Water and Sewer system overview

2011 Annual Planning Conference

January 29, 2011

Public Works - Water

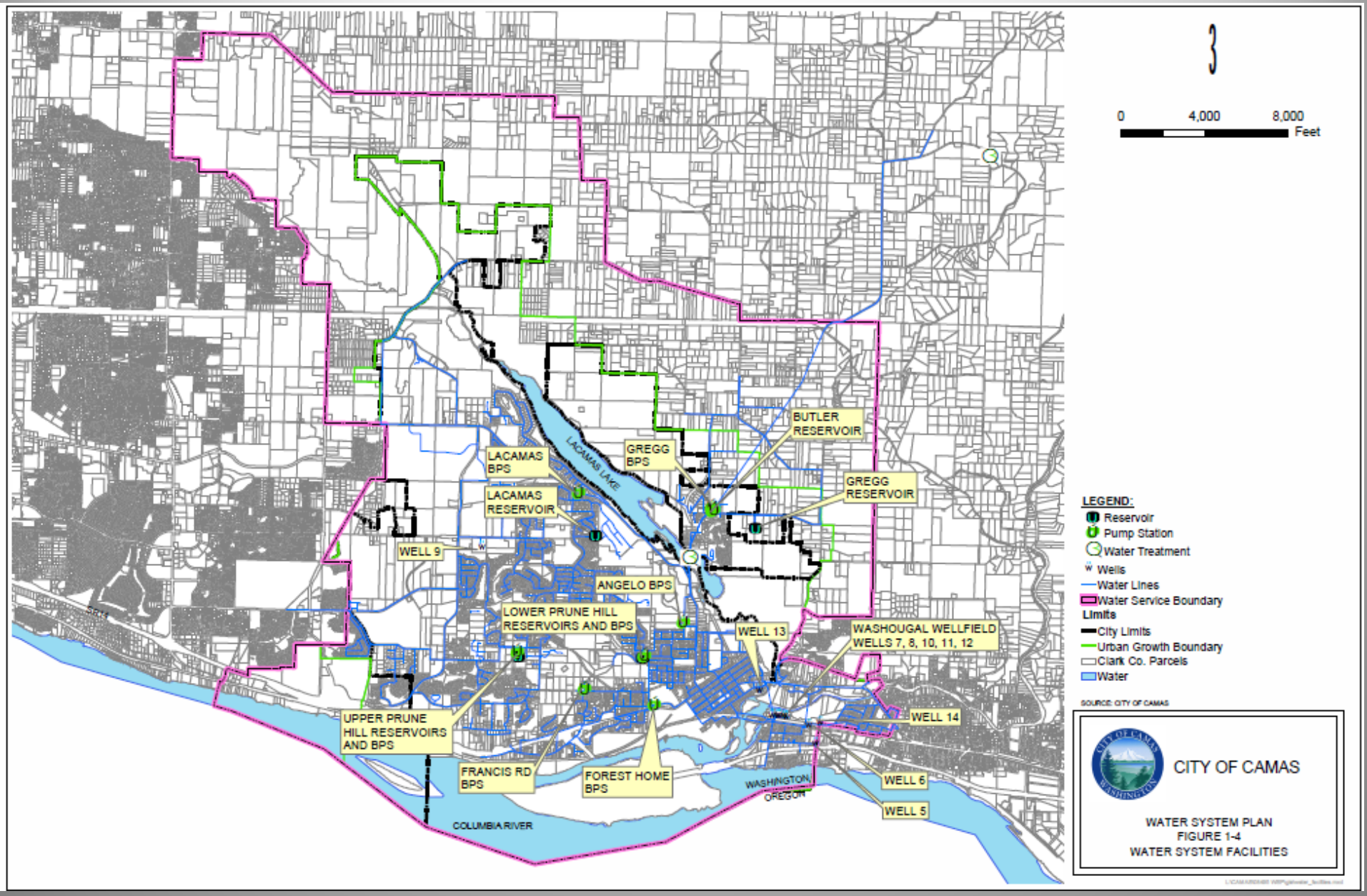
- Water utility: deliver potable water for residential, commercial, and industrial use. Provide for fire protection and meet the needs of a growing community
  - Class A water system regulated under the Federal Clean Water Act and Safe Drinking Water Act administered by Dept of Health (DOH).
  - Department of Ecology (DOE) responsible for regulating water rights
  - Watershed plan adopted by the County and State regulates in-stream flows and future water allocation in coordination with Salmon recovery

