CUPERTINO SANITARY DISTRICT
COLLECTION SYSTEM OVERVIEW

March 04, 2021

By Frank Quach
Operations Manager

Agenda

1. About CuSD and District Mission
2. Gravity Mains
3. Smartcover Monitoring System
4. Pump Stations
5. Pipes and Maps
6. Wastewater Treatment
7. CuSD Emergency Response
8. Questions

Cupertino Sanitary District

Cupertino Sanitary District has been serving our community since 1956 and continues to strive towards excellent customer service while providing wastewater collection and conveyance for the City of Cupertino and areas of Saratoga.

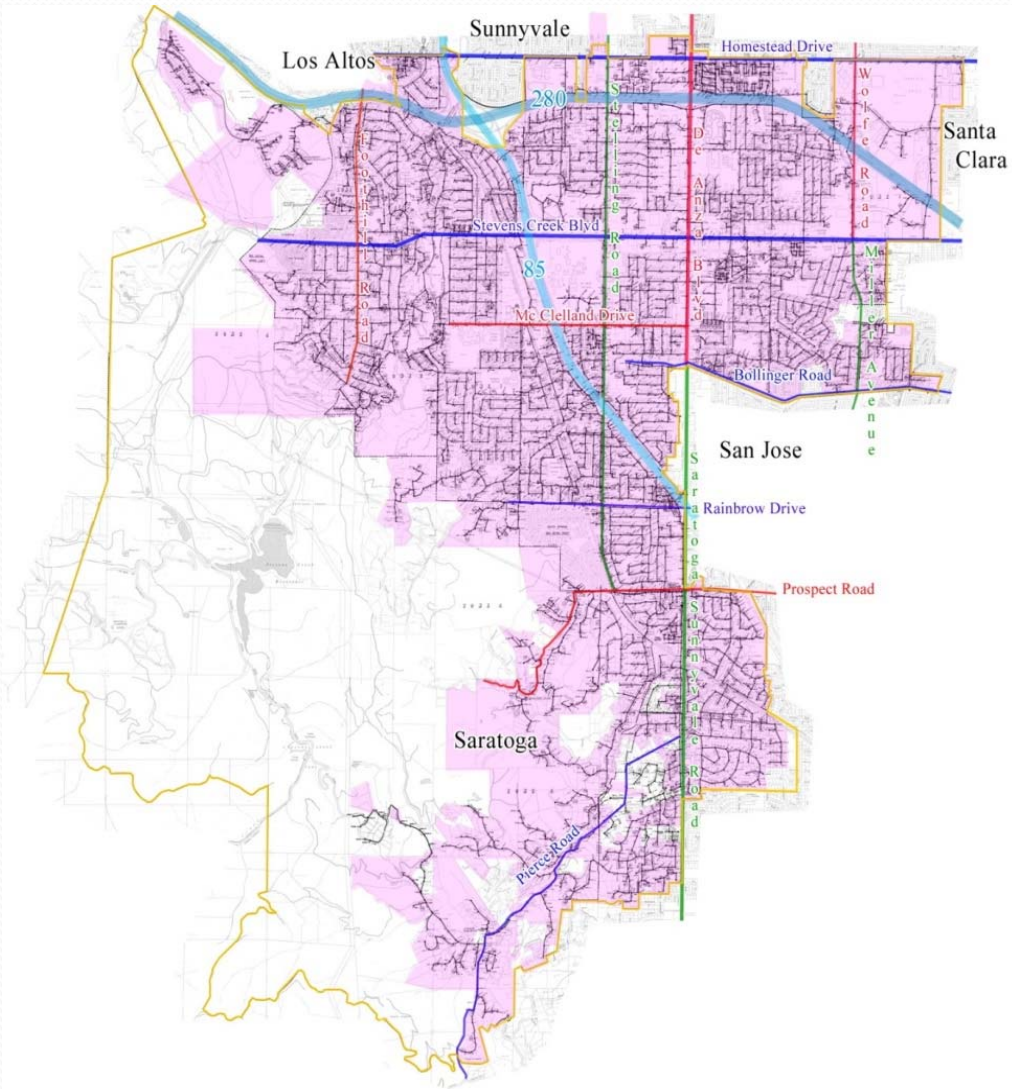
Our Mission

- To protect the public health and environment.
- To provide safe and cost-efficient collection of sewage waste within the Cupertino Sanitary District.
- To provide effective conveyance to the Treatment Plant.

Cupertino Sanitary District

- The District was formed on December 28, 1953 and was reorganized on April 30, 1956 as the Cupertino Sanitary District.
- The District does not have employees; since 1957, the District has been managed by Mark Thomas.
- Mark Thomas maintains 24 Full-Time Equivalent employees (FTEs) for administration, management, and inspection. Maintenance is provided by contracting companies.
- Operation of the District is overseen by a 5-member Board of Directors.

Cupertino Sanitary District



District encompasses 12.7 square miles (over 59,000 residents and more than 16,740 homes and business customers).

District owns, operates, and maintains over 200 miles of sewer mains, 94 miles of lower laterals, 4800 sewer manholes and flushing inlets, and 15 mid-size pump stations, 2 large pump stations and a Flume Metering Station.

Conveys approximately 5 million gallons of waste-water daily to the San Jose/Santa Clara Regional Wastewater Facility for treatment and disposal

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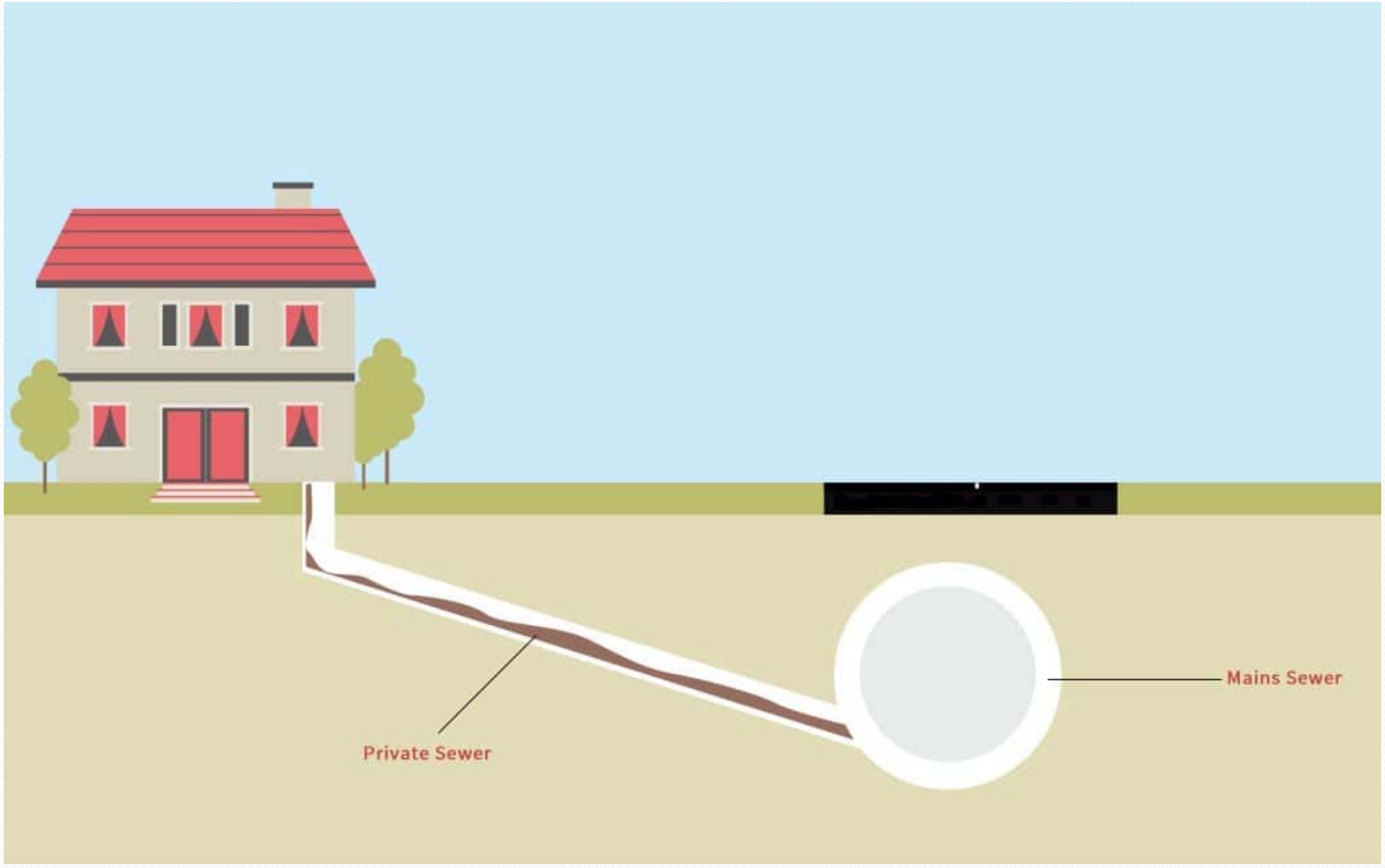
ESTABLISHED 1956

