SEWAGE COLLECTION SYSTEM INSPECTION FORM
City of Alameda, CA

GENERAL INFORMATION

Inspection Date: **April 2 – 3, 2009**

Utility Name: City of Alameda
Address: City Hall West, 950 W. Mall Square, Room 110, Alameda, CA 94501 Maintenance Service Center, 1616 Fortmann Way, Alameda, CA 94501
Contact Person: Paul Soo, Jr. (City Hall West), Larry Strunk (Maintenance)
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Inspectors Names	Agency/Contractor
Michelle Moustakas	EPA Region 9
Anna Yen	EPA Region 9
Russell Norman	SWRCB
Bill Hahn	SAIC
Dianne Stewart	SAIC

Utility personnel who accompanied inspectors

Name	Title
Matthew Naclerio	Public Works Director
Barbara Hawkins	City Engineer
Flavio Barrantes	Maintenance Superintendent
Larry Strunk	Maintenance Supervisor
Max Arbios	Team Leader
Paul Soo, Jr.	Engineer

SYSTEM OVERVIEW

Population: 75,000 Service Area (Sqr. Miles): 11
Service Area Description: City of Alameda (including Naval Air Station & Fleet Industry Supply Center)

	Residential	Commercial	Industrial	Total
Number of service connections	19,185	734	130	20,049

Combined Sewers (% of system): 0

Name and NPDES permit number for WWTP(s) owned or operated by the collection system utility: NA
Name and NPDES permit number for WWTP(s) that receive flow from the collection system utility: East Bay Municipal Utility District (EBMUD). Order No. 01-072, NPDES Permit No. CA0037702

Names of upstream collection systems sending flow to the collection system utility: The City has a lease with the Navy to operate and maintain the collection system in the Alameda Point area. This includes 10 pump stations.

Names of downstream collection systems receiving flow from the collection system utility: NA

Do any interagency agreements exist with upstream collection systems? NA

Does the utility maintain the legal authority to limit flow from upstream satellite collection systems? No

Comment:

EBMUD has a detention basin and four to six pump stations located in the City. The City has no responsibilities for these structures.

SYSTEM INVENTORY ***(list only assets owned by utility)***

Miles of gravity main	Miles of force main	Miles of Laterals	Number of maintenance access structures	Number of pump stations	Number of siphons
136	6	100	3012	34	0

Utility responsibility for laterals (none, whole, lower): Lower

Size Distribution of Collection System

Diameter in inches	Gravity Sewer (miles)	Force Mains (miles)
6 inches or less	58	1
8 inches	49	1
9 - 18 inches	26	2
19 - 36 inches	3	2
> 36 inches	0	0

Age Distribution of Collection System

Age	Sewer Mains (miles)	# of Pump Stations
0 - 25 years	24	3
26 - 50 years	53	31
51 - 75 years	59	0
> 76 years	0	0

Comments:

The City also operates and maintains an additional 10 pump stations that are owned by the Navy.

About 65 percent of the pipes in the collection system are laid out in the form of grids. In these grid areas, flow can go in both directions in a given pipe depending on conditions. The grid provides an automatic backup to prevent overflows due to a blockage or other problem.

City staff stated that a number of the pump stations have overflows that direct wastewater back into the collection system.

Generators are not load tested. Only three stations have backup power: 8th and Portola; BFI; and Lift Station 6.

The inspection team visited the following pump stations:

- BFI (Photos 1 and 2) – located on Bay Farm Island next to a golf course. This station is not fenced. SCADA is present. A spill occurred on 6/24/05 due to a power failure. A generator has since been installed. City staff identified where the spill entered a storm drain inlet.
- Dublin (Photos 3 and 4) – located in a residential area. This station is not fenced. SCADA is located across the street. Some grease visible in wet well.
- Catalina (Photos 5 and 6) – located next to a lagoon. This station is not fenced. SCADA is present. A contractor cleans the wet well about every two years.
- 8th and Portola (Photo 7) – located next to a park and children's play area. This is the largest pump station. Only the generator is fenced. SCADA is present. The incoming gravity main failed at this location (date unknown). City staff stated that the main failure did not cause a spill. However, a spill did occur due to an operator error when vactoring out the wet well during the main failure. The City did not report this spill because a contractor was operating the vactor.
- Lift Station 6 (Photos 11 and 12) – located next to new Coast Guard housing. This is the newest station. It is fenced. SCADA is present. The new force main from this station was broken by a backhoe during installation of irrigation piping. The spill entered a storm water detention pond and was recovered. The spill was reported three times during the period 11/7-8/06, for a combined volume of 7,900 gallons.
- Willow (Photos 13 – 15) – located in street in residential area near San Francisco Bay. SCADA is present. Any overflow from this station would flow by gravity back to a sewer main.

