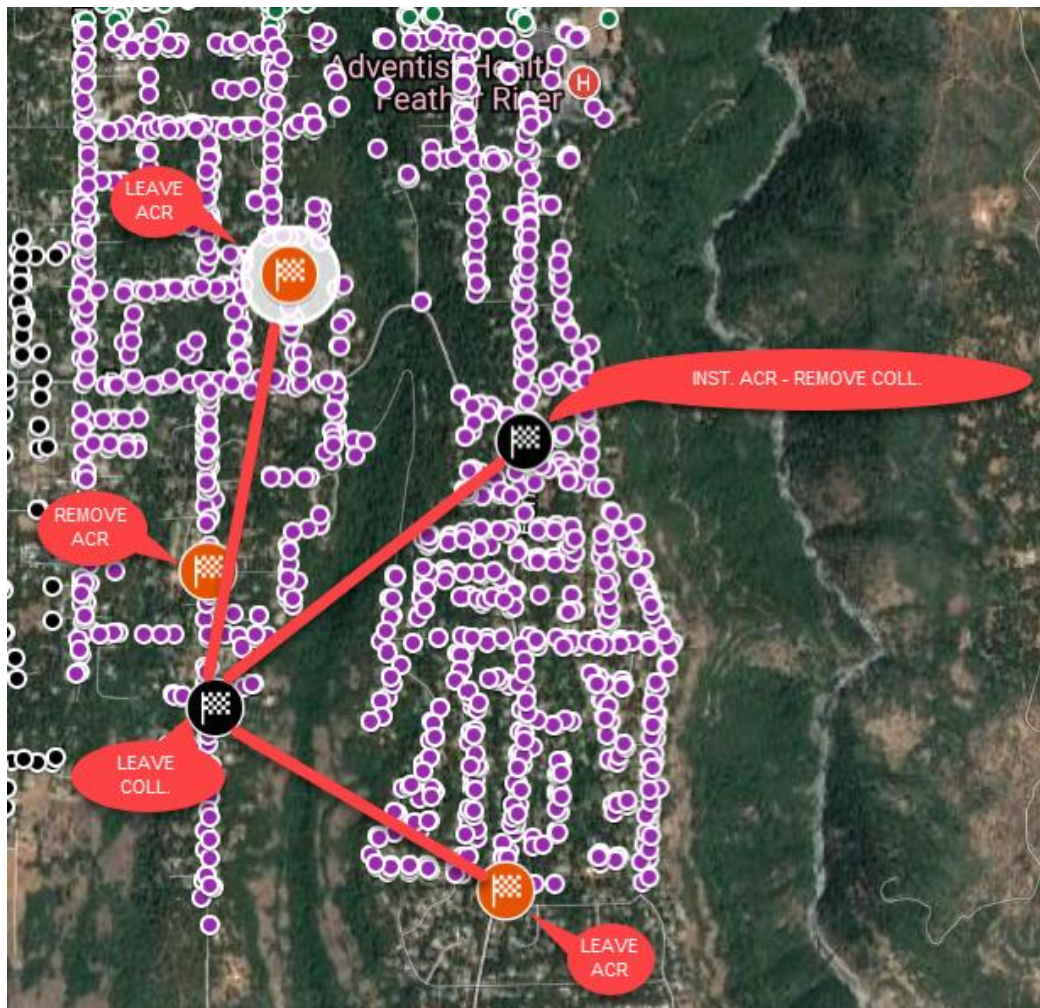
The primary benefit is that PID will be able to continue to use its AMR system. The loss of 2g would not allow this system to communicate data therefore rendering it inoperable.

In addition, the overall size of the infrastructure will be substantially reduced. The number of Gateways, (large data collector), installed in our original system will be reduced from 14 to 5. The Gateways would be replaced by the Zenner Stealth Collector. There is a current monthly fee for the 2g service required for the Gateway, which is \$210.00. With the Zenner product installed, our monthly fee will be reduced to \$150.00. Due to failures with the original Datamatic installed Gateway, PID already owns 4 of the 5 Stealth Collectors required for the upgrade.

Furthermore, the number of meter interface unit repeaters (miur), aka repeater, will be reduced as well. There are approximately 524 repeaters currently in use. The exact reduction in the number of repeaters is unknown, but is projected to be substantial. Finally, as we are nearing completion of replacing meter interface units (miu) at all meters, the infrastructure upgrade makes sense allowing us to complete the entire transition to a Zenner AMR System.