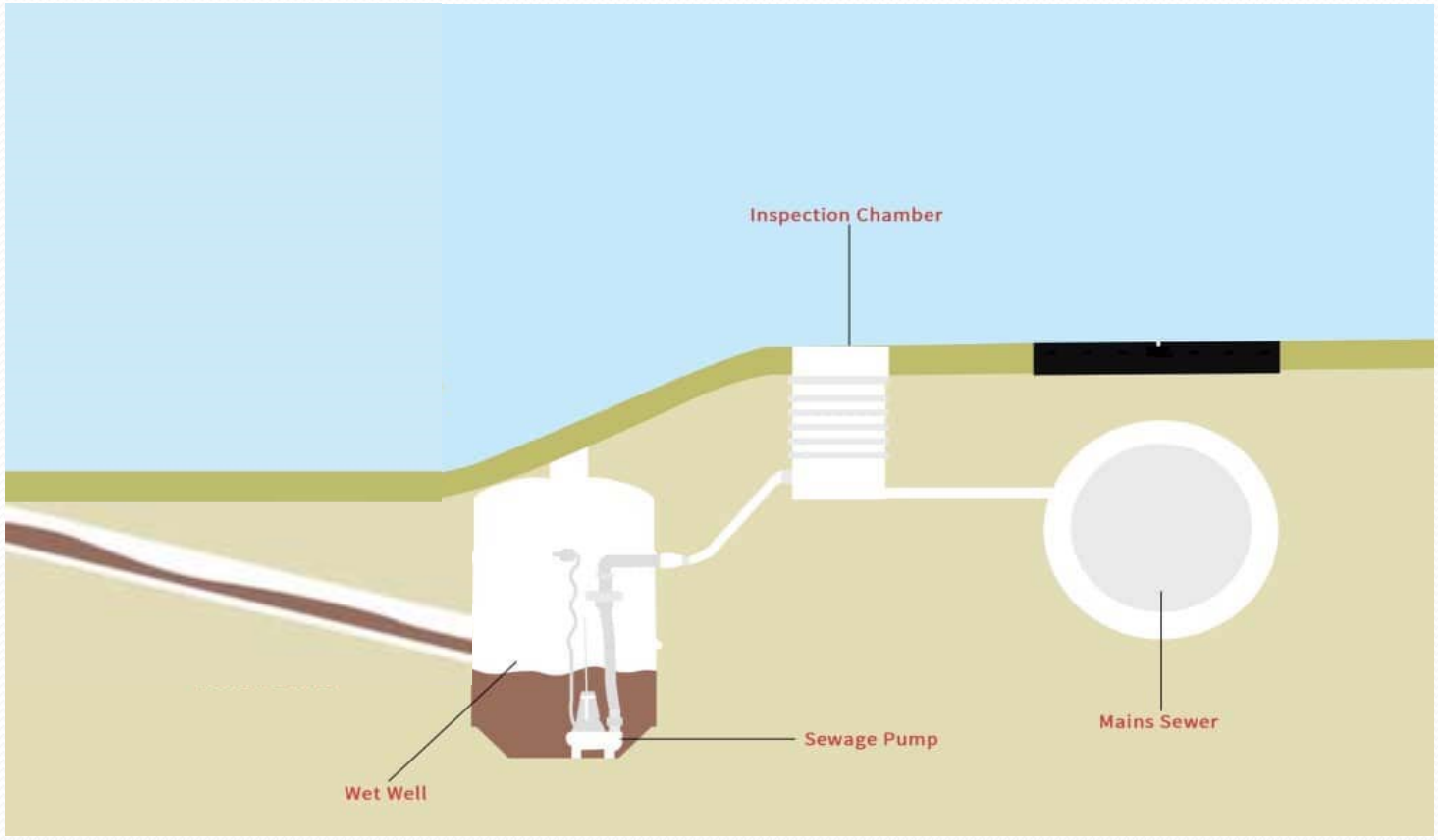
It's all about gravity

1. A sewage system is made up of a network of pipes that transport waste from a property or business to the main sewer system.
2. Usually, this happens through gravity, as the waste flows down into the sewer.



It's all about gravity

3. Sometimes property and feed lines sit on lower ground relative to the main sewer line
4. At this point, the gravity method won't work – this is where a sewage pumping station comes in.

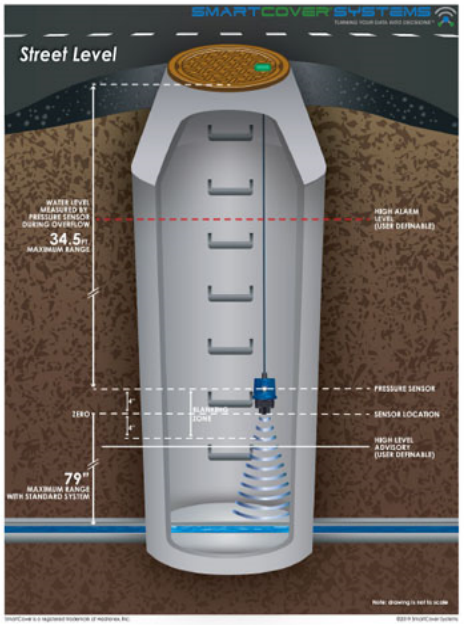


Hadronex Smartcover Monitoring System

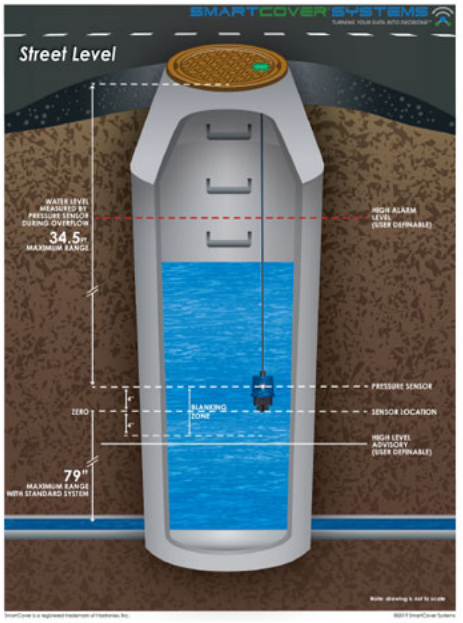
SMARTCOVER® SYSTEMS™

TURNING YOUR DATA INTO DECISIONS™

Unsubmerged – low water levels



Submerged – high water levels



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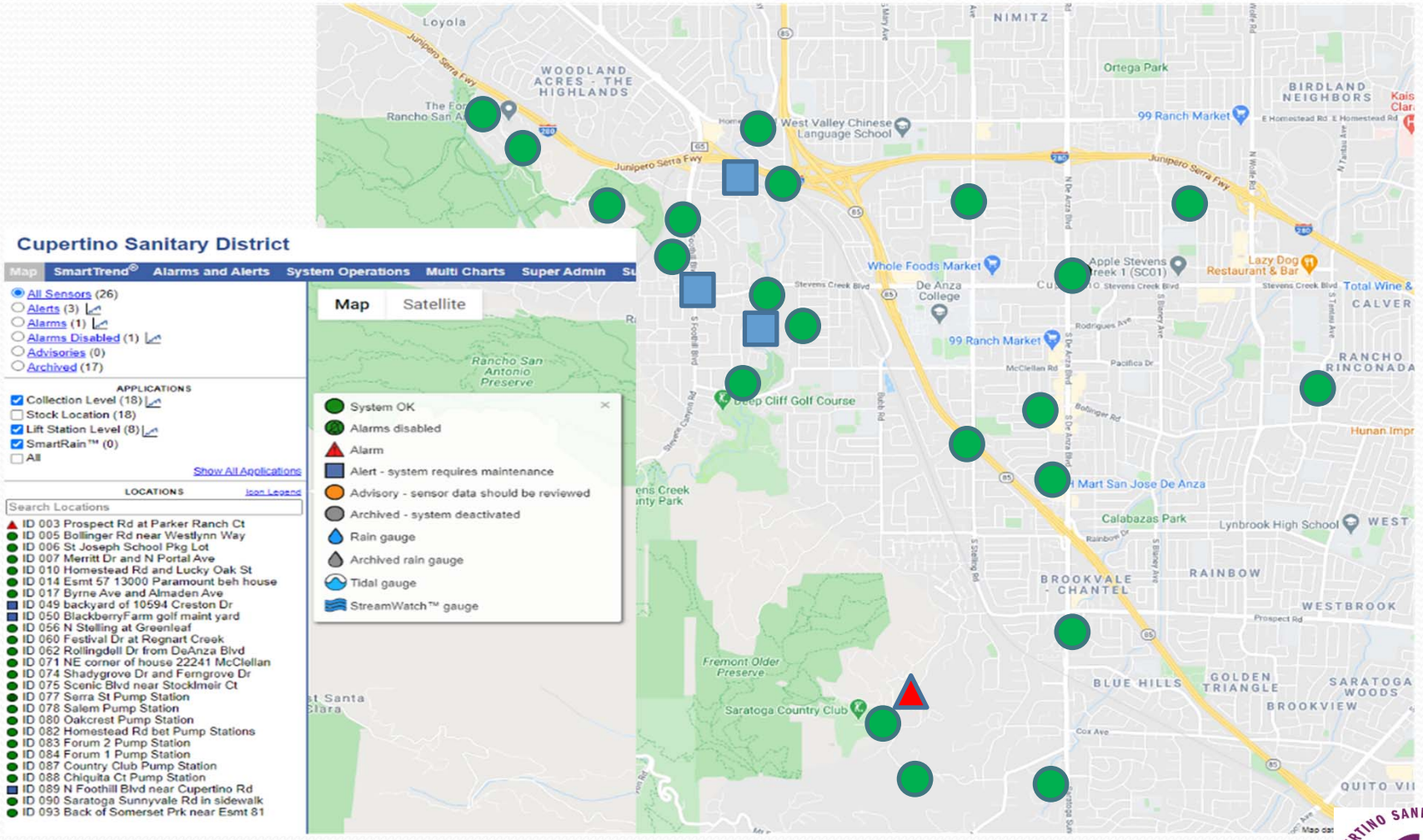
CuSD Smartcover System Location Maps



