

Wastewater Collection System

*Don Stokes,
Maintenance
Manager*

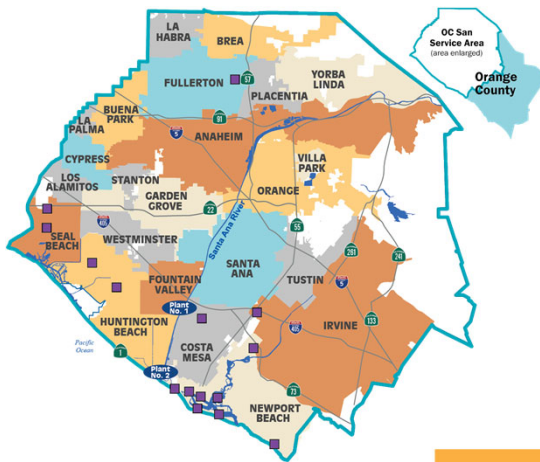
*Administration
Committee*

April 13, 2022



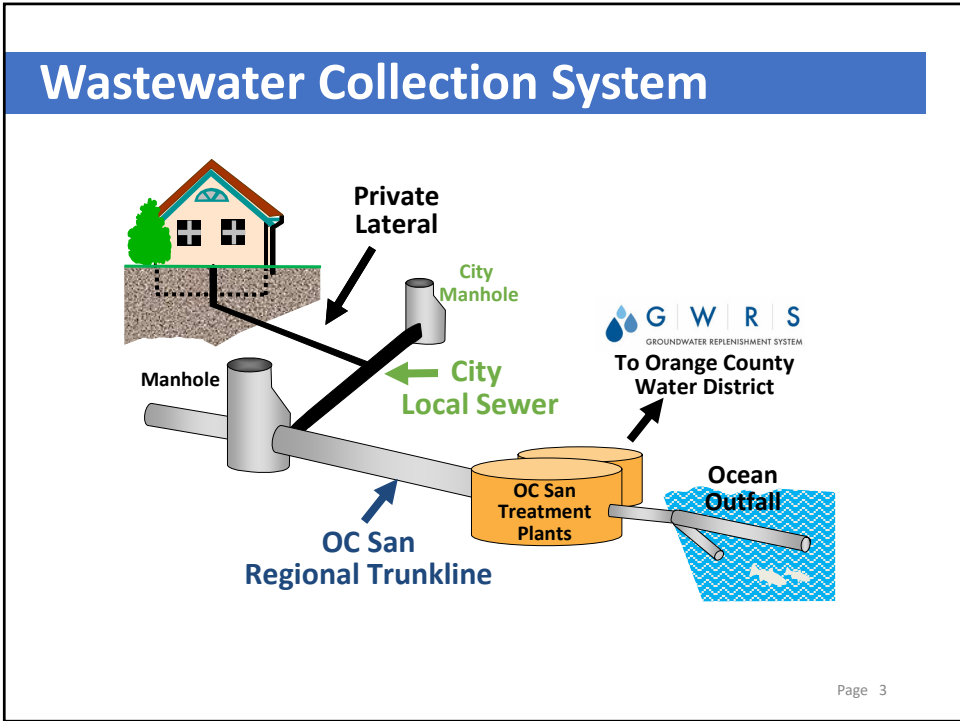
1

Our Service Area



- 388 miles of sewers**
- 479 square miles**
- 183 million gallons per day**
- 2.6 million population**
- 2 ● treatment plants**
- 15 ■ pump stations**
- 20 cities**
- 4 special districts**
- unincorporated parts of County of Orange**

2



3

Gravity Systems

- Various pipe materials
- Trunks, interconnections, reliefs
- Inverted siphons
- Diversions

The map shows the 'OC San Collection System' across Orange County. It features a network of colored lines representing different types of infrastructure: blue for 'Trunklines', red for 'Diversions', and other colors for various pipe materials and interconnections. The map includes labels for various cities and areas like Fullerton, Placentia, Villa Park, and Santa Ana. A legend in the bottom left corner provides details about the symbols and colors used on the map.

