Element 4 - Operations and Maintenance Program

SWB Requirements:

The Sewer System Management Plan (SSMP) must include those elements listed below that are appropriate and applicable to the Enrollee's system:

a. *Maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable stormwater conveyance facilities;*
b. *Describe routine preventive operation and maintenance activities by staff and contractors, including a system for scheduling regular maintenance and cleaning of the sanitary sewer system with more frequent cleaning and maintenance targeted at known problem areas. The Preventative Maintenance (PM) program should have a system to document scheduled and conducted activities, such as work orders;*
c. *Develop a rehabilitation and replacement plan to identify and prioritize system deficiencies and implement short-term and long-term rehabilitation actions to address each deficiency. The program should include regular visual and TV inspections of manholes and sewer pipes, and a system for ranking the condition of sewer pipes and scheduling rehabilitation. Rehabilitation and replacement should focus on sewer pipes that are at risk of collapse or prone to more frequent blockages due to pipe defects. Finally, the rehabilitation and replacement plan should include a capital improvement plan that addresses proper management and protection of the infrastructure assets. The plan shall include a time schedule for implementing the short- and long-term plans plus a schedule for developing the funds needed for the capital improvement plan;*
d. *Provide training on a regular basis for staff in sanitary sewer system operations and maintenance, and require contractors to be appropriately trained; and*
e. *Provide equipment and replacement part inventories, including identification of critical replacement parts.*

RWB Requirements:

***Collection System Map**: Each wastewater collection system agency shall maintain up-to-date maps of its wastewater collection system facilities.*
***Resources and Budget**: Each wastewater collection system agency shall allocate adequate resources for the operation, maintenance, and repair of its collection system.*
***Prioritized Preventive Maintenance**: Each wastewater collection system agency shall prioritize its preventive maintenance activities.*
***Scheduled Inspections and Condition Assessment**: Each wastewater collection system agency shall identify and prioritize structural deficiencies and implement a program of prioritized short-term and long-term actions to address them.*
***Contingency Equipment and Replacement Inventories**: Each wastewater collection system agency shall provide contingency equipment to handle emergencies, and spare/replacement parts intended to minimize equipment/facility downtime.*
***Training**: Each wastewater collection system agency shall provide training on a regular basis for its staff in collection system operations, maintenance, and monitoring.*
***Outreach to Plumbers and Building Contractors**: Implement an outreach program to educate commercial entities involved in sewer construction or maintenance about the proper practices*

for preventing blockages in private laterals. This requirement can be met by participating in a region-wide outreach program.

4.1 Collection System Map

The City maintains comprehensive computerized maps of its collection system and continues to improve and refine the map using geographic positioning system (GPS) field instruments to directly enter locations and conditions observed by field crews. The geographic information system (GIS) employed by the City allows for location and description of collection system facilities. These descriptions include, but are not limited to, facility age, condition, maintenance history, inspection history, cleaning history and identified problems. Examples of the collection system map, showing streets and parcels, manhole locations, pipe locations and sizes, and pump station locations, are included in the **Element 4 Appendix.**

4.2 Preventive Maintenance Program

Prioritized Preventive Maintenance

The City has a computerized schedule for cleaning and maintaining sewer lines and related facilities. This schedule includes pipe segments that are more susceptible to root intrusion, grease, and other debris, otherwise known as "hot spots." These segments, approximately 260 total pipe segments, are scheduled for cleaning on a 3, 4, 6, or 12 month cleaning cycle depending upon the nature and severity of the problem. A sample list of "hot spots" is included in the **Element 4 Appendix.** The remainder of the collection system is cleaned on a 3 year cycle with the workload balanced by the computerized scheduling system.

The City maintains records in POSM and work orders of all sewer cleaning activities that include the purpose of cleaning (routine or unplanned), assessment of pipe condition prior to and after cleaning, cleaning methods employed, cause of stoppage (if appropriate), nature of material cleaned from pipe (roots, debris, grease, etc.), further action required (work order or capital improvement), and time needed to clean pipe segment. This information is used to refine the preventive maintenance schedule and to plan future capital improvement expenditures.

Corrective Maintenance/Point Repairs

System defects, as identified, are documented and prioritized in the City's computerized maintenance management system (CMMS). Based on project size and complexity, City staff and/or private contractors are issued work orders to repair/replace the identified deficiency. Where short sections of pipe have been identified as defective, City crews, using recently purchased equipment, inserts pipe liners into the affected pipe segments; rehabilitating the pipe to near new conditions.

Root Control

The City has both a focused and cyclic root treatment program that covers approximately one-third of the system per year. Roots encroach upon the interior of sewer mains through structural cracks faulty pipe joints and defective laterals. If roots are observed to be an issue during routine cleaning, in response to complaints, or through observations from CCTV inspections, root cutting is performed with chain flail attachments on the jetters or with mechanical cutters.

SMART Covers

The City has five smart cover lids deployed at strategic location through the City to alert on-call and mangers of high levels int eh collection system. The location have been identified as location suspectable to grease and root build up or areas to monitor for high discharge from industrial users. The City has budgeted for the deployment of five additional SMART Covers in the next 3 years.

Lateral Replacement

The City has an established lateral replacement program designed to assist homeowners on a 50/50 match basis (to a maximum of $2,000) in replacing defective laterals. The City allocates $50,000 each year to fund this program. The lateral replacement program informational piece and the replacement program application are included in the Element 4 Appendix.

4.3 Condition Assessment

Scheduled Inspections and Pipeline Condition Assessment:

The city has strong proactive approach toward inspecting and evaluating the condition of the collection system and its supporting facilities. Routine annual inspections are conducted on all sewer lift stations to identify safety hazards and to assess general equipment and facility conditions. The City has an ongoing closed-circuit television (CCTV) inspection program to assess collection system conditions. The CCTV inspection cycle for the entire system is 6 years. The city maintains an electronic database of CCTV inspections and can revisit conditions within a given pipe segment if circumstances require.

The City of Petaluma uses information from the CCTV inspections to establish the criticality of sewer segments to prioritize and schedule problem areas for replacement or repair based on criteria set by the City's engineering and maintenance staff. The complete history of maintenance operations and performance is housed in the work order data warehouse. Keeping the history current requires only that current Routine Maintenance activities findings and performance be uploaded to the program via the field GPS units.

Manhole Inspections

Inspections conducted for manholes involve a visual assessment of the overall manhole condition and observed deficiencies that could result in I&I. As part of the focused and cyclic cleaning programs, City maintenance staff visually-inspect manholes for corrosion, debris or damage around the base, cracks or holes, and condition of manhole steps.

Detailed investigations of manhole condition follows at a time when a connecting line segment is defined as a rehab project, and corrections needed to the manhole structure are then included as part of the project work.

Pump Station Inspections and Assessment

Pump stations are inspected on a weekly basis. Weekly inspections include visual check of the equipment, manual cycling of pumps, checking and cleaning floats, recording hour meter readings, and cleaning off debris.

Pump stations are inspected every year including thorough inspection and maintenance of pumps. Wetwells are dewatered and cleaned on a three year cycle.

4.4 Resources and Budget

The City's budget is made available to the public both as a "Recommended Budget" submitted by the City Manager, and in its final form once approved by City Council. The current fiscal year's budgets can be found on the City's Finance Department website along with detailed information describing the review process (http://www.cityofpetaluma.net/finance/index.html).

A copy of the Wastewater Systems budget can be found in **Element 4 Appendix**.

4.5 Training

Employees of the Public Works & Utilities Department, which includes the storm drains maintenance, street cleaning, wastewater collection, and wastewater treatment sections, are continually encouraged to acquire, renew and increase their California Water Environment Association (CWEA) Operation and Maintenance of Wastewater Collection Systems certifications. The Public Works & Utilities Human Resources list, see **Element 2 Appendix**.

An example CWEA Collection System Maintenance Candidate Handbook (**Element 4 Appendix**) describes the requirements of the certification. Field Crews obtain a basic level of competency, as described by the following CWEA Certification of Competency Standard.

The CWEA Certification of Competency Standard

The basic standard of CWEA certification is that certificate holders have, and continue to perform at, a level of basic competence that enables them to perform the Essential Duties of the job safely, effectively, without close supervision, and without further training.

The standard is determined by the following factors:

- Meeting minimum experience and education requirements
- Passing the appropriate written examination.
- Demonstrating continuing competence through education, training, and/or re-testing.
- Continuing to perform the Essential Duties at, or above, the minimal level of competency described by the basic standard of CWEA certification (see above paragraph).

In addition, the Public Works & Utilities Department is dedicated to providing a properly trained, safe, and professional work force to operate and maintain the City's sanitary sewer collection system. Safety training is through "My-Safety Officer" by DKF Solutions. The Safety and Training Program offers, at minimum, monthly sessions covering topics such as:

- Tractor/Loading and Backhoe
- Confined Spaces
- Forklift Operator
- Shoring
- First aid/CPR – Respiratory Protection
- Fire Extinguisher

- Work Zone/Traffic Control
- Asbestos Training
- Blood born Pathogens
- Electrical Safety : Lock out / tag-out

4.6 Contingency Equipment and Replacement Inventories

The City of Petaluma has the following equipment available for emergency operations and collection system maintenance:

- 3 portable generators (100KW)
- 6 Honda Inverters
- 2 Air Compressors
- 3 Gas Detectors
- 2 by-pass pumps
- Confined Space Equipment including hoists, winches, and tri-pods
- 3 combination cleaning trucks (Vaccons and Clean Earths)
- 1 closed circuit television truck
- 1 portable closed circuit television truck
- Specialty video equipment
- 4 emergency response trucks
- Shelf spare pumps for lift stations

The majority of the city's lift stations incorporate a two pump design to provide for seamless operation in the event of a pump failure. Most of the lift stations are part of a SCADA network and all have remote alarm capability. For the stations without a second pump in the station, collection system design allows the system to surcharge to a given level and then go to gravity until repairs can be made.

The City's inventory of replacement parts is tracked monthly on the City's CMMS to ensure effective maintenance of the sewer system. The City stocks an assortment of materials including pipes, couplings, main line plugs and submersible pumps.

4.7 Outreach to Plumbers and Building Contractors

The City is a member of the Bay Area Clean Water Agencies (BACWA), an association of Bay area governmental agencies that own and operate collections systems and publicly owned treatment works.

BACWA has developed a brochure directed toward plumbers and building contractors to provide information on how to prevent blockages in private laterals, which can contribute to SSOs. Blockages can be caused by improper construction and maintenance of laterals. When a lateral blockage occurs, plumbers may end up pushing debris from the lateral into the mainline sewer where it may cause blockages and/or overflows from the City's system.

The City is customizing the BACWA brochure with information specific to the service area. The brochure will be mailed to local businesses based on business license information and will also be distributed by the Building Department to individuals seeking a plumbing permit. A copy of the brochure will be included in the **Element 4 Appendix** when it is complete.

List of Documents in Element 4 Appendix:

1. Example Maps of Petaluma Collection System
2. Collection System Hot Spot List
3. Sewer Lateral Replacement Grant Program Brochure
4. Sewer Lateral Replacement Grant Program Application
5. Wastewater Systems Budget, FY 2020
6. CWEA Collection System Maintenance Candidate Handbook
7. Plumber Outreach Brochure
8. City of Petaluma Employee Safety Policies

ELEMENT 4 APPENDIX

1. Example Maps of Petaluma Collection System
2. Collection System Hot Spot List
3. Sewer Lateral Replacement Grant Program Brochure
4. Sewer Lateral Replacement Grant Program Application
5. Wastewater Systems Budget, FY 2015
6. CWEA Collection System Maintenance Candidate Handbook
7. Plumber Outreach Brochure (future)
8. City of Petaluma Employee Safety Policies

PETALUMA SEWER SYSTEM

F09

9/15/2009

Legend
- Clean-out
- Manhole
- Pump Station
- Stub
- T-Junction
- SS_PUBLIC_LINES

PRIVATE
TYPE
- Clean-out
- Manhole
- Pump Station
- Stub
- T-Junction
- Unknown
- SS_PRIVATE_LINES

Apt 101-128
Apt 201-228
Apt 301-328

0 125 250 500 Feet

MAP SHEET INDEX

Northwest

Northeast

West

East

Southwest

C02 D02 E02 F02 G02 H02 I02 J02 K02 L02

C03 D03 E03 F03 G03 H03 I03 J03 K03 L03

A04 B04 C04 D04 E04 F04 G04 H04 I04 J04 K04 L04

A05 B05 C05 D05 E05 F05 G05 H05 I05 J05 K05 L05

A06 B06 C06 D06 E06 F06 G06 H06 I06 J06 K06 L06

A07 B07 C07 D07 E07 F07 G07 H07 I07 J07 K07 L07

A08 B08 C08 D08 E08 F08 G08 H08 I08 J08 K08 L08

A09 B09 C09 D09 E09 F09 G09 H09 I09 J09 K09 L09

A10 B10 C10 D10 E10 F10 G10 H10 I10 J10 K10 L10

B11 C11 D11 E11 F11 G11 H11 I11 J11 K11 L11

B12 C12 D12 E12 F12 G12 H12 I12 J12

E13 F13 G13 H13 I13

OLD REDWOOD

CORONA

ELY

SONOMA MTN

WASHINGTON

CASA GRANDE

FRATES

LAKEVILLE

RAINIER

MCDOWELL

CAULFIELD

HIGHWAY 101

STONY POINT

PETALUMA

SKILLMAN

PAYRAN

BODEGA

MAGNOLIA

N

0 2,500 5,000 10,000 Feet


PETALUMA SEWER SYSTEM
G06
Legend
Clean-out
Manhole
Pump Station
Stub
T-Junction
PRIVATE
TYPE
Unknown
0
125
250
500 Feet
NOVAK
LAUREN
WASHINGTON
MCDOWELL
MARIA
GREENBRIAR
PARK
MCGREGOR
ALTA
COLWOOD
WEAVERLY
CORTEZ
CORONADO
MCNEIL
STUART
MCKENZIE
DEAN
KRESKY
REDWOOD

City of Petaluma Sewer Preventative Maintenance Plan For Calendar Year 2020

Facility Identifier	Install Date	Diameter	Material	From Manhole	To Manhole	Length (Ft)	Location	Cleaning Freq	PM Clean Sched	Last WO #	Status	Date	Main Task	Debris Amount	Debris Type	Assigned To
SSGM-2894	<Null>	6"	Vitrified Clay	SSMH-2674	SSMH-2672	439.57	1 St (at G St)	Four Times a Year	FEB, MAY, AUG, NOV	20-004485	Complete	11/17/2020	Jet / Clean	Medium	Grease	Steve Kennedy
SSGM-3262	1/1/1985	6"	Vitrified Clay	SSMH-2921	SSMH-2920	371.09	10th St (at D St)	Once Yearly	MAY	20-001705	Complete	5/1/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3392	1/1/1888	6"	Vitrified Clay	SSCO-754	SSFT-49	259.19	11th St (at F St)	Once Yearly	SEP	20-003595	Complete	9/16/2020	Jet / Clean	<Null>	<Null>	<Null>
SSGM-1533	1/1/1998	6"	Asbestos Cement	SSMH-931	SSMH-1088	123.42	1279 KRESKY WY	Three Times a Year	MAR, JUL, NOV	20-004494	Complete	11/17/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1529	1/1/1953	8"	Unknown	SSMH-1043	SSMH-931	203.75	1282-1298 McGregor Ave	Three Times a Year	MAR, JUL, NOV	20-004495	Complete	11/17/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1528	1/1/1951	6"	Asbestos Cement	SSMH-987	SSMH-1043	124.77	1298 McGregor Av	Three Times a Year	MAR, JUL, NOV	20-004496	Complete	11/17/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-4062	1/1/1967	6"	Vitrified Clay	SSMH-3514	SSMH-3775	224.89	2nd St (at G St)	Once Yearly	FEB	20-000487	Complete	2/7/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-4152	1/1/1967	6"	Vitrified Clay	SSFT-68	SSMH-3759	293.20	2nd St (at H St)	Once Yearly	AUG	20-003104	Complete	8/4/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-3599	<Null>	6"	Vitrified Clay	SSMH-3221	SSMH-3220	446.28	5th St (#831 to Mountain View)	Twice Yearly	APR, OCT	20-004028	Complete	10/6/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3380	1/1/1999	6"	Vitrified Clay	SSMH-3069	SSMH-3068	229.70	6th St (at F St)	Twice Yearly	FEB, AUG	20-003108	Complete	8/5/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-3121	1/1/1967	6"	Vitrified Clay	SSMH-3226	SSMH-3224	257.58	6th St (at I St)	Three Times a Year	FEB, JUN, OCT	20-004030	Complete	10/8/2020	Jet / Clean	Heavy	Roots	Justin Evans
SSGM-3081	<Null>	6"	Vitrified Clay	SSMH-3029	SSMH-3028	366.84	7th St (at G St to H St)	Once Yearly	FEB	20-000496	Complete	2/7/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-4016	<Null>	6"	Vitrified Clay	SSMH-3479	SSMH-3032	78.31	8th St (#605 to 607)	Three Times a Year	MAR, JUL, NOV	20-004473	Complete	11/5/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-3086	<Null>	6"	Vitrified Clay	SSMH-3032	SSMH-3031	154.53	8th St (at H St to I St)	Three Times a Year	MAR, JUL, NOV	20-004480	Complete	11/5/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-3085	<Null>	6"	Vitrified Clay	SSCO-742	SSMH-3031	168.73	8th St (at H St)	Three Times a Year	MAR, JUL, NOV	20-004481	Complete	11/5/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-4059	1/1/2007	6"	SDR 26	SSFT-51	SSMH-2688	263.16	A St (at 5th St)	Once Yearly	JAN	20-000005	Complete	1/10/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-2487	1/1/1985	8"	Asbestos Cement	SSCO-400	SSMH-1811	227.75	Acadia Dr	Once Yearly	MAY	20-001712	Complete	5/1/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-993	1/1/1955	6"	Vitrified Clay	SSMH-1298	SSMH-514	110.02	Alma Ct (Backyard to Doris Alley)	Three Times a Year	JAN, MAR, JUL	20-002694	Complete	7/10/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-2854	1/1/1967	8"	Polyvinyl Chloride	SSMH-2637	SSMH-2636	69.29	American Alley (at Putnam Plaza)	Four Times a Year	JAN, APR, JUL, OCT	20-004041	Complete	10/7/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-2853	1/1/1985	8"	Polyvinyl Chloride	SSMH-2636	SSMH-2635	250.17	American Alley (Western to Putnam Plaza)	Four Times a Year	JAN, APR, JUL, OCT	20-004042	Complete	10/7/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-4000	1/1/1971	6"	Vitrified Clay	SSMH-2474	SSMH-1429	420.40	Antone Wy (1094 to 1002 Galinda)	Twice Yearly	JUN, OCT	20-004027	Complete	10/14/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-1012	1/1/1954	6"	Asbestos Cement	SSMH-1229	SSMH-1057	302.80	Arlington Dr	Once Yearly	MAR	20-000946	Complete	4/2/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-2925	1/1/1976	8"	Transite	SSMH-2699	SSMH-2690	349.54	B St (6th to Post St)	Once Yearly	OCT	20-004033	Complete	10/8/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-2839	1/1/1976	6"	Vitrified Clay	SSMH-2623	SSMH-2621	195.72	B St (at Petaluma Blvd N)	Twice Yearly	FEB, AUG	20-003112	Complete	8/14/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-4001	1/1/1989	6"	Polyvinyl Chloride	SSCO-851	SSMH-3258	387.60	Baker Ct (to #89 Mission Dr)	Once Yearly	JAN	20-000006	Complete	1/10/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3009	<Null>	6"	Vitrified Clay	SSMH-2761	SSMH-2760	386.22	Basset St (at Fair St)	Once Yearly	JUN	20-002082	Complete	6/4/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-2926	<Null>	6"	Polyvinyl Chloride	SSMH-2701	SSFT-37	152.96	Basset St (at Post St)	Once Yearly	SEP	20-003608	Complete	9/16/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3004	<Null>	6"	Vitrified Clay	SSMH-2757	SSMH-2759	360.23	Basset St (from Baker to Upham)	Three Times a Year	MAR, JUL, NOV	20-004482	Complete	11/5/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3386	<Null>	6"	Transite	SSMH-3076	SSMH-3075	28.96	Batchelor Ter	Once Yearly	SEP	20-003600	Complete	9/4/2020	Jet / Clean	<Null>	<Null>	<Null>
SSGM-3387	<Null>	6".	Vitrified Clay	SSMH-3077	SSMH-3076	328.36	Batchelor Ter	Once Yearly	SEP	20-003598	Complete	9/4/2020	Jet / Clean	<Null>	<Null>	<Null>
SSGM-3103	1/1/1949	6"	Transite	SSMH-3049	SSMH-3459	194.42	Brookside Wy (to McNear School)	Once Yearly	JUN	20-002078	Complete	6/2/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-4012	<Null>	6"	Vitrified Clay	SSFT-44	SSMH-2921	272.29	C St (at 10th St)	Once Yearly	MAY	20-001699	Complete	5/1/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-4065	<Null>	8"	Vitrified Clay	SSMH-3515	SSMH-2681	305.98	C St (at 6th St)	Once Yearly	JAN	20-000004	Complete	1/10/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-4066	<Null>	6"	Vitrified Clay	SSMH-2682	SSMH-3515	271.03	C St (at 7th St)1	Once Yearly	JAN	20-000003	Complete	1/10/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-257	1/1/1977	6"	Reinforced Concrete	SSMH-36	SSMH-333	110.61	Casa Verde Cir (To Rancho Bonito Cir)	Four Times a Year	FEB, MAY, AUG, NOV	20-004527	Complete	11/4/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-256	1/1/1977	6"	Reinforced Concrete	SSMH-333	SSMH-585	134.19	Casa Verde Cir (To Rancho Bonito)	Four Times a Year	FEB, MAY, AUG, NOV	20-004528	Complete	11/4/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-1692	1/1/1970	8"	Unknown	SSMH-1297	SSMH-1141	227.51	Caulfield Ln	Four Times a Year	MAR, JUN, SEP, DEC	20-003612	Complete	9/16/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-3901	<Null>	6"	Vitrified Clay	SSMH-2387	SSMH-1440	277.87	Cherry St	Once Yearly	SEP	20-003575	Complete	9/16/2020	Jet / Clean	<Null>	<Null>	<Null>
SSGM-4412	1/1/2014	8"	SDR 26	SSMH-2462	SSMH-3724	321.88	Cherry St (at N Kentucky St)	Twice Yearly	FEB, JUN	20-002062	Complete	6/4/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-3897	1/1/1957	8"	Polyvinyl Chloride	SSMH-2597	SSMH-2435	350.48	Cherry St (St Vincent HS)	Once Yearly	SEP	20-003579	Complete	9/16/2020	Jet / Clean	<Null>	<Null>	<Null>
SSGM-4228	<Null>	6"	Unknown	SSMH-2546	SSMH-1436	134.92	Cherry St (St Vincent HS)	Once Yearly	SEP	20-003565	Complete	9/16/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3898	1/1/1957	6"	Vitrified Clay	SSMH-1436	SSMH-2597	127.21	Cherry St (St Vincent HS)	Once Yearly	SEP	20-003574	Complete	9/16/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1523	1/1/1951	6"	Concrete (Non-reinforc	SSMH-1170	SSMH-987	322.96	Coronado Dr (Backyards)	Three Times a Year	MAR, JUL, NOV	20-004498	Complete	11/17/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1517	1/1/1951	6"	Asbestos Cement	SSMH-1358	SSMH-1245	125.92	Coronado Dr (Backyards)	Three Times a Year	MAR, JUL, NOV	20-004499	Complete	11/17/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1477	1/1/1951	6"	Asbestos Cement	SSMH-912	SSMH-1358	296.69	Coronado Dr (Backyards)	Three Times a Year	MAR, JUL, NOV	20-004511	Complete	11/12/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-1841	1/1/1951	6"	Asbestos Cement	SSMH-1238	SSMH-912	221.30	Coronado Dr (Backyards)	Three Times a Year	MAR, JUL, NOV	20-004529	Complete	11/12/2020	Jet / Clean	Heavy	Roots	Steve Kennedy