The recommended form of motion is:

"I move approval to authorize the District Manager to execute a contract with Zenner USA, as described in the attached proposal, for the upgrade of the Paradise Irrigation District Automated Meter Reading System Infrastructure in the amount of \$ 43,650.00."



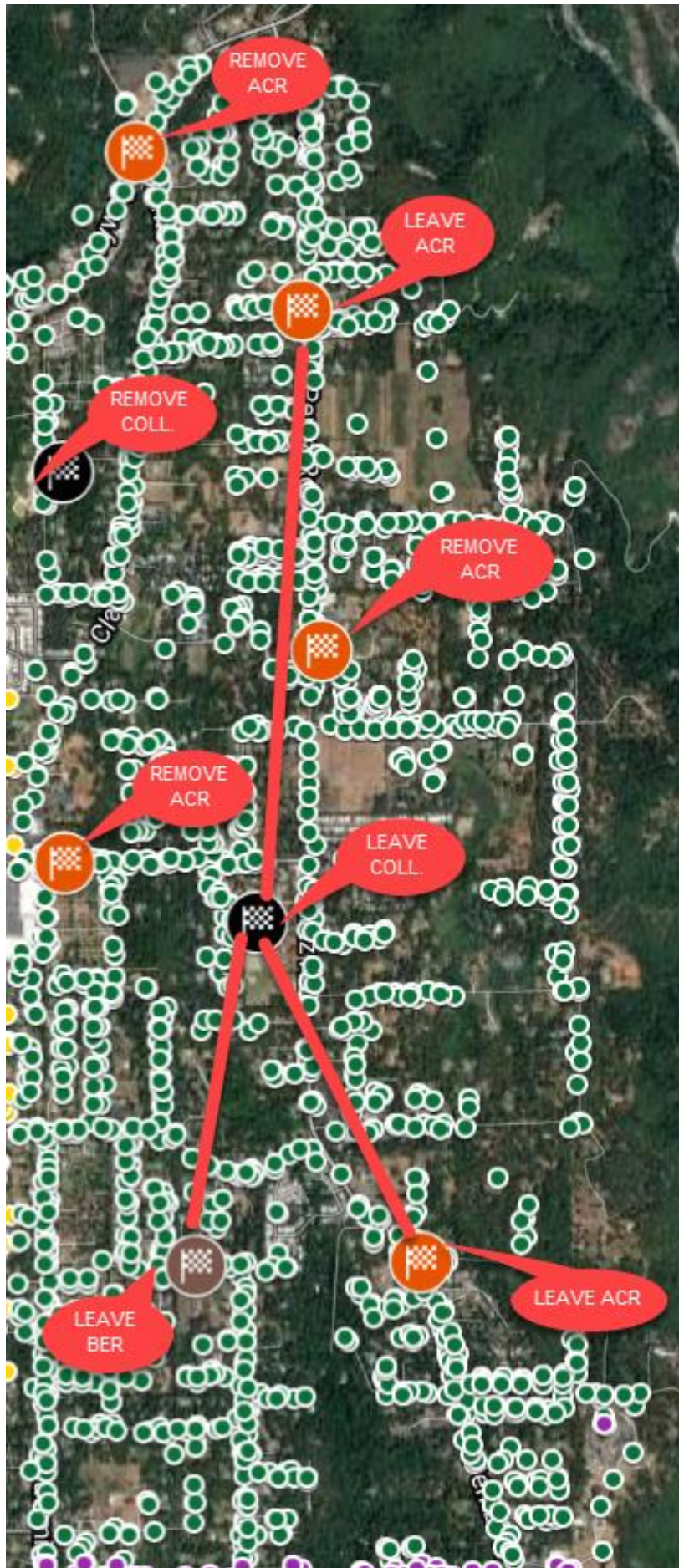
KEY NOTES: 500346 – 500516

- 1) RELOAD BALANCE THESE TWO COLLECTORS INTO ONE LOAD BALANCE.

APPROXIMATELY 1322 MIU'S TOTAL IN THIS LOAD BALANCE.