SYSTEM FLOW CHARACTERISTICS

Collection System (flow measurement location: EBMUD INTERCEPTOR)		
Average Daily Dry Weather Flow (MGD)	Peak Daily Wet Weather Flow (MGD)	Peak Instantaneous Wet Weather Flow (MGD)
6.2	27	N/A

Wastewater Treatment Plant		
Average Daily Dry Weather Flow (MGD)	Peak Daily Wet Weather Flow (MGD)	Peak Instantaneous Wet Weather Flow (MGD)
N/A	N/A	N/A

Upstream Satellite Name	Avg. Dry Weather Flow		Peak Flow (MGD)	Flow based on meter or estimate?
	(MGD)	% of total flow		
N/A				

Constructed Relief Points		
Relief Point	Location	Number of Discharges/Year
N/A		

REGULATORY BACKGROUND

Does the system operate under the provisions of an NPDES permit (either their own or under provisions of another agencies permit)? Yes

Permit holder City of Alameda Permit # CA0038474

List provision of the permit that apply (If permit holder is other than the agency being inspected)

_____
_____
_____
_____

Does the system operate under a state permit? Yes

Are there any spill reporting requirements? Yes
Which agency (or agencies) promulgates the spill reporting requirements?
SWRCB and RWQCB 2

Outline the spill reporting requirements (summarize spill reporting requirement for each applicable statute, regulation and permit): The City attached its Spill Response Plan

Comments:

In February 2008, SWRCB issued new SSO notification requirements in Order No. WQ 2008-0002-EXEC. On May 1, 2008, RWQCB 2 sent a letter to permitted dischargers explaining the new reporting requirements. The letter contains the following summary table showing these requirements:

Communication Type (all are required)	**Agency Being Contacted**	**Timeframe Requirements**	**Method for Contact**
1. Notification	Office of Emergency Services	As soon as possible, but not later than **2 hours** after becoming aware of the SSO.	Telephone – (800) 852-7550 (obtain a control number from OES)
	Local health department	As soon as possible, but not later than **2 hours** after becoming aware of the SSO.	Depends on local health dept.
	Regional Water Board	As soon as possible, but not later than **2 hours** after becoming aware of the SSO.	Electronic www.r2esmr.net/sso_login2.asp
2. Certification	Regional Water Board	As soon as possible, but not later than **24 hours** after becoming aware of the SSO.	Electronic www.r2esmr.net/sso_login2.asp
3. Reporting State Water Board	State Water Board (CIWQS)	Category 1 SSO: initial report within **3 business days**, final report within **15 calendar days** after response activities have been completed.	Electronic (only) to CIWQS
		Category 2 SSO: within **30 calendar days** after the end of the calendar month in which the SSO occurs.	Electronic (only) to CIWQS

The City's spill reporting procedures, as stated in their Spill Response Plan, appear to conform to these requirements.

SPILLS

Sanitary Sewer Overflows From and Caused by Utility									
Note: Spill Rate = number of SSOs/100 miles of sewer pipe/year									
Year	Mains (Miles of Mains 136_)			Laterals (Miles of Laterals 100_)			Totals (Total Miles 236_)		
	#SSO's	Spill Rate	Gross Spill Volume	#SSO's	Spill Rate	Gross Spill Volume	Total SSO's	Total Spill Rate	Total Gross Spill Volume
2005	7	5	586	3	3	251	10	4.2	837.5
2006	5	3	1122	4	4	918	9	3.8	2040
2007	7	5	1197	3	3	505	10	4.2	1685
2008	5	3	525	0	0	0	5	2.1	525
Total	24	4.5	10	10	2.5	1674	34	3.6	5087.5

Spill Cause

Time Period	Blockage								Gravity Pipe Break		Force Main Break		Pump Station		Capacity	
	Grease		Roots		Debris		Multiple									
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
2005	1	10	1	10	1	10	6	60	0	0	0	0	1	10	0	0
2006	1	10	2	20	4	40	0	0	0	0	1	10	2	20	0	0
2007	3	27	0	0	5	45	1	9	0	0	1	9	1	9	0	0
2008	2	40	1	20	1	20	0	0	0	0	0	0	1	20	0	0
Total	7	20	4	12	11	33	7	20	0	0	0	0	5	15	0	0

BUILDING BACKUPS (list only backups caused by problems in sewer mains)		
Year	Number of backups	Cost of Settled Claims
2008	1	Unknown
2009	1	Unknown
TOTAL	2	Unknown

Comments:

City staff stated that there was a spill due to a force main break from Lift Station 6 (Photos 11 and 12) on 11/7-8/2006. The spill entered a storm water detention pond and was fully recovered. This spill was not reflected in the table above filled out by the City. City staff believed that the force main break was indicated as one of the two spills for 2006 from pump stations, but review of the reported spills indicates that there were two pump station spills in 2006. Therefore, SAIC has added the force main spill to the tables above.

City records showed that the spill reported on 9/12/07 was due to a force main break from Lift Station 2. This spill was not reflected in the table above filled out by the City. Therefore, SAIC has added the force main spill to the second table above.