SSGM-1478	1/1/1951	6"	Asbestos Cement	SSMH-758	SSMH-1238	202.68	Coronado Dr (Backyards)	Three Times a Year	MAR, JUL, NOV	20-004510	Complete	11/12/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1516	1/1/1951	6"	Concrete (Non-reinforc	SSMH-1245	SSMH-852	149.78	Coronado Dr (Backyards)	Three Times a Year	MAR, JUL, NOV	20-004500	Complete	11/17/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1515	1/1/1951	6"	Concrete (Non-reinforc	SSMH-852	SSMH-1170	307.07	Coronado Dr (Backyards)	Three Times a Year	MAR, JUL, NOV	20-004501	Complete	11/17/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1549	1/1/1951	6"	Concrete (Non-reinforc	SSMH-1181	SSMH-1212	271.01	Cortez Dr (Backyard)	Three Times a Year	MAR, JUL, NOV	20-004491	Complete	11/17/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1511	1/1/1951	6"	Concrete (Non-reinforc	SSMH-1352	SSMH-1181	297.07	Cortez Dr (Backyard)	Three Times a Year	MAR, JUL, NOV	20-004505	Complete	11/17/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1504	1/1/1951	6"	Concrete (Non-reinforc	SSMH-927	SSMH-970	299.30	Cortez Dr (Backyard)	Three Times a Year	MAR, JUL, NOV	20-004508	Complete	11/17/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1513	1/1/1972	6"	Concrete (Non-reinforc	SSMH-1182	SSMH-983	153.28	Cortez Dr (Backyard)	Three Times a Year	MAR, JUL, NOV	20-004503	Complete	11/17/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1525	1/1/1951	6"	Concrete (Non-reinforc	SSMH-1022	SSMH-1132	324.44	Cortez Dr (Backyard)	Three Times a Year	MAR, JUL, NOV	20-004497	Complete	11/17/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1470	1/1/1951	6"	Concrete (Non-reinforc	SSMH-942	SSMH-789	317.30	Cortez Dr (Backyard)	Three Times a Year	MAR, JUL, NOV	20-004518	Complete	11/12/2020	Jet / Clean	Heavy	<Null>	Steve Kennedy
SSGM-1512	1/1/1951	6"	Concrete (Non-reinforc	SSMH-983	SSMH-1022	301.62	Cortez Dr (Backyard)	Three Times a Year	MAR, JUL, NOV	20-004504	Complete	11/17/2020	Jet / Clean	Heavy	<Null>	Steve Kennedy
SSGM-1472	1/1/1998	6"	Ductile Iron Pipe	SSMH-933	SSMH-942	79.76	Cortez Dr (Backyard)	Three Times a Year	MAR, JUL, NOV	20-004516	Complete	11/12/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-1514	1/1/1972	6"	Concrete (Non-reinforc	SSMH-970	SSMH-1182	120.13	Cortez Dr (Backyard)	Three Times a Year	MAR, JUL, NOV	20-004502	Complete	11/17/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1474	1/1/1998	6"	Ductile Iron Pipe	SSMH-1228	SSMH-719	76.26	Cortez Dr (Backyard)	Three Times a Year	MAR, JUL, NOV	20-004514	Complete	11/12/2020	Jet / Clean	Heavy	<Null>	Steve Kennedy
SSGM-1503	1/1/1951	6"	Concrete (Non-reinforc	SSMH-789	SSMH-909	253.67	Cortez Dr (Backyard)	Three Times a Year	MAR, JUL, NOV	20-004509	Complete	11/17/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1510	1/1/1972	6"	Concrete (Non-reinforc	SSMH-909	SSMH-796	81.60	Cortez Dr (Backyard)	Three Times a Year	MAR, JUL, NOV	20-004506	Complete	11/17/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1509	1/1/1972	6"	Concrete (Non-reinforc	SSMH-796	SSMH-1352	215.74	Cortez Dr (Backyard)	Three Times a Year	MAR, JUL, NOV	20-004507	Complete	11/12/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1473	1/1/1951	6"	Concrete (Non-reinforc	SSMH-719	SSMH-927	237.26	Cortez Dr (Backyard)	Three Times a Year	MAR, JUL, NOV	20-004515	Complete	11/12/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-4703	1/1/1985	9	Vitrified Clay	SSMH-3522	SSMH-2920	330.10	D St (at 10th St)	Once Yearly	MAY	20-001696	Complete	5/1/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-5	1/1/1969	8"	Unknown	SSMH-23	SSMH-481	240.38	Daniel Dr	Once Yearly	DEC	20-004873	Complete	12/15/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-4	1/1/1970	8"	Unknown	SSMH-580	SSMH-23	254.89	Daniel Dr	Once Yearly	DEC	20-004874	Complete	12/15/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-4262	1/1/1957	6"	Asbestos Cement	SSMH-2579	SSMH-1436	247.71	Deerfield Ln	Once Yearly	SEP	20-003560	Complete	9/16/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-994	<Null>	6"	Vitrified Clay	SSMH-514	SSMH-1477	231.52	Doris Alley	Three Times a Year	JAN, MAR, JUL	20-002692	Complete	7/10/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-2931	1/1/2007	8"	Vitrified Clay	SSMH-2707	SSMH-2705	278.16	Douglas St	Three Times a Year	FEB, JUN, OCT	20-004032	Complete	10/14/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-2569	1/1/1982	8"	Asbestos Cement	SSMH-1725	SSMH-2233	373.11	Draco Dr (at Northstar)	Once Yearly	NOV	20-004486	Complete	11/4/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-2199	1/1/1987	10"	Unknown	SSMH-1902	SSMH-1875	459.09	Dupree Wy	Twice Yearly	APR, OCT	20-004053	Complete	10/1/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-1638	1/1/1957	6"	Unknown	SSMH-756	SSMH-1218	446.75	E D St	Once Yearly	MAY	20-001715	Complete	5/1/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1115	1/1/2004	8"	SDR 35	SSMH-519	SSMH-817	70.00	E Washington (at #2)	Four Times a Year	JAN, APR, JUL, OCT	20-004062	Complete	10/7/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1660	1/1/2004	8"	Vitrified Clay	SSCO-186	SSMH-519	452.51	E Washington St (#2 to 50, Golden Eagle Shopp	Four Times a Year	JAN, APR, JUL, OCT	20-004057	Complete	10/7/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1647	<Null>	6"	Unknown	SSMH-1148	SSMH-793	335.01	E Washington St (#365 E Wash)	Once Yearly	MAY	20-001713	Complete	5/1/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1065	1/1/1946	6"	Vitrified Clay	SSCO-311	SSMH-955	357.54	E Washington St (701 to 725)	Three Times a Year	JAN, MAY, SEP	20-003637	Complete	9/2/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-1646	<Null>	6"	Unknown	SSMH-793	SSMH-958	290.33	E Washington St (At Copeland)	Once Yearly	MAY	20-001714	Complete	5/1/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1569	1/1/1927	6"	Unknown	SSCO-308	SSMH-1345	371.72	E Washington St (Edith to Vallejo)	Once Yearly	SEP	20-003615	Complete	9/2/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-1562	1/1/1927	6"	Unknown	SSCO-183	SSMH-1273	390.76	E Washington St (Vallejo to Payran St)	Once Yearly	SEP	20-003620	Complete	9/2/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-1615	<Null>	6"	Unknown	SSMH-1342	SSMH-1274	553.42	Edith St	Once Yearly	SEP	20-003614	Complete	9/2/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-1084	1/1/1967	6"	Unknown	SSMH-1149	SSMH-916	126.93	Edith St (107 to Madison)	Three Times a Year	FEB, JUL, NOV	20-004523	Complete	11/17/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1083	1/1/1946	6"	Vitrified Clay	SSMH-1016	SSMH-1149	129.99	Edith St (to 608 Myrtle Ct)	Three Times a Year	FEB, JUL, NOV	20-004524	Complete	11/12/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-3992	1/1/1957	8"	Vitrified Clay	SSMH-2591	SSMH-2608	289.52	Elm Dr	Once Yearly	JUN	20-002072	Complete	6/5/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3997	1/1/1964	8"	Vitrified Clay	SSMH-2476	SSMH-2526	289.93	Elm Dr	Once Yearly	JUN	20-002069	Complete	6/5/2020	Jet / Clean	Heavy	<Null>	Steve Kennedy
SSGM-639	1/1/2004	10"	SDR 26	SSMH-47	SSMH-347	402.10	Ely Blvd S (Near Frates)	Twice Yearly	APR, OCT	20-004070	Complete	10/1/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-4665	1/1/1954	10"	Transite	SSMH-2772	SSMH-2768	331.64	English St (at Baker St)	Twice Yearly	JUN, DEC	20-002058	Complete	6/4/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-3390	1/1/1888	6"	Vitrified Clay	SSMH-3081	SSMH-3080	350.84	F St (at 10th St)	Once Yearly	MAY	20-001704	Complete	5/1/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-4048	1/1/1888	6"	SDR 26	SSMH-3082	SSMH-3081	365.10	F St (at 11th St)	Once Yearly	SEP	20-003570	Complete	9/1/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3397	1/1/1953	6"	Transite	SSMH-3086	SSMH-3085	218.54	F St (at Sunnyslope Av)	Once Yearly	AUG	20-003107	Complete	8/4/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-2940	1/1/1971	6"	Vitrified Clay	SSMH-2713	SSMH-2712	300.08	Fair St (at Douglas St)	Three Times a Year	JAN, MAY, SEP	20-003606	Complete	9/4/2020	Jet / Clean	<Null>	<Null>	<Null>
SSGM-347	1/1/1985	8"	Asbestos Cement	SSMH-305	SSMH-439	162.92	Frates (from 1669 Cerro Sonoma Cir)	Once Yearly	APR	20-001348	Complete	4/2/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3094	<Null>	6"	Vitrified Clay	SSMH-3040	SSMH-3038	348.03	G St (#1001 to 11th St)	Once Yearly	APR	20-001322	Complete	4/2/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3092	<Null>	6"	Vitrified Clay	SSMH-3038	SSMH-3037	350.37	G St (#857 to 1001)	Three Times a Year	JAN, MAY, SEP	20-003602	Complete	9/1/2020	Jet / Clean	<Null>	<Null>	<Null>

SSGM-3831	<Null>	8"	Vitrified Clay	SSMH-3424	SSMH-3028	195.10	G St (7th St Jump)	Once Yearly	FEB	20-000491	Complete	2/7/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-94	1/1/1980	8"	Unknown	SSMH-149	SSMH-540	255.57	Garfield Dr	Once Yearly	MAR	20-000950	Complete	3/3/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-4404	1/1/1966	6"	Unknown	SSMH-2355	SSMH-2468	208.34	Gilardi Dr	Once Yearly	AUG	20-003103	Complete	8/6/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-2659	1/1/1978	8"	Asbestos Cement	SSMH-1960	SSMH-1930	216.16	Glacier Ct	Twice Yearly	JAN, JUL	20-002608	Complete	7/8/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-2898	1/1/1967	8"	Vitrified Clay	SSMH-2678	SSMH-3760	268.35	H St (at Petaluma Blvd S)	Once Yearly	NOV	20-004484	Complete	11/17/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3933	1/1/1971	6"	Vitrified Clay	SSMH-3458	SSMH-3031	358.67	H St (Backyards from 8th St to 820 I St)	Three Times a Year	MAR, JUL, NOV	20-004474	Complete	11/5/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-2993	1/1/1946	6"	SDR 26	SSMH-2749	SSMH-2747	402.14	Haven Dr	Four Times a Year	FEB, MAY, AUG, NOV	20-004483	Complete	11/17/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-1324	1/1/1946	6"	SDR 26	SSMH-3451	SSMH-2747	189.28	Haven Dr (from #4 Scenic to #5 Haven)	Four Times a Year	FEB, MAY, AUG, NOV	20-004519	Complete	11/17/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-2869	<Null>	6"	Vitrified Clay	SSCO-640	SSMH-2654	276.67	High St	Twice Yearly	APR, OCT	20-004036	Complete	10/8/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-3441	1/1/1961	6"	Vitrified Clay	SSMH-3125	SSMH-3124	242.04	Highland Rd (at Sunny Hill Dr)	Once Yearly	DEC	20-004858	Complete	12/15/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-1749	1/1/2011	8"	Unknown	SSMH-1180	SSMH-1300	84.85	Holly Ln (#889)	Twice Yearly	MAR, JUN, SEP, DEC	20-002086	Complete	6/2/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-4286	<Null>	6"	Vitrified Clay	SSCO-590	SSMH-1397	116.25	Hontar Ln	Once Yearly	APR	20-001318	Complete	4/2/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3853	<Null>	6"	Vitrified Clay	SSMH-1397	SSMH-2530	158.84	Hontar Ln	Once Yearly	APR	20-001320	Complete	4/2/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-926	1/1/1954	15"	Vitrified Clay	SSMH-946	SSMH-805	232.45	Hwy 101 (Pet Plaza to Arlington)	Once Yearly	MAY	20-001722	Complete	5/1/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1555	1/1/1953	6"	Asbestos Cement	SSMH-1244	SSMH-1354	403.86	Hwy 101 (Stuart Dr to Kennilworth Dr)	Once Yearly	SEP	20-003621	Complete	9/10/2020	Jet / Clean	<Null>	<Null>	<Null>
SSGM-1271	1/1/1986	Unknown	Vitrified Clay	SSMH-1951	SSMH-1594	333.38	Industrial Ave	Once Yearly	AUG	20-003122	Complete	8/6/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1280	<Null>	Unknown	Unknown	SSMH-2045	SSMH-1657	444.16	Industrial Ave	Once Yearly	AUG	20-003121	Complete	8/5/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-1640	1/1/1957	6"	Unknown	SSMH-1506	SSMH-1507	440.66	Jefferson St	Once Yearly	JUN	20-002090	Complete	6/4/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-917	1/1/1955	6"	Vitrified Clay	SSMH-508	SSMH-1126	272.01	Joan Dr	Once Yearly	FEB	20-000519	Complete	3/11/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-904	1/1/1955	6"	Vitrified Clay	SSMH-774	SSMH-1037	306.97	Joan Dr	Once Yearly	FEB	20-000521	Complete	2/7/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-895	1/1/1955	6"	Vitrified Clay	SSCO-221	SSMH-774	325.03	Joan Dr	Once Yearly	FEB	20-000522	Complete	2/7/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-914	1/1/1955	6"	Vitrified Clay	SSMH-1037	SSMH-508	274.42	Joan Dr	Once Yearly	FEB	20-000520	Complete	2/7/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-2860	1/1/1927	8"	Vitrified Clay	SSMH-2645	SSFT-77	175.38	Keller St	Four Times a Year	JAN, APR, JUL, OCT	20-004038	Complete	10/7/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-3918	1/1/1989	6"	SDR 26	SSMH-1442	SSMH-2561	109.85	Kingfish Ct (#805)	Once Yearly	FEB	20-000489	Complete	2/7/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1540	1/1/1955	6"	Vitrified Clay	SSMH-1152	SSMH-1198	234.15	Kresky Wy	Once Yearly	OCT	20-004058	Complete	10/1/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-1554	1/1/1978	6"	Asbestos Cement	SSCO-237	SSMH-715	381.65	Kresky Wy (at Kresky Ct)	Once Yearly	MAR	20-000907	Complete	4/3/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1608	1/1/1927	8"	Vitrified Clay	SSMH-985	SSMH-1330	132.06	Lakeville St (at Wilson St)	Once Yearly	MAY	20-001716	Complete	5/1/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-4177	1/1/1966	8"	Vitrified Clay	SSMH-2423	SSMH-2545	96.82	Larch Dr	Once Yearly	MAY	20-001698	Complete	5/1/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-4387	1/1/1966	8"	Vitrified Clay	SSCO-583	SSMH-2423	44.44	Larch Dr	Once Yearly	MAY	20-001697	Complete	5/1/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3000	1/1/1906	6"	Vitrified Clay	SSMH-2754	SSMH-3425	263.62	Laurel Ave	Twice Yearly	MAR, SEP	20-003604	Complete	9/4/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3925	1/1/1954	6"	Polyvinyl Chloride	SSMH-2461	SSMH-2478	267.38	Laurel St	Twice Yearly	JAN, SEP	20-003573	Complete	9/4/2020	Jet / Clean	<Null>	<Null>	<Null>
SSGM-1459	1/1/1955	6"	Vitrified Clay	SSMH-969	SSMH-760	296.78	Lauren Dr	Four Times a Year	JAN, APR, JUL, OCT	20-004060	Complete	10/1/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-1460	1/1/1955	6"	Vitrified Clay	SSMH-760	SSMH-1127	301.76	Lauren Dr	Four Times a Year	JAN, APR, JUL, OCT	20-004059	Complete	10/1/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-3890	1/1/1957	8"	Vitrified Clay	SSMH-2348	SSMH-1439	213.78	Liberty Meadows (831 to Keokuk)	Twice Yearly	MAR, SEP	20-003581	Complete	9/2/2020	Jet / Clean	Heavy	<Null>	Stuart Crist
SSGM-4220	1/1/1957	8"	Asbestos Cement	SSMH-2415	SSMH-1439	47.90	Liberty St (#831)	Twice Yearly	MAR, SEP	20-003566	Complete	9/16/2020	Jet / Clean	<Null>	<Null>	Stephanie Oefinger
SSGM-2863	1/1/1966	6"	Transite	SSCO-639	SSMH-2646	216.78	Liberty St (at Western Av)	Four Times a Year	JAN, APR, JUL, OCT	20-004037	Complete	10/7/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-507	1/1/1971	6"	Asbestos Cement	SSMH-405	SSMH-271	259.86	Louise Dr	Once Yearly	APR	20-001347	Complete	4/2/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1096	1/1/1967	6"	Unknown	SSMH-916	SSMH-973	429.72	Madison St	Twice Yearly	FEB, AUG	20-003123	Complete	8/4/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-1762	1/1/1967	6"	Unknown	SSMH-1476	SSMH-916	414.73	Madison St (Edith to Vallejo)	Twice Yearly	FEB, AUG	20-003117	Complete	8/4/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-983	1/1/1967	6"	Unknown	SSMH-851	SSMH-521	219.05	Madison St (from San Carlos to 827 Madison)	Once Yearly	JAN	20-000035	Complete	1/10/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-987	1/1/1967	6"	Unknown	SSMH-521	SSMH-1308	270.10	Madison St (from San Carlos to 827 Madison)	Once Yearly	JAN	20-000034	Complete	1/10/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-899	<Null>	8"	Unknown	SSMH-1118	SSMH-1292	205.27	Maria Dr (Madison to Monroe)	Twice Yearly	JUN, DEC	20-002112	Complete	6/2/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-901	<Null>	8"	Unknown	SSMH-1292	SSMH-1344	353.71	Maria Dr (Madison to Monroe)	Twice Yearly	JUN, DEC	20-002110	Complete	6/2/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-898	1/1/1955	8"	Unknown	SSMH-1344	SSMH-1027	354.16	Maria Dr (Madison to Monroe)	Twice Yearly	JUN, DEC	20-002114	Complete	6/2/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-1480	1/1/1972	8"	Asbestos Cement	SSMH-1277	SSMH-1258	62.92	Maria Dr (Wash Square Shopping Center)	Once Yearly	JUL	20-002656	Complete	7/8/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-1483	1/1/1972	8"	Asbestos Cement	SSMH-838	SSMH-1254	273.36	Maria Dr (Wash Square Shopping Center)	Once Yearly	JUL	20-002654	Complete	7/8/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-1421	1/1/1972	8"	Asbestos Cement	SSMH-1026	SSMH-1277	288.45	Maria Dr (Wash Square Shopping Center)	Once Yearly	JUL	20-002680	Complete	7/8/2020	Jet / Clean	Heavy	Grease	Stuart Crist

SGM-1484	1/1/1972	8"	Asbestos Cement	SSMH-1258	SSMH-838	244.04	Maria Dr (Wash Square Shopping Center)	Once Yearly	JUL	20-002652	Complete	7/8/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-568	<Null>	6"	Unknown	SSMH-474	SSMH-159	186.03	Marina (Behind Sheraton)	Four Times a Year	MAR, JUN, SEP, DEC	20-003644	Complete	9/1/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1551	1/1/1951	6"	Asbestos Cement	SSMH-1132	SSMH-987	248.23	McGregor Av (1298-1312)	Three Times a Year	MAR, JUL, NOV	20-004489	Complete	11/17/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1550	1/1/1951	6"	Asbestos Cement	SSCO-215	SSMH-1316	123.28	McGregor Av (1328)	Three Times a Year	MAR, JUL, NOV	20-004490	Complete	11/17/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1486	<Null>	8"	Unknown	SSMH-1050	SSCO-175	193.96	McGregor Ave	Once Yearly	MAY	20-001718	Complete	5/1/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1490	1/1/1965	8"	Unknown	SSCO-175	SSMH-1285	305.55	McGregor Ave	Once Yearly	MAY	20-001717	Complete	5/1/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1548	1/1/1951	6"	Asbestos Cement	SSMH-1212	SSMH-1132	249.55	McGregor Ave (1328-1312 McGregor)	Three Times a Year	MAR, JUL, NOV	20-004492	Complete	11/17/2020	Jet / Clean	Heavy	<Null>	Steve Kennedy
SSGM-1547	1/1/1951	6"	Asbestos Cement	SSMH-1316	SSMH-1212	29.47	McGregor Ave (Front of 1328)	Three Times a Year	MAR, JUL, NOV	20-004493	Complete	11/17/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-3093	1/1/1888	6"	Vitrified Clay	SSMH-3039	SSMH-3038	146.60	McNear Park (at 1001 G St)	Three Times a Year	FEB, JUN, OCT	20-004031	Complete	10/6/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-3934	1/1/1949	6"	Vitrified Clay	SSMH-3459	SSMH-3458	400.42	McNear School (to #820 I St)	Once Yearly	JUL	20-002575	Complete	7/7/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-1475	1/1/1951	6"	Asbestos Cement	SSMH-856	SSMH-966	196.05	McNeil Av (Backyards)	Three Times a Year	MAR, JUL, NOV	20-004513	Complete	11/12/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-1471	1/1/1951	6"	Asbestos Cement	SSMH-1318	SSMH-856	187.23	McNeil Av (Backyards)	Three Times a Year	MAR, JUL, NOV	20-004517	Complete	11/12/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-1476	1/1/1951	6"	Asbestos Cement	SSMH-966	SSMH-758	140.95	McNeil Av (Backyards)	Three Times a Year	MAR, JUL, NOV	20-004512	Complete	11/12/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-1333	1/1/2014	6"	Vitrified Clay	SSFT-61	SSMH-3265	341.54	Mission Dr	Once Yearly	OCT	20-004061	Complete	10/6/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-3669	8/1/2014	8"	High Density Polyethyle	SSMH-3295	SSMH-3294	240.03	Mountain View at 989 Philips (10004, 1000)	Twice Yearly	MAR, SEP	20-003586	Complete	9/4/2020	Jet / Clean	<Null>	<Null>	<Null>
SSGM-3673	1/1/2011	6"	Vitrified Clay	SSMH-3298	SSMH-3297	243.65	Mountain View Ave (#1009-1005)	Twice Yearly	MAR, SEP	20-003584	Complete	9/4/2020	Jet / Clean	<Null>	<Null>	<Null>
SSGM-4552	<Null>	8"	SDR 26	SSMH-3693	SSMH-3288	178.42	Mountain View Ave (at Colinda Dr)	Once Yearly	NOV	20-004472	Complete	11/5/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-4553	<Null>	8"	SDR 26	SSMH-3291	SSMH-3693	212.52	Mountain View Ave (at McNear)	Once Yearly	NOV	20-004471	Complete	11/5/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3705	<Null>	6"	Transite	SSMH-3326	SSMH-3427	121.69	Mountain View Ave (at Rancho Lindo)	Once Yearly	SEP	20-003583	Complete	9/4/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1085	1/1/1946	6"	Vitrified Clay	SSMH-1084	SSMH-1016	464.32	Myrtle Ct (608 Madison to 41 Myrtle)	Three Times a Year	FEB, JUL, NOV	20-004522	Complete	11/12/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-1092	1/1/1946	6"	Vitrified Clay	SSCO-164	SSMH-1016	226.71	Myrtle Ct (Backyards from Edith St)	Three Times a Year	FEB, JUL, NOV	20-004521	Complete	11/17/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-3055	1/1/1950	6"	Vitrified Clay	SSMH-2802	SSMH-2801	110.10	N Fair St	Once Yearly	DEC	20-004860	Complete	12/15/2020	Jet / Clean	Medium	Roots	Steve Kennedy
SSGM-3056	1/1/1950	6"	Vitrified Clay	SSMH-2803	SSMH-2802	117.35	N Fair St	Once Yearly	DEC	20-004859	Complete	12/15/2020	Jet / Clean	Medium	Roots	Steve Kennedy
SSGM-2658	<Null>	10"	Asbestos Cement	SSMH-1930	SSMH-1883	207.45	N McDowell Blvd	Once Yearly	JAN	20-000025	Complete	1/10/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-2747	<Null>	10"	Asbestos Cement	SSMH-2142	SSMH-1930	311.45	N McDowell Blvd (Near 435)	Once Yearly	JAN	20-000023	Complete	1/10/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-2306	<Null>	10"	Unknown	SSMH-2172	SSMH-2104	63.15	N McDowell Blvd (near Palo Verde)	Once Yearly	OCT	20-004051	Complete	10/7/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-2305	<Null>	10"	Unknown	SSMH-2104	SSMH-1931	234.28	N McDowell Blvd (near Palo Verde)	Once Yearly	OCT	20-004052	Complete	10/7/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-2307	<Null>	10"	Unknown	SSMH-1931	SSMH-1899	243.34	N McDowell Blvd (near Palo Verde)	Once Yearly	OCT	20-004050	Complete	10/7/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1875	1/1/1981	8"	Vitrified Clay	SSMH-1579	SSMH-1547	158.03	N McDowell Blvd (Osh Shopping Center)	Once Yearly	DEC	20-004862	Complete	12/15/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1876	<Null>	8"	Vitrified Clay	SSMH-1547	SSMH-1375	384.36	N McDowell Blvd (Osh Shopping Center)	Once Yearly	DEC	20-004861	Complete	12/15/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-925	1/1/1979	8"	SDR 26	SSMH-1163	SSMH-946	276.68	N McDowell Blvd (Petaluma Plaza N)	Once Yearly	MAY	20-001723	Complete	5/1/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-943	1/1/1979	8"	SDR 26	SSMH-1204	SSMH-946	252.76	N McDowell Blvd (Petaluma Plaza S)	Once Yearly	MAY	20-001721	Complete	5/1/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-2553	1/1/1982	8"	Asbestos Cement	SSMH-2233	SSMH-2190	248.79	Northstar Dr (at Maria)	Once Yearly	NOV	20-004487	Complete	11/4/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-2317	1/1/2016	8"	Asbestos Cement	SSMH-1782	SSMH-3770	172.03	Palo Verde Wy	Once Yearly	OCT	20-004049	Complete	10/7/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3497	1/1/1977	6"	Transite	SSMH-3171	SSMH-3440	337.73	Parkview Ct (to 129 Round Ct)	Three Times a Year	FEB, JUN, OCT	20-004029	Complete	10/7/2020	Jet / Clean	Heavy	Roots	Stephanie Oefinger
SSGM-962	1/1/1950	6"	Unknown	SSMH-903	SSCO-299	29.95	Payran St (#5 to #1)	Three Times a Year	FEB, JUN, OCT	20-004068	Complete	10/6/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-961	1/1/1950	6"	Vitrified Clay	SSMH-986	SSMH-1259	360.56	Payran St (#5 to #37 Backyards)	Three Times a Year	FEB, JUN, OCT	20-004069	Complete	10/6/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-963	1/1/1950	6"	Unknown	SSCO-299	SSMH-986	65.33	Payran St (#9 to #5)	Three Times a Year	FEB, JUN, OCT	20-004067	Complete	10/6/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-1058	1/1/1946	6"	Vitrified Clay	SSMH-989	SSMH-794	349.14	Payran St (723 Marin Wy to 722 Madison St)	Twice Yearly	FEB, AUG	20-003125	Complete	8/4/2020	Jet / Clean	Heavy	Silt	Stuart Crist
SSGM-1062	1/1/1946	6"	Vitrified Clay	SSCO-206	SSMH-1311	335.11	Payran St (Marian to 154 Payran)	Twice Yearly	FEB, AUG	20-003124	Complete	8/4/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-891	1/1/1964	14"	Asbestos Cement	SSMH-834	SSMH-1103	253.47	Penrod Dr	Twice Yearly	MAY, NOV	20-004525	Complete	11/4/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-3952	1/1/1954	6"	Reinforced Concrete	SSMH-2441	SSMH-2338	304.97	Petaluma Blvd N (at Sycamore Ln)	Twice Yearly	FEB, AUG	20-003105	Complete	8/13/2020	Jet / Clean	Medium	Roots	Steve Kennedy
SSGM-1904	1/1/1971	12"	Vitrified Clay	SSMH-2005	SSMH-2319	111.33	Petaluma Blvd N (Henny Penny's)	Once Yearly	AUG	20-003113	Complete	8/13/2020	Jet / Clean	Medium	Grease	Steve Kennedy
SSGM-1902	<Null>	12"	Vitrified Clay	SSMH-1616	SSMH-2319	367.71	Petaluma Blvd N (Henny Penny's)	Once Yearly	AUG	20-003114	Complete	8/13/2020	Jet / Clean	<Null>	Roots	Steve Kennedy
SSGM-4342	<Null>	8"	Vitrified Clay	SSMH-2403	SSMH-2341	159.04	Petaluma Blvd N (West to Cherry St)	Once Yearly	APR	20-001317	Complete	4/2/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-4343	<Null>	8"	Vitrified Clay	SSMH-2341	SSMH-1415	200.45	Petaluma Blvd N (West to Cherry)	Once Yearly	APR	20-001316	Complete	4/2/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-2840	<Null>	6"	Vitrified Clay	SSCO-635	SSFT-127	82.73	Petaluma Blvd S (at B St)	Twice Yearly	FEB, AUG	20-003111	Complete	8/14/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy