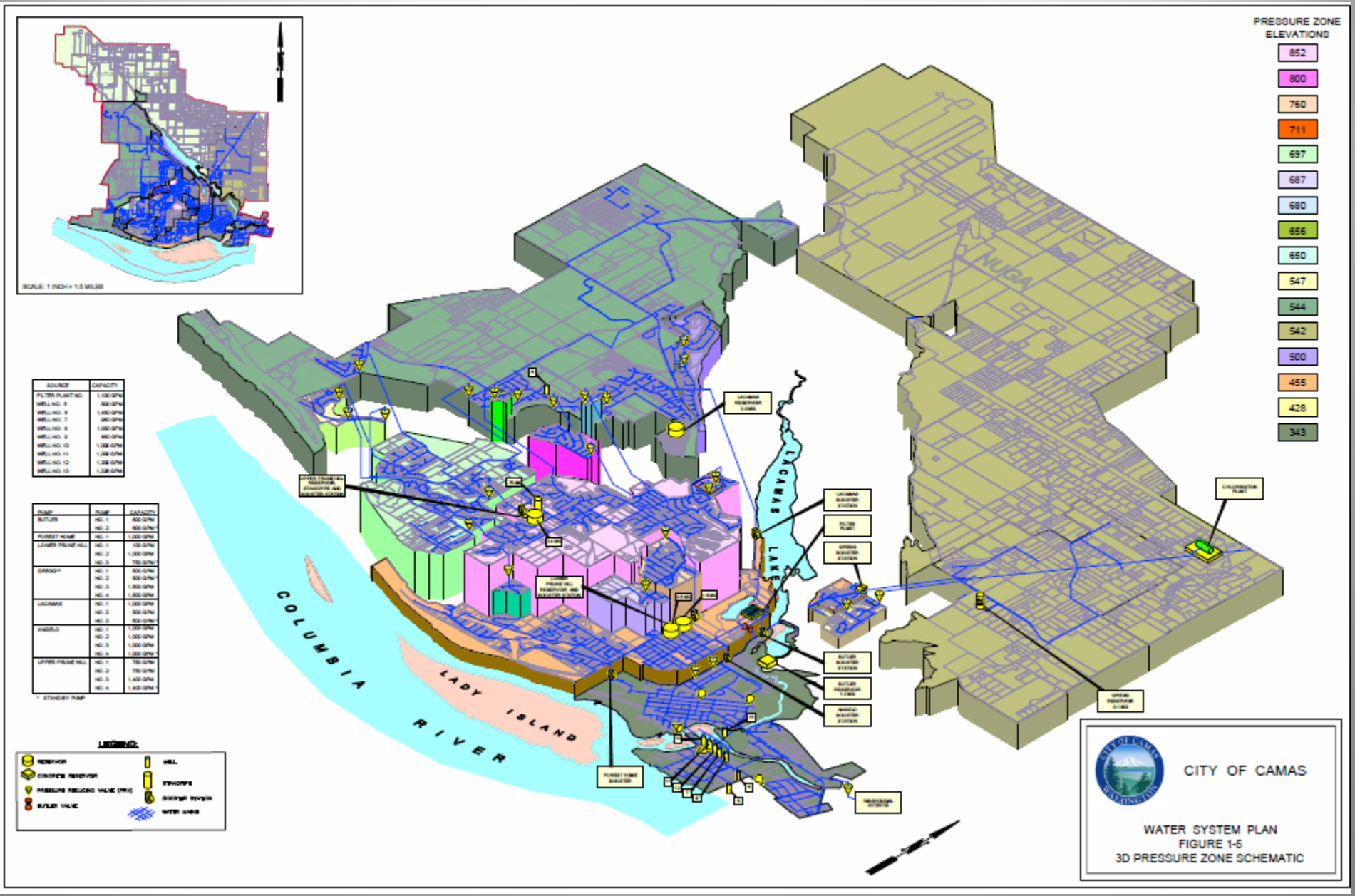
Public Works - Water

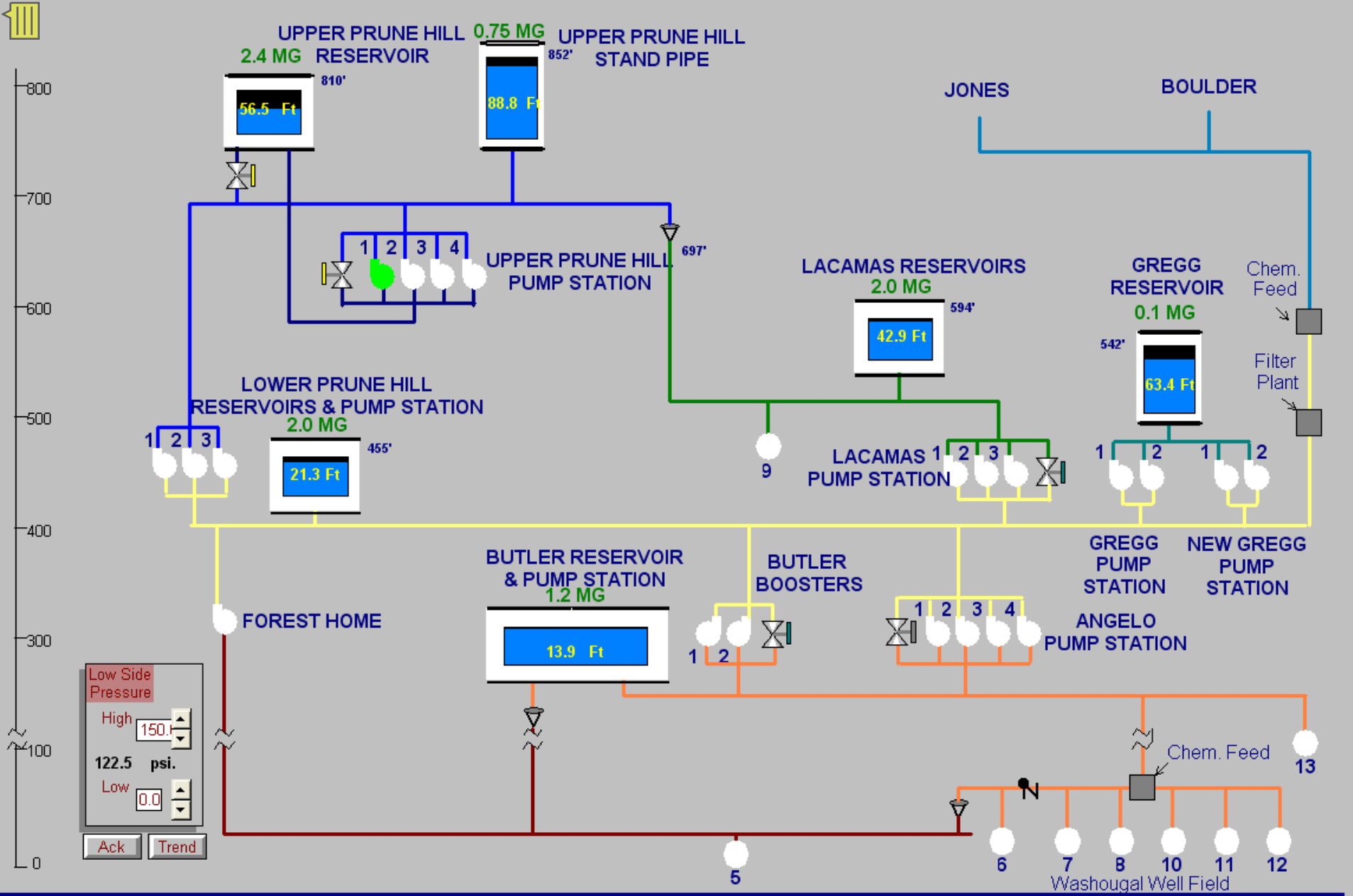
- Water Stats:
  - 2011 budget - $1,711,600 excludes capital expenditures and bond payments
  - 136 miles main, 7,250 connections, 9 wells, 5 reservoirs, 5 booster stations, surface source and filter plant
  - 9 FTE plus two seasonal employees
  - Annual production of 3.5 million gallons per day (MGD)
  - Peak day 7.8 MGD
  - Peak System delivery capabilities (9.7 to 10 MGD)
  - Firm source production (with backup generator) 6,075 gpm or 8.75 MGD