The three spills at 100 and 300 Kitty Hawk Road were due to grease from several apartment complexes at these locations. The inspection team visited the manhole that overflows (Photo 16). City staff stated that they now clean the main every three months to prevent further spills. They have also cooperated with EBMUD to do outreach on grease issues to the nearby residents.

STAFFING

Indicate Number of Staff
Management and Administrative: 1.5
Maintenance: 9.2
Electricians and Mechanical Technicians: 2.6
Operators: 2
Engineering: 1.5
Number of Certified Collection System Operators/Certification Program: 2
Number of Sewer Cleaning Crews: 0
Sewer Cleaning Crew Size: NA

Contractor Services	**Contractor Name(s)** (NA if contractors not used)	**Cost ($/year)**
Sewer Cleaning	Yes, public bid	$100,000
Chemical Root Control	NA	
Spot Repairs	Maintenance (contractor)	$194,000
CCTV	Yes, public bid	$187,000
Spill Response	NA	

Comment:

The City has two certified operators (Mr. Strunk and the Plumbing Shop Foreman). Pump stations are visited once per month. A percentage of wet wells are cleaned annually by adding an emulsifier identified as “Fast Cat.”

EQUIPMENT

List Major Equipment Owned by the Utility:

Equipment	Number	Number in Service
Combination Trucks (hydroflush and vactor)	2 – but not used for routine sewer pipe cleaning	2
Hydroflusher	0	0
Mechanical Rodder	3	3
CCTV Truck	0	0
Utility Truck	2	2
Portable Pumps	2	2
Portable Generator	4	4

Comment:

About 5 of the 10 pump stations owned by the Navy have permanent generators. For pump stations without generators, the City would use one of the portable generators if needed. They say that power failures seldomly occur.

FINANCIAL

REVENUES	
Revenue Source	**Annual Revenue ($/year)**
User Fees	$5,700,000
Connection Fees	$321,000
Grants	N/A
Bonds	N/A
SRF Loans	N/A
TOTAL	$6,021,000

EXPENSES		
Expense	**Annual Cost ($/year)**	**Cost / Mile of Pipe** (Total Pipe Mileage: 136)
Maintenance	$377,000	$2,800
Operations (electric, fuel, etc.)	$117,000	$900
Salaries and Benefits	$1,674,000	$12,400
Capital Improvements	$1,500,000	$11,100
Debt payments	$329,000	$2,500
TOTAL	$5,497,000	$40,900

Average Monthly Household User Fee for Sewage Collection: $14.79
Wastewater Treatment: N/A
Total Wastewater Fees: N/A

Sewer Fee Rate Basis (i.e. water consumption, flat rate, etc.): Water Consumption

Last Fee Increase (Date): Annual CPI

Planned Fee Increases: Annual CPI

Capital Improvement Fund: $1,500,000 for 1 year

SPILL RESPONSE, NOTIFICATION AND REPORTING

Does the Utility Have a Written Spill Response Plan? Yes
Is the Plan Carried by Maintenance/Spill Response Crews? Yes

Indicate Elements Included In the Spill Response Plan		
Element	**Y/N**	**Comment**
Identification of Responsible Staff	Y	Contained in written procedure.
DISPATCH		
System for Becoming Aware of Spills	N	Phone call from residents, phone call and radio calls from staff.
System for Receiving Public Calls	N	3 office staff from 7:00 am to 5:00 pm.
Dispatch Procedures – Normal Hours	N	Radio or cell phone from 7:00 am to 5:00 pm.
Dispatch Procedures – After Hours	N	Phone to Alameda Police Dept. (APD). APD calls on-call staff.
Coordination with First Responders (police, fire department)	Y	AFD responsible for private property spills.
Response Time Goal	Y	15 minute response during regular hours.
SPILL CONTROL/MITIGATION		
Spill Response Activity Sequence	Y	Contained in written procedure.
Spill Site Security	Y	Contained in written procedure.

Indicate Elements Included In the Spill Response Plan		
Element	**Y/N**	**Comment**
Procedures for Stopping Spills	Y	Contained in written procedure.
Spill Containment	Y	Contained in written procedure.
Protection of Storm Drains	Y	Contained in written procedure.
Cleanup/Mitigation	Y	Contained in written procedure.
DOCUMENTATION		
Spill Volume Estimation (list methods in comment field)	N	Visual (pictures) of what various rates of spills look like.
Determination of Spill Start Time	N	Estimated by visual of water and debris.
Spill Sampling	Y	Sample kits on hand for delivery to lab.
Receiving Water Sampling	N	Sample kits on hand for delivery to lab.
Photographing Spill Site	Y	Contained in written procedure.
Field Notes Form	Y	"Green sheet" on every response vehicle.
Spill Report Form	Y	"Green sheet" on every response vehicle.
NOTIFICATION		
Notification of Affected Public (schools, recreational users, etc.)	Y	Contacted directly or by phone.
Posting Warning Signs	Y	Contained in written procedure.
Sanitation Information re: building backups	Y	Referred to professional cleaning contractor.
REPORTING		
Reporting Procedures	Y	Contained in written procedure.
Spill Report Forms	Y	"Green sheet" from spill responders.
Persons Responsible for Filing Reports	Y	Larry Strunk, Max Arbios, Pat Papalagi.