SSGM-3677	1/1/1951	6"	Vitrified Clay	SSMH-3301	SSMH-3295	272.69	Philips Ave	Twice Yearly	MAY, NOV	20-004477	Complete	11/17/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3681	1/1/1951	6"	Vitrified Clay	SSMH-3304	SSMH-3301	295.16	Philips Ave (at Grant School)	Twice Yearly	MAY, NOV	20-004476	Complete	11/17/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3146	1/1/1980	6"	Polyvinyl Chloride	SSMH-3492	SSMH-3304	110.75	Phillips Ave (Grant School to Grant Park)	Twice Yearly	MAY, NOV	20-004478	Complete	11/17/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-2871	1/1/1980	6"	Vitrified Clay	SSMH-2652	SSMH-2651	259.20	Post St (at Stanley)	Twice Yearly	APR, OCT	20-004035	Complete	10/8/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1729	1/1/1963	8"	Asbestos Cement	SSMH-1124	SSMH-1086	253.44	Ramona Ln (Marian to St Francis)	Once Yearly	OCT	20-004056	Complete	10/1/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-258	1/1/1977	6"	Asbestos Cement	SSMH-598	SSMH-36	159.08	Rancho Bonito Cir (from Casa Verde Cir)	Four Times a Year	FEB, MAY, AUG, NOV	20-004526	Complete	11/4/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-3108	1/1/1926	6"	Vitrified Clay	SSCO-746	SSMH-3052	104.52	Raymond Hts (at Olive St)	Twice Yearly	MAY, NOV	20-004479	Complete	11/5/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1204	1/1/1977	8"	Asbestos Cement	SSMH-1162	SSMH-520	336.51	Redwood Cir	Once Yearly	FEB	20-000504	Complete	2/7/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-588	1/1/1985	8"	Reinforced Plastic(Truss	SSMH-575	SSMH-14	302.89	Rio Nido Wy	Twice Yearly	JAN, JUL	20-002696	Complete	7/7/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-582	1/1/1985	8"	Reinforced Plastic(Truss	SSMH-14	SSMH-445	261.28	Rio Nido Wy (from Cerro Sonoma)	Twice Yearly	JAN, JUL	20-002698	Complete	7/7/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-1055	1/1/1950	6"	Vitrified Clay	SSMH-840	SSMH-770	138.68	Rio Vista Wy (from 51 Vallejo)	Three Times a Year	FEB, JUN, OCT	20-004066	Complete	10/6/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-1068	1/1/1959	8"	Vitrified Clay	SSMH-1501	SSMH-865	244.56	Rocca Dr	Once Yearly	JAN	20-000030	Complete	1/10/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-4036	1/1/1977	12"	Transite	SSMH-3498	SSMH-3440	295.43	Round Ct (#129 to 133 Backyards)	Once Yearly	SEP	20-003572	Complete	9/16/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3511	1/1/1977	12"	Vitrified Clay	SSMH-3183	SSMH-3498	246.61	Round Ct (#129 to 341 Westridge Pl)	Once Yearly	SEP	20-003592	Complete	9/1/2020	Jet / Clean	<Null>	<Null>	<Null>
SSGM-1304	1/1/1977	10"	Vitrified Clay	SSMH-3440	SSMH-3162	277.20	Round Ct (#132 to 133)	Once Yearly	SEP	20-003624	Complete	9/16/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3486	1/1/1977	8"	Transite	SSMH-3162	SSMH-3562	119.78	Round Ct (#132 to Sunnyslope Rd)	Once Yearly	SEP	20-003594	Complete	9/1/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1505	1/1/1960	12"	Unknown	SSMH-511	SSMH-892	386.58	S McDowell Blvd	Once Yearly	DEC	20-004866	Complete	12/15/2020	Jet / Clean	Medium	Silt	Steve Kennedy
SSGM-8	1/1/1968	8"	Asbestos Cement	SSMH-359	SSMH-79	402.02	S McDowell Blvd (Near Baywood)	Once Yearly	MAR	20-000951	Complete	3/3/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1769	1/1/1955	6"	Unknown	SSMH-812	SSMH-697	286.79	S McDowell Blvd (near Marian)	Once Yearly	SEP	20-003610	Complete	9/16/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-3865	1/1/1954	6"	Unknown	SSMH-2552	SSMH-2386	300.43	Shasta Ave	Three Times a Year	FEB, MAY, AUG	20-003106	Complete	8/13/2020	Jet / Clean	Medium	<Null>	Steve Kennedy
SSGM-2177	1/1/1993	8"	SDR 35	SSMH-1544	SSMH-2275	183.36	Sonoma Mountain Pkwy (Corona Reach Apts a	Once Yearly	OCT	20-004054	Complete	10/1/2020	Jet / Clean	Heavy	Gravel	Stuart Crist
SSGM-2176	1/1/1993	8"	SDR 35	SSMH-2275	SSMH-2181	82.49	Sonoma Mountain Pkwy (Corona Reach Apts a	Once Yearly	OCT	20-004055	Complete	10/1/2020	Jet / Clean	Heavy	Gravel	Stuart Crist
SSGM-297	1/1/1970	12"	Asbestos Cement	SSMH-53	SSMH-438	260.05	St Francis Dr	Twice Yearly	FEB, AUG	20-003127	Complete	8/4/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-2873	1/1/1980	6"	Vitrified Clay	SSMH-2654	SSMH-2652	101.61	Stanley St (Post St to High St)	Twice Yearly	APR, OCT	20-004034	Complete	10/8/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1502	1/1/1953	6"	Asbestos Cement	SSMH-1014	SSMH-818	373.57	Stuart Dr	Once Yearly	JUL	20-002651	Complete	7/7/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-1321	1/1/1946	6"	SDR 26	SSFT-39	SSMH-2742	125.53	Summit Way	Once Yearly	NOV	20-004520	Complete	11/12/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-4135	1/1/1977	6"	SDR 26	SSMH-3562	SSMH-3152	133.02	Sunnyslope Rd (#940)	Once Yearly	SEP	20-003568	Complete	9/16/2020	Jet / Clean	<Null>	<Null>	Stephanie Oefinger
SSGM-3692	1/1/1980	6"	Vitrified Clay	SSMH-3313	SSMH-3492	132.00	Sunnyslope Rd (to Grant Park)	Twice Yearly	MAY, NOV	20-004475	Complete	11/17/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1846	1/1/1968	6"	Vitrified Clay	SSMH-1102	SSMH-824	257.41	Sutter St	Three Times a Year	APR, AUG, DEC	20-003115	Complete	8/4/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-878	1/1/1977	8"	Asbestos Cement	SSMH-737	SSMH-879	262.01	Tahola Ln	Once Yearly	APR	20-001345	Complete	4/2/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-2856	1/1/1927	10"	Vitrified Clay	SSMH-2640	SSMH-2641	28.90	Telephone Alley	Four Times a Year	JAN, APR, JUL, OCT	20-004040	Complete	10/7/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-2857	1/1/1985	6"	Vitrified Clay	SSMH-2642	SSMH-2640	185.83	Telephone Alley	Four Times a Year	JAN, APR, JUL, OCT	20-004039	Complete	10/7/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-4358	<Null>	6"	Vitrified Clay	SSMH-2594	SSMH-2494	226.74	Telephone Alley (at Prospect)	Twice Yearly	JUN, DEC	20-002064	Complete	6/3/2020	Jet / Clean	Heavy	Gravel	Stuart Crist
SSGM-4218	1/1/1927	6"	Vitrified Clay	SSMH-2494	SSMH-2615	675.67	Telephone Alley (Washington to Prospect)	Twice Yearly	JUN, DEC	20-002066	Complete	6/3/2020	Jet / Clean	Heavy	Gravel	Stuart Crist
SSGM-3002	<Null>	12"	Vitrified Clay	SSMH-2755	SSMH-2756	360.34	Upham St (at City Hall)	Once Yearly	MAR	20-000903	Complete	4/3/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1565	<Null>	6"	Vitrified Clay	SSMH-955	SSMH-1063	252.38	Vallejo St	Twice Yearly	MAR, SEP	20-003618	Complete	9/2/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-1090	<Null>	6"	Vitrified Clay	SSMH-797	SSMH-785	15.70	Vallejo St	Twice Yearly	MAR, SEP	20-003630	Complete	9/2/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-1089	<Null>	6"	Vitrified Clay	SSMH-785	SSMH-1325	230.93	Vallejo St	Twice Yearly	MAR, SEP	20-003631	Complete	9/2/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-1076	1/1/1950	6"	Vitrified Clay	SSMH-1302	SSMH-776	245.34	Vallejo St (#34 to #14)	Once Yearly	JUNE	20-002092	Complete	6/3/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-1057	1/1/1950	6"	Vitrified Clay	SSMH-776	SSMH-810	120.70	Vallejo St (#34)	Once Yearly	JUNE	20-002100	Complete	6/3/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-10S9	1/1/1950	6"	Vitrified Clay	SSMH-770	SSMH-1033	114.37	Vallejo St (#51 to Rio Vista)	Three Times a Year	FEB, JUN, OCT	20-004065	Complete	10/6/2020	Jet / Clean	Heavy	Roots	Stephanie Oefinger
SSGM-1091	1/1/1946	6"	Vitrified Clay	SSCO-248	SSMH-785	106.06	Vallejo St (110 Vallejo to 22 Myrtle)	Twice Yearly	MAR, SEP	20-003627	Complete	9/2/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-1093	1/1/1967	6"	Vitrified Clay	SSMH-1325	SSMH-1476	130.11	Vallejo St (E Washington to Madison)	Twice Yearly	MAR, SEP	20-003625	Complete	9/2/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-1087	<Null>	6"	Vitrified Clay	SSMH-1063	SSMH-797	246.50	Vallejo St (from E Wash to Madison)	Twice Yearly	MAR, SEP	20-003634	Complete	9/2/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-1063	1/1/1946	6"	Vitrified Clay	SSCO-181	SSMH-797	160.66	Vallejo St (to 16 Averye Wy)	Twice Yearly	MAR, SEP	20-003641	Complete	9/2/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-1064	1/1/1946	6"	Vitrified Clay	SSCO-230	SSMH-1063	162.72	Vallejo St (to 706 Marin Wy)	Twice Yearly	MAR, SEP	20-003639	Complete	9/2/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-1066	1/1/1946	6"	Vitrified Clay	SSMH-794	SSMH-1325	353.46	Vallejo St (to 722 Madison St)	Twice Yearly	MAR, SEP	20-003636	Complete	9/2/2020	Jet / Clean	Heavy	Roots	Stuart Crist

SSGM-1060	1/1/1950	6"	Vitrified Clay	SSMH-1232	SSMH-770	463.89	Vallejo St (Woodson Wy to #51 Vallejo)	Three Times a Year	FEB, JUNE, OCT	20-004064	Complete	10/6/2020	Jet / Clean	Heavy	Roots	Steve Kennedy
SSGM-1754	1/1/1959	8"	Unknown	SSMH-1493	SSMH-692	199.22	W Payran St	Once Yearly	NOV	20-004488	Complete	11/17/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-2850	<Null>	6"	High Density Polyethyle	SSMH-2633	SSMH-2632	205.03	Water St	Four Times a Year	JAN, APR, JUL, OCT	20-004044	Complete	10/13/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-2849	<Null>	6"	High Density Polyethyle	SSMH-2632	SSMH-2631	67.91	Water St	Four Times a Year	JAN, APR, JUL, OCT	20-004045	Complete	10/13/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-2848	<Null>	6"	High Density Polyethyle	SSMH-2631	SSMH-2630	204.71	Water St	Four Times a Year	JAN, APR, JUL, OCT	20-004046	Complete	11/5/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-4070	1/1/1962	6"	SDR 26	SSMH-3517	SSMH-2629	26.64	Water St (at Western)	Four Times a Year	JAN, APR, JUL, OCT	20-004026	Complete	10/13/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-2847	1/1/1962	6"	High Density Polyethyle	SSMH-2630	SSMH-3517	95.10	Water St (Near Western)	Four Times a Year	JAN, APR, JUL, OCT	20-004047	Complete	10/7/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-2846	1/1/1967	16"	Vitrified Clay	SSMH-2629	SSMH-2628	276.74	Water St (Western to B St)	Four Times a Year	JAN, APR, JUL, OCT	20-004048	Complete	10/13/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-1373	1/1/1961	10"	Unknown	SSMH-1200	SSMH-1252	378.38	Weaverly Dr	Once Yearly	AUG	20-003118	Complete	8/4/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-4657	1/1/1927	9	Vitrified Clay	SSMH-2644	SSMH-2641	135.60	Western Ave (at Keller St)	Four Times a Year	JAN, APR, JUL, OCT	20-004025	Complete	10/7/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-4660	1/1/1927	5	Vitrified Clay	SSMH-2650	SSMH-2647	408.02	Western Ave (at Post)	Once Yearly	JUN	20-002060	Complete	6/4/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-2851	1/1/2002	10"	Vitrified Clay	SSMH-2634	SSMH-2629	206.49	Western Ave (at Water St)	Four Times a Year	JAN, APR, JUL, OCT	20-004043	Complete	10/7/2020	Jet / Clean	Heavy	Grease	Steve Kennedy
SSGM-3512	1/1/1974	8"	Asbestos Cement	SSMH-3184	SSMH-3183	209.49	Westridge Pl (#341 to #184 Clearview Ct)	Once Yearly	SEP	20-003590	Complete	9/1/2020	Jet / Clean	<Null>	<Null>	<Null>
SSGM-3514	1/1/1974	6"	Transite	SSMH-3186	SSMH-3183	139.33	Westridge Pl (#341)	Once Yearly	SEP	20-003587	Complete	9/16/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-491	1/1/1973	8"	Asbestos Cement	SSMH-349	SSMH-550	253.87	Whitney Wy	Twice Yearly	JUN, DEC	20-002118	Complete	6/2/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-160	1/1/1973	8"	Asbestos Cement	SSMH-550	SSMH-204	139.14	Whitney Wy	Twice Yearly	JUN, DEC	20-002120	Complete	6/2/2020	Jet / Clean	Heavy	Grease	Stuart Crist
SSGM-1576	<Null>	6"	Unknown	SSMH-1137	SSMH-1069	358.72	Wilson St	Once Yearly	APR	20-001341	Complete	4/2/2020	Jet / Clean	<Null>	<Null>	Steve Kennedy
SSGM-1839	1/1/1927	6"	Vitrified Clay	SSMH-866	SSMH-1509	548.49	Wilson St	Once Yearly	AUG	20-003116	Complete	8/5/2020	Jet / Clean	Heavy	Roots	Stuart Crist
SSGM-1061	1/1/1950	6"	Vitrified Clay	SSCO-290	SSMH-1232	163.11	Woodson Wy (#701 to #5 Vallejo)	Three Times a Year	FEB, JUNE, OCT	20-004063	Complete	10/6/2020	Jet / Clean	Heavy	Roots	Steve Kennedy

Sewer Lateral Replacement Grant Program

Partner with the City of Petaluma's Public Works & Utilities Department to replace your old leaky sewer lateral.

The Sewer Lateral Replacement Grant Program (SLRGP) provides financial assistance to property owners for the replacement of their private sewer lateral, in an effort to reduce inflow and infiltration into the Sewer System.

Contents:

Program information

Application

Qualification Check List

September 2014

Partnering

PURPOSE

The Sewer Lateral Replacement Grant Program (SLRGP) provides financial assistance to property owners for the replacement of their private sewer lateral, which, due to their age or condition, are often a source of groundwater infiltration and surface water inflow (I&I) to the sewer collection system.

AMOUNT OF GRANT

The maximum amount of assistance for a sewer lateral replacement or repair is 50% of the approved cost, up to a maximum reimbursement of $2,000. Only complete replacement of the sewer lateral or a repair that completely eliminates infiltration and inflow is eligible for the program. All SLRGP applications are subject to approval by the Utilities Division.

Payment shall be made to the owner(s) following inspection and approval of completed work.

Ownership

RESPONSIBILITY

All sewer laterals belong to the property owner from the home or building to, and including, the connection at the City main. Property owners are responsible for all costs relating to their sewer lateral, including; installation, connection, maintenance, repair, reconstruction, alteration, abandonment or removal to prevent inflow and infiltration. (See figure 1)

(Ord. 2282 NCS §3 (part), 2007)

DEFINITION

Sewer Lateral: The sewer lateral consists of the pipe that begins at the house/building plumbing system connection, usually a sewer cleanout located approximately two (2) feet from the foundation, and extends to, and includes, the connection at the public (city) sewer main.

Infiltration and Inflow: Infiltration is usually the seepage of groundwater into the sewer pipes through holes, cracks, joint failures and faulty connections. Inflow occurs when surface water flows into sewer pipes at points of direct connections such as roof, yard, foundation and basement sump drains.

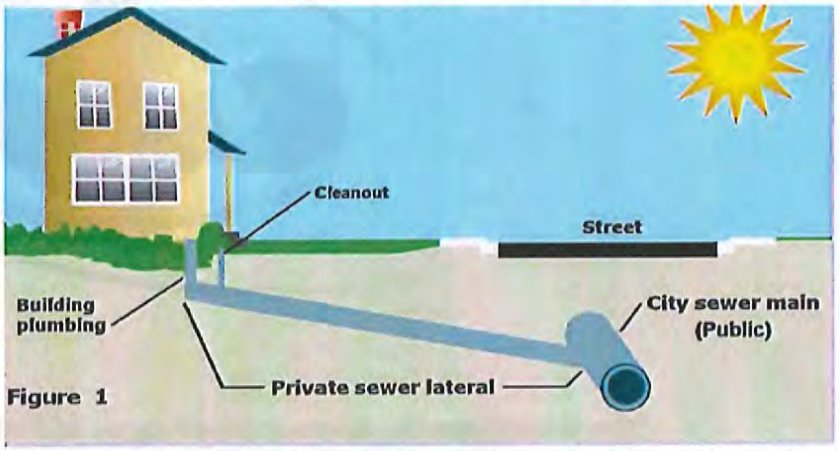

Figure 1

Qualification

CHECK LIST - Before beginning ANY construction work:

1. Schedule a closed circuit televised video (CCTV) inspection with a licensed contractor.
2. Submit a completed application along with a minimum of three (3) quotes obtained from properly licensed contractors and the CCTV inspection to the Utilities Division for review, determination of eligibility and approval.
3. Receive a letter of approval and obligation. Obligating funds will only be issued by the Utilities Division to the property owner.
4. Acquire the necessary encroachment permit from the Department of Public Works & Utilities at 11 English Street, (707) 778-4303.
5. Notify the Public Works and Utilities Inspection Division of scheduled work (707) 778-4303. A Division representative will inspect work on the lateral replacement as it occurs.

IN ORDER FOR GRANT FUNDING TO BE AUTHORIZED

Warning: If program qualifications are not met prior to commencement of any construction work, the property owner will not be eligible for funding from the City. Any work to repair or replace the sewer lateral prior to receiving an approval-obligation letter from the Utilities Division is performed at the owner's risk and cost.

APPLICATION

Submit a completed application along with a minimum of three (3) quotes obtained from properly licensed contractors to the Utilities Division for review and determination of eligibility.

Grant funds are available beginning July 1 of each fiscal year. Funds will be obligated on a first-come, first-serve basis until all funds are allocated or the end of the fiscal year June 30. Funds will be allotted for a period not to exceed sixty (60) days from approval. This shall include all work, inspection, and payment to Contractor by Applicant. Work not completed by June 30 of the current fiscal year may not be eligible for payment.

For consideration of the SLRGP, applicants must complete and submit the application form. Applications are available at the Department of Public Works & Utilities Water Field Office, 11 English Street, or on the web at:

www.cityof Petaluma.net/wrcd/slrgp.html

INSPECTION AND TESTING

A closed circuit televised video (CCTV) inspection must be performed prior to any work being done to assess the lateral condition. The property owner must schedule a CCTV inspection with his/her contractor and Utilities Division personnel prior to repair or replacement of the sewer lateral in order for grant funding to be obligated.

All work must be performed by a licensed contractor and observed by Utilities Division personnel who will document the inspection or testing information.

Air Testing will be required if partial repair or replacement is performed on the sewer lateral in order to verify that inflow and infiltration has been eliminated. Air testing will not be required when full replacement of the lateral (from building cleanout to connection at the City sewer main) has been completed.

Prior to connection at the main, if necessary, Utilities Division personnel will witness testing of the entire line from the building cleanout to the connection to the main. Testing will be performed by the applicant's contractor.

Department of Public Works & Utilities
Water Field Office
202 North McDowell Boulevard
Petaluma, CA 94954
Phone: (707) 778-4546
Fax: (707) 778-4508
Email: water@ci.petaluma.ca.us
Website: cityofpetaluma.net

SEWER LATERAL REPLACEMENT GRANT PROGRAM APPLICATION

Public Works & Utilities
City of Petaluma, CA

Providing Responsible and Creative Stewardship of Our Water Resources

SLRGP # _____

SECTION I: Owner / Title Holder

1. Grant Address: _____

2. Applicant Name: _____

3. Applicant Address: _____
(If different from above)

4. Applicant Phone: Home _____ Work _____

Cell _____ Email _____

I certify by signing this application that I am the legal owner of the property described herein. I am aware the submission of this document does not constitute that a grant has been approved by the City of Petaluma. I have read the brochure discussing the requirements for the Sewer Lateral Replacement Grant Program and am aware that a letter will be issued advising if funds have been granted. Work performed prior to receiving a grant authorization letter is performed at my own risk.

Signature: _____ Date: _____

SECTION II: Site Information

1. a) State the nature of the lateral problem (s): _____

_____

(Tree Roots) (Collapsed Pipe) (Grease/Fat Build-up) (Define—other)

b) How many times has this lateral problem occurred in the last 12 months? _____

2. Provide a layout sketch of the work location including,; building cleanout, lateral and approximate length, connection at the public sewer main, street and proposed work.

3. Is there an Insurance claim for this work? Yes (Please provide a copy of any claim information)
No

SECTION III: Lateral CCTV Inspection

Contractor name and date the inspection on your sewer line will be conducted using Closed Circuit Television (CCTV).

Company Name: _____

Inspection Date: _____

IMPORTANT!

All CCTV inspections and site tests are to be observed by Utilities Division personnel.

Grant funds may not be obligated unless inspection, testing (if necessary) and price quotations are submitted and approved.

SECTION IV: Price Quotation Information

Please supply at least three (3) price quotations (include contractor's quote sheet) from properly licensed contractors and submit to the Utilities Division of Public Works for review.

Company Name: _____ Quotation: _____

Method: ~ Lining ~ Pipe Burst ~ Open Trench

Company Name: _____ Quotation: _____

Method: ~ Lining ~ Pipe Burst ~ Open Trench

Company Name: _____ Quotation: _____

Method: ~ Lining ~ Pipe Burst ~ Open Trench

Please be advised:

The Utilities Division will review all price quotations for reasonableness of scope and cost. We will use historical data to determine the reasonableness of a price quotation. Additional estimates may be recommended.

If you have any questions please call **707-778-4546.**

METHODS OF SEWER LATERAL REPLACEMENT

Pipe Bursting: In the pipe bursting process, two pits (an insertion pit and a receiving pit) are excavated to expose each end of the pipe to be replaced. In the insertion pit, a cone shaped bursting or expander head is inserted into the pipe. The bursting head is then forced through the pipe, usually being pulled by an attached cable. During the bursting operation the existing pipe breaks, while at the same the bursting head pulls the new pipe through to its end at the receiving pit. Once the new pipe has been fully inserted, each end is connected by means of pipe couplers to complete the replacement process.

Cured-In–Place (CIPP): The CIPP lining process is a pliable tube, usually made from felt material which is pulled into place or inserted into place by inversion. Access points for material insertion are excavated pits at predetermined points of the host pipe to be lined. Either method requires saturating the tube with special epoxy resins. The epoxy resins combine with the pliable tubing and are cured at very high temperatures, which enable the materials to mold to the host pipe. After the new cured-in-place pipe cools, its ends are trimmed and final connections are made by means of pipe couplers.

Open Trench: The open trench method is the excavation of the entire length or area of pipe to be repaired or replaced. Typical excavations include; landscaping, sidewalks, curb and gutter, and streets. Once existing pipe is excavated and removed, granular material is placed at the trench bottom to evenly support the new pipe. The new pipe is then placed in the trench and connected at its ends using compatible pipe couplers. Once the pipe is installed, backfill of granular material is placed over the pipe to the surface and final surfacing, of concrete, asphalt or landscaping is then completed.

The following information will be completed by Utilities Division staff

SECTION V:

CCTV Inspection

1. CCTV Inspection Schedule: Y N Date Completed: _____

2. Testing Required? Y N Test Date: _____

   Air Test Acceptance: Pass Fail

Grant Funding

1. Amount of Funds Obligated: $ _____ Date: _____ ☐ Emergency

2. Work Inspection Date: _____ Encroachment Permit Number: _____

3. Paid Receipt (indicating contractor paid in full): Y N Invoice #: _____

4. Final Cost: _____

5. Grant Amount: _____

Summary Information

Section I Completed? Y N Date: _____ Initials: _____

Section II Completed? Y N Date: _____ Initials: _____

Section III Completed? Y N Date: _____ Initials: _____

Section IV Completed? Y N Date: _____ Initials: _____

Fund Obligation Approved by: _____ Date: _____

Section V Completed? Y N Date: _____ Initials: _____

Grant Funding Dispersal Approved By: _____ Date: _____

Information

FAQs

Q. What do I do after I receive my application?

A. After you receive your application, you will need to fill out Sections I and II of the application and provide a plan view sketch of your property including the building, sewer lateral location, and street address. Include the three (3) contractor quotes and submit your application to Public Works & Utilities at 202 North McDowell Blvd., Petaluma, CA 94954.

Q. From whom can I get price quotations?

A. You can get price quotations from licensed contractors who perform underground sewer construction. A list of contractors who are aware of the Sewer Lateral Replacement Grant Program (SLRGP) can be requested from the Utilities Division (707) 778-4546.

Q. How many quotes do I need?

A. For cost comparison you need to obtain three (3) quotes. These three quotes are essential in determining appropriate construction costs for the method of work you choose to have done. Be sure the quotes are consistent as to the replacement method to be used. These quotes will be reviewed by Utilities Division personnel.

Q. How do I get my sewer lateral CCTV inspection done?

A. Prior to any work being performed, schedule a closed circuit televised video (CCTV) inspection of your sewer lateral with a licensed contractor.

Q. When will testing be required?

A. Air Testing may be required if CCTV inspection does not adequately reveal structural damage to the sewer lateral. Testing will also be required prior to connection at the main and when a portion of a lateral has been repaired or replaced. (See Inspection and Testing)

Q. How do I know if I have qualified for the SLRGP?

A. After your application has been reviewed and the CCTV inspection has been performed and evaluated by Inspection Division personnel, you will be sent a funding obligation letter stating that your sewer lateral application has met the conditions of the program and funds have been obligated for your project. This process can take up to 10 business days.

Q. After I have received my funding obligation letter, what happens next?

A. Once you have received your funding obligation letter, you can then schedule with your contractor to begin work.

Q. Do I need any permits for this work?

A. Yes, you will need an encroachment permit to work in the public right-of-way or when connecting to a public utility. Contact Public Works at (707) 778-4303.

Q. When do I need an inspection?

A. Inspection is required during construction and prior to any trench backfilling by Inspection Division personnel. Our personnel will also witness testing, if necessary, of the entire line from the building cleanout to the connection at the main. Testing will be performed by your contractor.

Q. What happens after inspections?

A. Once all work is inspected and complete, your encroachment permit will be finalized. You will then submit your paid in-full invoice to the Utilities Division. The City will then complete your application and process it for funding. Payment will be made within 3 to 4 weeks after final inspection and receipt of the paid invoice.

Q. What do I need to do if I had emergency work done?

A. Once emergency work has been performed, an encroachment permit must be obtained within twenty-four (24) hours, exclusive of Saturday, Sunday or holidays. If you wish to apply for the SLRGP, submit the required program information for review.

Public Works & Utilities
Water Field Office
202 North McDowell Boulevard
Petaluma, CA 94954
Phone: (707) 778-4546
Fax: (707) 206-6034
Email: water@ci.petaluma.ca.us
Website: cityofpetaluma.net

September 2014

Departmental Budget Overview

By Account Type	2018 Actuals	2019 Actuals	2020 Revised	2021 Proposed
Salary	8,781,668	7,840,672	9,302,377	10,182,755
Benefits	3,672,373	3,138,215	4,054,220	4,217,286
Services & Supplies	25,226,692	49,356,651	38,179,224	37,995,042
Capital Expenditures	1,785,027	220,008	1,963,896	1,366,500
Transfers	20,722,236	1,717,897	25,320,685	32,685,753
Public Works And Utilities	**60,187,996**	**62,273,443**	**78,820,402**	**86,447,336**

By Cost Center	2018 Actuals	2019 Actuals	2020 Revised	2021 Proposed
Pub Works Admin	459,923	464,355	371,232	272,291
Pub Works Engineering Development	318,283	367,868	364,747	373,500
Pub Works Engineering Cip	102,639	78,813	118,573	180,545
Pub Works Engineering Traffic	51,834	44,508	65,757	66,572
Pub Works Bldg/facility Maintenance	771,407	726,132	705,463	688,983
Pub Works Auto/equip Maint Shop	209,899	230,148	222,065	230,035
Pub Works Parks Maintenance	1,695,444	1,748,850	1,675,448	1,747,724
Pub Works Street Lights	226,857	127,593	175,000	175,000
Downtown Streets/sidewalks Maintenance	71,195	94,351	118,810	120,000
Pub Works Turning Basin/d St Bridge	53,650	28,055	30,268	34,718
General Fund Public Works and Utilities	**3,961,131**	**3,910,673**	**3,847,363**	**3,889,368**
Gas Tax	1,675,366	2,529,569	2,643,826	2,699,383
Street Maintenance (HUT)	2,668,637	2,749,941	4,601,458	6,916,120
Street Signs And Markings	573,331	530,425	555,557	598,412
Street Signals And Lights	696,890	682,395	720,633	731,366
Solid Waste Contract Mgt	(16,186)	38,119	240,828	70,549
LAD Admin/operations	406,733	373,382	622,953	481,480
Measure M Parks	-	28,597	519,000	578,902
Airport Admin/operations	1,073,294	1,245,071	1,993,296	2,135,933
Airport Fueling	641,646	518,674	668,700	621,450
Airport Hangars	50,033	89,147	97,200	112,100
Marina Admin/operations	366,972	331,657	359,150	237,813
Transit Admin	598,943	603,891	622,424	795,053
City Routes	2,289,942	2,264,837	2,042,658	1,758,687
Paratransit	688,640	755,976	1,143,989	741,580
Waste Water Admin	19,809,497	20,172,270	24,700,007	28,498,960
Waste Water Collect System	956,290	857,361	1,153,356	1,363,635
Waste Water Sewage Pump Stations	426,380	469,148	725,760	644,760
Waste Water Customer Svc	88,162	93,208	113,300	112,200
Waste Water Industrial	464,417	486,715	626,605	760,627
Waste Water Reclamation	674,250	845,971	1,248,322	1,234,925
Waste Water Storm Drain	156,704	161,527	205,446	232,520
Waste Water Ellis Creek Operations	4,758,512	5,189,282	6,837,334	7,042,628
Water Admin	5,766,482	6,155,705	8,606,120	8,936,038
Water Conservation	654,297	523,446	723,985	739,824
Water Customer Services	597,420	596,347	639,089	664,556
Water Leak Detect/cross Connect	125,729	122,756	129,884	133,274
Water Pumping	412,967	276,523	534,338	535,200
Water Source Of Supply	6,998,333	6,895,201	7,708,250	8,076,750
Water Transmission & Distribution	2,281,700	2,372,464	3,506,068	4,447,539
Storm Drainage Utility Admin	341,487	403,165	683,503	655,704
Non General Fund Public Works and Utilities	**56,226,868**	**58,362,770**	**74,973,039**	**82,557,968**
Total Public Works And Utilities	**60,187,999**	**62,273,443**	**78,820,402**	**86,447,336**

Department Budget Summary

By Account Type	2018 Actuals	2019 Actuals	2020 Revised	2021 Proposed
Salary	8,781,668	7,840,672	9,302,377	10,182,755
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Services & Supplies	25,226,692	49,356,651	38,179,224	37,995,042
Capital Expenditures	1,785,027	220,008	1,963,896	1,366,500
Transfers	20,722,236	1,717,897	25,320,685	32,685,753
Public Works And Utilities	**60,187,996**	**62,273,443**	**78,820,402**	**86,447,336**

A Public Works and Utilities Department budget of $86,447,336 is recommended for 2020/21. This represents an increase of $7,626,934 over 2019/20 and includes budgets in Utilities, Enterprise, and Special Revenue funds as well as costs supported by the General Fund.