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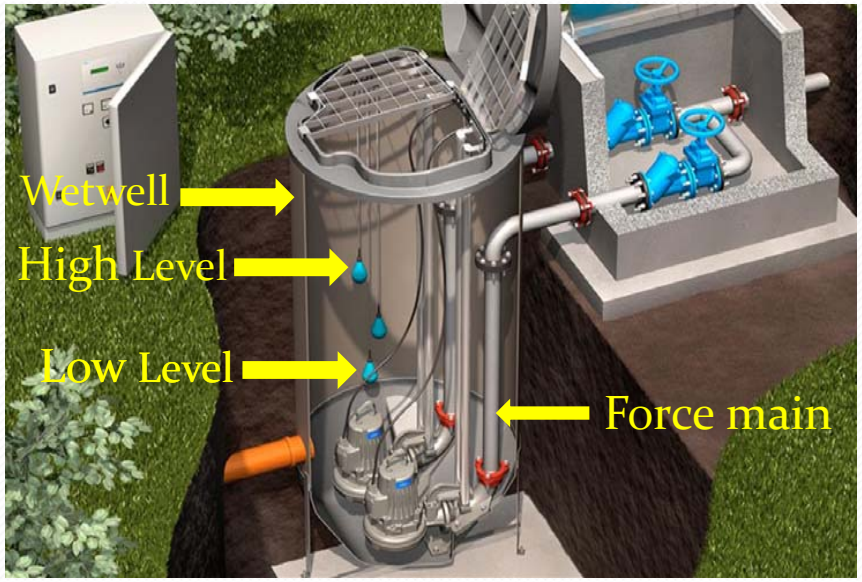
Pump Stations



- Sewage flows into the wet wells
- Water level sensors activate the pumps
- Wastewater is pumped from lower elevations to higher elevations under pressure using force mains.
- Once the wastewater reaches to higher elevation, gravity flow can resume
- Typically cleaned out once or twice per year to remove sanitary waste “blanket” formed from undissolved waste

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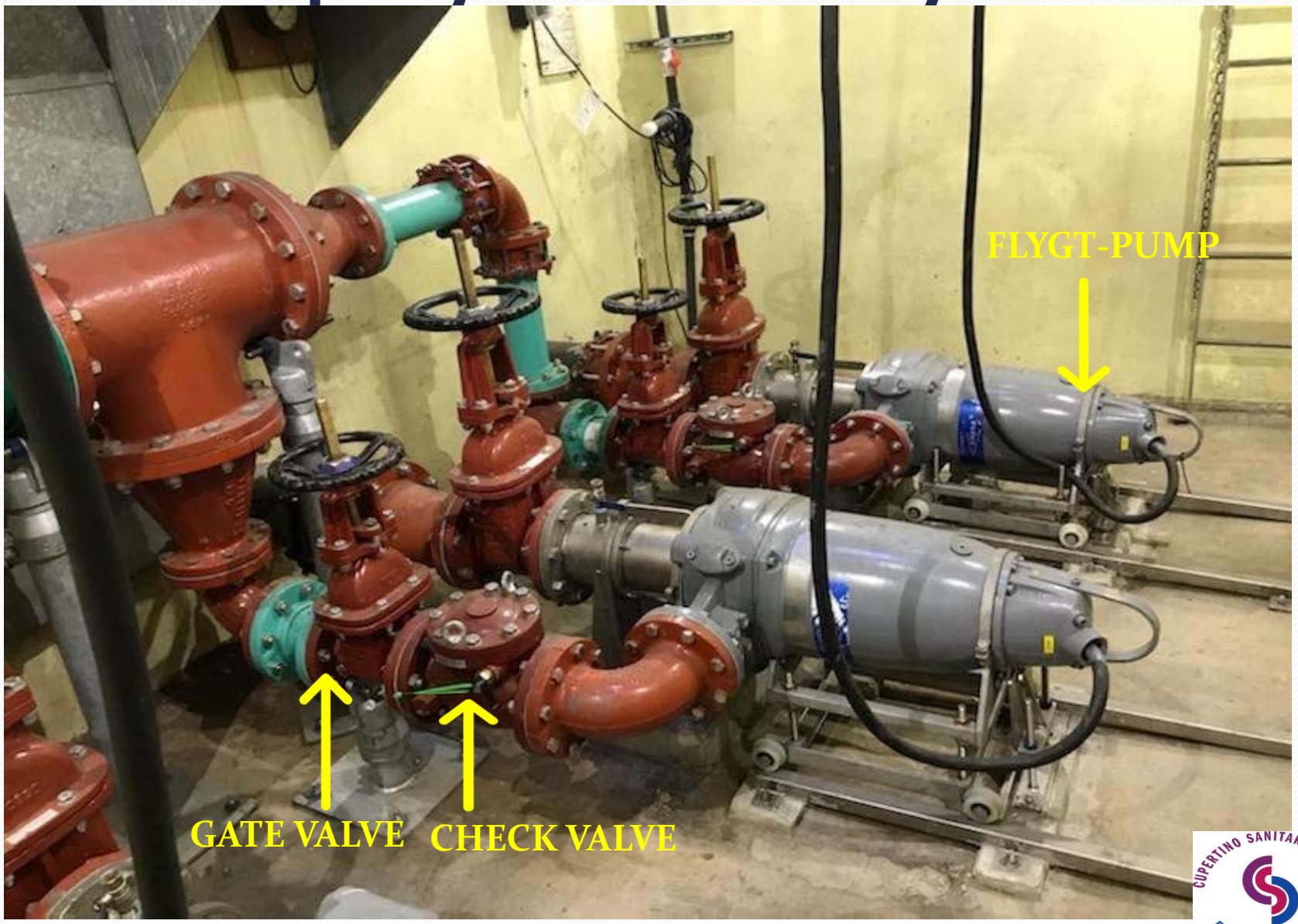
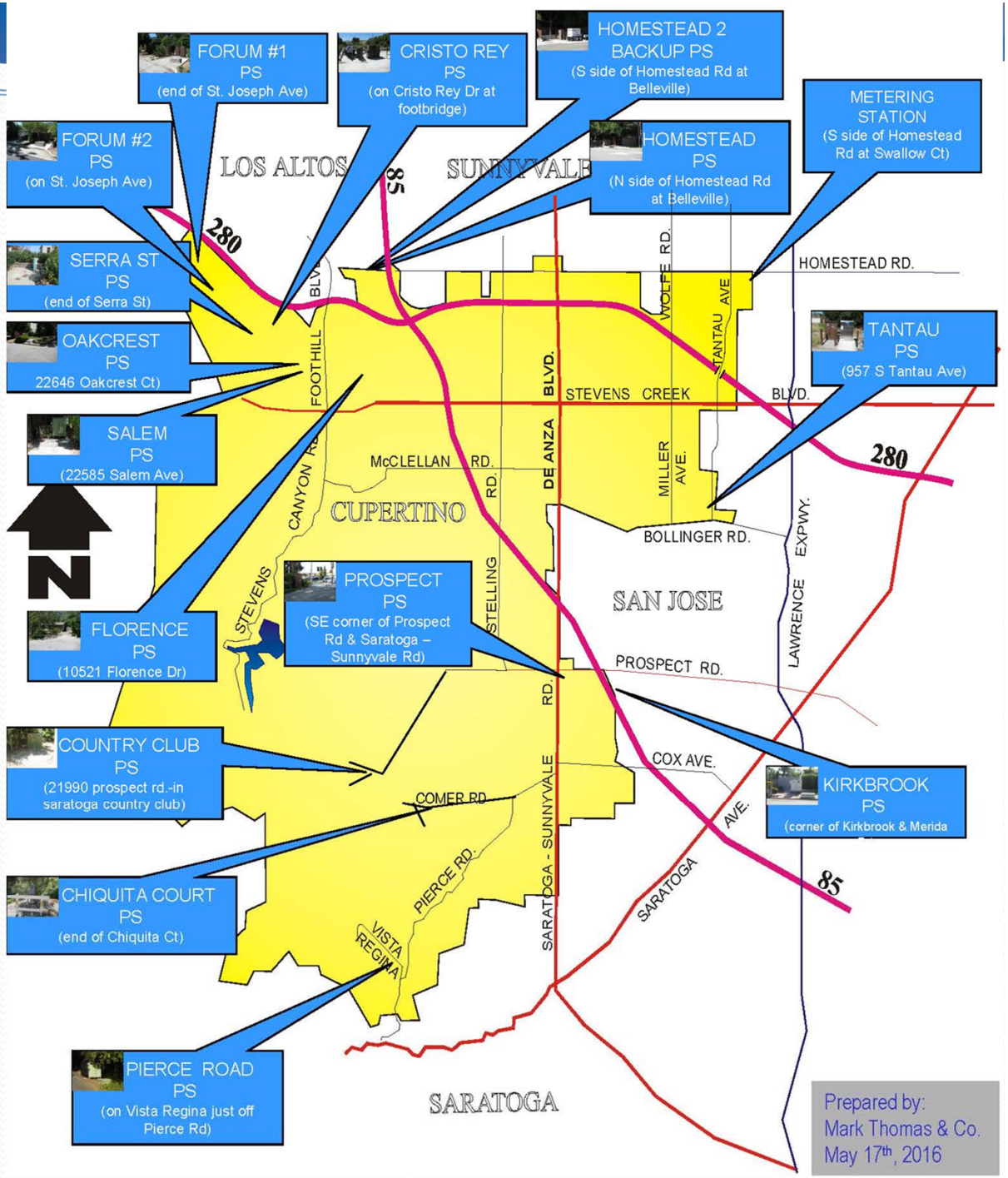
Pump Layout in the Drywell