Page 4

4

Pipe Sizes

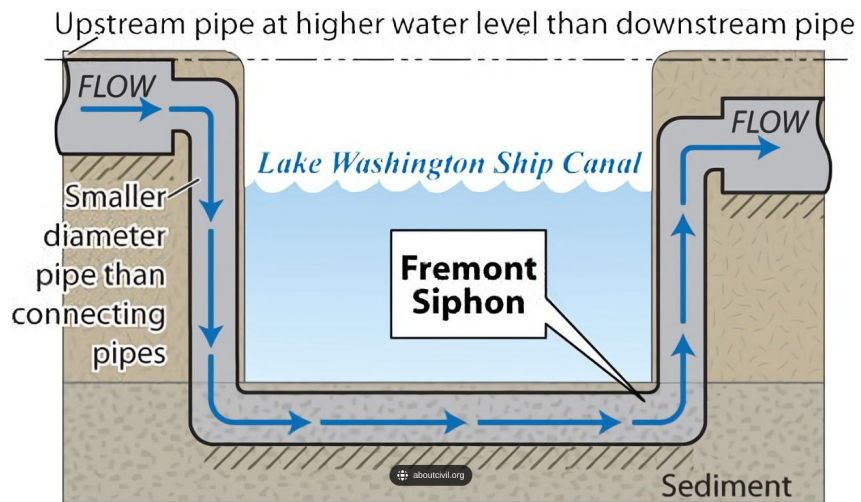
- Smallest = 8"
- Largest = 120"
- Majority range 24" to 60"



Page 5

5

Inverted Siphon



Page 6

6

Line Cleaning Types

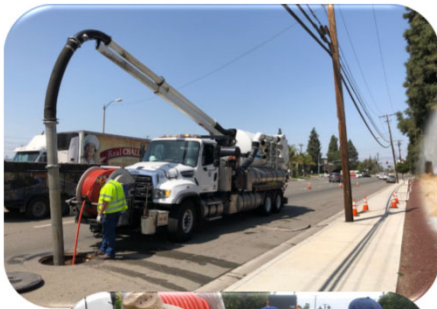
- Flush work
 - Grit removal
 - Spill prevention
- Tire cleaning
 - Grit removal
 - Spill prevention
 - Line proofing



Page 7

7

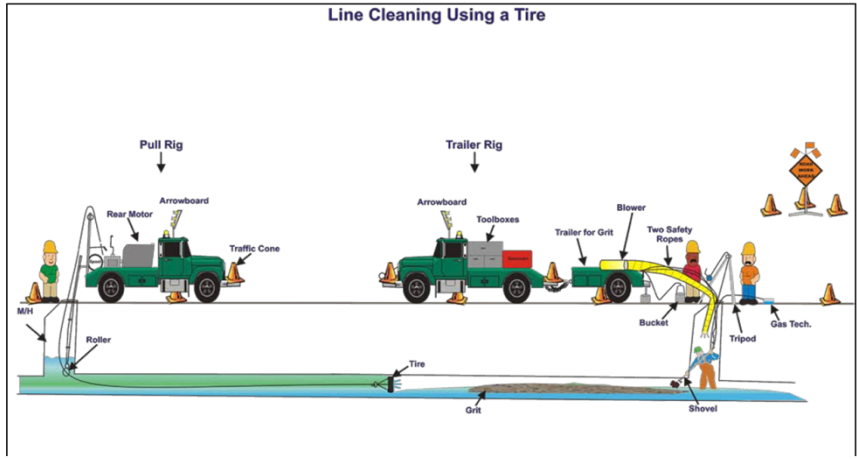
Line Flushing



Page 8

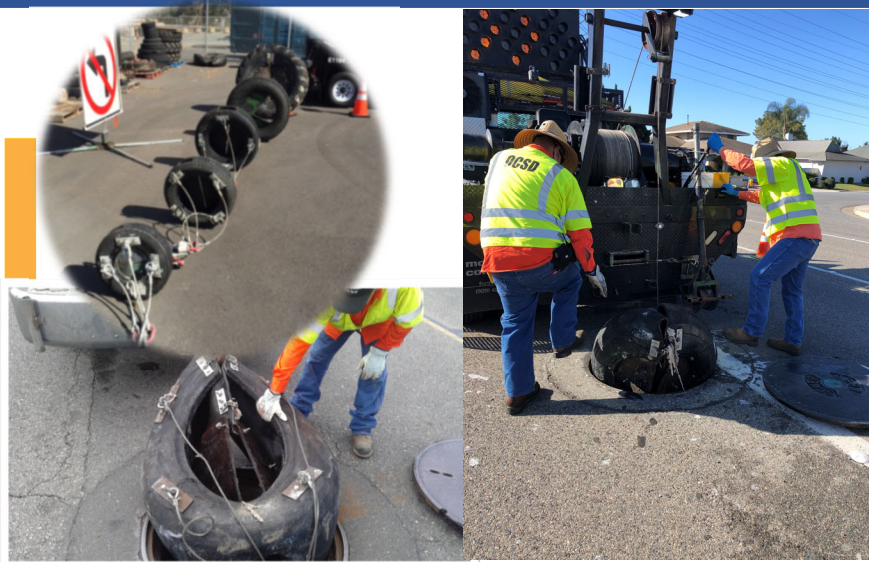
8

Mechanical Cleaning - Tire



9

Mechanical Cleaning - Tire



10

Technology Adoption

Page 11

11

Pressure Systems

- Old vs. New
- Small vs. Large

Page 12

12

Pump Station Maintenance



Page 13

13

Our Goal - Prevent Sewer Spills

- OC San relevant standard – 2.1 sewer spills per 100 miles.
- Collections' goal – 0 spills



Page 14

14

Pee, Poop, & Paper



Know what should go down the drain that is sewer safe

It's simple, the toilet is only meant to flush the three P's—pee, poop and paper.