Total salaries are recommended at $10,182,755 representing an increase of $880,378 over 2019/20. The budget reflects anticipated step increases, employee benefit selections, and includes funding for two additional Utility Service Workers for water and three additional Utility Service Workers for waste water.

Total Benefits are budgeted at $4,217,286 and represent an increase of $163,066 over 2019/20. The increase in benefits costs is attributed to funding for additional positions, increased retirement and workers compensation costs.

Total services and supplies are budgeted at $37,995,042 a decrease of $184,182 from 2019/20. This is reflective of increases in utility costs, professional services, wholesale water and other supplies required to operate. This is offset by reduced intragovernmental charges resulting from a one-time Risk Management rate holiday initiated in the budget development process and necessary to produce a balanced budget.

Capital expenditures are budgeted at $1,366,500 reflecting a decrease of $597,396 from 2019/20. This is due to fewer capital purchases recommended in 2020/21.

Transfers out are budgeted at $32,685,753 representing an increase of $7,365,068 due primarily to increased activity related to CIP projects and corresponding transfers out.

Policy Options

Further explanations of budget changes can be found in the individual division narratives.

Waste Water Administration

Wastewater Administration serves the Wastewater Enterprise operations, located at the Ellis Creek Water Recycling Facility (WRF) and the Field Office, and works collaboratively with operational staff to promote efficiency, accountability, fiscal and asset management, and provide customer service. Primary responsibilities include preparation of Council agenda reports and other correspondence, budget analysis and coordination, fiscal projections and analysis, grant and contract administration, coordination of asset management and customer service request programs, and management of utility rates. The cost center includes transfers to CIP accounts, intergovernmental charges, and membership costs to key wastewater and recycled water agencies, including Bay Area Clean Water Agencies (BACWA), and California Association of Sanitation Agencies (CASA).

Waste Water Administration Budget

66100 WASTE WATER ADMINISTRATION	*2018 Actuals*	*2019 Actuals*	*2020 Revised*	*2021 Proposed*
Salary	325,847	310,442	426,339	446,153
Benefits	102,402	113,339	140,955	158,876
Services & Supplies	9,269,836	9,426,279	10,834,713	10,165,931
Transfers	10,111,412	10,322,210	13,171,000	17,728,000
Capital Expenditures	-	-	127,000	-
Waste Water Administration	**19,809,497**	**20,172,270**	**24,700,007**	**28,498,960**

A Waste Water Administrative budget of $28,498,960 is recommended for 2020/21. This is an increase of $3,798,953 over 2019/20.

Salaries are recommended at $446,153 an increase of $19,814 due to increased costs for advancements through the salary ranges.

Benefits are recommended at $158,876, an increase of $17,921 over 2019/20 due to increased retirement and workers compensation costs.

Services and Supplies of $10,165,931 are recommended which represent a decrease of $668,782 from 2019/20 mainly due to a reduction in debt service payments and savings related to bond refinancing.

Transfers Out of $17,728,000 are recommended which represents an increase of $4,557,000 over 2019/20. This represents an increase in capital project activity and corresponding transfers out.

Capital expenditures are recommended at $0, a decrease of $127,000 from 2019/20.

Policy Options

None

Waste Water Collect System

Wastewater Collection System, under Operations, provides 24/7 collection and conveyance of domestic, commercial, and industrial wastewater generated within Petaluma and Penngrove to the ECWRF. The system connects sewer lateral piping from sewer mains and trunks that convey business and residential sewer through more than 195 miles of sewer collection pipes. Operation and maintenance of the nine sewer pump stations are funded from a related cost center. A continuous inspection program identifies problem areas when (3) remote control TV cameras are inserted through the main pipelines. Preventative repairs and cleaning, done with the use of a high-pressure water jet vacuum truck, are initiated based on inspection results.

Waste Water Collect System Budget

66200 WASTE WATER COLLECT SYSTEM	*2018 Actuals*	*2019 Actuals*	*2020 Revised*	*2021 Proposed*
Salary	548,946	426,165	532,246	680,218
Benefits	237,517	215,057	243,110	290,417
Services & Supplies	169,827	216,139	378,000	393,000
Waste Water Collect System	**956,290**	**857,361**	**1,153,356**	**1,363,635**

A Waste Water Collect System budget of $1,363,635 is recommended for 2020/21. This is an increase of $210,279 over 2019/20.

Salaries are recommended at $680,218, an increase of $147,972 over 2019/20 due to funding for two additional Utility Service workers.

Benefits are recommended at $290,417, an increase of $47,307 over 2019/20 due to the changes described in the salary section.

Services and Supplies of $393,000 are recommended, an increase of $15,000 over 2019/20 mainly due to computer upgrades.

Policy Options

Increase in staffing with two additional Utility Service Workers to perform inspection and cleaning to meet the requirements of the City's Sewer System Management Plan.

Waste Water Pump Stations

Waste Water Pump Stations, managed by Environmental Services, funds the reliable operations and management of the City's nine sewer pump stations that deliver 6.7 million gallons per day (mgd) average dry weather flow, and up to 36 mgd wet weather flow of wastewater to the Ellis Creek Water Recycling Facility (ECWRF).

Waste Water Pump Stations Budget

66250 WASTE WATER SEWAGE PUMP STA	*2018 Actuals*	*2019 Actuals*	*2020 Revised*	*2021 Proposed*
Salary	140,049	145,213	177,149	183,814
Benefits	53,085	57,934	78,911	73,946
Services & Supplies	233,246	266,001	389,700	387,000
Capital Expenditures			80,000	-
Waste Water Sewage Pump Stations	**426,380**	**469,148**	**725,760**	**644,760**

A Waste Water Pump Station budget of $644,760 is recommended for 2020/21. This is an increase of $81,000 over 2019/20.

Salaries are recommended at $183,814, an increase of $6,665 over 2019/20 due to step advancements through the salary ranges.

Benefits are recommended at $73,946, a decrease of $4,965 from 2019/20 due to changes in employee benefit selections.

Services and Supplies of $387,000 are recommended, a decrease of $2,700 from 2019/20.

Capital expenditures are recommended at $0.

Policy Options

None

Waste Water Customer Services

Customer Service is part of the Operations Division that works closely with the Finance Department to investigate and resolve customer-billing issues by addressing customer billing inquiries, respond to service orders, and requests for utility billing system support.

Waste Water Customer Services Budget

66300 WASTE WATER CUSTOMER SVC	*2018 Actuals*	*2019 Actuals*	*2020 Revised*	*2021 Proposed*
Services & Supplies	88,162	93,208	113,300	112,200
Waste Water Customer Svc	**88,162**	**93,208**	**113,300**	**112,200**

A Waste Water Customer Service budget of $112,200 is recommended for 2020/21. This is essentially flat from 2019/20.

Services and Supplies of $112,200 are recommended, a decrease of $1,100 from 2019/20.

Policy Options

None

Waste Water Industrial

Waste Water Industrial, within Environmental Services, funds environmental compliance for wastewater treatment and disposal, industrial wastewater pretreatment, laboratory analysis, pollution prevention, and other permit requirements. Treated wastewater is analyzed for over 100 chemical constituents, and results are submitted monthly to the State environmental regulators.

Waste Water Industrial Budget

66400 WASTE WATER INDUSTRIAL	*2018 Actuals*	*2019 Actuals*	*2020 Revised*	*2021 Proposed*
Salary	147,231	145,951	202,368	233,540
Benefits	73,864	47,255	104,437	105,587
Services & Supplies	243,322	293,509	319,800	421,500
Waste Water Industrial	**464,417**	**486,715**	**626,605**	**760,627**

A Waste Water Industrial budget of $760,627 is recommended for 2020/21. This is an increase of $134,022 over 2019/20.

Salaries are recommended at $233,540, an increase of $31,172 over 2019/20 due to employees advancing in the salary step range as well as changes to salary allocations.

Benefits are recommended at $105,587, an increase of $1,150 over 2019/20 due to increased retirement costs.

Services and Supplies of $421,500 are recommended, an increase of $101,700 over 2019/20 for consulting services and laboratory testing to prepare for renewal of the wastewater facility's permit.

Policy Options

Funding for consultant assistance and laboratory testing of $130,000 needed to comply with state and federal requirements is being recommended in the FY 2020/21 budget.

Waste Water Reclamation

Waste Water Reclamation within Environmental Services funds tertiary wastewater treatment, pumping, storage, and distribution of recycled water to urban and agricultural customers. Wastewater treated effluent is further treated by filtration and ultraviolet light disinfection prior to delivery to ranches, golf courses, vineyards, city parks, schools, greenbelts, the airport, and ECWRF buildings and grounds.

Waste Water Reclamation Budget

66500 WASTE WATER RECLAMATION	*2018 Actuals*	*2019 Actuals*	*2020 Revised*	*2021 Proposed*
Salary	291,329	319,110	398,342	404,972
Benefits	101,041	133,942	179,480	159,453
Services & Supplies	281,880	392,919	670,500	670,500
Waste Water Reclamation	**674,250**	**845,971**	**1,248,322**	**1,234,925**

A Waste Water Reclamation budget of $1,234,925 is recommended for 2020/21. This is a decrease of $13,397 from 2019/20.

Salaries are recommended at $404,972, an increase of $6,630 over 2019/20. Increase is due to employees advancing in the salary step range as well as changes to salary allocations.

Benefits are recommended at $159,453, a decrease of $20,027 from 2019/20 due to changes in employee benefit selection.

Services and Supplies of $670,500 are recommended, no change from 2019/20.

Policy Options

None

Waste Water Ellis Creek Operations

Waste Water Ellis Creek Operations within Environmental Services accounts for operations and maintenance of the liquids and solids wastewater treatment facilities and management of the polishing wetland areas. Ellis Creek Waste Water Recycling Facility (ECWRF) has an average dry and wet weather design capacity of 6.7 million gallons per day (mgd) and 36 mgd, respectively, and treats domestic, commercial, and industrial wastewater generated within the City's service area including Penngrove

Waste Water Ellis Creek Operations Budget

66700 WASTE WATER ELLIS CREEK OPERATIONS	*2018 Actuals*	*2019 Actuals*	*2020 Revised*	*2021 Proposed*
Salary	1,253,026	1,308,200	1,632,255	1,667,519
Benefits	454,214	561,632	760,086	711,991
Services & Supplies	3,051,272	3,319,450	4,230,993	4,478,118
Capital Expenditures	-	-	214,000	185,000
Waste Water Ellis Creek Operations	**4,758,512**	**5,189,282**	**6,837,334**	**7,042,628**

A Waste Water Ellis Creek operations budget of $7,042,628 is recommended for 2020/21. This is an increase of $205,294 over 2019/20.

Salaries are recommended at $1,667,519, an increase of $35,264 over 2019/20 due mainly to changes in position allocations.

Benefits are recommended at $711,991, a decrease of $48,095 from 2019/20 due to changes in position allocations.

Services and Supplies of $4,478,118 are recommended, an increase of $247,125 over 2019/20 due to increased costs for biosolids hauling and management, chemicals, and utilities (gas and electricity).

Capital expenditures are recommended at $185,000 for 2020/21, a decrease of $29,000 from 2019/20 due to a reduction in capital expenditures from 2019/20.

Policy Options

Funding for an automatic gate at the facility, Compressed Natural Gas vehicle as well as replacing pumps, flow meters, compressors, and gear boxes is being recommended in the FY 2020/21 budget.

WASTEWATER UTILITY PROJECTS
FY 2020-2021

WASTEWATER CAPITAL IMPROVEMENT PROGRAM BUDGET FY 20-21
PROJECT SUMMARY
Fund 6690.66999

PROJECTS (dollars in $000)		Actual Life to Date thru FY 19	Estimate FY 19-20	Estimate Life to Date thru FY 20	Proposed Budget FY 20-21	PROJECTED				Total Project Estimate
						FY 21-22	FY 22-23	FY 23-24	FY 24-25	
C66501003	Manhole Rehabilitation	482	-	482	356	-	356	-	356	1,550
C66501518	CNG Fueling Station Ellis Creek	5,182	2,073	7,255	200	-	-	-	-	7,455
C66501840	Chemical System Upgrade at Ellis Creek Phase 1	8	440	448	1,215	-	-	-	-	1,663
C66401728	Ellis Creek High Strength Waste Facilities	5,734	652	6,386	100	-	-	-	-	6,486
C66501308	Chemical System Upgrade at Ellis Creek Phase 2	-	280	280	2,689	975	-	-	-	3,944
C66501519	Payran Lift Station Upgrade	152	1,097	1,249	1,018	-	-	-	-	2,267
C66402143	McNear Park Sewer Replacement	-	-	-	2,500	-	-	-	-	2,500
	Sewer Main Replacement Future	-	-	-	-	2,500	-	2,500	3,094	8,094
C66501923	Oakmead, Redwood, and Outlet Mall Lift Station Upgrades	-	-	-	-	-	955	1,808	-	2,763
C66501930	Replace PIPS High Capacity Pumps	-	-	-	20	-	240	2,600	-	2,860
C66502032	PIPS Forcemain Replacement	11	160	171	471	6,095	6,095	-	-	12,832
C66501838	Ellis Creek Outfall Replacement	115	340	455	1,915	1,930	-	-	-	4,300
C66502042	C Street Pump Station and Collection Area Upgrades	-	260	260	50	2,889	-	-	1,000	4,199
e66502027	Corp Yard Tank Demo-Phase 2	-	-	-	1,067	-	-	-	-	1,067
c66402144	Corp yard Master Plan	-	-	-	700	-	-	-	-	700
	TOTAL	$ 11,684	$ 5,302	$ 16,986	$ 12,301	$ 14,389	$ 7,646	$ 6,908	$ 4,450	$ 62,680

SOURCES (dollars in $000)										
	California Energy Comm Grant	$ -	$ -	$ -	$ 3,000	$ -	$ -	$ -	$ -	$ 3,000
	Waste Water	10,100	3,901	14,001	11,936	14,389	7,646	6,908	4,450	59,330
	Water Capital	-	-	-	350	-	-	-	-	350
	TOTAL	$ 10,100	$ 3,901	$ 14,001	$ 15,286	$ 14,389	$ 7,646	$ 6,908	$ 4,450	$ 62,680

Manhole Rehabilitation C66501003

Purpose and Description

Many of the City's older manholes were constructed with brick and mortar. These brick manholes are a significant cause of high infiltration and inflows (I&I), in part due to the interior surfaces having deteriorated and the mortar eroding which allows ground water to enter the system. The system currently has approximately 80 brick manholes in need of replacement. The first construction project to rehabilitate the manholes is completed. The next phase will occur in FY 20/21 and will be funded by Waste Water Capital.

Financial Overview

C66501003	Expenses and Funds Received			BUDGET					
	Actual Life to Date thru FY 19	Estimate FY 19-20	Estimate Life to Date thru FY 20	Proposed Budget FY 20-21	PROJECTED FY 21-22	PROJECTED FY 22-23	PROJECTED FY 23-24	PROJECTED FY 24-25	Total Project Estimate
USES (dollars in $000)									
Planning/Environmental			-						-
Land & Easements			-						-
Design	28		28	15		15		15	73
Legal Services			-	2		2		2	6
Administration	2		2	1					3
Construction Contracts	411		411	250		250		250	1,161
Construction Mgmt	33		33	29		30		30	122
Contingency			-	50		50		50	150
CIP Overheads	8		8	9		9		9	35
TOTAL USES	$ 482	$ -	$ 482	$ 356	$ -	$ 356	$ -	$ 356	$ 1,550
SOURCES (dollars in $000)									
Waste Water	482		482	356		356		356	1,550
TOTAL FUNDS	$ 482	$ -	$ 482	$ 356	$ -	$ 356	$ -	$ 356	$ 1,550

CNG Fueling Station Ellis Creek C66501518

Purpose and Description

This project includes the design and construction of a gas scrubbing facility, a Compressed Natural Gas (CNG) fueling station and related site improvements at the Ellis Creek Water Recycling Facility (ECWRF) and Recology Sonoma Marin's facility in Petaluma. The anaerobic digester at ECWRF produces methane gas that is currently used to fuel a boiler to heat sludge. The excess methane gas is flared off. With the construction of another digester and the addition of high strength waste to the treatment process, the plant will produce nearly double the amount of methane gas. The gas will be scrubbed, compressed, and used to fuel City and Recology vehicles. The City obtained grant funds from the California Energy Commission for the construction of the CNG facilities, with the remainder of the funding coming from Waste Water Capital. Construction is expected to be substantially complete in FY 19/20.

Financial Overview

C66501518	Expenses and Funds Received			BUDGET					
					PROJECTED				
USES (dollars in $000)	Actual Life to Date thru FY 19	Estimate FY 19-20	Estimate Life to Date thru FY 20	Proposed Budget FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	Total Project Estimate
Planning/Environmental	199	77	276						276
Land & Easements			-						-
Design	677	20	697						697
Legal Services			-						-
Administration			-						-
Construction Contracts	4,123	1,201	5,324	200					5,524
Construction Mgmt	131	222	353						353
Contingency		553	553						553
CIP Overheads	52		52						52
TOTAL USES	$ 5,182	$ 2,073	$ 7,255	$ 200	$ -	$ -	$ -	$ -	$ 7,455
SOURCES (dollars in $000)									
Califomia Energy Comm Grant			-	3,000					3,000
Developer Contribution			-						-
Waste Water	3,609	646	4,255	200					4,455
Water Capital			-						-
TOTAL FUNDS	$ 3,609	$ 646	$ 4,255	$ 3,200	$ -	$ -	$ -	$ -	$ 7,455

Chemical System Upgrade at Ellis Creek Phase 1 66501840

Purpose and Description

This project addresses replacement of 2,200 feet of deteriorated and failing double-walled sodium hypochlorite piping that runs from the Outfall building to the Wetlands Effluent Pump Station. The planning phase will analyze whether replacement of the piping or installation of additional sodium hypochlorite equipment will provide the best lifecycle cost. Design and construction will be completed on the best alternative.

Financial Overview

C66501840	Expenses and Funds Received			BUDGET					
	Actual Life to Date thru		Estimate Life to Date thru	Proposed Budget	PROJECTED				Total Project
USES (dollars in $000)	FY 19	Estimate FY 19-20	FY 20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	Estimate
Planning/Environmental		10	10	20					30
Land & Easements			-						-
Design	7	400	407	110					517
Legal Services			-						-
Administration			-						-
Construction Contracts			-	900					900
Construction Mgmt			-	50					50
Contingency		30	30	135					165
CIP Overheads	1		1						1
TOTAL USES	$ 8	$ 440	$ 448	$ 1,215	$ -	$ -	$ -	$ -	$ 1,663
SOURCES (dollars in $000)									
Waste Water	8	440	448	1,215					1,663
TOTAL FUNDS	$ 8	$ 440	$ 448	$ 1,215	$ -	$ -	$ -	$ -	$ 1,663

Ellis Creek High Strength Waste Facilities C66401728

Purpose and Description

Repurpose existing acid-phase digesters at the Ellis Creek Water Recycling Facility to receive and blend high strength waste from local industries with wastewater solids for anaerobic digestion. The project includes the addition of screw press sludge dewatering capacity. Design of this project began in FY 16/17 and construction for this Waste Water Capital funded project is expected to be substantially complete in FY 19/20, in conjunction with the CNG fueling project.

Financial Overview

C66401728	Expenses and Funds Received			BUDGET					
					PROJECTED				
USES (dollars in $000)	Actual Life to Date thru FY 19	Estimate FY 19-20	Estimate Life to Date thru FY 20	Proposed Budget FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	Total Project Estimate
Planning/Environmental	8		8						8
Land & Easements			-						-
Design	979	22	1,001						1,001
Legal Services			-						-
Administration			-						-
Construction Contracts	4,538	590	5,128	100					5,228
Construction Mgmt	153	40	193						193
Contingency			-						-
CIP Overheads	56		56						56
TOTAL USES	$ 5,734	$ 652	$ 6,386	$ 100	$ -	$ -	$ -	$ -	$ 6,486
SOURCES (dollars in $000)									
California Energy Comm Grant			-						-
Developer Contribution			-						
Waste Water	5,691	695	6,386	100					6,486
Water Capital									
TOTAL FUNDS	$ 5,691	$ 695	$ 6,386	$ 100	$ -	$ -	$ -	$ -	$ 6,486

Chemical System Upgrade at Ellis Creek Phase 2 C66501308

Purpose and Description

This project will upgrade chemical, mechanical, electrical and instrumentation equipment located at the oxidation pond and used for the disinfection and dichlorination of effluent. The facilities are over 20 years old and need to be upgraded to comply with current codes, regulations and safety standards and to improve chemical efficiency and lower maintenance and operation costs. The facility disinfects effluent at the wetlands pump station and/or at the chlorine contact chamber. The project will evaluate the benefits of consolidating the two separate chemical dosing systems into an integrated configuration where pumps can dose to either location or relocating the wetlands effluent disinfection system closer to the point of disinfection. The project will replace and relocate pumps for disinfection and dichlorination chemicals. The work will also upgrade structural, mechanical and electrical deficiencies at the bulk chemical storage facilities, emergency standby generator and switchgear, motor control center. Additionally, a new 7000 linear feet paved roadway for system access may be included in the construction. Construction for this Waste Water capital funded project is expected to begin in the summer of 2021.

Financial Overview

C66501308	Expenses and Funds Received			BUDGET					
					PROJECTED				
USES (dollars in $000)	Actual Life to Date thru FY 19	Estimate FY 19-20	Estimate Life to Date thru FY 20	Proposed Budget FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	Total Project Estimate
Planning/Environmental	-	5	5	10					15
Land & Easements	-		-						-
Design	-	250	250	150					400
Legal Services	-		-						-
Administration	-		-						-
Construction Contracts	-		-	1,945	975				2,920
Construction Mgmt	-		-	146					146
Contingency	-	25	25	438					463
CIP Overheads	-		-						-
TOTAL USES	$ -	$ 280	$ 280	$ 2,689	$ 975	$ -	$ -	$ -	$ 3,944
SOURCES (dollars in $000)									
California Energy Comm Grant	-		-						-
Developer Contribution	-		-						-
Waste Water	-	280	280	2,689	975				3,944
Water Capital			-						-
TOTAL FUNDS	$ -	$ 280	$ 280	$ 2,689	$ 975	$ -	$ -	$ -	$ 3,944

Payran Lift Station Upgrade

C66501519

Purpose and Description

This project upgrades pumps and controls of the lift station that serves the north central portion of the City. The need for the upgrades at the site is significant given its location near the river and its limited storage. Currently, operations must respond to the site immediately with a portable generator. The project includes necessary electrical upgrades, pump replacement and valve improvements along with instrumentation upgrades for integration into SCADA. The project will bring the lift station into cohesive operation with the Ellis Creek Water Recycling Facility. This project is funded through Waste Water Capital. Construction to start in FY 19/20.

Financial Overview

C66501519	Expenses and Funds Received			BUDGET					
					PROJECTED				
USES (dollars in $000)	Actual Life to Date thru FY 19	Estimate FY 19-20	Estimate Life to Date thru FY 20	Proposed Budget FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	Total Project Estimate
Planning/Environmental		5	5	-					5
Land & Easements			-						-
Design	140	25	165						165
Legal Services		1	1						1
Administration		4	4						4
Construction Contracts		725	725	725					1,450
Construction Mgmt	8	127	135	115					250
Contingency		180	180	160					340
CIP Overheads	4	30	34	18					52
TOTAL USES	$ 152	$ 1,097	$ 1,249	$ 1,018	$ -	$ -	$ -	$ -	$ 2,267
SOURCES (dollars in $000)									
Waste Water	150	1,099	1,249	1,018					2,267
TOTAL FUNDS	$ 150	$ 1,099	$ 1,249	$ 1,018	$ -	$ -	$ -	$ -	$ 2,267

McNear Park Sewer Replacement C66402143

Purpose and Description

This project is for replacement of aging and at capacity sewer mains along F and G Streets between 8th Street and 12th Streets near McNear Park. The existing sewer lines have been rated poorly and are in need of replacement. New sewer mains and laterals will be installed to assist in eliminating groundwater intrusion and ensure the integrity of the distribution system. Wastewater Capital funds will be used for this project. This project will be completed in conjunction with McNear Park Water Main Replacements, C67502020

Financial Overview

McNear Park Sewer Replaceme	Expenses and Funds Received			BUDGET					
	Actual Life to Date thru FY 19	Estimate FY 19-20	Estimate Life to Date thru FY 20	Proposed Budget FY 20-21	PROJECTED FY 21-22	PROJECTED FY 22-23	PROJECTED FY 23-24	PROJECTED FY 24-25	Total Project Estimate
USES (dollars in $000)									
Planning/Environmental			-	10					10
Land & Easements			-	5					5
Design			-	180					180
Legal Services			-	5					5
Administration			-	5					5
Construction Contracts			-	1,700					1,700
Construction Mgmt			-	150					150
Contingency			-	395					395
CIP Overheads			-	50					50
TOTAL USES	$ -	$ -	$ -	$ 2,500	$ -	$ -	$ -	$ -	$ 2,500
SOURCES (dollars in $000)									
California Energy Comm Grant			-						-
Developer Contribution			-						-
Waste Water			-	2,500					2,500
Water Capital			-						-
TOTAL FUNDS	$ -	$ -	$ -	$ 2,500	$ -	$ -	$ -	$ -	$ 2,500

McNear Park Sewer Replacement

C66402143

Purpose and Description

This project is for replacement of aging and at capacity sewer mains along F and G Streets between 8th Street and 12th Streets near McNear Park. The existing sewer lines have been rated poorly and are in need of replacement. New sewer mains and laterals will be installed to assist in eliminating groundwater intrusion and ensure the integrity of the distribution system. Wastewater Capital funds will be used for this project. This project will be completed in conjunction with McNear Park Water Main Replacements, C67502020

Financial Overview

C66402143

	Expenses and Funds Received			BUDGET					
	Actual Life to Date thru FY 19	Estimate FY 19-20	Estimate Life to Date thru FY 20	Adopted Budget FY 20-21	PROJECTED FY 21-22	PROJECTED FY 22-23	PROJECTED FY 23-24	PROJECTED FY 24-25	Total Project Estimate
USES (dollars in $000)									
Planning/Environmental			-	10					10
Land & Easements			-	5					5
Design			-	180					180
Legal Services			-	5					5
Administration			-	5					5
Construction Contracts			-	1,700					1,700
Construction Mgmt			-	150					150
Contingency			-	395					395
CIP Overheads			-	50					50
TOTAL USES	$ -	$ -	$ -	$ 2,500	$ -	$ -	$ -	$ -	$ 2,500
SOURCES (dollars in $000)									
Waste Water			-	2,500					2,500
TOTAL FUNDS	$ -	$ -	$ -	$ 2,500	$ -	$ -	$ -	$ -	$ 2,500

Oakmead, Redwood, and Outlet Mall Lift Station Upgrades

C66501923

Purpose and Description

This project upgrades pumps and controls of several lift stations that serve various portions of the City. These lift stations were constructed around the same period and upgrades will be similar. Currently, operations must respond to these stations immediately due to small storage capacities. The project includes necessary electrical upgrades, pump replacement and valve improvements along with instrumentation upgrades for integration into SCADA. This Waste Water Capital funded project will bring the lift stations into cohesive operation with the Ellis Creek Water Recycling Facility. Design is scheduled for 2023 and construction for 2024.