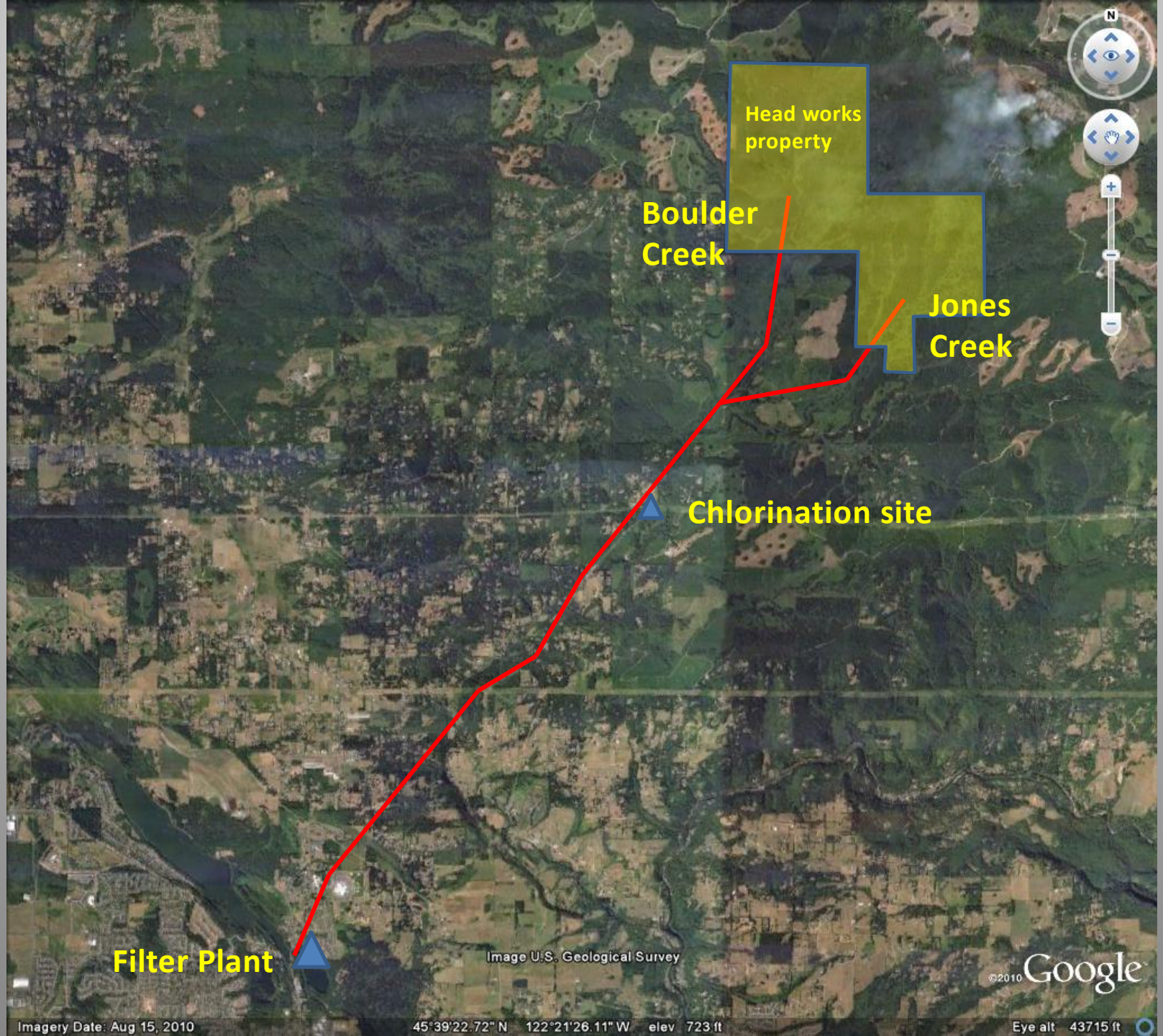
Public Works - Water

- **Water utility Revenue:**
  - **Rates:**
    - Rates fund operations and maintenance, existing bond debt and new capital expenditures
    - Meter readings generate the amount to bill based on recorded use
    - Rates are adjusted from time to time by a rate study that analyzes current costs for operations, bonding costs and the cost to finance future capital needs
    - City just adopted new rates for the next year. Current rate study provides recommendations for the following 4 years.
  - **SDC's-System Development Charge**
    - A fee assessed at the time of building that charges new customers to "buy in" to the existing infrastructure and pay for their portion of future capital needs. This fund can only be used for capital expenditures
  - **Connection charge**
    - Paid at the time of building for the physical connection to the system based on actual cost of connection. Reviewed and updated periodically.
  - **Misc revenue sources**


0
4,000
8,000
Feet
LEGEND:
Reservoir
Pump Station
Water Treatment
Wells
Water Lines
Water Service Boundary
Limits
City Limits
Urban Growth Boundary
Clark Co. Parcels
Water
SOURCE: CITY OF CAMAS
CITY OF CAMAS
WATER SYSTEM PLAN
FIGURE 1-4
WATER SYSTEM FACILITIES
BUTLER RESERVOIR
GREGG BPS
GREGG RESERVOIR
LACAMAS BPS
LACAMAS RESERVOIR
LACAMAS LAKE
WELL 9
ANGELO BPS
LOWER PRUNE HILL RESERVOIRS AND BPS
WELL 13
WASHOUGAL WELLFIELD WELLS 7, 8, 10, 11, 12
WELL 14
UPPER PRUNE HILL RESERVOIRS AND BPS
FRANCIS RD BPS
FOREST HOME BPS
WASHINGTON
OREGON
WELL 6
WELL 5
COLUMBIA RIVER