- 2) REPLACE THIS COLLECTOR WITH STEALTH (500346).
- 3) REPLACE THESE TWO AC REPEATERS WITH STEALTH (85253, 85256).
- 4) REPLACE THIS COLLECTOR WITH A STEALTH AC REPEATER (500516).
- 5) DURING THE TIME ZENNER IS COMPLETING STEP 1,2,3, AND 4, PARADISE CAN BE UNINSTALLING THE ONE AC REPEATER THAT IS NOT NEEDED, COMPLETE ALL 66 TURN OFFS OF MIU REPEATERS, RETURN THE FOLLOWING WEEK TO TURN ON THE REPEATERS THAT ARE NEEDED AFTER THE NETWORK SETTLES, AND THEN COMPLETELY UNINSTALL ANY NOT NEEDED REPEATERS.

1 STEALTH COLLECTOR & 3 STEALTH AC REPEATERS NEEDED IN TOTAL FOR THIS LOAD BALANCE.



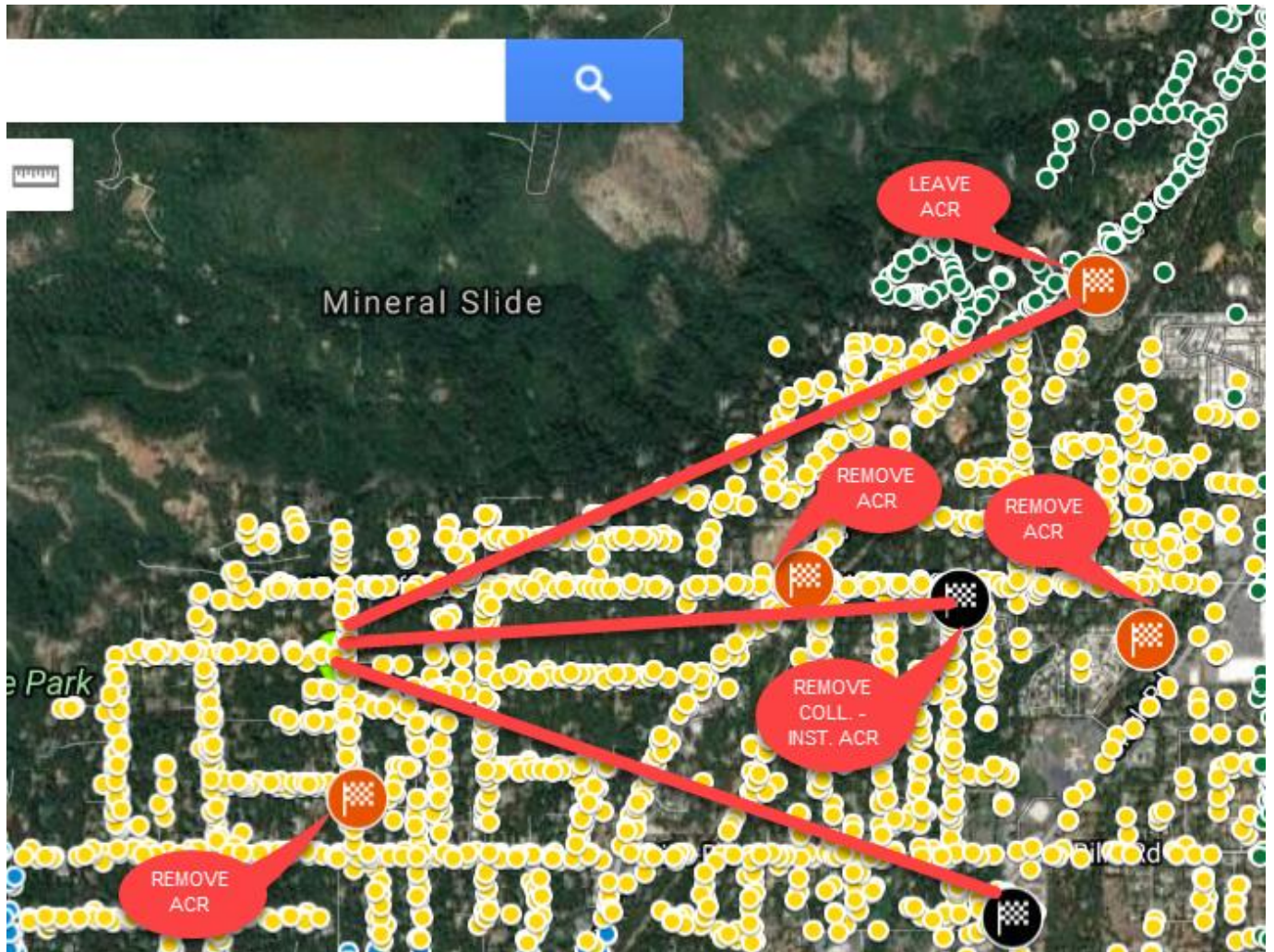
KEY NOTES: 500202 AND 500199

- 1) RELOAD BALANCE THESE TWO COLLECTORS INTO ONE LOAD BALANCE.