Are all spills reported regardless of volume? Yes
Are Contractors Required to Follow Spill Response Procedures? N/A
Average Spill Response Time (normal work hours): 1/4 hours
Average Spill Response Time (after hours/holidays): 1 hour
Does the Utility CCTV Pipes Following Spill? No
Are Cleaning Schedules Adjusted in Response to Spills? Yes

SEWER CLEANING AND MAINTENANCE

Does the Utility Have Detailed Sewer System Maps? Yes
Are Maps on GIS Database? Yes
Are Maps Available to Maintenance Crews? Yes

Does the Utility Have a Written Maintenance Management System? Yes
Does the Utility Have a Computerized Maintenance Management System? Yes

ANNUAL SEWER CLEANING – Include hydroflushing, mechanical and hand rodding		
Pipe Cleaning excluding repeats		Pipe Cleaning Including Repeats
(miles/year)	% of system/year	(miles/year)
7.7	5.7%	7.7

Cleaning plan includes 5 miles from Sewer Video Program, 2 miles CIP programs, 0.7 miles Annual Maintenance.

System Cleaning Frequency (years to clean entire system): 18
Hot Spots subject to more frequent cleaning: 10 locations; 0.34 miles of pipe
Types of problems subject to hot spot cleaning? Grease or root blockages

HOT SPOT CLEANING SCHEDULE			
Cleaning Frequency	Number of Locations	Pipe length excluding repeats (miles)	Pipe length including repeats (miles)
1/month			
6/year			
4/year	1		
2/year	10	0.34	0.34
1/year			

Chemical Root Treatments
Length of pipe subject to chemical root treatments (miles/year): NA
Chemical treatment frequency: _____
Root treatment chemicals used: _____

Spot Repairs
Spot repairs completed annually: 77 per year); NA (miles/year)
Spot repair budget ($/year): $676,000
Spot repair expenditures last year: $676,000; year: FY 07/08

Odors
Annual number of complaints: The City provided copies of odor reports and associated work orders
Odor hot spot locations: The City believes there are more odor reports in the areas with the sewer grids, due to the potential for sewage to be trapped here if a blockage occurs.
Odor treatment facilities: None

Easement Pipe Cleaning
Total length of easement pipes (miles): 4
Annual easement pipe cleaning (miles/year): 2
Do maintenance workers have access to all easements? Yes

Comments:

SAIC added one location to the hot spot cleaning schedule table above, because the City stated that they clean the Kitty Hawk spill site quarterly.

The 7.7 miles of Annual Cleaning per year is cleaning which the City contracts out.

The City provided hard copies of a number of odor complaints dating from 2001 to the present. There were no complaints that were obviously related to spills among these reports. The City stated that odor complaints are fairly common, partly because of the grid system and the fact that some mains are located in backyards. They also mentioned that EBMUD facilities appear to be involved with some of them.

FATS, OILS AND GREASE (FOG) CONTROL – Completed by EBMUD FOG Program

Does the Utility have a FOG source control ordinance?

- EBMUD has a Wastewater Control Ordinance

Ordinance Citation: East Bay Municipal Utility District Wastewater Control Ordinance, Ordinance 311A-03

Agency responsible for implementing the FOG control program:

- Collection System Agencies and EBMUD for respective program components

Number of Food Service Establishments (FSEs) in service area:

- Approximately 3,000

Number of FSEs subject to FOG ordinance:

- Same as number of FSEs

Indicate Elements Included In the Food Service Establishment FOG Source Control Program		
Element	**Y/N**	**Comment**
FSE Permits	Y	
FSE inspections	Y	
FSE enforcement	Y	
Oil & grease discharge concentration limit		EBMUD's Ordinance has an O&G limit; however, the FOG program focuses on GRD installation and appropriate maintenance
Grease removal device (GRD) requirements:		
traps		
interceptors	Y	
Automatic cleaning traps		
FSEs subject to GRD installation:		
all FSEs (new and existing)		
new FSEs	Y	
remodeled FSEs	Y	Remodels > $75,000
for cause at existing FSEs	Y	
GRD maintenance requirements:		

Indicate Elements Included In the Food Service Establishment FOG Source Control Program		
Element	**Y/N**	**Comment**
Cleaning frequency	Y	Every 3 months or more as needed
25% rule (grease and solids accumulation)	Y	EBMUD requires increased pumping frequency if >25% grease/solids
Kitchen BMP Requirements (list required BMPs below)		
		BMPs are recommended, not required (BMP information attached)
Allowance for chemical additives?		See BMPs ("Do not use emulsifiers or solvents…")
Allowance for biological additives?		Not recommended
FOG Disposal Requirements		See permit for maintenance and disposal requirements
FOG Disposal Manifest System		See permit for documentation/manifest requirements