Pump Station Locations



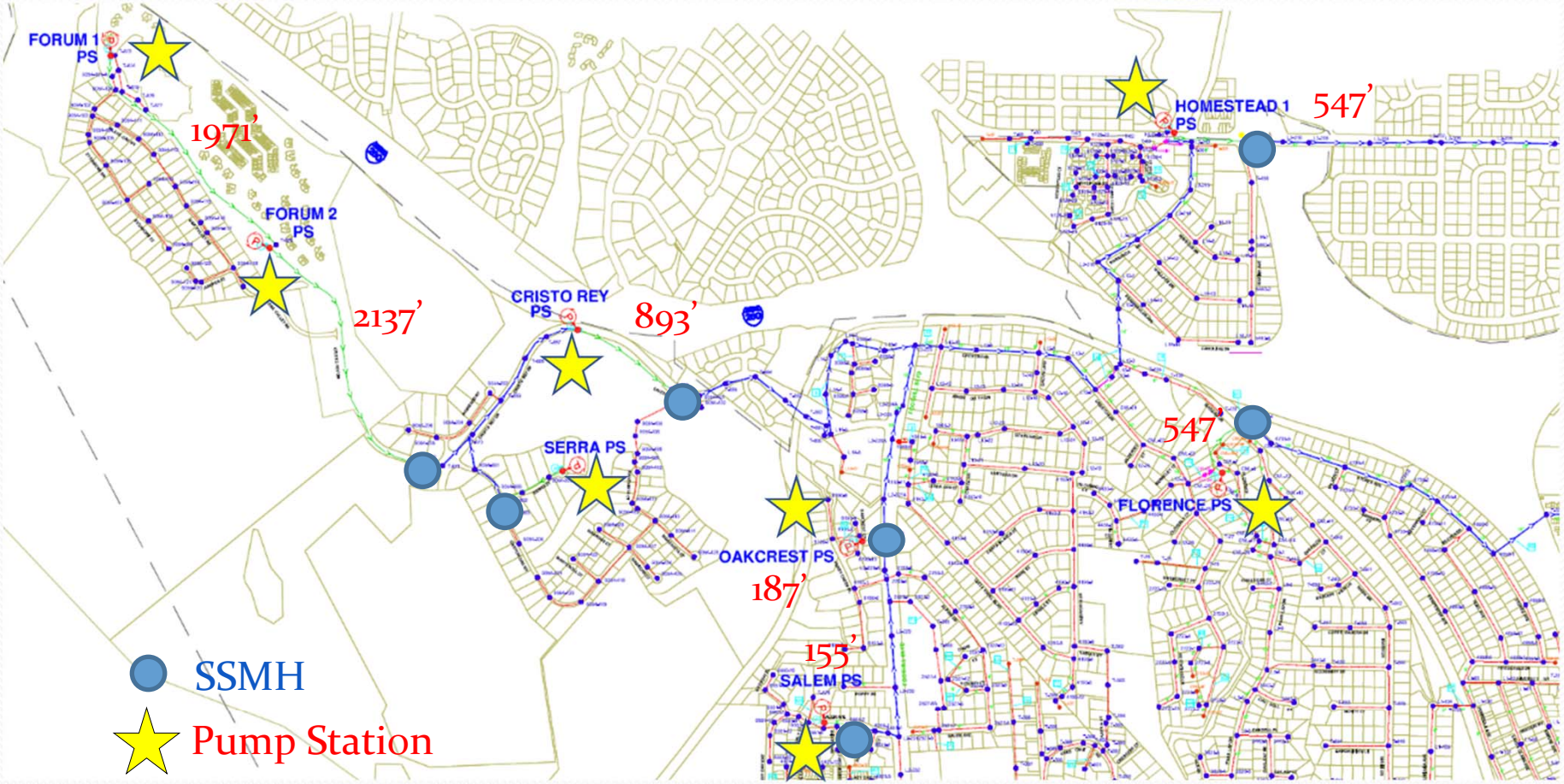
CuSD Pump Station As-Built

No	Station Name	Location	Year Built	Type	Manufacturer	Yr of the Pump	HP	Voltage	Force Main (Feet)	Flow Volume	Lift (Feet)	Holding Capacity	Remark
1	Metering Station	SE corner of Homestead Road & Swallow Drive (1 block east of Tantau) [Cupertino]	1966	Metering						4-5 MGD	N/A		
2	Homestead	North side of Homestead Road just west of Belleville Way [Sunnyvale]	1971	Dry Well 3 Dry Pumps	Fairbanks Morse	1984	P1-15, P2-15, P3-20	240	547	1100 GPM	31.82	15 Minutes	Permanent Onsite Emergency Generator
3	Homestead 2	South side of Homestead Road just west of Belleville Way	1994	Wet Well 4 Submersibles	Flygt 3127	2004	P1-10, P2-10, P3-10, P4-10	230	622	1100 GPM	32.00	15 Minutes	Trailer Mounted Emergency Generator (Auto Start Onsite)
4	Forum #1	Via Esplendor 100' south of Amopolo Court [Cupertino]	1991	Wet Well 2 Submersibles	Flygt 3127	1991	P1-10, P2-10	230	1971	300 GPM	72.33	30 Minutes	Trailer Mounted Emergency Generator (Auto Start Onsite)
5	Forum #2	Inside the Forum on west side of Cristo Rey Drive between Via Ventura & Sereno Drive [Cupertino]	1991	Wet Well 2 Submersibles	Flygt 3127	1991	P1-10, P2-10	230	2137	300 GPM	61.15	15 Minutes	Trailer Mounted Emergency Generator (Auto Start Onsite)
6	Cristo Rey	On south side of Cristo Rey Drive 0.3 mile north of Kring Way [Cupertino]	1991	Wet Well 2 Submersibles	Flygt 3127	1991	P1-10, P2-10	230	893	300 GPM	58.90	15 Minutes	Trailer Mounted Emergency Generator (Auto Start Onsite)
7	Oakcrest	22646 Oakcrest Court [Cupertino]	1980	Wet Well 2 Submersibles	Flygt 3085	1980	P1-3.0, P2-2.5	230	187	50 GPM	24.51	4 Hours	Trailer Mounted Emergency Generator (Towed)
8	Salem	22585 Salem Avenue [Cupertino]	1981	Wet Well 2 Submersibles	Flygt 3085	1981	P1-2.2, P2-2.2	230	155	50 GPM	22.03	2 Hours	Trailer Mounted Emergency Generator (Towed)
9	Florence	10521 Florence Drive [Cupertino]	1971	Dry Well 3 Dry Pumps	Fairbanks Morse	1971	P1-10, P2-10, P3-15	240	459	600 GPM	37.00	Siphon	Siphon
10	Country Club	Saratoga Country Club next to the 7th tee [Saratoga]	1986	Wet Well 2 Submersibles	Flygt 3085	1986	P1-2.2, P2-2.2	230	440	50 GPM	9.90	4 Hours	Trailer Mounted Emergency Generator (Towed)
11	Chiquita Ct.	End of Chiquita Court off Star Ridge Court [Saratoga]	1997	Wet Well 2 Submersibles	Environment One (E-One)	1997	P1-0.0, P2-0.0	240	400	25 GPM	53.89	4 Hours	Trailer Mounted Emergency Generator (Towed)
12	Pierce	On west side of Vista Regina 200' north of Pierce Road [Saratoga]	1970	Wet Well 2 Submersibles	Flygt 3127	1992	P1-10, P2-10	230	1235	300 GPM	48.20	15 Minutes	Trailer Mounted Emergency Generator (Auto Start Onsite)
13	Prospect	SE corner of Propsect Road and Saratoga-Sunnyvale Road, next to the traffic light [Saratoga]	1971	Dry Well 3 Dry Pumps	Fairbanks Morse	1981 1987 1982	P1-30, P2-30, P3-30	480	2742	1500 GPM	40.81	2 Hours	Permanent Onsite Emergency Generator
14	Kirkbrook	East side Kirkbrook Drive at Merida Drive [Saratoga]	1970	Wet Well 2 Submersibles	Flygt 3085	1984	P1-2.0, P2-2.0	230	30	50 GPM	12.25	2 Hours	Trailer Mounted Emergency Generator (Towed)
15	Tantau	957 South Tantau Avenue 1 block north of Bollinger Road [Cupertino]	1982	Wet Well 2 Submersibles	Flygt 3085	1982	P1-3.3, P2-3.3	230	8	200 GPM	13.54	1 Hours	Trailer Mounted Emergency Generator (Parked)
16	Serra St.	End of Serra St. off of Canyon Oak Way [Cupertino]	2001	Wet Well 2 Submersibles	Environment One (E-One)	2001	P1-0.0, P2-0.0	240	537	25 GPM	20.89	4 Hours	Trailer Mounted Emergency Generator (Towed)
17	Via Regina	On Via Regina off of Pierce Road	2006	Wet Well 2 Submersibles	Flygt 3127	2008	P1-0.0, P2-0.0		1140	50 GPM	51.80	24 hours	Trailer Mounted Emergency Generator (Auto Start Onsite)
18	Crescent Ct	On Cresent Court off of Cresent Road (Cupertino)	2006	Wet Well 2 Submersibles	Flygt 3085	2008	P1-0.0, P2-0.0		510	50 GPM		48 hours	Trailer Mounted Emergency Generator (Auto Start Onsite)