APPROXIMATELY 2143 MIU'S TOTAL IN THIS LOAD BALANCE.

- 2) TURN OFF THE ONE COLLECTOR THAT IS NOT NEEDED (500199).
- 3) TURN DOWN THREE AC REPEATERS (85257, 85285, 85288).
- 4) REPLACE THIS COLLECTOR WITH STEALTH (500202).
- 5) REPLACE THIS AC REPEATER WITH STEALTH (85286).
- 6) REPLACE THIS BATTERY ENHANCED REPEATER WITH STEALTH (81142).
- 7) DURING THE TIME ZENNER IS COMPLETING STEP 1,2,3,4,5, AND 6 PARADISE CAN COMPLETE ALL 109 TURN OFFS OF MIU REPEATERS, RETURN THE FOLLOWING WEEK TO TURN ON THE REPEATERS THAT ARE NEEDED AFTER THE NETWORK SETTLES, AND THEN COMPLETELY UNINSTALL ANY NOT NEEDED REPEATERS OR COLLECTORS.

1 STEALTH COLLECTOR & 1 STEALTH AC REPEATERS NEEDED IN TOTAL FOR THIS LOAD BALANCE. I WOULD ALSO RECOMMEND REPLACING THE 1 BATTERY ENHANCED REPEATER (81142) WITH STEALTH.