Number of FOG Program staff:
Inspectors 10
Permit writers 1
Other 4

FSE Inspection frequency: Every 5 years for routine inspections, as needed for Hotspot Response
Annual number of FSE inspections: _____
Does Utility use CCTV to identify FOG sources? Yes

Does sewer maintenance staff coordinate with FOG source control program staff? Yes.
Collection system agencies report hotspots to EBMUD Staff
Cleaning targeted to FOG hot spots? _____
Maintenance crew referrals to FOG program? _____
Pipe repairs at FOG hot spots? _____

Describe program for public outreach and education related to residential FOG sources:

- EBMUD conducts outreach to businesses (FSEs), universities and residents, both throughout the year and during the holidays. EBMUD has expanded its multi-lingual targeted outreach in residential areas that have SSOs and blockages.
  - EBMUD includes outreach with permit issuances and inspections via BMPs, posters, and brochures, most in multiple languages (English, Chinese, Spanish, Korean, and Vietnamese).
  - EBMUD has coordinated with UC Berkeley for targeted outreach to the university's residential areas
  - EBMUD has general residential outreach including *Customer Pipeline* articles, articles in other newsletters, and information on the EBMUD website. EBMUD also targets residential outreach to hotspot areas in coordination with the collection system communities, via distribution of doorhangers with information in English, Chinese, and Spanish.

  - EBMUD has a container at the entrance to its wastewater treatment plant for residents to bring used grease. This bin collected approximately 2,400 gallons in 2008.
  - EBMUD has a hotline phone number and email address for customers to contact us for additional information regarding FOG.
- EBMUD also partners with the nongovernmental organization Baykeeper to expand its FOG control message to residential customers. Information on FOG control is on Baykeeper's website. EBMUD and Baykeeper collaborate to expand the FOG-control message by working with "big box" retailers that sell turkey fryers and with grocers during the holiday season. We provide information to go on the turkey fryers and pull-off tags for use at grocery stores to communicate not to put FOG down the drain and with contact information for EBMUD for additional information.

Comments:

City staff do not know how many FSEs are present within the city.

The 10 inspectors identified as FOG program staff are also responsible for pollution prevention and industrial user inspections in addition to FOG. One of these staff is a senior inspector whose primary job responsibility is FOG.

It does not appear that there is a consistent feedback mechanism between the satellite and EBMUD on such issues as enforcement actions against non-complying FSEs and feedback on follow-up to FSEs referred to EBMUD.

PIPE INSPECTION AND CONDITION ASSESSMENT

Gravity Main Inspection

Describe Pipe Inspection Methods: CCTV

Miles of Pipe Inspected in the Last 10 Years and Planned Inspection Next 10 Years				
Date Range	Inspection Method	Miles of Pipe without repeats	Useable Condition Assessment	
			Miles of Pipe (without repeats)	% of System (System miles:)
1999 to present	CCTV	25	25	19%
19__ to present	Other			
Present to 2019	CCTV	51	51	37.5%
Present to 20__	Other			

Describe Planned Pipe Inspection:
The sewer fund has budgeted $187,000 for annual sanitary sewer CCTV inspection, and pipe condition assessment.

Summary of Condition Assessment Findings:
From the results of the sewer pipe condition assessment phase 1 project in 2007, it was shown that, of the 25 miles of assessed pipe: 5.5% are in failed condition, 32.2% are in critical condition, 28.5% are in poor condition, 7.5% are in fair condition, and 26.3% are in good condition. The study showed that 62.3% of the system is in operational condition.

Comment:

City staff stated that "failed condition" does not mean that an emergency repair is needed. CCTV contractors are required to clean the pipe prior to televising it.

Force Mains

Describe Force Main Inspection Methods: None

Describe Program for Inspecting Air Relief Valves: None

Comment:

There are air relief valves but the City has no program to inspect them.

Private Laterals
Does the Utility Inspect Private Laterals? The City has a program that requires private lateral inspection upon sale of the residence.

Number of Private Laterals Inspected 1990 to Present: Average 300 laterals per year

Summary of Inspection Findings:
On average, out of 300 laterals, 100 pass and 200 repair or replace their private laterals per year.

Number of Private Laterals Planned for Inspection Present to 2019: 5,700 (based on time of sale inspection, assuming 3% property sales per year).

Comment:

Lateral inspection is done by a contractor hired by the homeowner.

CAPACITY ASSURANCE

List Locations and Dates of Repeats Capacity Spills: NA
List Locations of Known Capacity Bottlenecks: NA – none are currently known. This may change when the model becomes available.

Dry Weather:
Wet Weather:

Describe I/I Assessments Completed by the Utility (dates, area covered, findings, etc.):
Alameda has completed 100% of its proposed I/I rehabilitation project in 2003.