GPM = Gallons Per Minute

MGD = Million Gall

Pump Station Locations



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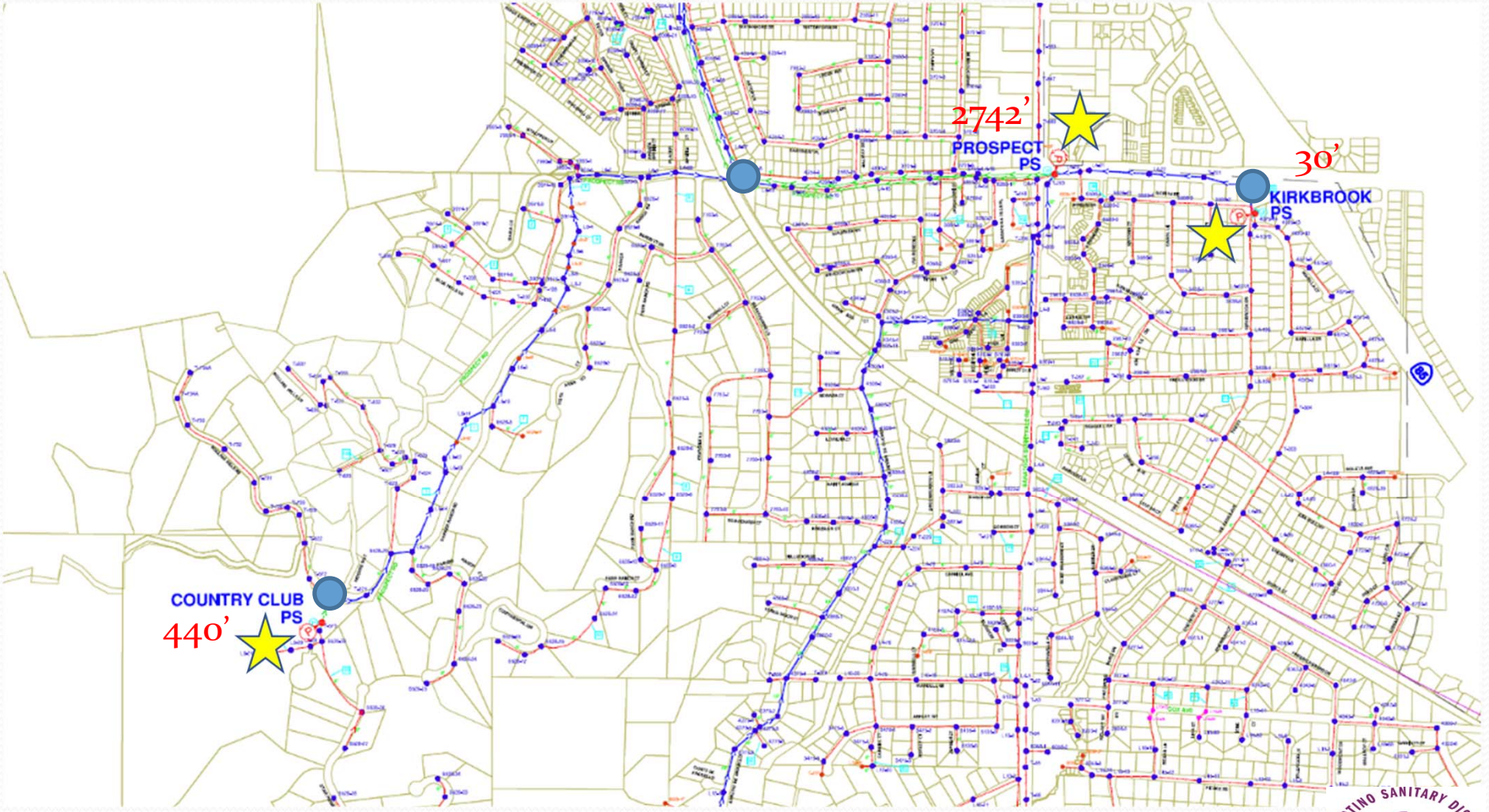

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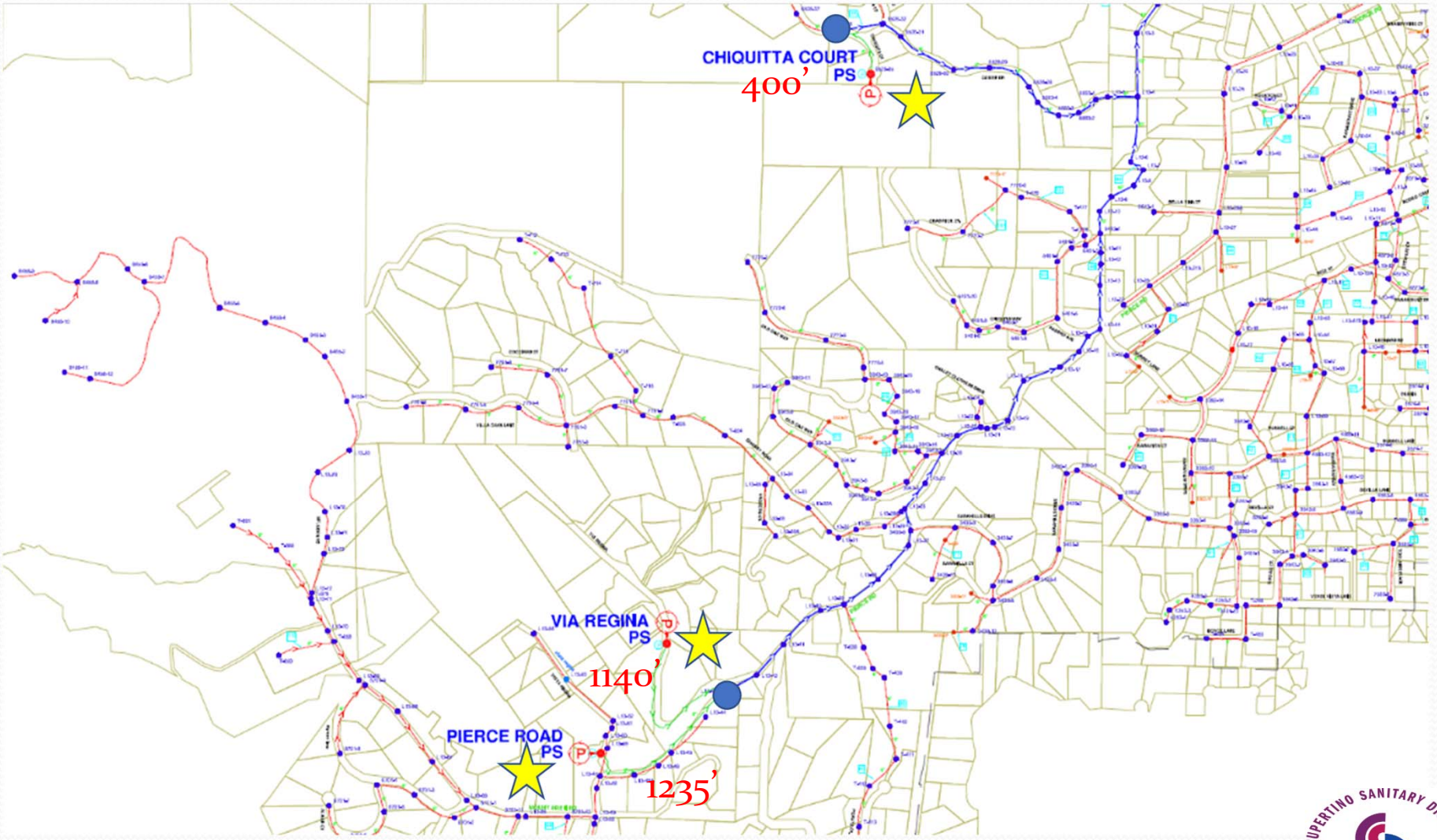