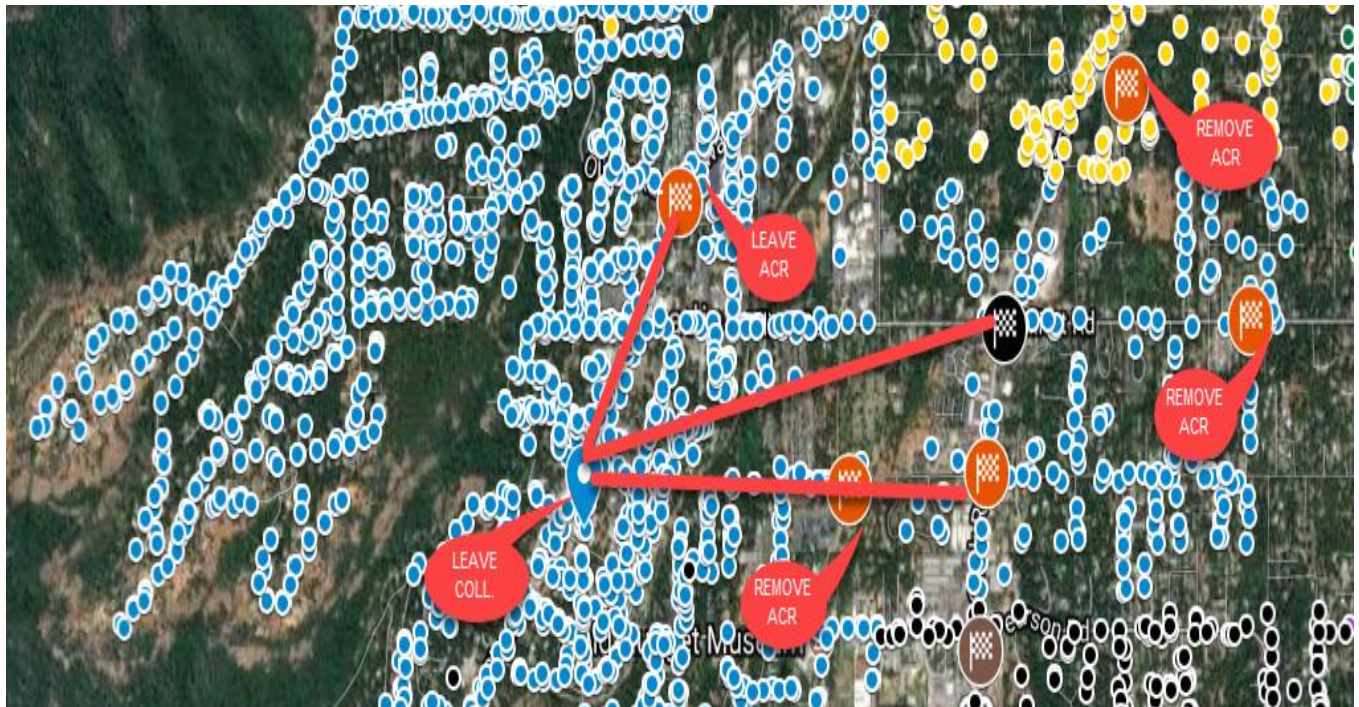
KEY NOTES: 75180

- 1) RELOAD BALANCE THESE THREE COLLECTORS INTO ONE LOAD BALANCE.

APPROXIMATELY 2334 MIU'S TOTAL IN THIS LOAD BALANCE.

- 2) TURN OFF THE TWO COLLECTORS THAT ARE NOT NEEDED (300058, 500148).
- 3) TURN OFF THREE AC REPEATERS (85291, 85287, 85221).
- 4) REPLACE THIS COLLECTOR WITH A STEALTH AC REPEATER (500148).
- 5) REPLACE THIS AC REPEATER WITH STEALTH (85216).
- 6) REPLACE THIS COLLECTOR WITH A STEALTH AC REPEATER (300058).
- 7) REPLACE THIS COLLECTOR WITH A STEALTH AC REPEATER (500148).
- 8) DURING THE TIME ZENNER IS COMPLETING STEP 1,2,3,4, 5, 6, AND 7 PARADISE CAN COMPLETE ALL 92 TURN OFFS OF MIU REPEATERS, RETURN THE FOLLOWING WEEK TO TURN ON THE REPEATERS THAT ARE NEEDED AFTER THE NETWORK SETTLES, AND THEN COMPLETELY UNINSTALL ANY NOT NEEDED REPEATERS OR COLLECTORS.

3 STEALTH AC REPEATERS NEEDED IN TOTAL FOR THIS LOAD BALANCE. 1 TO REPLACE 85216, AND 2 TO REPLACE DATAMATIC COLLECTORS 300058, AND 500148.