Financial Overview

C66501923	Expenses and Funds Received			BUDGET					
					PROJECTED				
USES (dollars in $000)	Actual Life to Date thru FY 19	Estimate FY 19-20	Estimate Life to Date thru FY 20	Proposed Budget FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	Total Project Estimate
Planning/Environmental			-			5	5		10
Land & Easements			-			10			10
Design			-			140	70		210
Legal Services			-			1	1		2
Administration			-			2	2		4
Construction Contracts			-			500	1,300		1,800
Construction Mgmt			-			120	180		300
Contingency			-			150	210		360
CIP Overheads			-			27	40		67
TOTAL USES	$ -	$ -	$ -	$ -		$ 955	$ 1,808	$ -	$ 2,763
SOURCES (dollars in $000)									
Waste Water			-			955	1,808		2,763
TOTAL FUNDS	$ -	$ -	$ -	$ -	$ -	$ 955	$ 1,808	$ -	$ 2,763

Replace PIPS High Capacity Pumps

C66501930

Purpose and Description

This Waste Water Capital funded project will replace four high capacity 450 horse-power pumps and variable frequency drive units (VFD) at the Primary Influent Pump Stations (PIPS). Existing pumps were installed in 1999 and have required significant maintenance. Preliminary work is expected to begin late in FY 20/21 with design to follow in FY 22/23 and construction to occur the following year.

Financial Overview

C66501930	Expenses and Funds Received			BUDGET					
					PROJECTED				
USES (dollars in $000)	Actual Life to Date thru FY 19	Estimate FY 19-20	Estimate Life to Date thru FY 20	Proposed Budget FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	Total Project Estimate
Planning/Environmental			-	20					20
Land & Easements			-	-					-
Design			-			240			240
Legal Services			-	-					-
Administration			-						-
Construction Contracts			-				2,600		2,600
Construction Mgmt			-						-
Contingency			-						-
CIP Overheads			-	-					-
TOTAL USES	$ -	$ -	$ -	$ 20	$ -	$ 240	$ 2,600	$ -	$ 2,860
SOURCES (dollars in $000)									
Waste Water			-	20		240	2,600		2,860
TOTAL FUNDS	$ -	$ -	$ -	$ 20	$ -	$ 240	$ 2,600	$ -	$ 2,860

PIPS Forcemain Replacement

C66502032

Purpose and Description

All the wastewater generated in the City is pumped through a single 2.5-mile-long 36 inch diameter forcemain from Hopper Street to Ellis Creek. The forcemain is roughly 40 years old and is nearing the end of its service life. This project involves installing a parallel forcemain adjacent to the existing forcemain. This project will include the assessment of the existing forcemain and rehabilitation to provide redundant service of this critical conveyance pipeline. Cost shown below is for the first of several phases of work.

Financial Overview

C66502032

	Expenses and Funds Received			BUDGET					
	Actual Life to Date thru FY 19	Estimate FY 19-20	Estimate Life to Date thru FY 20	Adopted Budget FY 20-21	PROJECTED FY 21-22	PROJECTED FY 22-23	PROJECTED FY 23-24	PROJECTED FY 24-25	Total Project Estimate
USES (dollars in $000)									
Planning/Environmental		40	40	40					80
Land & Easements			-	20					20
Design	11	100	111	389					500
Legal Services		5	5	4	3	3			15
Administration			-	3	2	2			7
Construction Contracts			-		5,500	5,500			11,000
Construction Mgmt			-		155	155			310
Contingency			-		420	420			840
CIP Overheads		15	15	15	15	15			60
TOTAL USES	$ 11	$ 160	$ 171	$ 471	$ 6,095	$ 6,095	$ -	$ -	$ 12,832
SOURCES (dollars in $000)									
Waste Water	30	141	171	471	6,095	6,095			12,832
TOTAL FUNDS	$ 30	$ 141	$ 171	$ 471	$ 6,095	$ 6,095	$ -	$ -	$ 12,832

Ellis Creek Outfall Replacement

C66501838

Purpose and Description

This project will replace approximately 3,200 linear feet of 48 inch diameter outfall piping that was found to have significant loss in structural integrity. The 43 year–old pipe is constructed out of a composite material called Techite, a pipe material used in the 1970s. Techite is brittle and has been the cause of many catastrophic pipeline failures nationwide. This pipeline is used to discharge treated water from the Ellis Creek Water Recycling facility to the Petaluma River during the winter months. A temporary pipe was constructed in FY 16/17 under a separate contract. This project will include permitting, design, and construction of a new outfall pipe. This project will also evaluate the possibility of relocating the facility's discharge location, which could alleviate the need for costly construction in sensitive wetland habitat. It will be funded by Waste Water capital.

Financial Overview

C66501838	Expenses and Funds Received			BUDGET					
					PROJECTED				
USES (dollars in $000)	Actual Life to Date thru FY 19	Estimate FY 19-20	Estimate Life to Date thru FY 20	Proposed Budget FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	Total Project Estimate
Planning/Environmental	112	128	240						240
Land & Easements			-						-
Design		200	200						200
Legal Services			-						-
Administration			-						-
Construction Contracts			-	1,500	1,500				3,000
Construction Mgmt	1		1	100	100				201
Contingency			-	300	300				600
CIP Overheads	2	12	14	15	30				59
TOTAL USES	$ 115	$ 340	$ 455	$ 1,915	$ 1,930	$ -	$ -	$ -	$ 4,300
SOURCES (dollars in $000)									
Waste Water	130	340	470	1,900	1,930				4,300
TOTAL FUNDS	$ 130	$ 340	$ 470	$ 1,900	$ 1,930	$ -	$ -	$ -	$ 4,300

C Street Pump Station and Collection Area Upgrades C66502042

Purpose and Description

The C Street Pump Station and the associated collection system runs at and above design capacity during large storm events. This project will assess the performance and condition of the collection system, pump station, and pump station force main and fund the needed upgrades. The project will be funded by Waste Water funds.

Financial Overview

C Street Pump Station and Collection Area Upgrades

C66502042	Expenses and Funds Received			BUDGET					
					PROJECTED				
USES (dollars in $000)	Actual Life to Date thru FY 19	Estimate FY 19-20	Estimate Life to Date thru FY 20	Proposed Budget FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	Total Project Estimate
Planning/Environmental	-	60	60						60
Land & Easements	-		-						-
Design	-	200	200	50	50			150	450
Legal Services	-		-						-
Administration	-		-						-
Construction Contracts	-		-		2,600			850	3,450
Construction Mgmt	-		-		100				100
Contingency	-		-		100				100
CIP Overheads	-		-		39				39
TOTAL USES	$ -	$ 260	$ 260	$ 50	$ 2,889	$ -	$ -	$ 1,000	$ 4,199
SOURCES (dollars in $000)									
Waste Water	-	260	260	50	2,889			1,000	4,199
TOTAL FUNDS	$ -	$ 260	$ 260	$ 50	$ 2,889	$ -	$ -	$ 1,000	$ 4,199

Corp Yard Tank Demo-Phase 2

e66502027

Purpose and Description

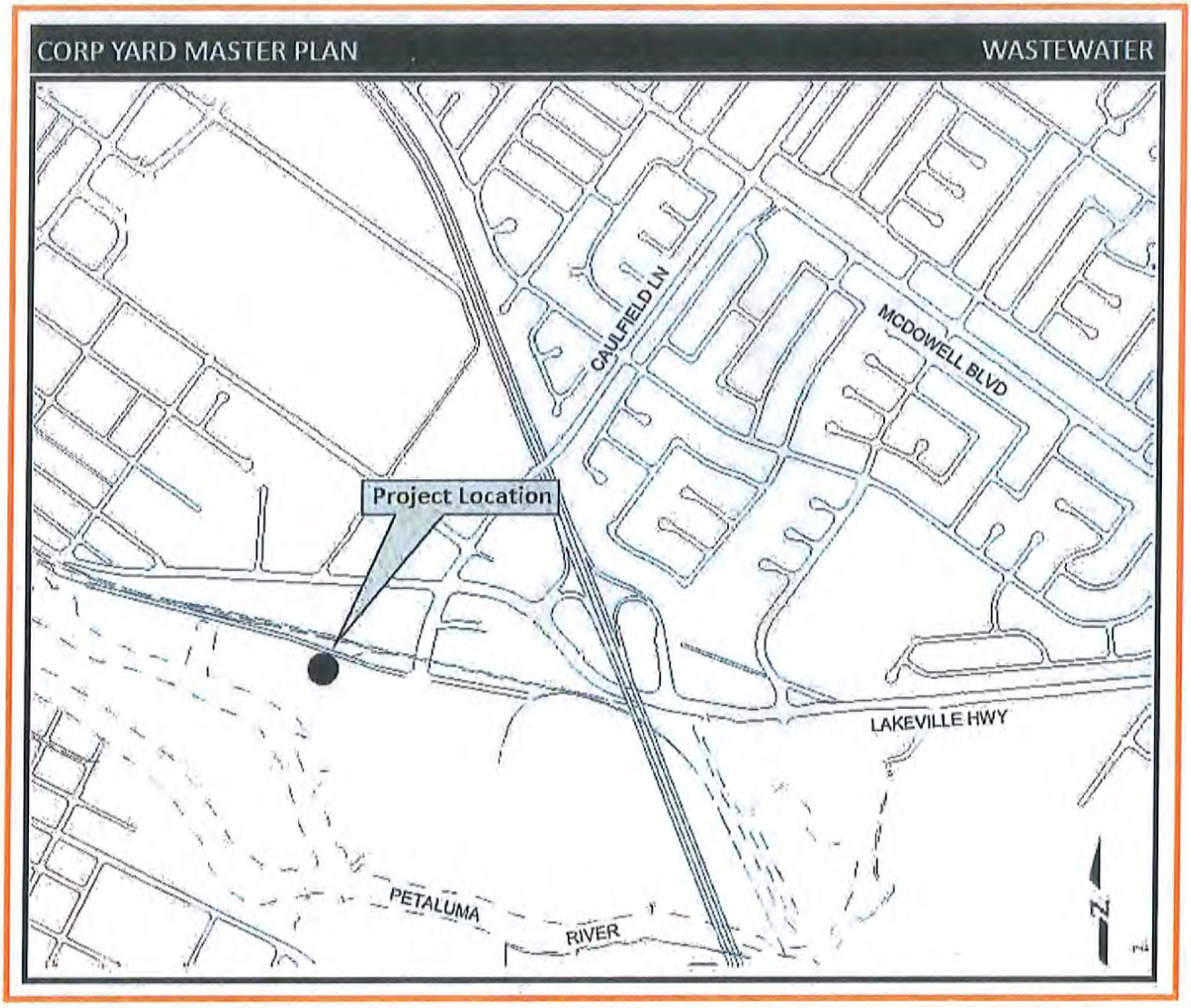
The Phase 1 demolition project at the corporation yard is nearing completion. The second Phase of this demolition work will involve further demolition of tanks. This will help to increase the usable work area at the corporation yard.

Financial Overview

e66502027

	Expenses and Funds Received			BUDGET					
					PROJECTED				
USES (dollars in $000)	Actual Life to Date thru FY 19	Estimate FY 19-20	Estimate Life to Date thru FY 20	Proposed Budget FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	Total Project Estimate
Planning/Environmental			-						-
Land & Easements			-						-
Design			-	7					7
Legal Services			-						-
Administration			-	10					10
Construction Contracts			-	850					850
Construction Mgmt			-	50					50
Contingency			-	100					100
CIP Overheads			-	50					50
TOTAL USES	-	-	-	1,067	-	-	-	-	1,067
SOURCES (dollars in $000)									
Waste Water			-	1,067					1,067
TOTAL FUNDS	$ -	$ -	$ -	$ 1,067	$ -	$ -	$ -	$ -	$ 1,067

Corp Yard Master Plan C66402144



Corp Yard Master Plan

C66402144

Purpose and Description

The City's Corporation Yard has several disparate functions that are collocated. The current Water and Wastewater Operations are inefficiently split between two locations. The City is looking to consolidate the Water and Wastewater Operations at the Hopper Street location. Two phases of demolition of the former waste water treatment plant will be opening additional useable space, making it an appropriate time for the City to carefully plan for future well-informed use of the site.

Financial Overview

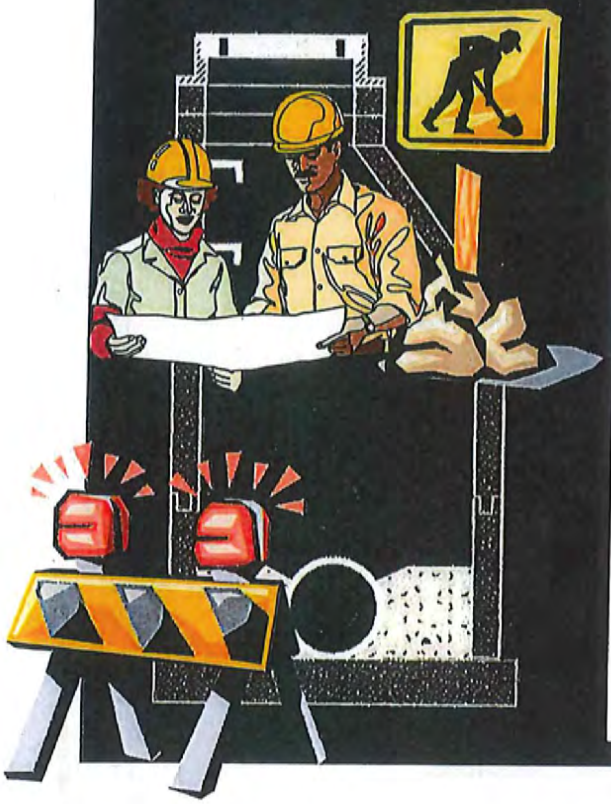
c66402144

	Expenses and Funds Received			BUDGET					
	Actual Life to Date thru FY 19	Estimate FY 19-20	Estimate Life to Date thru FY 20	Proposed Budget FY 20-21	PROJECTED FY 21-22	PROJECTED FY 22-23	PROJECTED FY 23-24	PROJECTED FY 24-25	Total Project Estimate
USES (dollars in $000)									
Planning/Environmental			-	150					150
Land & Easements			-	50					50
Design			-	500					500
Legal Services			-						-
Administration			-						-
Construction Contracts			-						-
Construction Mgmt			-						-
Contingency			-						-
CIP Overheads			-						-
TOTAL USES	$ -	$ -	$ -	$ 700	$ -	$ -	$ -	$ -	$ 700
SOURCES (dollars in $000)									
Waste Water			-	350					350
Water Capital			-	350					350
TOTAL FUNDS	$ -	$ -	$ -	$ 700	$ -	$ -	$ -	$ -	$ 700

Collection System Maintenance Certification

2007-2008

Candidate Handbook



This booklet contains...

- ✓ Subject matter for the Collection System Maintenance tests
- ✓ Education and experience requirements
- ✓ Selected study references
- ✓ Certification policies

Collection System Maintenance

2007-2008
Candidate Handbook

This handbook contains information about the Collection System Maintenance certification program. Please read this entire handbook to become familiar with certification procedures and policies. As a certificate applicant, you are responsible for knowing the contents of this handbook. If you have any questions please contact your Local Section Chair (listed in the TCP Application) or the CWEA office at 510-382-7800.

Statement of Non-Discrimination Policy

CWEA does not discriminate among applicants on the basis of age, gender, race, religion, national origin, disability, sexual orientation or marital status.

California Water Environment Association
Technical Certification Program
7677 Oakport Street, Suite 600
Oakland, CA 94621

phone: 510-382-7800
fax: 510-382-7810
web: www.cwea.org

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Introduction

The California Water Environment Association

CWEA's mission is to enhance the education and effectiveness of California wastewater professionals through training, certification, dissemination of technical information, and promotion of sound policies to benefit society through protection and enhancement of the water environment.

CWEA is a California Nonprofit Corporation and is a Member Association of the Water Environment Federation and a member of the National Organization for Competency Assurance.

The Technical Certification Program

The Technical Certification Program (TCP) was created to offer multilevel technical certification for individuals employed in the water quality field. Tests are written by vocational specialists and administered throughout the year in six different disciplines: Biosolids, Collection System Maintenance, Environmental Compliance Inspection, Laboratory Analyst, Plant Maintenance (Electrical/ Instrumentation and Mechanical Technologist), and Industrial Waste Treatment Plant Operator.

CWEA first offered a certification program for operators of wastewater treatment plants in 1937. The program was administered by CWEA until 1973 when the State of California assumed responsibility for the program. During those 36 years, CWEA awarded 3915 operator certificates.

In 1975 the first committees were formed to establish a new voluntary certification program for water quality professionals specializing in disciplines other than plant operation. Eventually, the Voluntary Certification Program (VCP) emerged with specialized certificate programs for Biosolids Land Application Management, Collection System Maintenance, Plant Maintenance, Environmental Compliance Inspection, and Laboratory Analyst. The first of the new certifications were given in April of 1976. In the 1980s two more disciplines were added: Electrical/Instrumentation, and Industrial Waste Treatment Plant Operator.

Today CWEA offers certification in six different vocational programs with a total of 23 different certifications. About 2,000 certification applications are processed every year and over 5,500 certificates are currently held by individuals in California, Michigan, Hawaii, Missouri and Alaska .

The Certification Process

To become certified, ***all applicants*** must complete the Application For Technical Certification, pay the application fee, have appropriate experience/ education, and pass the computer-based test. Application instructions and fee schedules are listed on the application.

Important Information

After applications are received at the CWEA office, applicant information is compiled in the certification database. Acceptance letters are then mailed to all applicants. The experience and education given on the application is then reviewed by CWEA staff. If the application is approved, then the applicant will receive an acceptance letter. If the application is rejected, the applicant will be notified and may be asked to supply more information if warranted. After completing the test, applicants are sent official test-results. Those who pass the exam will then be mailed certificates and wallet cards.

Code of Ethics

The Code of Ethics is intended to reflect the standards and behavior that California Water Environment Association certificate holders and applicants expect of each other as they perform their work protecting public health and the environment and that reaffirm the value of holding a CWEA certificate. The purpose of the Code of Ethics is to ensure public confidence in the integrity and service of professional water quality workers while performing their duties.

All California Water Environment Association certificate holders and applicants are expected to meet the following standards of professional conduct and ethics:

1. To protect public health, themselves, their co-workers, property, and the environment by performing the Essential Duties of the CWEA certified vocation safely and effectively, and complying with all applicable federal, state and local regulations.
2. To represent themselves truthfully and honestly throughout the entire certification process.
3. To adhere to all test site rules and make no attempt to complete the test dishonestly or to assist any other person in doing so.
4. To refrain from activities that may jeopardize the integrity of the Technical Certification Program.

Test Administration And Admission

Testing Dates and Sites: Tests are given throughout the year. Applicants eligible for the test will receive an acceptance letter and instructions on how to schedule their exam.

CWEA also provides reasonable accommodations for those with physical or learning disabilities (See following page: "Accommodations For Those With Physical or Learning Disabilities").

Test Site Admission: Certificate candidates are required to show at least one valid government issued photo identification (State driver's license or ID, or passport). Only after positive identification has been made by the testing proctor may a candidate begin the exam. Candidates do not require to show their acceptance letters to enter the test site.

Test Security: Beginning January 2009, all exams will be computer-based format. No reference material, laptop computers, or cameras are allowed in the test site. Candidates will have access to an onscreen calculator, however, examinees are welcome to bring pre-approved calculator (visit www.cwea.org/cert). Candidates are not allowed to take any notes from the test site. Candidates who violate test site rules may be asked to leave the site and may be disqualified from the test. All violations of test security will be investigated by CWEA and appropriate action will be taken. There are no exceptions to this policy.

Test Design And Format

Test Design: All certification tests are designed to test knowledge and abilities required to perform *Essential Duties* with minimal acceptable competence.The *Essential Duties* and *Test Content Areas* for each certification were determined by a job analysis and *meta-analysis* of job specifications by two independent psychometric consulting firms.

The studies gathered data from onsite visits of over 31 water and wastewater agencies, interviews with 110 water and wastewater professionals, and analysis of more than 300 job specifications. All research was conducted under the guidance of the Technical Certification Program Committee, vocational sub-committees, and CWEA staff. All test questions are designed to measure at least one area of knowledge or ability that is required to perform an essential duty.

Test Delivery Mechanism: All tests are computer-based format and are written in the English language only.

Test Format: All Collection System Maintenance tests are given completely in the multiple choice format (see *Sample Test Questions* in this booklet for examples). The multiple choice format is considered the most effective for use in standardized tests. This objective format allows a greater coverage in content for a given amount of testing time and improves competency measurement reliability. Multiple choice questions range in complexity from simple recall of knowledge to the synthesis and evaluation of the subject matter.

Test Scoring

Scoring Method: All tests are mechanically scored by CWEA. The overall test score will determine if you pass or fail the test. Generally, the minimum score required to pass the test is 75% (this passing score may be adjusted downward depending on the difficulty level of each particular test). The minimum passing score is determined by the modified Angoff Method. When taking your test it is recommended that you try your best to score as high as possible. Do not try to target the minimum passing score.

How Passing Scores Are Set: Each time a certification test is given the questions are changed resulting in a different test form. Since each form has different questions the difficulty level of the test may not be the same from form to form. The passing score is developed as an overall estimate of minimal acceptable competence in the Test Content Areas by subject matter and testing experts. Passing scores are determined by an overall passing score, not by performance on individual Test Subject Areas, and are independent of other candidate's scores. Partial credit will not be awarded for any test item answered incorrectly.

Test Rescheduling and Cancellation Instructions

To reschedule your application you must submit a written request (a letter stating that you wish to postpone), with a $40 administrative fee. You may only postpone your application once without a fee. There are no exceptions to this policy.

If you already have a scheduled exam with our testing administrator, Pearson Vue, you must contact them 24 hours in advance to avoid losing your exam fee.

To cancel your application you must submit a written request (a letter stating you wish to cancel your application) to CWEA. The written request must be received at the CWEA office no later than six 2 weeks after the approved testing window. Full refunds, less a $40 administrative fee, will be made within 4 weeks after the scheduled date. There are no exceptions to this policy.

Item Appeals

Candidates who wish to appeal a specific test item must do so during the test by completing Candidate Feedback Review Screen during the exam. Candidate feedbacks will be evaluated and appropriate adjustments will be made to the test content. Candidates submitting feedbacks will not be contacted in regards to the appeal.

Test Result Notification

Exam results are routinely mailed to certificate candidates approximately 4 weeks after the exam date. No results are given over the phone, via fax or email. All results are confidential and are only released to the certificate candidate. There are no exceptions to this policy.

Issue of Certificate/Wallet Card
Certificates and wallet cards will be issued to all candidates who pass the exam. Certificates and wallet cards are mailed about two to three weeks after result notifications have been mailed.

Renewal of Certification
All certificates must be renewed annually. The first renewal is due one year from the last day of the month in which the certification exam was held. Certificate renewals less than one year past due are subject to the renewal fee plus a penalty fee of 100 percent of the renewal fee. Certificates more than one year past due will need to retest to regain certification. Renewal notices are mailed to certificate holders two months before the due date. It is the responsibility of the certificate holder to ensure that his or her certificate(s) remains valid.

Re-Certification:
CWEA Certificate holders shall be required to renew certificates annually, and shall be required to provide evidence of completion of 12 contact hours of continuing education requirements every two years. For more information, visit CWEA's website: www.cwea.org.

Accommodations For Those With Physical or Learning Disabilities
In compliance with the Americans with Disabilities Act, special accommodations will be provided for those individuals who provide CWEA with a physician's certificate, or its equivalent, documenting a physical or psychological disability that may affect the individual's ability to successfully complete the certification examination. Written requests for special accommodations must be made no later than 3 weeks before the examination date.

Grade I Collection System Maintenance

Collection System Maintenance Grade I Certification is designed to demonstrate competency at the entry and basic working level. More specifically, Grade I certification implies competence in the knowledge, skills and abilities required to perform the *Essential Duties* of an entry Collection System Maintenance Technologist.

Eligibility Criteria For Taking The Test

There are no experience or education requirements for Grade I certification. Completing the Application for Technical Certification, paying the appropriate application fee, and passing the written examination are the only requirements. It is, however, *recommended* that Grade I candidates have at least one year of experience working as an Collection System Maintenance Technologist performing the *Essential Duties* listed below. Many candidates without the recommended experience have difficulty successfully completing the written test.

Essential Duties Of The Grade I Collection System Maintenance Technologist

Individuals certified as Grade I Collection System Maintenance Technologists are expected to possess acceptable competency when performing the tasks that are necessary for entry level Collection System Maintenance Technologists. These necessary tasks are known as the *Essential Duties*. The certification test measures knowledge, skills and abilities required to perform the *Essential Duties*.

Essential Duties for Grade I

1. Participates in inspecting, cleaning, maintaining, constructing and repairing of wastewater collection systems, utilizing a variety of mechanical or specialized equipment
2. Assists with pump station inspections, records instrument readings and makes minor adjustments to keep flow steady
3. Performs a variety of manual tasks including the lifting, carrying and removal of heavy loads including materials, equipment and debris
4. Inspects and maintains easements, some of which may be remote or difficult to access
5. Participates in excavating, shoring and re pairing the collection system, including damaged pipe, manholes and casting adjustments
6. Breaks, cuts and restores concrete and paved surfaces using jackhammers, concrete saws, etc.
7. Prepares, inspects, and maintains vehicles for use; ensures vehicles are in proper operating condition and arranges for maintenance when required
8. Ensures that tools and equipment are in proper operating condition for daily use and arranges for maintenance when required
9. Participates in the maintenance and repair of wastewater collection system lift stations and components
10. Completes accurate, legible and timely records/data of work performed
11. Participates in maintaining proper traffic safety controls at work sites to move traffic safely and efficiently around work site
12. Responds to public inquiries in a courteous manner and provides information appropriate to the area of assignment
13. Adheres to safe work practices and abides by all applicable regulations, policies and procedures
14. Reads and interprets collection system maps to determine basic flow characteristics and construction details
15. Participates in the containment and cleanup of wastewater spills
16. Stays abreast of new trends and innovations in the field of wastewater collection system operation and maintenance
17. Participates in confined space entries

Complexity Of Test Questions

At the Grade I level, certificate candidates are expected to have basic knowledge of the job and the ability to safely perform the *Essential Duties* listed above. Examinees will have to answer multiple choice questions that test knowledge, comprehension, and application of the subject matter. The complexity of the questions will range from basic recall of previously learned material and the ability to understand the meaning of the subject matter, to being able to apply knowledge to new situations.

Test Content Areas

The following list is an outline of *Test Content Areas*. Each content area is a Knowledge, Skill, or Ability that is required to perform the *Essential Duties* listed above. Since all of the Knowledge, Skills, or Abilities are required to perform the *Essential Duties* they are all equally important in the demonstration of acceptable competency. Thus, all of the content areas listed below are equally weighted on the test.