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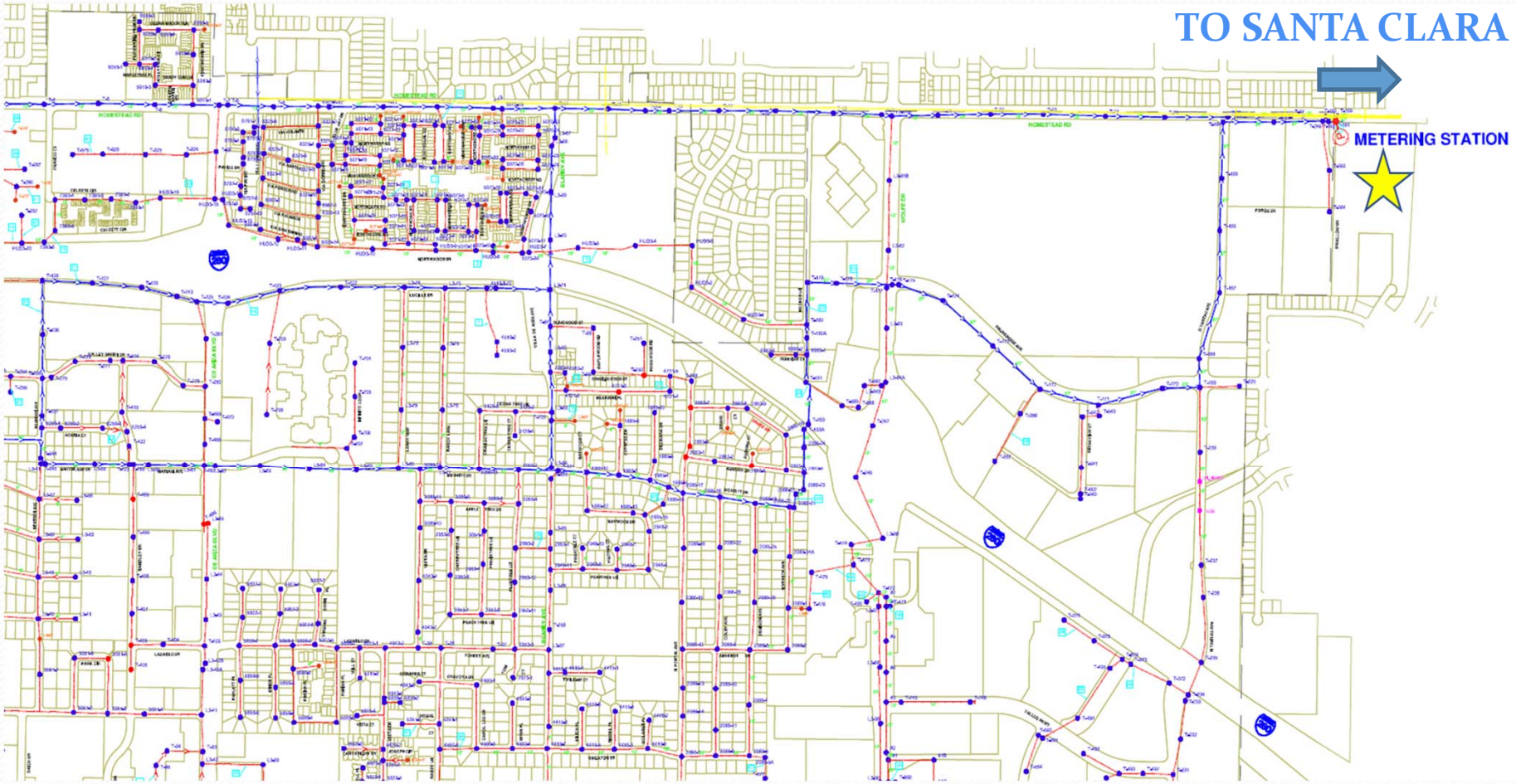

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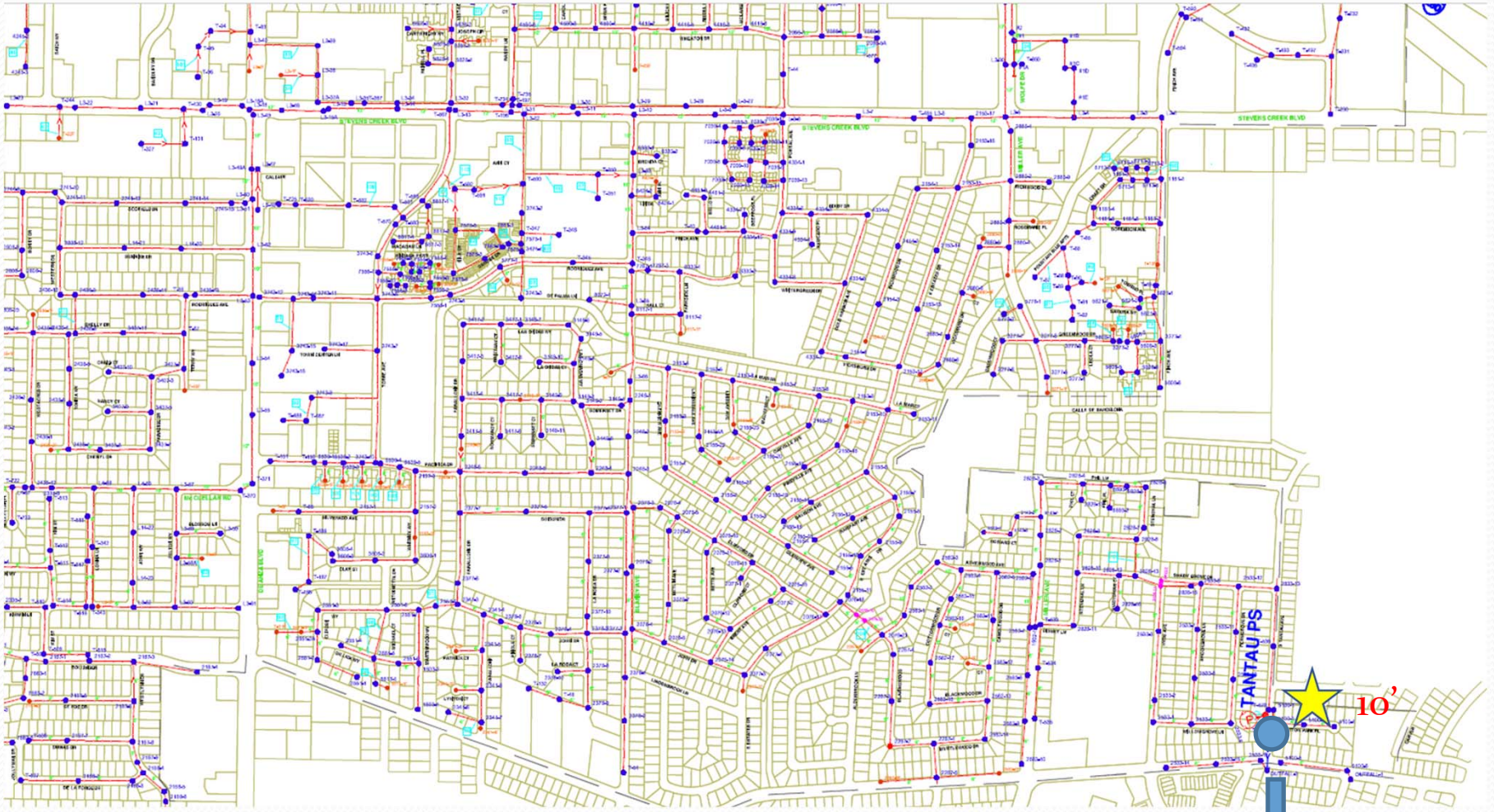

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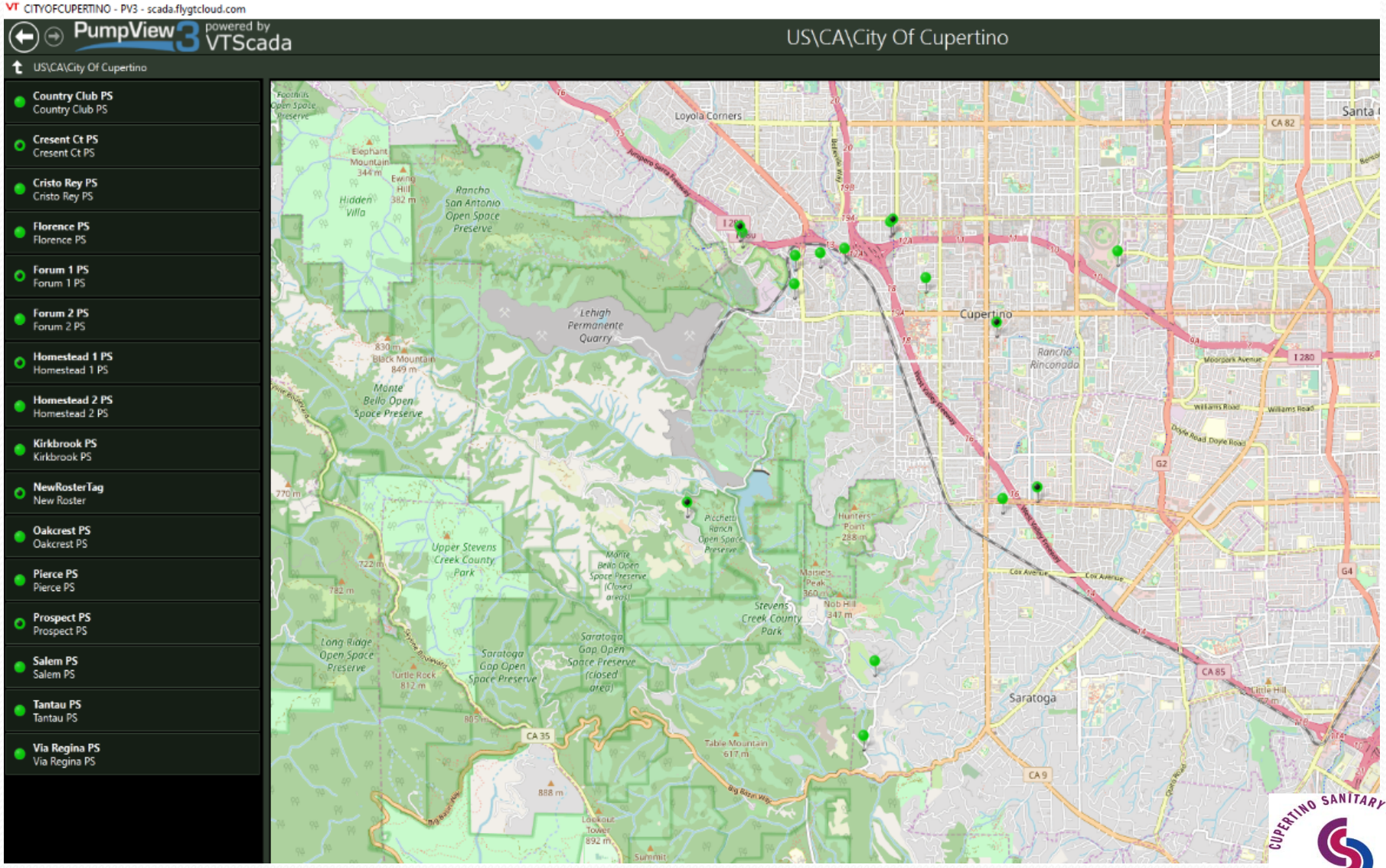
PumpView3 Scada System