Flow Meters (number, locations): NA

Describe Flow Model Used by the Utility: The City does not yet have a flow model.

Inflow

Does the Utility Prohibit Storm Water Connections to the Sanitary Sewer (roof drains, sump pumps, etc.)? Yes

Describe Program for Enforcing Ban on Illicit Connections:
Enforcement is by Building Services when complaints are filed or when inspectors discover illegal connections during new permit site visits. New permits are not granted to violators until the illegal connections are fixed.

Describe Program for Locating Illicit Connections (smoke testing, etc.):
Location of illegal connections is through complaints or site inspections as per above.

Locations Subject to Street Flooding: There is isolated flooding/ponding due to heavy rain or high tide.

Has the Utility Sealed Manholes in Locations Subject to Street Flooding: Manholes are not sealed, but most do not have pickholes.

I/I Control

Describe I/I Control Projects (miles of pipe rehabilitated or replaced for I/I Control)

Recently Completed Projects:
I/I Phase 1-8 (18.24 miles) since 1986

Planned Projects:
Annual Cyclic Sewer Projects, which go beyond the required goals set by I/ICP

Describe Capacity Control Measures (relief sewers, storage, WWTP expansion, etc.)

Recently Completed Projects:
The I/I and Cyclic Sewer projects aim at replacing all clay pipe and upsizing all 6" pipe to a minimum of 8" PVC or HPDPE pipe.

Planned Projects:
Projects identified by the sewer capacity assessment and pipe condition assessment are considered for all future, annual Cyclic Sewer projects.

INFRASTRUCTURE RENEWAL AND CAPITAL IMPROVEMENTS

Pipe Rehabilitation and Replacement Methods Used:

Miles of Pipe Rehabilitated or Replaced: Last 10 Years and Planned Next 10 Years		
Date Range	Miles of Pipe	% of System (System miles: 136)
2005 to present	6	4%
Present to 2019	30	22%

Alameda completed 100% of the projects (approximately 18.24 miles) required by the Inflow and Infiltration Correction Plan, (I/ICP, or I/I projects) under the Cease & Desist Order No. 93-014. In addition the City completes on average 2 miles per year of sewer main improvements.

Describe Capacity Improvement Program:
RMC, a private consultant, has been hired by the city to develop a sewer capacity hydraulic model that will assist in the Sewer Master Plan.

List Major Planned Improvements:
After the development of the sewer capacity hydraulic model, CIP projects will be designed and engineered to target and remedy capacity issues if present.
Currently the City is undergoing its annual Cyclic Sewer program that is replacing all the clay pipe in the City, as well as upsizing all sewer main pipe from 6" and less to a minimum of 8" diameter.

Describe Master Plan:
The City has hired private consultants to assess and address the many parts of the City's sewer collection system with the common goal to develop a Sewer Master Plan in order to direct the City's CIP improvements.

-Sewer Capacity Hydraulic Model.
-Sewer CCTV and Pipe Condition Assessment
-Sewer Pump Station Assessment.
-Operation and Maintenance Assessment
-Sewer Design and Engineering Standards Update

The results will pinpoint the potential issues, and help design, budget and forecast the direction of our effective, comprehensive and cost efficient Sewer Master Plan.

City of Alameda Pump Stations

N#	Location	WO#	Type of Pump	Frame	Type	INS. Class	Reliance I.D.	HP
1	Adelphian	55.31						
2	Catalina	55.17	Drywell	M620IS			ABS 90081	20
		55.17	Drywell	M620IS			ABS E9009	20
3	Channing	55.2	Submersible QD	210TY	CS	F	C21G2701C	3
4	Sheffield/Cumberland	55.18		X180TY	CS		C18G2703K	3
5	Aughinbaugh	55.16	Submersible QD	210TY	P	F	P21G2701HWL	10
		55.16	Submersible QD	210TY	P	F	P21G2701	10
6	Seaview I	55.22	Submersible QD	X210TY	CS	F	17MX212701	3
		55.22	Submersible QD	210TY	CS	F	C21G27010TK	3
		55.22	Submersible QD	210TY	CS	F	C21G2701G	3
7	Seaview II	55.29	Submersible QD	X160TY	OS	P	C18G2702IT	2
8	Dublin	55.25	Submersible QD	210TY	CS	F	C21G2702G	5
		55.25	Submerisble QD	210TY	CS	F	C21O2702O	5
9	Verdemar	55.12	Submersible QD	210TY	CF	F	C2162701C	3
		55.12	Submersible QD	210TY	CF	F	P18G2728G	3
10	Harbor Bay Parkway I	55.19	Drywell Close Connected	H3090303	B	B	63-02857-598	3
11	Harbor Bay Parkway II	55.24	Drywell	T4A3-B			G.R.845187	
		55.24	Drywell	T4A3-B			G.R.845186	
12	BFI	55.01		X320TY	P	F	P32G2700B	30
13	Bay Fairway Hall	55.32						
14	Eastshore/Myers	55.11	Submersible QD	X18CTY	F	P	C18C2700F	1
15	Bayview	55.1		210TY	CS	F	C21G2702G	5
16	Park/Otis	55.06	Drywell	X250TY	P	F	P2562702H	25
			Druwell	3152			FLYGHT 4670396	20
17	Willow	55.21	Submersible QD	X210TY	P	F	P21G2701H	10
				X210TY	P	F	P21G2701H	10
18	Willow/Whitehall	55.07	Submersible QD	X180TY	P	F	C18G2704F	3
		55.07	Submersible QD	X180TY	P	F	C18G2704F	3