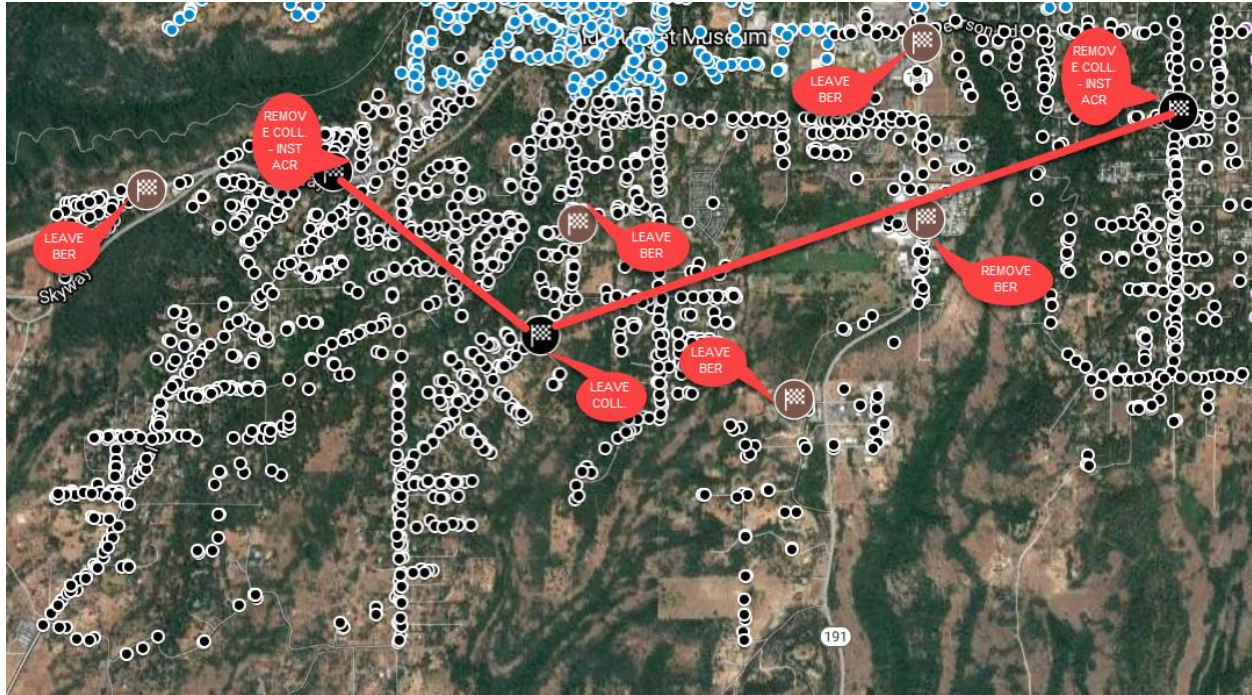
KEY NOTES: 75112

- 1) RELOAD BALANCE THESE TWO COLLECTORS INTO ONE LOAD BALANCE.

APPROXIMATELY 2529 MIU'S TOTAL IN THIS LOAD BALANCE.

- 2) TURN OFF THE ONE COLLECTORS THAT ARE NOT NEEDED (500149).
- 3) TURN OFF TWO AC REPEATERS (85217, 85186).
- 4) REPLACE THIS COLLECTOR WITH A STEALTH AC REPEATER (500197).
- 5) REPLACE THIS AC REPEATER WITH STEALTH (85290).
- 6) REPLACE THIS AC REPEATER WITH STEALTH (85218).
- 7) DURING THE TIME ZENNER IS COMPLETING STEP 1,2,3,4, 5, AND 6 PARADISE CAN COMPLETE ALL 122 TURN OFFS OF MIU REPEATERS, RETURN THE FOLLOWING WEEK TO TURN ON THE REPEATERS THAT ARE NEEDED AFTER THE NETWORK SETTLES, AND THEN COMPLETELY UNINSTALL ANY NOT NEEDED REPEATERS OR COLLECTORS.

3 STEALTH AC REPEATERS NEEDED IN TOTAL FOR THIS LOAD BALANCE. 2 TO REPLACE 85218 & 85290, AND 1 TO REPLACE DATAMATIC COLLECTORS 500197.



KEY NOTES: 500296

- 1) RELOAD BALANCE THESE TWO COLLECTORS INTO ONE LOAD BALANCE.

APPROXIMATELY 2262 MIU'S TOTAL IN THIS LOAD BALANCE.

- 2) TURN OFF THE TWO COLLECTORS THAT ARE NOT NEEDED (500198, 500371).
- 3) REPLACE THIS COLLECTOR WITH A STEALTH AC REPEATER (500296).
- 4) REPLACE THIS COLLECTOR WITH A STEALTH AC REPEATER (500198).
- 5) REPLACE THIS COLLECTOR WITH A STEALTH AC REPEATER (500371).
- 6) REPLACE THESE BATTERY ENHANCED REPEATERS WITH STEALTH (81140, 81139, 90403, 81141, 90135).
- 7) DURING THE TIME ZENNER IS COMPLETING STEP 1,2,3,4, 5, AND 6 PARADISE CAN COMPLETE ALL 115 TURN OFFS OF MIU REPEATERS, RETURN THE FOLLOWING WEEK TO TURN ON THE REPEATERS THAT ARE NEEDED AFTER THE NETWORK SETTLES, AND THEN COMPLETELY UNINSTALL ANY NOT NEEDED REPEATERS OR COLLECTORS.

5 STEALTH BATTERY ENHANCED REPEATERS NEEDED IN TOTAL FOR THIS LOAD BALANCE TO REPLACE 81140, 81139, 90403, 81141, AND 90135). ALREADY EXISTING COLLECTOR 75161 WHICH WILL BE REPLACED WITH AN AC REPEATER.

Overall:

- 1 Collectors (\$2500)
- 11 AC Repeaters ($\$950 \times 11 = \10450)
- 5 Battery Enhanced Repeaters ($\$800 \times 5 = \4000)
- 24 Days Project Management ($\$700 \times 24 = \16800)
- 6 Travel Expenses ($\$1650 \times 6 = \9900)

Grand Total for Manpower & Equipment \$43650.

Please be mindful that this quote is based on the assistance being provided by Paradise Irrigation District. Any project management days and travel expenses outside of this quote is subject to additional cost to Paradise Irrigation. I would certainly be willing to set up another webinar to discuss any additional details if needed.

It's been a pleasure working with Paradise Irrigation District, and we at Zenner are looking forward to a continuous and productive relationship. To Zenner – you the customer are all that counts.

Sincerely

Anthony Graham

National Service Manager

Zenner USA