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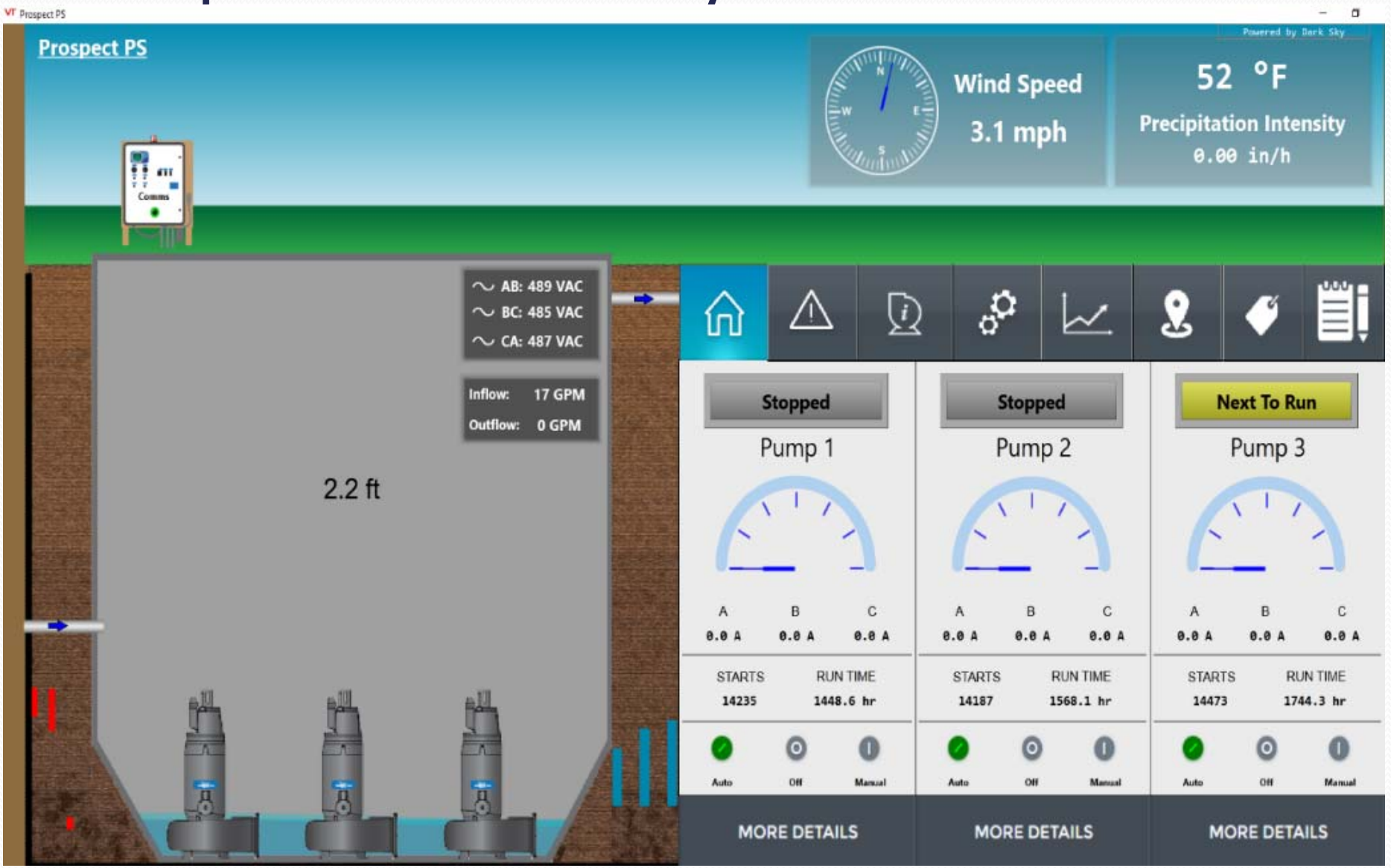

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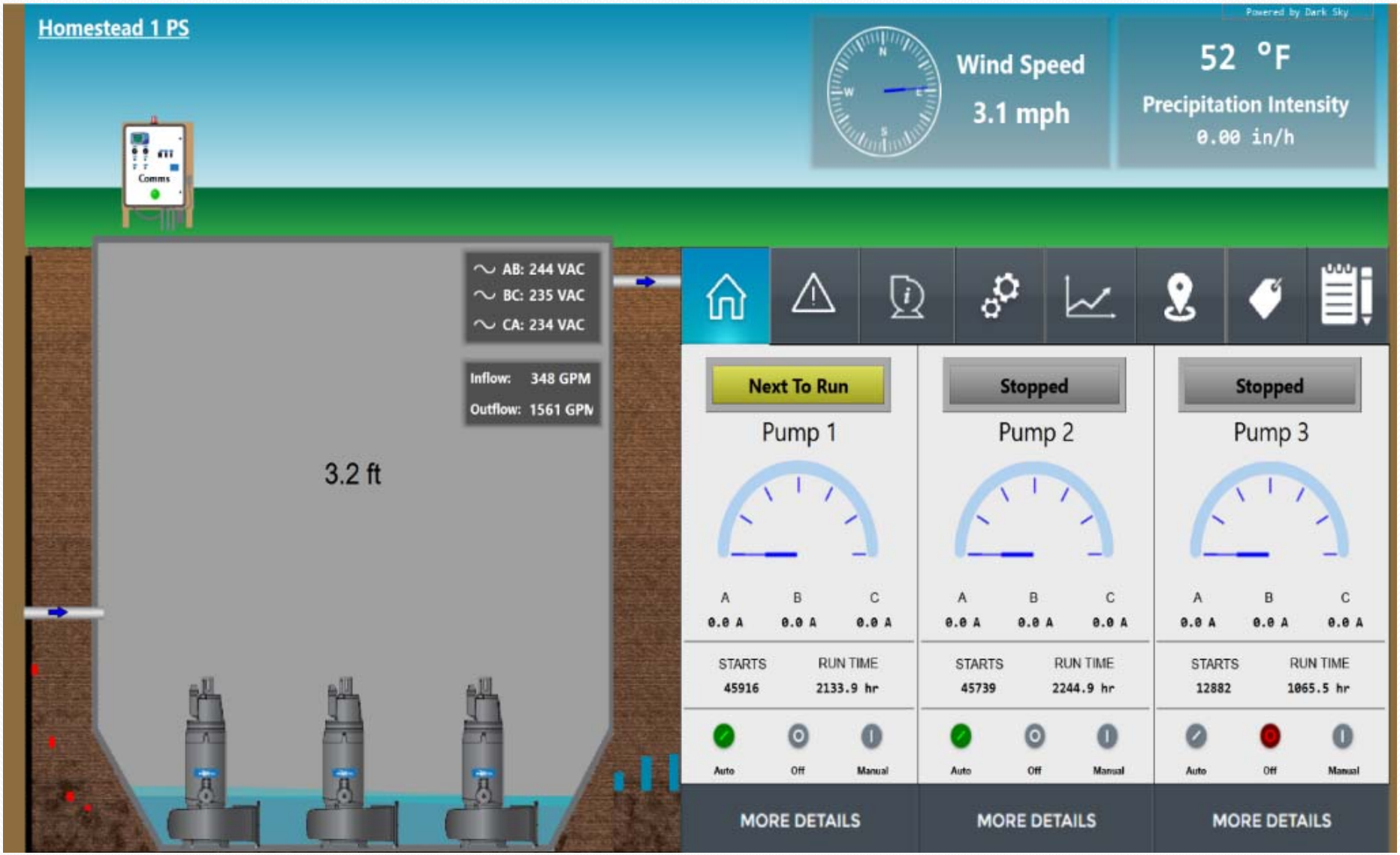
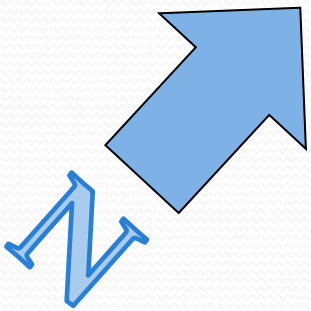
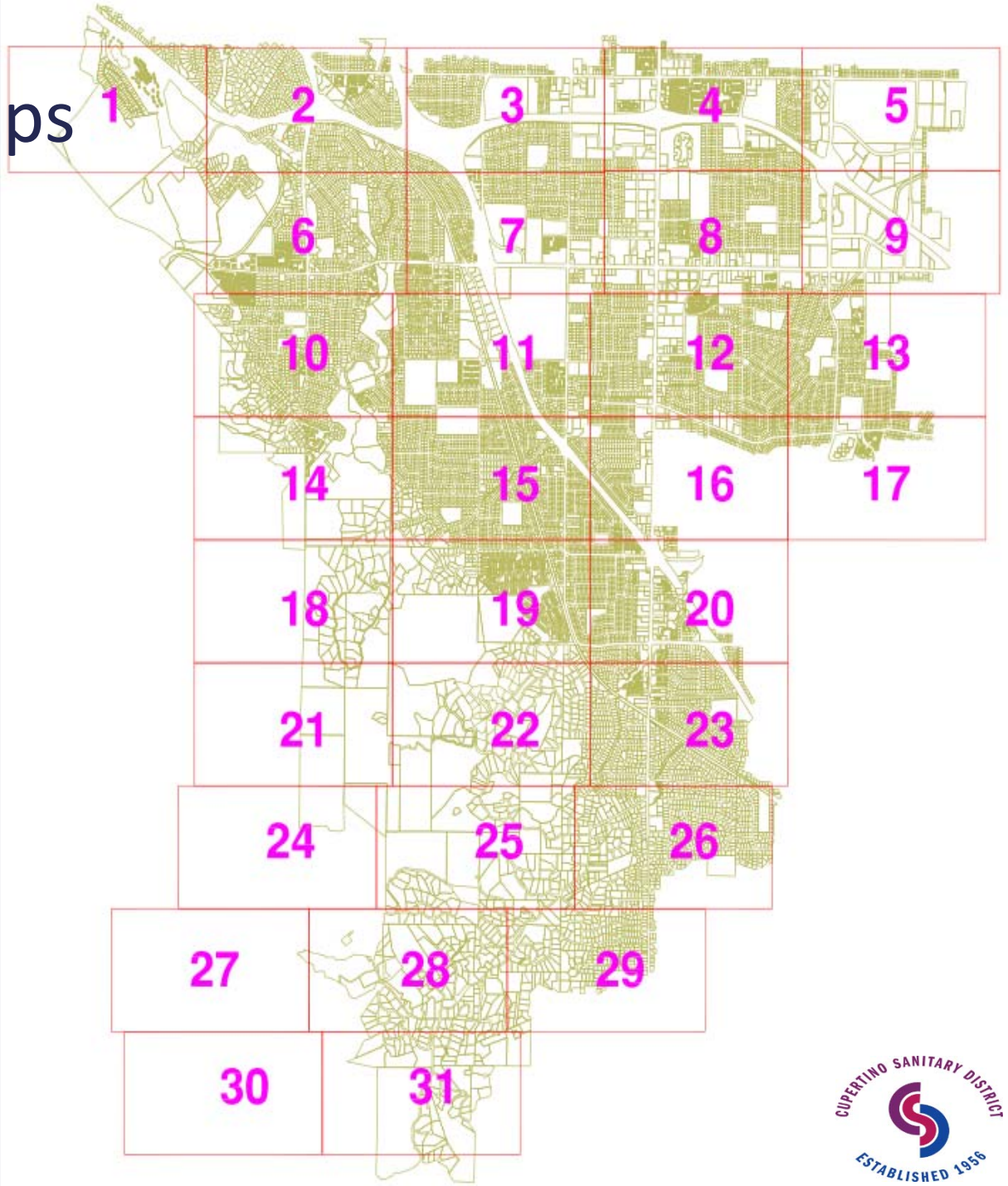