Page 15

15

Pump Station Resiliency

- Bypass pumping
 - Emergency response
 - Critical maintenance
 - Assessments
- Bypass pumping design
 - Unique to each station
 - Agile and quick assembly

Page 16

16

Underground Line Locating

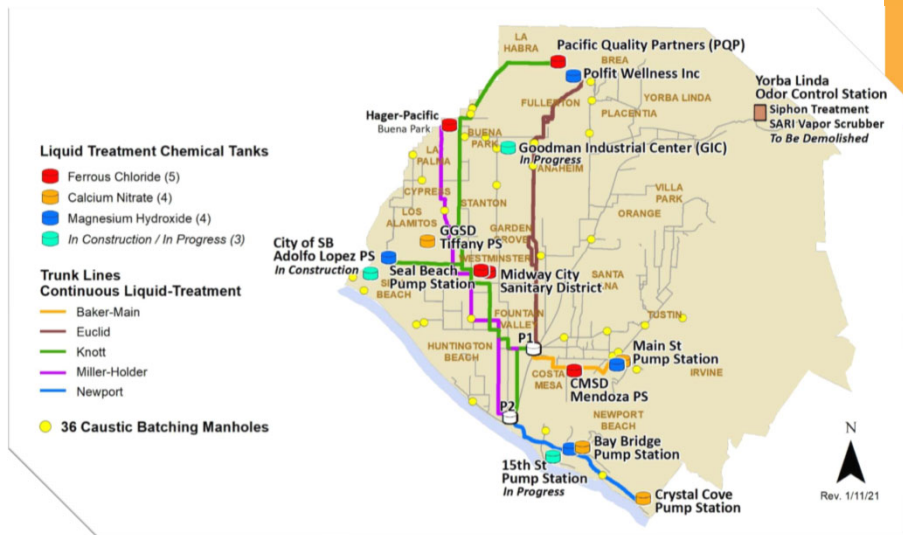
- State enforcement
- Damage prevention
- Other entity request
- Centralized system through state:
Dig-Alert system
- Field locating and marking



Page 17

17

Regional Odor Control

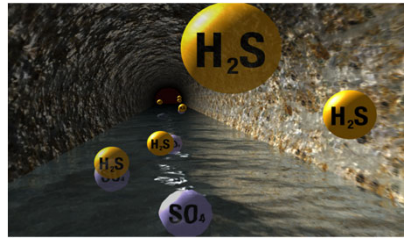
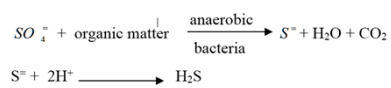


Page 18

18

Odor Control Chemicals

- Magnesium Hydroxide
 - Raises pH to keep HS^- in solution
- Ferrous Chloride (Ferric Salts)
 - Oxidize sulfide to sulfur
 - Precipitates sulfide as ferric sulfide
- Calcium Nitrate (Bioxide)
 - Naturally occurring bacteria biochemically oxidize dissolved sulfide in the presence of nitrate
- Sodium Hydroxide
 - Sloughs off slime layer



Page 19

19

Regional Odor Control Efforts

- Proactive outreach
- Investigate
- GIS tracking of “Hot Spots”
- Received AAEEES award and patent for approach

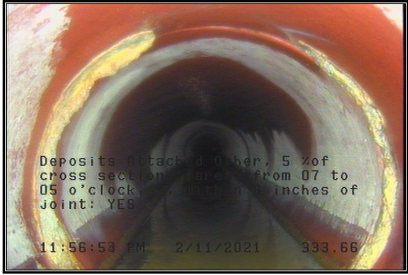


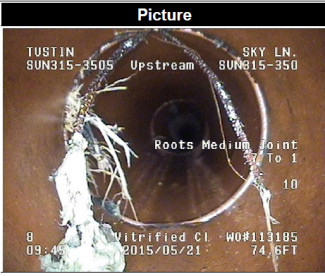
Page 20

20

CCTV

- Asset inspection
- Structural degradation and cleaning
- Project scoping
- Spill prevention



Distance	Fault Observation	Picture
74.6	Roots Medium Joint Position: 7 To 1 Severity: None Percent: 10 Joint Maint Weight: 3	


Page 21

21

Team-work & Coordination

- Coordinate efforts
- Assist when a crisis arises
- Assist with special needs







Page 22

22

Questions



Page 23