N#	Location	Q (GPM)	RPM	Volts	Amps	Hz	S.F.	Design	Code	Phase
1	Adelphian									
2	Catalina		1750	230/460	56/28	60				
			1750	230/460	56/28	60				
3	Channing		1160	115/230	42/21	60	1.15		J	1
4	Sheffield/Cumberland		1725	115/230	40/20	60	1.15		J	1
5	Aughinbaugh		1755	230/460	27/13.5	60	1.15	B	J	3
			1755	230/460	27/13.5	60	1.15	B	J	3
6	Seaview I		1160	115/230	43/21	60	1.15		J	1
			1160	115/230	42/21	60	1.15		J	1
			1160	115/2309	42/21	60	1.15		J	1
7	Seaview II		1720	115/230	25/12.5	60	1.15			1
8	Dublin		1730	230	30	60	1.15		H	1
			1730	230	30	60	1.15		H	1
9	Verdemar		1160	230	21	60	1.15		J	1
			1160	230	21	60	1.15		J	1
10	Harbor Bay Parkway I		855	208	13.2	60	1	B	J	3
11	Harbor Bay Parkway II									
12	BFI		1165	460	40	60	1.15			3
13	Bay Fairway Hall									
14	Eastshore/Myers		1150	115/230	17.2/8.6	60	1.15		K	1
15	Bayview		1730	230	30	60	1.15		H	1
16	Park/Otis		1750	230/460	66/33	50	1.15	B	G	3
			1750	230/460	50/25	50				
17	Willow		1755	230/460	27/13.5	60	1.15	B	H	3
			1755	230/460	27/13	60	1.15			3
18	Willow/Whitehall		1725	115/230	40/20	60	1.15		J	1
			1725	115/230	40/20	60	1.15		J	1

N#	Location	AMB	Temp Code	Final Conn	Paco S/N	Notes
1	Adelphian					
2	Catalina				94C64025	ABS Brand pump impeller diameter 10.5"
						ABS Brand Pump Impeller 10.5"
3	Channing	40	T3C	230V	08-65598	
4	Sheffield/Cumberland			230V		
5	Aughinbaugh	40	T3C	230V		
		40	T3C	230V		
6	Seaview I	40C	TC3	230V		CW Rotation. CAPS-SERIES. 460-522MFD 125UAC
		40	TC3	230V		
		40	T3C	230V		
7	Seaview II	40	T3C	230V		
8	Dublin	40	T3C	230V		
		40	T3C	230V		
9	Verdemar	40C	T3C	230V	95C60052	Rebuilt 2-95
		40C	T3C	230V	95C6103	Rebuilt by Benkisser
10	Harbor Bay Parkway I					Nema. Non. Eff. 75.5 US motors
11	Harbor Bay Parkway II					Gorman rupp pump
						Gorman rupp pump
12	BFI					
13	Bay Fairway Hall					
14	Eastshore/Myers	40C	3C	230V		
15	Bayview		T3C			CW Rotation.
16	Park/Otis			230V	94C69741	Reliance
				230V		Flyght Pump
17	Willow	40C	T3C	230V	94C69165	Impeller Dia. 7.6"
					94C69165	230 final. V/L# L-2520905
18	Willow/Whitehall	40C	T30	230V		New installed 3-95
		40C	T30	230V		New installed 3-95