Reading The Maps

Service Area

General Direction of wastewater flow is to the northeast and follows the slope terrain to the Bay.





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San Jose-Santa Clara Regional Wastewater Facility

CuSD Emergency Response

PREPARE FOR AN EARTHQUAKE

PLANNING

1. Staff to review and update the District's utility emergency response plan (ERP) for all emergencies
2. Conduct briefings, and develop training and exercises to ensure District's staff is aware of all preparedness response and recovery procedures
3. Process to develop a hazard vulnerability analysis of areas has historical records to understand the past frequency and intensity of earthquakes and how District utility may have been impacted
4. Develop pre-disaster activities to help apply for federal disaster funding (e.g., contact state/local officials with connections to funding, set up a system to document damage and costs).

COORDINATION

1. Register to join State's Waste/Wastewater Agency Response Network (WARN) and local mutual aid network.
2. Develop a procedure to coordinate with WARN members and other neighboring utilities to discuss:
   - Outlining response activities, roles and responsibilities and mutual aid procedures (how to request and offer assistance)
   - Obtaining resources and assistance, equipment, personnel, technical support or water
   - Establishing communication protocols

CuSD Emergency Response

3. Develop a procedure to coordinate with other key response partners (such as Local EMA)
4. Develop a procedure to understanding how the local and utility emergency operation center (EOC) will be activated and what the District may be called on to do, how local emergency responders and local EOC can support District during a response.

COMMUNICATION WITH CUSTOMERS

1. Develop outreach materials to provide customers with information they will need after an earthquake
2. Review public information protocols with local EMA and public health/primacy agencies.

FACILITY AND SERVICE AREA

1. Inventory equipment and supplies needed
   - Motors, Fuses, Chemicals
   - Cellular phones and other wireless communication device
2. Emergency Supplies
   - Tarps/tape/rope/blankets
   - First aid kits
   - Flashlight/flares, Sandbags, Batteries, Bottle waters

CuSD Emergency Response

3. Process to set up Communication Equipment (e.g, radios, satellite phones)
4. Process to develop a GIS map of all District system components and prepare a list of coordinates for each facility.
5. Develop a document of Pumping requirements and storage capabilities of District's facility, as well as critical treatment components and parameters
6. Inspect utility structural stability and implementing improvements to withstand damage from earthquakes

PERSONNEL

1. Assigned essential personnel are trained to perform critical duties in an emergency (shutdown and start up the system)
2. Process to develop communication procedures with essential and non-essential personnel.
3. Trained all personnel to be familiar with emergency evacuation and shelter in place procedures.
4. Pre-identify emergency operations and cleanup crews
5. Develop and Identify possible staging areas for mutual aid crews if needed in the response, and availability of facilities to house the crews

CuSD Emergency Response

POWER, ENERGY AND FUEL

1. Develop a procedure to evaluate condition of electrical panels to accept generators, inspect connections and switches.
2. Develop a power requirement of the facility document;
3. Develop a procedure to confirm and document generator connection type, capacity load and fuel consumption.
4. Develop a procedure to establish dialog with local power provider and EOC to ensure that District utility is on the critical facilities list for electrical power restoration, generators and emergency fuel.

CuSD Emergency Response

RESPOND TO AN EARTHQUAKE & RECOVER FROM AN EARTHQUAKE

COORDINATION

1. Notify local EMA and state regulatory/primacy agency of District systems status.
2. If needed, request or offer assistance (e.g., water sampling teams, generators, etc.)
3. Assign a representative to the incident command post or the community's EOC.
4. Continue work with response partners to obtain funding, equipment, etc.

COMMUNICATION WITH CUSTOMERS

1. Notify customers of any wastewater/water advisories and collaborating with local media (television, radio, newspaper, etc.) for distributing the message
2. Assign a representative to continue to communicate with customers concerning timeline for recovery information.

FACILITY AND SERVICE AREA

1. Conduct damage assessments of the utility to prioritize repairs and other actions
2. Inspect the utility and service area, including lift stations, for damage, and power availability.
3. Inspect the system for debris and assess the operational status
4. Notify regulatory/agency of any changes to the operations or required testing parameters.

CuSD Emergency Response

RESPOND TO AN EARTHQUAKE & RECOVER FROM AN EARTHQUAKE

DOCUMENTATION AND REPORTING

1. Document all damage assessments. emergency repair work, equipment used, staff hours worked and contractors used during the response to assist in requesting reimbursement and applying for federal disaster funds.
2. Photographs of damage at each work site (date & time stamp), for critical to requesting reimbursement.
3. Coordinate with local EMA on the required paperwork for public assistance requests.
4. Compile damage assessment forms and cost documentation into a single report to facilitate the sharing of information and the completion of State and Federal Funding applications
5. Federal Funding for Utilities – Water/Wastewater (http://water.e[a.gov/infrastructure/watersecurity/funding/fedfunds/)
6. Develop a lessons and learned document and/or an after action report to keep a record of the response activities.
7. Update vulnerability assessment, ERP and contingency plans

CuSD Emergency Response

RESPOND TO AN EARTHQUAKE & RECOVER FROM AN EARTHQUAKE

DOCUMENTATION AND REPORTING

8. Revise budget and asset management plans to address increased costs from response-related activities.

PERSONNEL

1. Account for all personnel and provide emergency care, if needed.
2. Deploy emergency operations and clean-up crews.
3. Coordinate the need for debris clearance with local emergency management

MITIGATION

1. Identify mitigation and long-term adaptation measures which can prevent damage and increase utility resilience.
2. When planning for system upgrades consider earthquake impacts related.

Thank You

Questions?