Test Content Areas for Grade I

Knowledge of:

101. Operations, services, and activities of a wastewater collection system operations and maintenance program

102. Methods and techniques of recording instrument readings and related measuring devices

103. Methods and techniques of traffic control

104. Operation and proper application of collection system maintenance equipment and tools

105. Occupational hazards and standard safety practices

106. Applicable codes, regulations, policies, and procedures

107. Underground Service Alert (USA) markings

Skill to:

108. Establish and maintain cooperative relationships with those contacted in the course of work

109. Communicate accurately, clearly, and concisely: in writing, orally, and electronically, in the English language

110. Read and interpret essential technical information including maps and drawings

111. Perform basic mathematical calculations

Ability to:

112. Perform operation, maintenance, and repair of the wastewater collection system

113. Operate a variety of specialized equipment including vehicles and collection system maintenance devices, hand and power tools, air compressors and jackhammers

114. Perform basic facilities and grounds maintenance

115. Understand and follow oral and written instructions

116. Learn more difficult collection systems construction, maintenance, and repair techniques

117. Properly lift and carry heavy loads in a variety of difficult conditions

118. Obtain appropriate licenses and certifications

119. Work in hazardous, difficult, and disagreeable conditions

Grade II Collection System Maintenance

Collection System Maintenance Grade II Certification is designed to demonstrate competency at the skilled or journey level. More specifically, Grade II certification implies competence in the knowledge, skills, and abilities required to perform the *Essential Duties* of a skilled Collection System Maintenance Technologist.

Eligibility Criteria For Taking The Test

The basic requirement is four years of full-time work in Collection System Maintenance. You may also qualify by having two years of experience and holding a Collection System Maintenance Grade I Certificate for one year, **OR** having two years of full-time experience and holding an Associate's degree in a related field, **OR** having one year of full-time experience and holding a Bachelor's, or higher, degree in a related field.

Eligibility criteria are summarized in the table below. You may qualify by meeting either Education/ Experience Combination **A**, **B**, **C**, or **D**. If you do not meet any of the combinations of experience and education, then you do not qualify for Grade II:

Combination	EDUCATION & CERTIFICATIONS	+ EXPERIENCE
A	None	4 full-time years in Collection System Maintenance
B	Grade I Collection System Maintenance Certificate for 1 year	2 full-time years in Collection System Maintenance
C	AA/AS degree in a related field	2 full-time years in Collection System Maintenance
D	Hold a BA/BS, or higher, degree in a related field	1 full-time year in Collection System Maintenance

Qualifying With Your Education

Holding a college degree, or its equivalent, in a field related to your vocation will reduce the number of years required for your test (see the table above). Your degree must be in a field that is related to the certificate for which you are applying. If you are uncertain if your degree is related to your vocation you should still include your degree information in your application. The Technical Certification Program Committee will determine if your degree qualifies. If it does not, you will be accepted for the next highest grade level for which you qualify. Associate's and Bachelor's degrees in technical fields are usually accepted. Degrees are evaluated on a case-by-case basis upon receipt of the application. College credit without a degree is not accepted unless it can be demonstrated that the credit is equivalent to a degree.

Essential Duties Of The Grade II Collection System Maintenance Technologist

Individuals certified as Grade II Collection System Maintenance Technologists are expected to possess acceptable competency when performing the tasks that are necessary for skilled or journey level Collection System Maintenance Technologists. These necessary tasks are known as the *Essential Duties*. The certification test measures knowledge, skills and abilities required to perform the *Essential Duties*.

Essential Duties for Grade II

1. Performs, trains and directs the duties listed for Collection System Maintenance Grade I
2. Inspects, troubleshoots and maintains proper collection system operation using advanced techniques and instruments
3. Conducts confined space entries
4. Performs maintenance and repair of waste-water collection system
5. Provides information and reports on activities as required
6. Provides assistance to individuals, agencies and private organizations with underground service alert (USA) markings, utilities and manholes
7. Plans routine traffic safety at worksites and performs non-routine traffic control under general supervision
8. Resolves routine complaints in an efficient and timely manner
9. Monitors crew performance to ensure adherence to safe work practices and compliance with all applicable regulations, policies and procedures
10. Participates in the development and promotion of safe work practices and procedures

Complexity Of Test Questions
At the Grade II level, certificate candidates are expected to have the knowledge, skill and ability to safely and effectively accomplish most of the *Essential Duties* listed above. Grade II candidates are also expected to be familiar with the Grade I Test Content Areas. Examinees will have to answer multiple choice questions that test comprehension, application and analysis of the subject matter. The complexity of the questions will cover the ability to basically understand the subject matter; to recall and apply principles, ideas, and theories; and to break down ideas and theories into their constituent parts.

Test Content Areas
The following list is an outline of Test Content Areas. Each content area is a knowledge, skill, or ability that is required to perform the *Essential Duties* listed above. Since all of the knowledge, skills, or abilities are required to perform the *Essential Duties* they are all equally important in the demonstration of acceptable competency. Thus, all of the content areas listed below are equally weighted on the test. Candidates should also be thoroughly familiar with the Grade I Collection System Maintenance Technologist *Test Content Areas*.

Knowledge of:

Test Content Areas for Grade II

200. Knowledge, skill and ability identified on the Test Content Specifications for Collection Systems Grade I

201. Operations, services and activities of a wastewater collection system operations and maintenance program

202. Methods and techniques of wastewater collection system inspection, maintenance and repair

203. Operation and characteristics of collection system maintenance equipment and tools including heavy equipment, CCTV inspection, and monitoring devices

204. Methods and techniques, tools and materials used in the maintenance and repair of wastewater collection systems and lift stations

205. Safe working practices pertinent to wastewater collection system maintenance, repair, and construction

206. Occupational hazards and standard safety practices

207. Applicable codes, regulations, policies, and procedures

Skill to:

208. Establish and maintain effective relationships with those contacted in the course of work

209. Communicate accurately, clearly, and concisely: in writing, orally, and electronically, in the English language

210. Perform simple algebra and geometrical calculations

Ability to:

211. Perform maintenance and repair of the wastewater collection system

212. Operate a variety of collection system maintenance construction equipment such as air compressors, compactors, vibrators, jackhammers, tampers, cutters and CCTV inspection and monitoring devices

213. Work independently in the absence of direct supervision

214. Understand and follow oral and written instructions

215. Learn new and advanced collection systems construction, maintenance, and repair techniques

216. Effectively assess and interpret situations and conditions and apply independent judgement

217. Operate a variety of heavy construction equipment, such as backhoes, loaders, dozers, and dump trucks

Grade III Collection System Maintenance

Collection System Maintenance Grade III Certification is designed to demonstrate competency at the lead or advanced technical level. More specifically, Grade III certification implies competence in the knowledge, skills and abilities required to perform the *Essential Duties* of a lead or advanced Collection System Maintenance Technologist.

Eligibility Criteria For Taking The Test

The basic requirement is six years of full-time work in Collection System Maintenance. You may also qualify by having four years of experience and holding a Collection System Maintenance Grade II Certificate for two years, **OR** having four years of full-time experience and holding an Associate's degree in a related field, **OR** having three years of full-time experience and holding a Bachelor's, or higher, degree in a related field.

Eligibility criteria are summarized in the table below. You may qualify by meeting either Education/ Experience Combination **A**, **B**, **C**, or **D**. If you do not meet any of the combinations of experience and education, then you do not qualify for Grade III:

Combination	EDUCATION & CERTIFICATIONS	+ EXPERIENCE
A	None	6 full-time years in Collection System Maintenance
B	Hold Grade II Collection System Maintenance Certificate for 2 years	4 full-time years in Collection System Maintenance
C	Hold an Associate's degree in a related field	4 full-time years in Collection System Maintenance
D	Hold a BA/BS, or higher, degree in a related field	3 full-time years in Collection System Maintenance

Using Your Education To Help Qualify For The Written Test

Holding a college degree, or its equivalent, in a field related to your vocation will reduce the number of years required for your test (see the table above). Your degree must be in a field that is related to the certificate for which you are applying. If you are uncertain if your degree is related to your vocation you should still include your degree information in your application. The Technical Certification Program Committee will determine if your degree qualifies. If it does not, you will be accepted for the next highest grade level for which you qualify. Associate's and Bachelor's degrees in technical fields are usually accepted. Degrees are evaluated on a case-by-case basis upon receipt of the application. College credit without a degree is not accepted unless it can be demonstrated that the credit is equivalent to a degree.

Essential Duties Of The Grade III Collection System Maintenance Technologist

Individuals certified as Grade III Collection System Maintenance Technologists are expected to possess acceptable competency when performing the tasks that are necessary for lead or advanced level Collection System Maintenance Technologists. These necessary tasks are known as the *Essential Duties.* The certification test measures knowledge, skills and abilities required to perform the *Essential Duties.*

Essential Duties for Grade III

1. Plans, coordinates and reviews the performance of the duties of Collection System Maintenance Grade I and Grade II
2. Coordinates with other utilities, the public, agencies and private organizations to address complex or non-routine issues
3. Participates in the evaluation of the performance of the wastewater collection system such as energy efficiency, material costs and preventive/predictive maintenance programs
4. Participates in the development and implementation of training of assigned employees in their areas of work in wastewater collection system inspection and repair methods, techniques, equipment and safety
5. Verifies the work of assigned employees for accuracy, proper work methods, techniques and compliance with applicable standards and specifications
6. Monitors and inspects the work of contractors for a variety of construction or maintenance projects
7. Analyzes and reviews system data to recommend priorities, schedules and workload performance measures
8. Develops and directs the execution of complex or non-routine traffic safety plans
9. Responds to exceptional and/or non-routine public inquiries in a courteous manner and participates in the development of formal reports and responses to the media
10. Participates in, ensures the development of, and adherence to the safety program

11. Participates in fact-gathering to respond to liability claims

12. Participates in investigations into potential wrongdoing or policy violations

13. Attends and participates in professional group meetings; stays abreast of new trends and innovations in the field of wastewater collection system operation and mainte nance

Complexity Of Test Questions

At the Grade III level, certificate candidates are expected to have the knowledge, skill and ability to safely and effectively accomplish and coordinate complex tasks as listed in the *Essential Duties* above. Grade III candidates are also expected to be familiar with the Grade I and II Collection System Maintenance Technologist knowledge, skills and abilities. Examinees will have to answer multiple choice questions that test application, analysis, and synthesis of the subject matter. The complexity of the questions will cover the ability: to abstract in particular and concrete situations; to clarify and organize theories and ideas; and to put facts together to form a new solution.

Test Content Areas

The following list is an outline of Test Content Areas. Each content area is a Knowledge, Skill, or Ability that is required to perform the *Essential Duties* listed above. Since all of the Knowledge, Skills, or Abilities are required to perform the *Essential Duties* they are all equally important in the demonstration of acceptable competency. Thus, all of the content areas listed below are equally weighted on the test. Candidates should also be thoroughly familiar with the Grade I and II Collection System Maintenance *Test Content Areas*.

Knowledge of:

Test Content Areas for Grade III

300. Knowledge, skill and ability identified on the Test Content Specifications for Collection Systems Grades I and II

301. Operations, services, and activities of a wastewater collection system operations and maintenance program

302. Principles of leadership, supervision, and training

303. Methods and techniques of wastewater collection system inspection, predictive/preventive maintenance and repair

304. Operation and characteristics of collection system maintenance equipment and tools.

305. Methods and techniques, tools and materials used in the maintenance and repair of wastewater collection systems

306. Procedures, methods, tools, and equipment used in the operation of motors, pumps, controls, and instrumentation

307. Safe working practices applicable to wastewater collection system maintenance, repair and construction

308. Pipeline and manhole design and construction

309. Occupational hazards and safely practices including the management of exceptional circumstances

310. Office equipment including computers and supporting word processing, spreadsheets, and databases

311. Applicable codes, regulations, policies and procedures

Skill to:

312. Establish and maintain cooperative working relationships with those contacted in the course of work

313. Communicate accurately, clearly, and concisely: in writing, orally, and electronically, in the English language

314. Perform advanced algebra, geometry, statistical analysis

Ability to:

315. Lead and train maintenance and repair staff. Includes scheduling and assigning personnel and the use of materials and equipment to assure desired quality and quantity of work

316. Work cooperatively with co-workers; identify and minimize conflict

317. Compute time requirements, labor, materials, and equipment needed for various jobs

318. Plan, organize, and schedule training

319. Inspect and diagnose operating problems on pumps, electrical motors, and automatic control systems

320. Supervise and direct the most difficult collection system maintenance and repair tasks

321. Work independently under general supervision

322. Competently inspect the work of contractors and staff

323. Operate a variety of collection system maintenance equipment and tools

324. Understand, follow and provide oral and written instructions

325. Effectively assess and interpret situations and conditions and apply independent judgment

Grade IV Collection System Maintenance

Collection System Maintenance Grade IV Certification is designed to demonstrate competency at the program manager level. More specifically, Grade IV certification implies competence in the knowledge, skills and abilities required to perform the *Essential Duties* of a management level Collection System Maintenance Technologist.

Eligibility Criteria For Taking The Test

The basic requirement is eight years of full-time work in Collection System Maintenance. You may also qualify by having six years of experience and holding a Collection System Maintenance Grade III Certificate for two years, **OR** having six years of full-time experience and holding an Associate's degree in a related field, **OR** having five years of full-time experience and holding a Bachelor's, or higher, degree in a related field. All Grade IV candidates must also demonstrate at least one year of experience supervising the work of others.

Eligibility criteria are summarized in the table below. You may qualify by meeting either Education/ Experience Combination **A, B, C,** or **D**. If you do not meet any of the combinations of experience and education, then you do not qualify for Grade IV:

Combination	EDUCATION & CERTIFICATIONS +	EXPERIENCE
A	None	8 years in Collection System Maintenance with one of those years supervising others
B	2 years holding Grade III Collection System Maintenance	6 years in Collection System Maintenance with one of those years supervising others
C	Hold an AA/AS, or higher, degree in a related field	6 years in Collection System Maintenance with one of those years supervising others
D	Hold an Bachelor's, or higher, degree in a related field	5 years in Collection System Maintenance with one of those years supervising others

Qualifying With Your Education

Holding a college degree, or its equivalent, in a field related to your vocation will reduce the number of years required for your test (see the table above). Your degree must be in a field that is related to the certificate for which you are applying. If you are uncertain if your degree is related to your vocation, you should still include your degree information in your application. The Technical Certification Program Committee will determine if your degree qualifies. If it does not, you will be accepted for the next highest grade level for which you qualify. Associate's and Bachelor's degrees in technical fields are usually accepted. Degrees are evaluated on a case-by-case basis upon receipt of the application. College credit without a degree is not accepted unless it can be demonstrated that the credit is equivalent to a degree.

Essential Duties Of The Grade IV Collection System Maintenance Technologist

Individuals certified as Grade IV Collection System Maintenance Technologists are expected to possess acceptable competency when performing the tasks that are necessary for management level Collection System Maintenance. These necessary tasks are known as the *Essential Duties*. The certification test measures knowledge, skills and abilities required to perform the *Essential Duties*.

Essential Duties for Grade IV

1. Administers and manages the performance of the duties of Collection System Maintenance Grade I, Grade II and Grade III
2. Responsible for all services and activities associated with the operation, maintenance and repair of the wastewater collection system
3. Manages the development and implementation of goals, objectives and policies for the wastewater collection program
4. Directs and supports supervisors and staff to ensure high performance in a customer service-oriented work environment that supports achieving desired goals and objectives
5. Evaluates the performance of the wastewater collection system such as staffing levels, predictive/preventive maintenance programs, energy efficiency and material costs
6. Plans, directs, coordinates, prioritizes and reviews the work plan for the collection system
7. Selects, motivates and evaluates personnel; works with employees to achieve performance goals and objectives; implements disciplinary procedures; conducts general labor relations activities
8. Develops, implements and oversees a comprehensive equipment selection and maintenance program

9. Coordinates wastewater collection system activities with other divisions, outside agencies and organizations. Negotiates and resolves sensitive and controversial issues

10. Provides responsible and complex technical support to upper management and prepares and presents staff reports, including organizational studies

11. Originates and administers the work of contractors/consultants/engineers for a variety of construction or maintenance projects

12. Responsible for the development and administration of safety training programs for wastewater collection system staff and ensures compliance with safe working practices, rules and regulations

13. Responsible for the development and administration of assigned employees in wastewater collection system inspection, repair methods, techniques and equipment

14. Oversees and participates in the development and administration of the wastewater collection system annual budget; tracks and forecasts resources needed for staffing, equipment, materials, and supplies; monitors and approves expenditures and implements adjustments

15. Initiates, develops and administers programs, policies, and procedures to ensure the safe and efficient operation of the wastewater collection system

16. Attends and participates in professional group meetings; stays abreast of new trends and innovations in the field of wastewater collection system operation and maintenance; ensures the availability of opportunities for all staff to participate in professional development

17. Responds to difficult and sensitive public inquiries in a courteous manner and develops formal reports and responses to the media

18. Reviews and responds to liability claims

19. Investigates potential wrongdoing or policy violations

Complexity Of Test Questions

At the Grade IV level, certificate candidates are expected to have the knowledge, skill and ability to administer, coordinate and manage complex programs described in the *Essential Duties* above. Grade IV candidates are also expected to be familiar with the Grade I, II, and III Collection System Maintenance Technologist knowledge, skills and abilities. Examinees will have to answer multiple choice questions that test analysis, synthesis and evaluation of the subject matter. The complexity of the questions will cover the ability: to clarify and organize theories and ideas; to put together facts to form new solutions; to make managerial level judgments.

Test Content Areas

The following list is an outline of *Test Content Areas*. Each content area is a Knowledge, Skill, or Ability that is required to perform the *Essential Duties* listed above. Since all of the Knowledge, Skills, or Abilities are required to perform the *Essential Duties* they are all equally important in the demonstration of acceptable competency. Thus, all of the content areas listed below are equally weighted on the test. Candidates should also be thoroughly familiar with the Grade I, II, and III Collection System Maintenance *Test Content Areas*.

Knowledge of:

Test Content Areas for Grade IV

400. Knowledge, skill and ability identified on the Test Content Specifications for Collection Systems Grades I, II, and III

401. Operational characteristics, services and activities of a wastewater collection system maintenance program

402. Operation and characteristics of collection systems maintenance equipment and tools

403. Methods and techniques, tools and materials used in the maintenance and repair of wastewater collection systems

404. Wastewater collection system inspection methods and techniques

405. Principles and practices of program development and administration

406. Principles and practices of budget preparation and administration.

407. Principles of leadership, supervision, training and performance evaluation

408. Principles of labor relations administration

409. Recent developments, current literature and sources of information related to wastewater collection

410. Office equipment including computers and supporting word processing, spreadsheets, databases and specialized computer software programs

411. Occupational hazards and general safety practices

412. Applicable codes, regulations, policies, and procedures

Skill to:

413. Establish and maintain cooperative relationships with those contacted in the course of work

414. Communicate accurately, clearly, and concisely: in writing, orally, and electronically, in the English language

415. Perform budget development, expenditure forecasting, statistical evaluation, and cost analysis

Ability to:

416. Manage, direct and coordinate the work of staff
417. Select, supervise, train, and evaluate staff
418. Oversee and direct the operations, services and activities of a wastewater collection system
419. Manage and administer inspection services on wastewater collection system projects
420. Read and interpret blueprints, construction drawings and specifications
421. Develop and administer goals, objectives and procedures
422. Interpret, explain, and enforce division policies and procedures
423. Develop and implement safety training programs
424. Prepare and administer program budget
425. Prepare clear and concise administrative and financial reports
426. Research, analyze, and evaluate new methods and techniques
427. Interpret and apply appropriate codes, regulations, policies, and procedures
428. Understand, follow and provide oral and written instructions
429. Effectively assess and interpret situations and conditions and apply independent judgment

Sample Test Questions

The following sample test questions are provided to help you become familiar with the multiple choice format. These questions reflect only a sample of the subject matter covered at each grade level.

For each question, choose the single most correct answer. An answer key is provided on page 15.

Grade I Collection System Maintenance

1. Operation and maintenance of a Wastewater Collection System means keeping the:

   a. power supply available.
   b. system in good operating condition.
   c. water flowing from the spigot.
   d. electrical equipment dry.

2. Upon arrival to a service request for a building lateral stoppage, you notice a constant flow coming up from the clean-out. The first thing you should do is:

   a. cap the clean-out and see if any sewage comes into the building.
   b. set up the hydro-cleaner at the downstream manhole.
   c. open the upstream manhole to see if it is full.
   d. make sure that water is not being used in the building.

3. In order to complete a sewer repair, the crew had to cut out a section of sidewalk 4 feet wide, 8 feet long and 4 inches thick. How many cubic yards of concrete are needed to restore the sidewalk?

   a. 3.5 cubic yards
   b. 0.39 cubic yards
   c. 9.6 cubic yards
   d. 0.96 cubic yards

Grade II Collection System Maintenance

1. A report of a clean-out cover missing in the side walk is routed to you. Which of the following would be the best response?

   a. Make a note and take care of it when you are in the area.
   b. Respond immediately and put a cone over it.
   c. Take care of it after lunch.
   d. Respond immediately and repair or replace the clean-out cover.

2. While conducting a video inspection, the camera becomes stuck. Which of the following would be the first step in solving this problem?

   a. Call for a backhoe and dig up the area where the camera is stuck.
   b. Disconnect the wires and close the manhole; return the following morning to see if it has freed itself.
   c. Attempt to dislodge the camera by using the tag line.

d. Attach pulling cable to a truck hitch and pull through the bad spot, then continue your inspection.

3. A new sewer line is installed using a bubble level. For every foot of pipe installed, the level measures a quarter (1/4) inch of fall. A quarter (1/4) inch of fall for every foot is equal to what percent?

   a. 4%
   b. 1.4%
   c. 2%
   d. 0.002%

Grade III Collection System Maintenance

1. The main advantage of using variable speed pumping equipment is that the pumping rate can be adjusted to meet:

   a. head loss rate.
   b. discharge rate.
   c. inflow rate.
   d. friction loss.

2. When preparing a lift station maintenance program, which of the following factors should be considered first?

   a. Computer activity codes
   b. Station I.D. codes
   c. Equipment specifications
   d. History of stoppages

3. A wet well is 115 feet long by 85 feet wide and has a water level of 18 feet. The flow is 22 million gallons a day. What is the detention time?

   a. 76 minutes
   b. 1 hour 26 minutes
   c. 1 hour 43 minutes
   d. 2 hours 26 seconds

4. Which characteristic is typical of workers who are high achievers in performing their jobs?

   a. Seeking out problems rather than avoid them
   b. Developing faster methods without seeking supervisorial advice
   c. Resolving routine problems
   d. Achieving mediocre results with abundant resources

Grade IV Collection System Maintenance

1. You receive an anonymous complaint that one of your maintenance vehicles is parked in a neighborhood and two employees are inside of the vehicle drinking alcohol. What steps, if any, should you take?

   a. Call in all maintenance personnel and have everyone tested for drugs and alcohol.
   b. Go out to the site and send the suspected employees home.
   c. Suspend the employees until fact finding is complete.
   d. Take another supervisor out to the site, observe employees, ask questions and investigate the circumstances.

2. One of your maintenance crews reports to you that a contractor working within your jurisdiction is pumping raw sewage into a nearby creek. Which of the following should you do first?

   a. Tell your crew to ask the contractor to keep a record of how many gallons are pumped into the creek.
   b. Take a police officer to the site, have the contractor arrested, and call the health department.
   c. Have your crews contain the sewage in the creek, pump it back into a nearby sanitary sewer, and have the contractor let them know if any more sewage is to be pumped.
   d. Go to the site, confirm the illegal discharge, advise the contractor to stop, take photos, take down names, and notify the health department.

3. Which of the following would be a detrimental effect of excessive infiltration and inflow?

   a. Contamination of the ground water supply
   b. Higher power costs for pump stations
   c. Reducing storm water runoff
   d. Reducing root intrusion into sanitary sewer lines

4. Which of the following would be a typical item in the Operating Budget?

   a. Purchase of a new backhoe
   b. A large sewer main replacement project
   c. Purchase of daily materials and supplies
   d. Reserve funding for future projects

Answer Key on Page 16

Selected References

The following table lists references that may be useful when studying for the certification test. The table lists primary and supplementary study references. Primary study references are recommended as the best sources for studying for the certification test. Supplementary study references are recommended as sources that will help to further your understanding of the subject matter beyond the primary references.

For each reference a "P" indicates Primary reference and an "S" indicates a Supplementary reference. Check the Grade column that corresponds to the grade level you will be taking to determine if a reference is Primary or Supplementary. Blank boxes indicate that the reference is not appropriate for that grade level.

For information about obtaining these publications, use the contact information listed in the reference. If no phone number or website is listed, contact the publishing agency directly or contact your local library or bookstore.

This reference list is intended to assist certificate candidates in their preparation for the Collection System Maintenance Technologist certification test. Use of these references does not guarantee successful completion of the test. There may be other publications that may be helpful to candidates preparing for the test. CWEA encourages you to identify and utilize other resources in preparing for your test.

	GRADE			
Reference	**I**	**II**	**III**	**IV**
"Operation and Maintenance of Wastewater Collection Systems", Volume I, Kenneth Kerri, Office of Water Programs, California State University Sacramento, 6000 J Street, Sacramento, CA. 95819-6025, (916) 278-6142. www.owp.csus.edu	P	P	P	P
"Collection System Maintenance Study Guide", Grades 1-4 (2001) CWEA (510) 382-7800 www.cwea.org	P	P	P	P
"Confined Space Entry", WEF Publication, Water Environment Federation, 601 Wythe Street, Alexandria, VA. 22314-1994, Phone: 1-800-666-0206. www.wef.org ISBN: 1-57278-122-X	P	P	P	P
"Wastewater Collection System Maintenance", Michael J. Parcher CRC Press. ISBN: 1566765692 www.crcpress.com Phone: 800/272-7737 Fax: 800/374-3401 email: orders@crcpress.com	P	P	P	P
"The Math Text for Water and Wastewater Technology" Second Edition, Wrights Training, P.O. Box 515, Elmira, CA. 95625-0515. (707) 448-3659 www.wrights-trainingsite.com (download form to order)	P	P		
"Operation and Maintenance of Wastewater Collection Systems" Volume II, Kenneth Kerri, Office of Water Programs, California State University Sacramento, 6000 J Street, Sacramento, CA. 95819-6025, Phone: (916) 278-6142.			P	P
"Wastewater Collection Systems Management", (Manual of Practice No.7), 5th Edition, ISBN: 1-57278-152-1 Water Environment Federation, 601 Wythe Street, Alexandra, VA. 22314-1994, 1-800-356-5705. www.wef.org			P	P
"Manage for Success: Effective Utility Leadership Practices", Office of Water Programs, California State University Sacramento, 6000 J Street, Sacramento, CA. 95819-6025, (916) 278-6142. www.owp.csus.edu			P	P
"Supervisor's Guide to Safety and Health Programs", Water Environment Federation, 601 Wythe Street, Alexandria, VA. 22314-1994, 1-800-666-0206.			P	P
"Applied Math for Wastewater Operators", Joan Kirkpatrick Price, CRC Press, 1-800-374-3401 www.crcpress.com ISBN: 0877620892			P	P
"Supervisory Management in the Water/Wastewater Field", Michigan State University, Self Study Course, 3535 Forest Rd. Lansing, Michigan 48910, 1-800-358-5705 www.vu.msu.edu			P	P
"Existing Sewer Evaluation & Rehabilitation", Water Environment Federation, 601 Wythe Street, Alexandra, VA. 22314-1994, 1-800-666-0206. www.wef.org	S	S	S	S

Reference	GRADE			
	I	II	III	IV
"Utility Management" Office of Water Programs California State University Sacramento 6000 J Street Sacramento, CA 95819-6025 916/278-6142 www.owp.csus.edu/	S	S	P	P
"Manual of Traffic Controls for Construction and Maintenance Work Zones-1996 State of California Department of Transportation 1900 Royal Oaks Drive Sacramento, CA 95815 www.dot.ca.gov Download from www.cwea.org/book_brcsg_csm3.shtml or www.dot.ca.gov/manuals.htm	P	P	P	P
"Safety and Health in Wastewater Systems" , WEF Manual of Practice SM-1 Water Environment Federation 601 Wythe St. Alexandria, VA 22314-1994 800/666-0206 www.wef.org ISBN: 1-881369-87-0	P	P	P	P
"Sewer System Infrastructure Analysis and Rehabilitation", (EPA/625/6-9/030 Handbook), U.S. Environmental Protection Agency, Office of Research and Development, Cincinnati, OH. 45268.	S	S	S	S
"Gravity Sanitary Sewer Design and Construction", Water Environment Federation, 601 Wythe Street, Alexandra, VA. 22314-1994, (This Manual will be of use to the design engineer), 1-800-666-0206.	S	S	S	S
"Odor and Corrosion Control in Sanitary Sewerage Systems and Treatment Plants" (EPA/625/1-85/018 Design Manual), U.S. Environmental Protection Agency, Office of Research and Development, Cincinnati, OH.	S	S	S	S
"Pipe Bedding and Backfill", Amster K. Howard Bureau of Reclamation, Attention Code 822-A, P.O. Box 25007, Denver Federal Center, Denver, CO.80225-0007, (303)236-6741.	S	S	S	S
"Maintaining Wastewater Equipment", TPC Training Systems, Technical Publishing, 1301 So. Grove Ave., Barrington, Illinois 60010, (312)381-1840. www.tpctraining.com	S	S	S	S
"Cave-In Protection and Competent Person Training Manual", ACR Publications Inc., 1298 Elm Street SW Albany, OR. 97321, (503) 928-5211. 1 (800) 433-8150 http://www.acrp.com/ acr_pb_water_ww_books.html	S	S	S	S
"Pumps & Pumping", ACR Publications Inc., 1298 Elm Street SW Albany, OR. 97321, (503) 928-5211. 1 (800) 433-8150 http://www.acrp.com/	S	S	S	S
"Existing Sewer Evaluation and Rehabilitation", WEF Manual of Practice FD-6, ASCE Manual and Report on Engineering Practice No. 62, Water Environmental Association, 601 Wythe Street, Alexandria, VA. 22314-1994, 1-800-666-0206.	S	S	S	S
"Pump Handbook", Mc Graw-Hill Publishing Company, 1221 Avenue of the Americas New York, NY. 10020, 1-800-2-Mcgraw. http://www.mcgraw-hill.com/ ISBN: 0070340323	S	S	S	S

Answer Key To Sample Test Questions				
Question #	Grade I	Grade II	Grade III	Grade IV
1	b	d	c	d
2	d	c	c	d
3	b	c	b	b
4	——	——	a	c

Preparing For Your Test

This section addresses a few possible methods for preparing for the certification test. Since you are most familiar with your own abilities you are responsible for determining the best method for preparing for your certification test. Following the suggestions in this section does not guarantee you will pass the certification test.