N#	Location	WO#	Type of Pump	Frame	Type	INS. Class	Reliance I.D.	HP
19	Yorkshire/Franciscan	55.3		X180TY	CS	F	C18G2703K	3
20	Pond/Otis	55.08	Submersible QD	X180TY	CS	F	C1862701H	1.5
21	Grand/Shoreline	55.27		X180TY		F	C18G2703K	3
22	Grand/Otis	55.05	Drywell	6			FLYGHT 8740033	14
		55.05	Drywell	6			FLYGHT 8740034	14
23	Sand Beach	55.09		X140TY				2
24	Paru	55.04						
25	Eighth/Portola	55.02						
26	Eighth/Taylor	55.05						
27	Tideway	55.14		X210TY	P	F	2102701H	10
28	Cola Ballena	55.13		X210TY	P	F	P2102701H	10
29	Encinal boat ramp	55.26	Submersible QD (FLYGHT)				8740015	3
30	Triumph/Independence	55.28	Submersible QD	210TY	P	F	P21G2705C	7.5
		55.28	Submersible QD	210TY	P	F	P21G2705G	7.5
31	Marina Village	55.23	Submersible QD	250TY	P	F	1YUB38514A2	10
		55.23	Submersible QD	250TY	P	F	1YUB38514A1	10
		55.23	Submersible QD	250TY	P	F	1YUB38514A4	10
		55.23	Submersible QD	250TY	P	F	ILEGIBLE	10
32	L/S #2 AP	855.02						
33	L/S #3 AP	855.03						
34	L/S #4 AP	855.04						
35	L/S #5 AP	855.05						
36	L/S #6 AP	855.06						
37	L/S #8 AP	855.08						
38	L/S #14 AP	855.14						
39	L/S #19 AP	855.19						
40	L/S #20 AP	855.2						
41	L/S #551 AP	855.511						
42	Haile							
43	Grand Street		Submersible				FLYGT NP3127	10

N#	Location	Q (GPM)	RPM	Volts	Amps	Hz	S.F.	Design	Code	Phase
19	Yorkshire/Franciscan		1725	230	20		1.15			1
20	Pond/Otis		1150	230	12.5	60	1.15		K	1
21	Grand/Shoreline		1725	115/230	40/20	60	1.15		3	1
22	Grand/Otis		1150	230	38	60				3
			1150	230	38	60				3
23	Sand Beach		1735	230/460	7.2/3.6				K	3
24	Paru									
25	Eighth/Portola									
26	Eighth/Taylor									
27	Tideway		1755	230/460	27/13.5	60	1.15	8	H	3
28	Cola Ballena		1755	230/460	27/13.5	60	1.15	8	H	3
29	Encinal boat ramp		1700	230	10	60				1
30	Triumph/Independence		1150	460/230	23/11.5	60	1.15	B	3	3
			12150	230/460	23/11.5	60	1.15	B	3	3
31	Marina Village		865	230/460	30/15	60	1.15	B	B	3
			865	230/460	30/15	60	1.15	B	G	3
			865	230/460	30/15	60	1.15	B	G	3
			865	230/461	30/16	60	1.15	B	G	3
32	L/S #2 AP									
33	L/S #3 AP									
34	L/S #4 AP									
35	L/S #5 AP									
36	L/S #6 AP									
37	L/S #8 AP									
38	L/S #14 AP									
39	L/S #19 AP									
40	L/S #20 AP									
41	L/S #551 AP									
42	Haile									
43	Grand Street									

N#	Location	AMB	Temp Code	Final Conn	Paco S/N	Notes
19	Yorkshire/Franciscan			230V		
20	Pond/Otis	40C	T3C	230V		
21	Grand/Shoreline			230V	28MU18703	CW Rotation. Small shaft.
22	Grand/Otis			230V	ON VOLUTE 86C503888	Flyght pump impeller diameter 9.0"
				230V	ON VOLUTE 87C50388A	Flyght pump impeller diameter 9.0"
23	Sand Beach			230V	P17C2711C	
24	Paru					
25	Eighth/Portola					
26	Eighth/Taylor					
27	Tideway	40C	T30	230V		
28	Cola Ballena	40C	T30	230V		
29	Encinal boat ramp			230V		
30	Triumph/Independence	40	T3C	460	58-49531-5143	
		40	T3C	460	58-49531-5143	
31	Marina Village	40C	T3C	460V		
		40C	T3C	460V		
		40C	T3C	460V	9C67789	
		40C	T3C	460V		
32	L/S #2 AP					
33	L/S #3 AP					
34	L/S #4 AP					
35	L/S #5 AP					
36	L/S #6 AP					
37	L/S #8 AP					
38	L/S #14 AP					
39	L/S #19 AP					
40	L/S #20 AP					
41	L/S #551 AP					
42	Haile					
43	Grand Street					

Alameda Photo 1 - BFI pump station

Alameda Photo 2 - Location of overflow from BFI pump station

Alameda Photo 3 - Dublin pump station wet well

Alameda Photo 4 - Dublin pump station

Alameda Photo 5 - Catalina pump station

Alameda Photo 6 - Catalina pump station wet well

Alameda Photo 7 - 8th and Portola pump station

Alameda Photo 8 - Spill site at Alameda Federal Center

Alameda Photo 9 - Spill site at Alameda Federal Center - Manhole that overflowed

Alameda Photo 10 - Spill site at Alameda Federal Center - Second manhole showing pipe fix

Alameda Photo 11 - Lift station 6

Alameda Photo 12 - Lift station 6 wet well

Alameda Photo 13 - Willow pump station

Alameda Photo 14 - Willow pump station wet well

Alameda Photo 15 - Willow pump station SCADA

Alameda Photo 16 - Kitty Hawk spill site manhole