Determining Your Preparedness: An individual's preparedness for the certification test depends on a number of things including amount of practical experience in the vocation and years of education. If you are unsure how prepared you are for the test review the *Essential Duties* and *Test Content Areas* for the test that you are considering. If you are not familiar with most of the *Essential Duties* and *Test Content Areas* you should consider reviewing some of the material in the references listed for that grade level. You may also want to consider applying for a lower grade level if appropriate.

Using The Selected References: After evaluating how well prepared you are for the written test you may want to review some of the Selected References. The references in this list may be used to review those Test Content Areas that you are not familiar with or those for which you have little background. Well prepared candidates may only have to brush-up on a few topics while those less prepared may have to study extensively.

Study Sessions: CWEA Local Sections host at least two study sessions in various parts of California. All applicants will be mailed the date and location of the nearest preparation classes. Usually these classes are given about one month before the test date and last a full day with Grades I and II material covered in the morning and Grades III and IV covered in the afternoon.

Using the Essential Duties and Test Content Areas as a Guide to Your Study: The Essential Duties (EDs) are a basic outline of the test subject matter. You can use the EDs as your study guide by referring to the EDs in the primary Selected References. For example, if you are preparing for the Grade II test, and you are not very familiar with ED #7 (Routine traffic safety planning), you can look up "Traffic control zones" in the index of *Operation and Maintenance of Wastewater Collection Systems Volume 1*. There you can read about safe procedures for traffic control on pages 141-145. Similarly, you could read about Test Content Area (TCA) #6 (Occupational hazards and standard safety), in the same reference. As you study you will find that the TCAs are related to the EDs (TCA #6 is clearly related to ED #7). Each test question is written to address at least one TCA and its related ED.

FAQs

Frequently Asked Questions

Question: Is it required that I begin at the Grade I level then work my way up from there to higher levels?
Answer: No, you may take any test that you qualify for with your education and experience. However, if you are just starting out you can see by the education and experience requirements that you can work your way up the grade levels faster if you become certified at Grade I, then achieve each successive certification as soon as you get the required education and experience.

Question: If I take a Grade II, III, or IV test will I have to know the Test Content Areas for the lower level tests?
Answer: Yes, the subject matter for each test builds on the subject matter for those tests below its grade level. A thorough knowledge of the Test Content Areas for the grade level that you are taking is most important to your preparation, but you should expect questions from any of the lower grade levels.

Question: If I am re-taking a test that I had previously failed do I need to re-submit a full application and the entire application fee?
Answer: No, you must complete the Re-Test application with appropriate fees.

Question: Is continuing education required to renew my certification?
Answer: Yes. For any certificate earned on or after July 2001, you need to obtain 12 hours of continuing education every two years. For more information, visit www.cwea.org, or feel free to call the CWEA office.

Question: How long is the test?
Answer: All tests have about 75-100 questions and 3 hours are given for completion.

Question: Can I take more than one certification test at once?
Answer: Yes, but you can only take up to two at a time (under a different vocation). You will be given a total of three hours to complete both tests.

Question: How do I get a receipt showing I paid for the test?
Answer: A receipt is sent to all applicants who have paid their fees about one month after the application deadline. Hold on to this receipt until the certification process is over in case you have to submit it to your employer for reimbursement.

Question: If I am applying for the Grade IV test do I need to be a Supervisor?
Answer: No, you just need to have about one year of supervision experience. You do not have to hold the title of "Supervisor."

Application Periods
September 1 through November 30
December 1 through February 28
March 1 through May 31
June 1 through August 31
Testing Periods
January 2 through March 31
April 1 through June 30
July 1 through September 30
October 1 through December 31

Other CWEA Certificate Programs

- Biosolids Land Application Management
- Environmental Compliance Inspector
- Laboratory Analyst
- Plant Maintenance
- Industrial Waste Treatment Plant Operator

For more information about these programs call CWEA at 510-382-7800, or visit our web site at www.cwea.org

Conversions and Formulas Given in the Certification test

Conversions
12 inches = 1 foot
36 inches = 3 feet = 1 yard
5,280 feet = 1 mile
1,440 minutes = 1 day = 24 hours
144 square inches = 1 square foot
9 square feet = 1 square yard
43,560 square feet = 1 acre
1,728 cubic inches = 1 cubic foot
27 cubic feet = 1 cubic yard
1 cubic foot of water contains 7.48 gallons
1 cubic foot of water weighs 62.4 pounds
1 gallon of water = 8.34 pounds
1 million gallons per day (mgd) = 694 gallons per minute (gpm)
1 million gallons per day (mgd) = 1.55 cubic feet per second (cfs)
1 horse power = 0.746 kilowatts (kw)

Formulas
Flow = Area×Velocity

Area:
Rectangle = Length×Width
Circle = $0.785\times(\text{Diameter})^2$

Circumference of a Circle = 3.14×Diameter

Volume:
Rectangular Solid = Length×Width×Depth
Right Rectangular Cylinder = $0.785\times(\text{Diameter})^2$
$= \pi\times(\text{Radius})^2\times\text{Length}$

$$Slope = \frac{Rise}{Run}$$

California Water Environment Association
7677 Oakport Street, Suite 600
Oakland, CA 94621

Have a question?
Give us a call at (510) 382-7800.

Plumbers & Sewer Contractors:
Your Actions Can Prevent Sanitary Sewer Overflows!

What are Sanitary Sewer Overflows or SSOs?

SSOs discharge untreated or partially treated human and industrial waste, debris, and disease-causing organisms from the sanitary sewer onto the ground near and into homes and potentially into creeks, rivers, lakes or streams.

What are the Impacts of SSOs?

SSOs may result in property damage, environmental damage and/or potential liability to you or your company. Allowing sewage to discharge to a gutter, storm drain or waterway may subject you to penalties and/or out-of-pocket costs to reimburse cities or public agencies for clean-up efforts and regulatory penalties.

How Can You Prevent SSOs?

How to avoid associated penalties & fines

When clearing plugged sewer laterals:

- ☐ Remove root balls, grease blockages and any other debris; don't push debris from the lateral to the sewer main.
- ☐ If you can't prevent a root ball or other debris from entering the sewer main when working in our service area, **please call us** at (707) 778-4546, so we can work with you (free of charge) to remove the root ball from the sewer main to prevent blockages further downstream.
- ☐ Use plenty of water to flush lines.
- ☐ Don't open manholes. Hazardous sewer gases from manholes are odorless, undetectable, and can be deadly. Please note that discharge into a publicly owned manhole requires a permit. Please contact us at (707) 778-4303, for an application.

When constructing sewer laterals:

- ☐ Check your work area. Gravel, backfill material, and test plugs can become lodged in the sewer line and cause blockages. Make sure no debris is left in the sewer line before you backfill.
- ☐ Avoid offset joints – offset joints make sewer lines vulnerable to root intrusion & grease accumulation, cause debris hang-ups and make lines harder to clean. Properly bed your joints!
- ☐ Contact our Administration Office regarding types of permits required and construction specifications at (707) 778-4303.

Who Do I Call to Avoid an SSO?

Help us help you…

If you require our free assistance to help clear root balls, grease blockages, and other debris from a main sewer line to prevent an SSO or to open a manhole in our service area, please call us at:

(707) 778-4546

PETALUMA 1858

Bay Area Clean Water Agencies
A Joint Powers Public Agency

BAPPG

WASTEWATER SAFETY PROGRAM

PERSONAL PROTECTIVE EQUIPMENT PLAN

CITY OF PETALUMA WATER RESOURCES AND CONSERVATION
ELLIS CREEK WATER RECYCLING FACILITIES
(Revised 10/4/20)

I. GENERAL POLICY STATEMENT

The City of Petaluma, PW&U Management is committed to the safety and health of all division employees and recognizes the need to comply with regulations governing safety and the need to have a Personal Protective Equipment (PPE) Plan.

II. PURPOSE

Application & Training

Employees working at Public Works Wastewater Collections & Ellis Creek Water Recycling Facility, to include all Sewer Field Crews, Foreworks, Water Recycling Plant Operators, Mechanical Technician, Senior Mechanical Technician, part-time Environmental Intern, Water Recycling Plant Operations Supervisor, Environmental Services Supervisor, Environmental Compliance Inspector, Senior Environmental Chemist, Laboratory Analyst, and Water Resources Technician must wear provided protective equipment. This equipment includes protection against hazards to eyes, face, head, lungs, hands, feet, and body, when appropriate. The Administrative Technician and Water Conservation Coordinator may be required to wear protective equipment if, at any time, during the course of their work, management deems it as a requirement for safety purposes.

Use of personal protective equipment is required by OSHA regulations contained in 29 CFR 1910 and 29 CFR 1926, and is reinforced by EPA regulations in 40 CFR Part 300. Types of protection relevant to OSHA regulation, and the source of the regulation appear in the table below. Personal protective equipment in use shall be inspected daily and maintained in serviceable condition. Items of personal issue shall be cleaned and sanitized as appropriate prior to being reissued to another employee. Defective or damaged personal protective equipment shall be taken out of service immediately.

OSHA Standards for the Use of Personal Protective Equipment		
Type of Protection	Regulation	Source
General	29 CFR 1910.132 29 CFR 1910.1000	41 CFR Part 50-204.7, General Requirements for Personal Protective Equipment 41 CFR Part 50-204.5, except for Table Z-2, the source of which *is American National Standards Institute*, Z37 series[1]
Eye and Face	29 CFR 1910.133(a)	ANSI Z87.1-[1] Eye and Face Protection
Noise Exposure	29 CFR 1910.95	41 CFR 50-204.10 and OSHA Rulemaking
Respiratory	29 CFR 1910.134	ANSI Z88.2-[1] Standard Practice for Respiratory Protection
Head	29 CFR 1910.135	ANSI Z41.1-[1] Safety Requirements for Industrial Head Protection
Foot	29 CFR 1910.136	ANSI Z41.1-[1] Men's Safety Toe Footwear
Electrical Protective Devices	29 CFR 1910.137	ANSI Z9.4-[1], Ventilation and Safe Practices of Abrasive Blasting Operations

Hard Hats

Hard hats must be worn whenever employees are exposed to the hazards of falling or flying objects, electrical shock or burn. Hard Hats are to be worn to insure the safety of all field personnel and to meet the City's obligations in following Cal/OSHA Standards of Safety. Safety vests must be used in conjunction with the hard hats when working on or adjacent to roads or highways in order to increase visibility.

Specific areas where hard hats must be used include, but are not limited to:

- Construction areas designated as "Hard Hat Areas;"
- Areas where any crane, hoist, or other overhead lifting device is in operation;
- Areas where there is a possibility of falling objects;
- Areas adjacent and below elevated work sites;

- Areas with pipes and structural supports at head level;
- PPE for Electrical and Arc Flash

Although a hard hat may not be required at a particular job site, it is the employee's responsibility to maintain one at the site (e.g., in a vehicle.), so that it will be readily available should it be needed. Furthermore, an employee may opt to wear their hard hat even if not required to do so. The shell or suspension of the hard hat should not be altered or modified.

Employees are responsible to visually inspect their hardhat shell, including the suspension, for signs of damage or wear that might reduce its intended capacity of safety. When damage is found or when a hard hat sustains a blow, it shall be discarded and a new one obtained. Any hard hat that requires replacement due to damage shall be removed from service and properly destroyed.

Violations of Cal/OSHA standards and the department's rules on the required use of hard hats may result in disciplinary action, dependent upon the nature and severity of the violation and/or prior activity.

Face and Eye Protection

During any operation in which fragments of material or chemicals are likely to strike an employee's eyes or face, he/she are required to wear suitable spectacles, goggles, or face shields that meet ANSI standard Z87.1.

Full Face protection is required in addition to safety glasses when there is the potential for chemical splash or during wash down operations to protect an employee from raw product.

Hearing Protection

Employees shall use hearing protection when noise levels exceed the allowable limit. A Hearing Conservation Program shall be implemented for areas where the allowable limits are exceeded.

Respiratory Protection

Employees must use fitted cartridge style respirators wherever toxic powders, fumes, vapors or gases are present in the air. Employees may choose to wear disposable N95 particulate respirators in lieu of the fitted cartridge style respirators for protection where non-toxic particulate matter is present in the air.

Prior to being issued a respirator, employees shall be required to undergo a physical examination and be medically qualified to use the mask they will be assigned. Training is also required prior to using the mask, which includes the following:

- Proper inspection procedures
- Care and maintenance
- How to clean the respirator
- How to properly use the respirator

- How to identify and react to failure of the respirator

A complete copy of the Water Resources and Conservation Department Respiratory Protection Program will detail all of the required steps and procedures to be taken, to ensure that the mask will protect the affected employee. The program can be obtained from the Safety Coordinator.

Body Protection

The body protection given by work clothes or coveralls is sufficient for ordinary work. Where chemicals are being handled, rubber aprons or laboratory coats may be required.

Hands

Employees involved in routine operation of the plant do not require gloves. Employees should wear ordinary work gloves for hand protection against friction, or scratches, or bumps. Leather, rubber, neoprene, plastic, etc. gloves are required for handling rough, sharp, or hot materials, or chemically-active substances. Employees exposed to raw material must use nitrial or latex gloves at all times to better protect them from Blood Borne Pathogens (BBP) and infectious diseases.

Feet

Employees are required to wear steel-toe work shoes or boots that meet ANSI standard Z41.1 when they work in the facility. These shoes shall have soles with good traction on slippery surfaces. Employees are required to wear rubber boots for work in wet areas. Employees who work in the laboratory, including the Environmental Services Supervisor, Senior Environmental Chemist, Environmental Compliance Inspector, Laboratory Analyst, and part-time Environmental Intern will be required to wear closed-toe shoes while working in the laboratory; however steel-toe shoes are required when working in the facility. Shoes and/or boots exposed to chemicals and wastewater must be left at work to prevent cross contamination. Employees who are excluded from this requirement include the Administrative Technician and the Water Conservation Coordinator.

Fall Protection Equipment

The use of a personal fall arrest system must be authorized by the facility Safety Coordinator. Prior to issuing any equipment, training will be conducted with the employee on proper use, inspection, and storage of the equipment as well as task specific hazards he/she will encounter.

III. ASSIGNED PERSONAL PROTECTIVE EQUIPMENT

All applicable employees will be issued the following personal protective equipment:

1. Safety shoes allowance - leather, steel toe
2. Safety shoes - rain boots, steel toe
3. Rain coat & pants
4. Safety glasses
5. Ear muffs
6. Work gloves

7.Eye goggles
8.Uniforms
9.Hard hats
10.Lab coats (lab personnel)

IV. ADDITIONAL PERSONAL PROTECTIVE EQUIPMENT

The following personal protective equipment is available on an as needed basis:

1. Disposable ear plugs
2. Disposable nonpermeable gloves
3. Disposable N95 particulate respirators

V. RESPONSIBILITIES OF CITY AND EMPLOYEES

The City will provide all employees with the personal protective equipment listed in SECTIONS III and IV, except as specifically identified below. The City will also replace all assigned personal protective equipment which is no longer usable due to normal wear.

Employees are responsible for the proper cleaning, maintenance and storage of all assigned personal protective equipment issued except as specifically qualified below.

Specific conditions on various items of personal equipment are:

1.Safety shoes - leather, steel toe. The City will provide an amount pursuant to the employee's Memorandum of Understanding to purchase a pair of safety shoes. It is each employee's responsibility to keep their safety shoes clean and conditioned to maximize the shoe's useful life.

2.Safety shoes - rain boots, steel toe. The City will provide each employee a pair of safety rain boots. Following use, these boots shall be washed, dried, and stored in their designated area.

3.Rain coat and pants. The City will provide each employee a rain coat and rain pants. Following use, the rain coat and pants shall be washed, dried and stored in their designated area.

4.Safety glasses. The City will provide each employee a pair of safety glasses. For employees requiring corrective lenses, the City will provide the frame and lenses. Employees are responsible for his/her eye examinations or the cost associated with determining the proper lens correction. The prior approval of the employee's supervisor is required to purchase corrective safety glasses. All safety glasses shall be cleaned and dried after use and stored in the employee's assigned locker.

5. Ear muffs – The City will provide a pair of ear muffs for hearing protection. Ear muffs shall be cleaned and dried after use and stored in the employee's assigned locker.

6. Work gloves – The City will provide work gloves for each employee. Work gloves shall be cleaned daily and stored in the employee's assigned locker. Worn or unusable gloves shall be replaced.

7. Eye goggles – The City will provide a pair of eye goggles for eye protection. Eye goggles shall be cleaned and dried after use and stored in the employee's assigned locker.

8. Uniforms and lab coats – The City will provide employees uniforms and lab coats, which is required to be worn at all times while performing work. The City provides employees washer and dryer for all uniforms and lab coats or a laundry service. Employees are responsible for the inventory count and uniforms issued.

9. Hard hats – The City will provide hard hats for employees. It is the employee's responsibility to insure the safekeeping, maintenance, and cleanliness of hard hats.

VI. INSPECTIONS

The Assistant Operations Manager, Water Recycling Plant Operations Supervisor, Environmental Services Supervisor, or designated representative shall inspect the personal protective equipment of each employee and the condition of each item noted.

VII. ENFORCEMENT

Violation of any aspect of this Plan is a violation of the City rules. Any violation of this Plan may subject an employee to disciplinary action.

NOTE:

Most workplace accidents are preventable. There is safety equipment available for almost every type of job. PPE will prevent or lessen the severity of employee injury or accident.

The only effective PPE is that which is used and remember that most accidents can be prevented.

Keep these safety precautions in mind

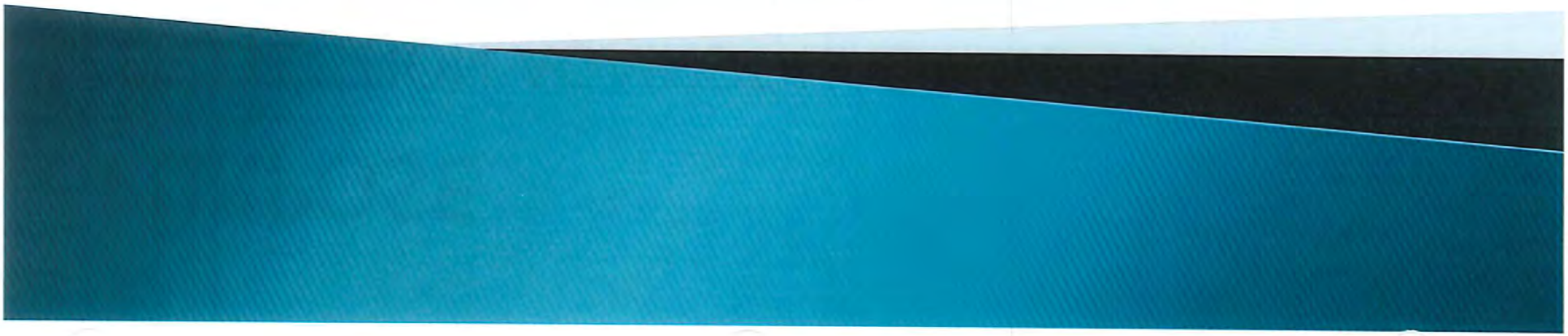
- Inspect, maintain, and repair, and replace all PPE so that it offers maximum protection.
- Match safety equipment to the workplace hazards.
- Make sure PPE fits properly, whether it's a respirator, ear plugs or protective

clothing. Devices must fit properly to work properly.

- If the job calls for PPE, use it. The City can provide equipment and training but it's up to each individual to use it.

PERSONAL PROTECTIVE EQUIPMENT PLAN

- THE CITY OF PETALUMA IS COMMITTED TO THE SAFETY AND HEALTH OF ALL EMPLOYEES
- THE CITY WILL COMPLY WITH REGULATIONS FOR A PERSONAL PROTECTIVE EQUIPMENT PLAN



PURPOSE

PROTECTION AGAINST HAZARDS TO:

- Head
- Eyes
- Ears
- Lungs
- Body
- Hands
- Feet
- Fall

Life without an eye?
Life not seeing anyone on your left?

Chemically burned eye

OSHA STANDARDS

GENERAL

- REGULATION: 29 CFR 1910

What did you say? Sorry I did not wear hearing protection while using power tools or mowing the grass.....let alone in the compressor Room at the Ellis Creek WRF. WHAT DID YOU SAY? Oh – the grandkids don't want to come over because they have to yell for Grandma to hear them....

HEAD PROTECTION

- HARD HATS TO BE WORN IN AREAS WHERE TOOLS OR MATERIALS MAY FALL ONTO WORKERS
- **ELLIS CREEK WRF – MUST BE WORN AT ALL TIMES**
- MUST MEET ANSI STANDARD Z89.1:
  - Properly adjusted to the wearers head
  - Worn with bill to front and cage inserted properly (adjustment to the rear)
  - No "bump caps" at Ellis Creek WRF

Head protection for everyone, not just construction workers.

EYE PROTECTION

90% of eye injuries are preventable with proper eye wear .. OSHA

- MUST BE USED WHEN FRAGMENTS OF CHEMICALS CAN STRIKE EYES
- FULL FACE PROTECTION WHERE THERE IS POTENTIAL FOR CHEMICAL SPLASH OR; DURING WASH DOWN TO PROTECT FROM RAW PRODUCT
- **ELLIS CREEK WRF – MUST BE WORN AT ALL TIMES**
- MUST MEET ANSI STANDARD Z87.1

Three out of five workers injured in the eye were not wearing the proper protection or were wearing the wrong protection…. OSHA

HEARING PROTECTION

- REQUIRED WHEN NOISE LEVELS EXCEED ALLOWABLE LIMITS
  - HEARING CONSERVATION PROGRAM TO BE IMPLEMENTED FOR AREAS WHERE ALLOWABLE LIMITS ARE EXCEEDED
- **ELLIS CREEK WRF – MUST BE CARRIED ON / WITHIN YOUR HARD HAT AT ALL TIMES**

RESPIRATORY PROTECTION

- REQUIRED WHEN DUST, FUMES, VAPORS OR GASES ARE PRESENT IN THE AIR
- ELLIS CREEK REQUIREMENTS:
  - DUST
  - HALF FACE CHEMICAL CARTRIDGE – ORGANIC VAPOR
  - FULL FACE CHEMICAL CARTRIDGE – ACID
  - FULL FACE CHEMICAL CARTRIDGE – AMMONIA

BODY PROTECTION

- WORK CLOTHING ISSUED TO EACH ELLIS CREEK EMPLOYEE (SEE HANDOUT)
- NEOPRENE APRON FOR CHEMICAL HANDLING
- LAB COATS WHEN WORKING IN THE LABORATORY
- RAIN GEAR FOR WET WEATHER
- SAFETY VESTS
  - EVERYONE UNTIL THE CONTRACTOR IS NOT ON SITE
  - ALWAYS WHEN WORKING IN THE ROADWAY

HAND PROTECTION

WORK GLOVES CAN BE USED FOR PROTECTION AGAINST:

- FRICTION, SCRATCHES, OR BUMPS
  - PREMIUM MECHANIC GLOVES
- SHARPS, UNKNOWN CONTENTS OF PUMPS
  - STAINLESS STEEL MESH GLOVES
- ANY CONTACT WITH WASTEWATER OR BIOSOLIDS
  - HANDS MUST BE COVERED – NEOPRENE GLOVES, LATEX, NITRILE
  - LAB, FIELD, SAMPLING, LOOKING, ETC.
  - PROTECTS FROM BBP, HEPATITIS, INFECTION, ETC.

FOOT PROTECTION

- ELLIS CREEK WRF – ALL EMPLOYEES SHALL WEAR STEEL-TOE WORK SHOES WHEN WORKING IN THE PLANT
- MUST MEET ANSI STANDARD Z41.1
- MUST HAVE SOLES WITH GOOD TRACTION ON SLIPPERY SURFACES
- MUST WEAR RUBBER BOOTS (NEOPRENE) FOR WORK IN WET AREAS OR AROUND CHEMICALS

FALL PROTECTION

USE OF PERSONAL FALL ARREST SYSTEM MUST BE AUTHORIZED BY SAFETY COORDINATOR

PRIOR TO ISSUANCE, TRAINING WILL BE CONDUCTED ON:

- PROPER USE
- INSPECTION
- STORAGE OF EQUIPMENT
- SPECIFIC HAZARDS EMPLOYEE WILL ENCOUNTER
- WILL ROLL THIS OUT WITH CONFINED SPACE TRAINING

PERSONAL PROTECTIVE EQUIPMENT ASSIGNED

- ELLIS CREEK WRF EMPLOYEES WILL BE ISSUED PERSONAL PROTECTIVE EQUIPMENT BASED ON NEED FOR THE WORK (SEE HANDOUT)
- IT IS THE EMPLOYEES RESPONSIBILITY TO KEEP ISSUED EQUIPMENT IN GOOD WORKING ORDER AND TO ASK YOUR SUPERVISOR FOR REPLACEMENT EQUIPMENT WHEN NECESSARY

APPLICATION

PERSONAL PROTECTIVE EQUIPMENT SHALL:

- BE INSPECTED DAILY
- MAINTAINED IN SERVICEABLE CONDITION
- CLEANED AND SANITIZED PRIOR TO RE-ISSUE TO ANOTHER EMPLOYEE
- DEFECTIVE/DAMAGED EQUIPMENT WILL BE TAKEN OUT OF SERVICE IMMEDIATELY

RESPONSIBILITIES OF CITY & EMPLOYEES

THE CITY WILL REPLACE:

- ASSIGNED EQUIPMENT NO LONGER USABLE DUE TO NORMAL WEAR

THE CITY WILL NOT REPLACE:

- LOST, ABUSED OR INADEQUATELY MAINTAINED EQUIPMENT

EMPLOYEE RESPONSIBLITIES

EMPLOYEES ARE RESPONSIBLE FOR:

- PROPER CLEANING
- PROPER MAINTENANCE
- PROPER STORAGE OF ALL ASSIGEND PERSONAL PROTECTIVE EQUPMENT

CONSEQUENCES OF NOT FOLLOWING THESE POLICIES

- PROGRESSIVE DISCIPLINE

City of Petaluma
COVID-19 Exposure Control and Prevention Program

COVID-19 PANDEMIC

The novel coronavirus, SARS-CoV-2, causes a viral respiratory illness called COVID-19, which can make people sick with flu-like and other symptoms. The virus spreads easily when an infected person sneezes, coughs, or speaks, sending tiny droplets into the air. These droplets can land in the nose, mouth, or eyes of someone nearby and cause illness. The virus can also be caught from airborne virus, when small particles of infectious virus remain suspended in the air and people inhale them. People can also become infected if they touch an infectious droplet on a surface and then touch their own nose, mouth, or eyes.

Symptoms of COVID-19

According to the Centers for Disease Control and Prevention (CDC) the symptoms of COVID-19 are:

- Fever
- Cough
- Shortness of breath or difficulty breathing
- Chills
- Repeated shaking with chills
- Muscle pain
- Headache
- Sore throat
- New loss of taste or smell

(NOTE: The CDC may update these symptoms so please check the website frequently: https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html)

The CDC recommends immediate medical attention if a person develops emergency warning signs, including:

- Trouble breathing
- Persistent pain or pressure
- New confusion or inability to arouse
- Bluish lips or face

COVID-19 PREVENTION PROGRAM

The City of Petaluma is committed to protecting our employees and preventing the spread of COVID-19 at our workplace. We developed this program to reduce our workers' risk of catching and spreading this virus. We encourage employees to share information about potential COVID-19 hazards at our workplace and assist in evaluating these hazards. We will investigate all workplace illnesses and correct hazards that are identified. We stay informed on the virus presence in our community as well as recommendations made by national and local health agencies. We review and update this plan as necessary. This plan was last reviewed on December 30, 2020.

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DESIGNATION OF RESPONSIBILITY

The Human Resources Director has the authority and responsibility for implementing this plan in our workplace. All managers and supervisors are responsible for implementing this plan in their assigned work areas and ensuring employees' questions are answered in a language they understand.

All employees are required to follow the policies and procedures laid out in this plan, use safe work practices, and assist in maintaining a safe work environment.

IDENTIFICATION AND EVALUATION OF COVID-19 HAZARDS

We evaluate our workplace and operations to identify tasks that may have exposure to COVID-19. The evaluation includes all interactions, areas, activities, processes, equipment, and materials that could present potential exposure to COVID-19. Assessments include employee interactions with all persons who may be present in the workplace: contractors, vendors, customers, and members of the public. Evaluations include:

- Identification of places and times when people may gather or come in contact with each other, even if they aren't working. Examples: meetings, trainings, workplace entrances, bathrooms, hallways, aisles, walkways, elevators, break or eating areas, cool-down areas, and waiting rooms.
- Employees' potential workplace exposure to all persons at the workplace. We will consider how employees and others enter, leave, and travel through the workplace. Examples: co-workers, employees of other businesses, the public, customers or clients, and independent contractors.
- Existing COVID-19 prevention measures and whether we need different or additional control measures.

Employee Participation - We encourage employees to participate in this evaluation. They can contact The Human Resources Department to share information on potential COVID-19 hazards at our workplace or to assist in evaluating these hazards.

We will evaluate how to maximize the amount of outdoor air entering our indoor spaces and if it is possible to increase the filtration efficiency to the highest level possible for our ventilation system.

Employees can report any potential COVID-19 hazards anonymously here.

Employees may confidentially inform us if they have a higher risk for severe illness from COVID-19, such as those with conditions like lung disease, obesity, or cancer. They will have priority for lower exposure job assignments or working from home whenever possible.

The jobs/tasks/activities at City of Petaluma have been assessed under Appendix C.

CORRECTION OF COVID-19 HAZARDS

We treat all persons, regardless of symptoms or negative test results, as potentially infectious. We select and implement feasible control measures to minimize or eliminate employee exposure to COVID-19. We review orders and guidance COVID-19 hazards and prevention from the State of

California and the local health department, including general information and information specific to our industry, location, and operations. We correct unsafe or unhealthy conditions, work practices, policies, and procedures in a timely manner based on the severity of the hazard.

See Appendix D – Controls to Reduce Exposure

Engineering Controls – Equipment and Building Systems to Minimize Exposures
Our engineering controls for COVID-19 include:

- Maximizing outdoor air for ventilation as much as feasible except when EPA's Air Quality Index is greater than 100-or when increasing outdoor air would cause harm to employees, such as excessive heat or cold.
- Installing cleanable, solid partitions between coworkers or between workers and customers when 6 feet of distance cannot be maintained.

Administrative Controls – Policies, Procedures, and Practices to Minimize Exposure
Our administrative controls for COVID-19 are:

- ***Limiting Access*** to the workplace to only necessary staff. Employees work from home whenever possible.
- ***Screening Employees and Visitors*** to our facility through the following methods:
  - ☐ Home Screening - Employees self-screen using a symptom screening form prior to leaving for work.
  - ☐ Onsite Screening - Face coverings are required during the screening process and non-contact thermometers are used.
  - ☐ Self-Screening of Visitors - We have a symptom screening form posted at the entrances to our worksite and ask visitors to self-screen before entering the worksite.

We prohibit any employee or visitor sick with any potentially contagious from entering the workplace. Anyone exhibiting any potential symptoms of COVID-19 should contact The Human Resources Department and leave the worksite.

- ***Physical Distancing:*** Everyone must keep a six-foot distance from others at all times except where we can show that it is not possible or for brief times during the movement of people in the workplace. When six feet of distance cannot be maintained, people will be as far apart as possible. Methods for physical distancing include:
  - Reducing the number of persons in an area at one time (including visitors)
  - Visual cues such as signs and floor markings to show employee locations and paths of travel
  - Staggered arrival, departure, work, and break times
  - Adjusted work processes (such as reducing production speed) to allow greater distance between employees
  - Telework or other remote work arrangement
- ***Wearing a Face Covering:*** **We provide** face coverings to all employees and require they be worn when indoors if not alone in a room, when outdoors if less than six feet from another person, and as required by the local health department or CDPH. We will not prevent any

employee from wearing a face covering when required unless it would create a safety hazard, such as interfering with the safe operation of equipment. The face coverings will be cloth or woven material, fit snuggly, and completely cover the nose and mouth. Face coverings must be clean and undamaged. **Face coverings are not respiratory protection and do not replace physical distancing requirements.**

Employees are not required to wear a face covering in the following situations:

- When an employee is alone in a room.
- While eating or drinking at the workplace, provided employees are at least six feet apart and outside air supply to the area has been maximized to the extent possible.
- When employees wear respiratory protection in accordance with Section 5144 or other Title 8 safety orders.
- When employees cannot wear face coverings due to a medical or mental health condition or disability. This includes a hearing-impaired person or someone using sign language to communicate. Employees exempted from wearing a face covering due to medical conditions, mental health conditions, or disability must wear an effective non-restrictive alternative, such as a face shield with a drape on the bottom that we will provide, if their condition or disability allows.
- When a specific task cannot be performed with a face covering. This exception is limited to the time period in which such tasks are being performed, and the unmasked employee shall be at least six feet away from all other persons unless unmasked employees are tested at least twice weekly for COVID-19.

Employees not wearing a face covering, face shield with drape, or respirator, for any reason, will stay at least six feet away from all other people in the workplace unless they are tested twice a week for COVID-19.

Signs are posted at the entrance to the workplace to communicate the requirement for face coverings by any non-employees entering the workplace. We provide face coverings to members of the public if necessary and instruct employees to remain at least six feet away from members of the public who will not wear a face covering.

- ***Practicing Good Hygiene.*** Wash hands with soap and water for at least 20 seconds, or use alcohol-based hand sanitizer with at least 60% alcohol. Hand sanitizer stations and hand hygiene signage are placed throughout the workplace. If the hand hygiene stations need to be resupplied contact Cindy Chong, Parks & Facilities Maintenance Manager.

- ***Prohibiting the Sharing of PPE and Other Workplace Equipment*** such as phones, computers, and tools. If items must be shared, they are disinfected between uses by different people. Sharing of vehicles is minimized as much as possible.

- ***Cleaning and Disinfecting Frequently.*** Surfaces, especially frequently touched surfaces, will be disinfected with products that meet the EPA's criteria for use against coronavirus. Disinfectants are used according to manufacturer's directions. Employees are trained on the

hazards of the disinfectants, to use only in well-ventilated areas, any PPE that is required, and to never mix chemicals. Surfaces are disinfected according to Appendix E.

Personal Protective Equipment (PPE) – Equipment Worn by Employees to Minimize Exposure
In general, employees will not use respirators at the City of Petaluma for protection from COVID-19. If a hazard assessment determines respirators are needed, they will be used in accordance with Title 8, Section 5144. Any PPE used to protect from COVID-19, such as gowns, face masks, and gloves, is selected based on function, fit, and availability. Employees are trained when and why PPE is necessary, how to properly put on and take off PPE, and how to clean, maintain, and store reusable PPE. Job hazard assessments are performed by supervisors to identify any PPE required for a specific job. Supervisors are responsible for ensuring that adequate supplies of PPE are available.

INVESTIGATING AND RESPONDING TO COVID-19 CASES IN THE WORKPLACE

Illness at the Workplace
We investigate all COVID-19 cases in the workplace. Our investigation includes verifying COVID-19 case status, obtaining information on COVID-19 test results and symptom onset, identifying and recording COVID-19 cases, and reporting when required by the regulations.

We maintain a daily log of all employees and visitors at our workplace which includes their name, contact number, date, time in, time out, and who/what area of the workplace they will be accessing. We will use this information to identify individuals to contact following notification of a COVID-19 case at our workplace.

Notification
Employees must alert their supervisor and the Human Resources Department if they are having symptoms of COVID-19, had a possible COVID-19 exposure, were diagnosed with COVID-19, or are awaiting test results. We do not discriminate or retaliate against employees for reporting positive test results or symptoms.

Following notification of a positive test/diagnosis, we will immediately take the following actions:

1. Determine the day and time the COVID-19 case was last present at the workplace, the date of the positive test/diagnosis, and the date the COVID-19 case first experienced symptoms.
2. Determine who may have had exposure to the COVID-19 case by reviewing the case's activities during the high-risk period. The high-risk period **for persons who develop symptoms** is from two days before they first develop symptoms until 10 days after symptoms first appeared and 24 hours have passed with no fever, without the use of fever-reducing medications, and symptoms have improved. The high-risk period **for persons who test positive but never develop symptoms** is from two days before until 10 days after their first positive test for COVID-19 was collected.
3. Within one day of becoming aware of a positive diagnosis, the Human Resources Department will notify in writing all employees and their authorized representatives and subcontracted employee, who were potentially exposed and instruct individuals with close contact to quarantine at home. **CDC defines close contact as being within six feet of an infected person for 15 cumulative minutes or more over a 24-hour period, starting two days prior to**

symptom onset until the sick person is isolated. When providing notice under this section, we will not disclose the identity of the infected person(s).

4. We will provide employees with potential COVID-19 exposure information about access to COVID-19 testing, which will be offered at no cost during working hours, and isolation requirements resulting from a positive test.
5. Investigate whether any workplace factors contributed to the infection and how to further reduce that potential exposure.

We will provide information about COVID-19 related leave benefits. **Confidentially will be maintained at all times.**

We keep a record of and track all COVID-19 cases to include: employee's name, contact information, occupation, location where the employee worked, the date of the last day at the workplace, and the date of a positive COVID-19 test. This information is kept confidential.

Disinfection after Positive Test/Diagnosis
If it has been less than seven days since the sick employee has been in the facility, we will close off any areas used for extended periods of time by the sick individual and allow to air out up to 24 hours. The area will then be thoroughly cleaned and disinfected.

Exclusion from the Workplace
The following employees will be excluded from the workplace:

- Employees that have been exposed to COVID-19 until 14 days after the last known exposure.
- Employees who test positive for COVID-19 until the Return to Work criteria in the next section are met.

Employees excluded from work due to a positive diagnosis from a workplace exposure, or identified as exposed in the workplace, but are otherwise able and available to work will maintain their earnings, seniority, and all other rights and benefits. Information on available benefits will be provided at the time of exclusion.

Return to Work
Criteria for returning to work after testing positive for COVID-19 are as follows:

- Employees who tested positive and had symptoms can return to work when:
  - At least 10 days have passed since symptoms began, **AND**
  - At least 24 hours have passed with no fever (100.4°F or above) without the use of fever-reducing medications, **AND**
  - Other COVID-19 symptoms have improved.
- Employees who test positive but never have symptoms can return to work:
  - After at least 10 days have passed since the date of positive specimen collection.
- Employees who have completed an order to isolate or quarantine by a local or state health official. If the period of time was not specified, 10 days from issuance of order to isolate or 14 days from issuance of order to quarantine.

- Employees that have approval from Cal/OSHA on the basis that removal of the employee would create undue risk to a community's health and safety. In these instances, effective control measures such as isolation or respiratory protection will be implemented to prevent infection of other employees at the workplace.

A negative test result is not required for an employee to return to work.

REPORTING, RECORDKEEPING, AND ACCESS

Reporting

Reporting to the Local Health Department (LHD) – This requirement also complies with AB 685. Within 48-hours of knowledge, The Human Resources Department will notify the local health department (LHD), Solano County Public Health, of any workplace outbreak of COVID-19. An outbreak reportable to our LHD is defined as at least three COVID-19 cases among workers at the same worksite within a 14-day period. We will work with the LHD to carry out contact tracing and follow all LHD recommendations including temporary closure of our business if advised.

Reporting to our Claims Administrator – **SB 1159** (This section applies to employers with five or more employees). The Risk Manager will report to Keenan Administrators when an employee has tested positive for COVID-19. This report will be made within three days of knowledge of an employees' positive test result.

CAL/OSHA Recording/Reporting - We will record on our 300 log all work-related COVID-19 cases that meet one of the following criteria: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, loss of consciousness, significant injury or illness diagnoses by a physician or other licensed health care professional.

We will report any serious COVID-19 illness that required inpatient hospitalization or resulted in death to our local Cal/OSHA office as soon as possible, but in no case more than eight hours after knowledge.

Recordkeeping

The City of Petaluma maintains records of the steps taken to implement this written program. These records include but are not limited to training, inspections, hazard identification, etc.

We keep a record of and track all COVID-19 cases. These records include the employee's:

- Name
- Contact information
- Occupation
- Location where the employee worked
- Date of the last day at the workplace
- Date of positive COVID-19 test

All medical information will be kept confidential. The log of COVID cases, with names and contact information removed, will be made available to employees, authorized employee representatives, or as otherwise required by law.

Access
This program will be made available at the workplace to employees, authorized employee representatives, and to representatives of Cal/OSHA.

COMMUNICATION SYSTEMS

We ask all employees to report, without fear of discrimination or retaliation, any symptoms, potential exposures, and possible hazards relating to COVID-19 at the workplace. Employees should make these reports to the Human Resources Department.

We explain to all employees how we accommodate employees at higher risk of severe COVID-19 illness. An employee can make a report of his/her own high-risk condition to the Human Resources Department.

If an employee is suspected of having a workplace exposure to COVID-19, we will provide information about access to COVID-19 testing at no cost. We will inform affected employees of the reason for testing and the potential consequences of a positive test. Local COVID-19 testing is available in our area through the following:

- Your Primary Care Provider
- Any Kaiser Facility with an appointment
- Rite Aid at 955 Stony Road, Santa Rosa

Note: Additional communication requirements may apply depending upon severity of outbreak. See Appendix A for multiple COVID-19 infections and outbreak procedures. See Appendix B for major outbreak procedures.

We communicate information about COVID-19 hazards and our COVID-19 policies and procedures to employees and other employers, persons, and entities within or in contact with our workplace. This plan must be followed by any other employer's employees entering our workplace. In the case of City of Petaluma employees working at another worksite, our employees will follow whichever employer's program is stricter and stay informed of site-specific prevention measures such as the location of hand hygiene stations.

EMPLOYEE TRAINING AND INSTRUCTION

We provide all employees training and instruction on the symptoms of COVID-19 illness and exposure control methods in place at the City of Petaluma including:

- Information on how COVID-19 spreads and infects people.
- Symptoms of COVID-19
- The importance of getting a COVID-19 test and staying out of the workplace if you have symptoms.
- Our symptom screening procedures for employees and all other visitors to the workplace

- Risk of exposure to COVID-19 on the job.
- Cleaning and disinfection schedules and procedures for our workplace.
- Control measures to protect employees from exposure and infection:
    - Requiring employees to stay home when sick.
    - Physical distancing. Employees must maintain at least 6' of separation from other individuals in the workplace. Since infectious aerosols can travel further than 6', face covering are required along with physical distancing at all indoor workplaces.
    - Frequent handwashing with soap and water for at least 20 seconds, or using hand sanitizer when handwashing sinks are not readily accessible.
    - Proper use of a face coverings and the fact that a face covering is NOT respiratory protection.
    - Covering coughs and sneezes.
- Acceptable PPE and proper use.
- What to do if they are sick and how to obtain a COVID-19 test.
- Information on COVID-19-related leave benefits available under workers' compensation law, the federal Families First Coronavirus Response Act, Labor Code sections 248.1 and 248.5, Labor Code sections 3212.86 through 3212.88, local governmental requirements, the City of Petaluma leave policies, and leave guaranteed by contract.
- The contents of this plan.

APPENDIX A - MULTIPLE COVID-19 INFECTIONS AND OUTBREAKS

The following procedures will be followed whenever there are three or more COVID-19 cases in our workplace within a 14-day period or the workplace has been identified by the Local Health Department (LHD) as the location of a COVID-19 outbreak. These procedures can be stopped only after no new COVID-19 cases are detected at our workplace for a 14-day period.

Testing

The City of Petaluma will provide testing to all employees at no cost during working hours except for those not present during the outbreak period defined above. This testing will be done immediately after determination of an outbreak, and then again one week later; negative test results will not change the quarantine or health order status of any individual. Following these two tests, we will provide continuous testing to employees in the workplace during the defined outbreak period at least once a week, or more frequently if recommended by the LHD. We will provide additional testing as required by the Division in accordance with any special order from Cal/OSHA.

Exclusion from the Workplace

The following employees will be excluded from the workplace during an outbreak:

- Positive cases until return to work requirements are met.
- Employees that have been exposed to COVID-19 until 14 days after the last known exposure.

Employees excluded from work due to positive diagnosis or exposure but otherwise able and available to work will maintain their earnings, seniority, and all other rights and benefits. Information on available benefits will be provided at the time of exclusion.

Workplace Investigation, Review, and Hazard Correction

We will investigate all workplace illness to determine potential factors in the workplace that could have contributed to the COVID-19 outbreak. Additionally, we will review our relevant COVID-19 policies, procedures, and controls and we will implement changes needed to prevent further virus spread.

All investigations and reviews will be documented to include:

- Investigation of new or continuing COVID-19 hazards.
- Review of our leave policies and practices, including whether employees are discouraged from staying home when sick.
- Review of our COVID-19 testing policies.
- Investigation of the sufficiency of outdoor air.
- Investigation of the sufficiency of air filtration.
- Investigation into feasibility of physical distancing.

These reviews will be updated every 30 days that an outbreak continues with new information, new or previously unrecognized COVID-19 hazards, or as necessary. We will make changes based on investigations and reviews to reduce the spread of COVID-19 and consider such actions as moving work tasks outdoors, allowing employees to work remotely, increasing outdoor air supply to our indoor workplaces, improving air filtration to the highest MERV rating compatible with our air

handling system, increasing physical distancing as much as possible, providing respiratory protection, or other possible control measures.

Notifications to the Local Health Department (LHD)
As soon as possible but at least within 48-hours of knowledge, the Human Resources Department will notify our LHD, the Solano County Public Health, whenever there are three or more COVID-19 cases. We will work with the LHD to carry out contact tracing and follow all LHD recommendations including temporary closure of our business if advised. We will provide the LHD the total number of cases and for each case the following:

- Name
- Contact information
- Occupation
- Workplace location
- Business address
- Hospitalization and/or fatality status
- North American Industry Classification System (NAICS) code of the workplace
- Any other information requested

We will continue to update the LHD with additional case information during the outbreak period until there have been no detected COVID-19 cases for 14 days.

APPENDIX B – MAJOR COVID-19 OUTBREAKS

The following procedures will be followed whenever there are 20 or more COVID-19 cases in our workplace within a 30-day period. These procedures can be discontinued only after no new COVID-19 cases are detected at our workplace for a 14-day period.

Testing
The City of Petaluma will provide testing to all employees present at the workplace during the relevant 30-day period and who remain at the workplace at no cost during working hours. Testing will be provided twice a week or more frequently if recommended by the Local Health Department (LHD).

Exclusion from the Workplace
The following employees will be excluded from the workplace:

- Positive cases until return to work requirements are met.
- Employees that have been exposed to COVID-19 until 14 days after the last known exposure.
- Employees excluded from work due to positive diagnosis or exposure but otherwise able and available to work will maintain their earnings, seniority, and all other rights and benefits. Information on available benefits will be provided at the time of exclusion.

Investigation of Workplace COVID-19 Illnesses
We will implement effective procedures for verifying COVID-19 case status, receiving information regarding COVID-19 test results and onset of COVID-19 symptoms, and identifying and recording COVID-19 cases. Upon notification of a COVID-19 case, we will do the following:

1. Determine the day and time the COVID-19 case was last present at the workplace, the date of the positive test/diagnosis, and the date the COVID-19 case first experienced symptoms.
2. Determine who may have had exposure to the COVID-19 case by reviewing the case's activities during the high risk period.
    - The high-risk period **for persons who develop symptoms** is from two days before they first develop symptoms until 10 days after symptoms first appeared and 24 hours have passed with no fever, without the use of fever-reducing medications, and symptoms have improved.
    - The high-risk period **for persons who test positive but never develop symptoms** is from two days before until 10 days after their first positive test for COVID-19 was collected.
3. Within one day of becoming aware of a positive diagnosis, The Human Resources Department will notify in writing all employees, and subcontracted employees, who were potentially exposed and instruct individuals with close contact to quarantine at home.
    - **CDC defines close contact as being within six feet of an infected person for 15 cumulative minutes or more over a 24-hour period starting 2 days prior to symptom onset until the sick person is isolated.**
4. Employees with potential COVID-19 exposure will be provided with information about access to COVID-19 testing, which will be offered at no cost during working hours, and the possible consequences of a positive test.
5. Investigate whether any workplace factors contributed to the risk infection and how to further reduce that potential exposure.

We will ensure that all personal identifying information and employee medical records are kept confidential and that testing and medical services will be provided in a manner that ensures confidentiality of our employees. Non-redacted information on COVID-19 cases shall be provided to the local health department, CDPH, the Division, the National Institute for Occupational Safety and Health (NIOSH), or as otherwise required by law immediately upon request.

COVID-19 Hazard Correction

In addition to the engineering controls, administrative controls, and PPE provisions of our COVID-19 Prevention Program, we will do the following:

- Filter recirculated air with Minimum Efficiency Reporting Value (MERV) 13 or higher efficiency filters if compatible with our ventilation system. If MERV 13 or higher efficiency filters are not compatible with our system, we will use the highest MERV rated filter possible.
- Evaluate the benefits that portable or mounted High Efficiency Particulate Air (HEPA) filtration units, or other air cleaning systems, may offer in reducing the risk of transmission and implementing wherever possible.
- Evaluate the need for respiratory protection or changes to current respiratory protection in use. Any respiratory use will be in accordance with 8CCR5144.
- Implement any other control measures necessary by the issuance of an Order to Take Special Action by the Division in accordance with 8CCR332.3.

Notifications to the Local Health Department (LHD)

As soon as possible but at least within 48-hours of knowledge, the Human Resources Department will notify our LHD, Solano County Public Health, whenever there are three or more COVID-19 cases. We will work with the LHD to carry out contact tracing and follow all LHD recommendations including temporary closure of our business if advised. We will provide the LHD the total number of cases and for each case the following:

- Name
- Contact information
- Occupation
- Workplace location
- Business address
- Hospitalization and/or fatality status
- North American Industry Classification System (NAICS) code of the workplace
- Any other information requested

We will continue to update the LHD with additional case information during the outbreak period until there have been no detected COVID-19 cases for 14 days.

APPENDIX C – RISK ASSESSMENT

(Citywide)

Job Title or Task	Description of Exposure Risk
Entering workplace	Numerous employees in close proximity to each other

APPENDIX D –CONTROLS TO REDUCE EXPOSURE

(Citywide)

Job Title/Task/Work Area	Engineering Controls	Administrative Controls	PPE
Entering workplace	Use natural ventilation; have staff screen before entering City facilities	Stagger work shift start times when possible; enforce physical distancing; require the use of face coverings	Cloth face coverings
Working in a cubicle	Ensure adequate ventilation	Stagger staff onsite, ensure six feet spacing	Cloth face coverings

Inspect periodically to check that controls are effective, to identify unhealthy work conditions or practices, and to ensure compliance with this plan. Any deficiencies shall be corrected right away, and this plan should be updated if needed.

APPENDIX E – DISINFECTION PRACTICES

(Citywide)

Surface/Area	Disinfection Method/Product	Frequency
Conference Rooms	Use disinfecting spray and paper towel to clean table and any chairs that were used.	After every use
Breakroom	Use disinfecting spray and paper towel to clean table and any that were chairs.	After every use
High Traffic Common areas	Use disinfecting spray and paper towel to clean table and any chairs that were used.	Daily

APPENDIX F – RISK ASSESSMENT (TEMPLATE)

Department Name:_____

Job Title or Task	Description of Exposure Risk

APPENDIX G – CONTROLS TO REDUCE EXPOSURE (TEMPLATE)

Department Name:_____

Job Title/Task/Work Area	Engineering Controls	Administrative Controls	PPE

Inspect periodically to check that controls are effective, to identify unhealthy work conditions or practices, and to ensure compliance with this plan. Any deficiencies shall be corrected right away, and this plan should be updated if needed.

APPENDIX H – DISINFECTION PRACTICES (TEMPLATE)

Department Name:_____

Surface/Area	Disinfection Method/Product	Frequency

APPENDIX I – RESOURCES

COVID-19 California - https://COVID19.ca.gov/

Center for Disease Control and Prevention - https://www.coronavirus.gov/

California Department of Health - https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/ncov2019.aspx

State of California Department of Industrial Relations - https://www.dir.ca.gov/dosh/coronavirus/

State of California Department of Industrial Relations - https://www.dir.ca.gov/dosh/coronavirus/General-Industry.html

Cal Osha California Department of Industrial Relations Division of Occupational Safety & Health Publications Unit - https://www.dir.ca.gov/dosh/Coronavirus/COVID-19-Infection-Prevention-inGrocery-Stores.pdf

State of California Department of Industrial Relations - https://www.dir.ca.gov/dosh/coronavirus/Health-CareGeneral-Industry.html

Cal Osha Department of Industrial Relations California Department of Industrial Relations Division of Occupational Safety & Health Publications Unit - https://www.dir.ca.gov/dosh/Coronavirus/COVID-19-Infection-Prevention-in-Construction.pdf

Center for Disease Control and Prevention - https://www.cdc.gov/coronavirus/2019-ncov/community/largeevents/mass-gatherings-ready-for-COVID-19.html

Center for Disease Control and Prevention - https://www.cdc.gov/coronavirus/2019-ncov/daily-lifecoping/visitors.html

Center for Disease Control and Prevention - https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-business-response.html

Center for Disease Control and Prevention - https://www.cdc.gov/coronavirus/2019-nCoV/index.html

Center for Disease Control and Prevention - https://www.cdc.gov/coronavirus/2019-ncov/hcp/infectioncontrol-recommendations.html

Center for Disease Control and Prevention - https://www.cdc.gov/coronavirus/2019-ncov/if-you-aresick/index.html

Center for Disease Control and Prevention - https://www.cdc.gov/coronavirus/2019-ncov/community/disinfecting-building-facility.html

U.S. Department of Health and Human Services - https://www.hhs.gov/sites/default/files/february2020-hipaa-and-novel-coronavirus.pdf

United States Environmental Protection Agency - https://www.epa.gov/pesticide-registration/list-ndisinfectants-use-against-sars-cov-2

World Health Organization - https://www.who.int/emergencies/diseases/novel-coronavirus-2019