PRESSURE ZONE ELEVATIONS
852
800
760
711
697
687
680
656
650
547
544
542
500
455
428
343
SCALE: 1 INCH = 1.5 MILES
SOURCE | CAPACITY
FILTER PLANT NO. | 1,100 GPM
WELL NO. 5 | 500 GPM
WELL NO. 6 | 1,450 GPM
WELL NO. 7 | 950 GPM
WELL NO. 8 | 1,350 GPM
WELL NO. 9 | 650 GPM
WELL NO. 10 | 1,000 GPM
WELL NO. 11 | 1,000 GPM
WELL NO. 12 | 1,200 GPM
WELL NO. 13 | 1,320 GPM
PUMP | PUMP | CAPACITY
BUTLER | NO. 1 | 500 GPM
NO. 2 | 500 GPM*
FOREST HOME | NO. 1 | 1,000 GPM
LOWER PRUNE HILL | NO. 1 | 100 GPM
NO. 2 | 1,000 GPM
NO. 3 | 750 GPM*
GREGG** | NO. 1 | 500 GPM
NO. 2 | 500 GPM*
NO. 3 | 1,500 GPM
NO. 4 | 1,500 GPM
LACAMAS | NO. 1 | 1,000 GPM
NO. 2 | 500 GPM
NO. 3 | 500 GPM*
ANGELO | NO. 1 | 1,000 GPM
NO. 2 | 1,000 GPM
NO. 3 | 1,000 GPM
NO. 4 | 1,000 GPM*
UPPER PRUNE HILL | NO. 1 | 750 GPM
NO. 2 | 750 GPM
NO. 3 | 1,400 GPM
NO. 4 | 1,400 GPM*
* STANDBY PUMP
LEGEND:
RESERVOIR
CONCRETE RESERVOIR
PRESSURE REDUCING VALVE (PRV)
BUTLER VALVE
WELL
STANDPIPE
BOOSTER STATION
WATER MAINS
COLUMBIA RIVER
LADY ISLAND
LACAMAS LAKE
NUGA
CITY OF CAMAS
WATER SYSTEM PLAN
FIGURE 1-5
3D PRESSURE ZONE SCHEMATIC


UPPER PRUNE HILL RESERVOIR
2.4 MG
810'
56.5 Ft
UPPER PRUNE HILL STAND PIPE
0.75 MG
852'
88.8 Ft
JONES
BOULDER
UPPER PRUNE HILL PUMP STATION
697'
LACAMAS RESERVOIRS
2.0 MG
594'
42.9 Ft
GREGG RESERVOIR
0.1 MG
542'
63.4 Ft
Chem. Feed
Filter Plant
LOWER PRUNE HILL RESERVOIRS & PUMP STATION
2.0 MG
455'
21.3 Ft
LACAMAS PUMP STATION
GREGG PUMP STATION
NEW GREGG PUMP STATION
BUTLER RESERVOIR & PUMP STATION
1.2 MG
13.9 Ft
BUTLER BOOSTERS
ANGELO PUMP STATION
FOREST HOME
Low Side Pressure
High
150.
122.5 psi.
Low
0.0
Ack
Trend
Chem. Feed
Washougal Well Field
S & B Inc.
10 05 AM
3/12/2009 10:05:49 AM
Butler-Gregg B.S.
Gregg Res.
Upper Pr. Hill B.S.
Lacamas Res.
Overview
Trend Chart
Filter Plant
Forest Home
Lower Pr. Hill B.S
Lacamas B.S.
Angelo B.S.
New Gregg B.S.
System Summary
Alarm History
Well 5
Well 6
Well 7
Well 8
Well 9
Well 10
Well 11&12
Well 13
Log On:


Head works property
Boulder Creek
Jones Creek
Chlorination site
Filter Plant
Image U.S. Geological Survey
©2010 Google
Imagery Date: Aug 15, 2010
45°39'22.72" N 122°21'26.11" W elev 723 ft
Eye alt 43715 ft

Public Works - Water

- Current issues
  - Headworks Study- aging transmission and filter plant, $13 mil cost to renovate currently not in rate or SDC structure
  - Ongoing discussions for future water rights
    - Surface rights for transfer for Camas Meadows well application
    - Stiegerwald area with Port and Washougal
  - Crown Rd transmission and booster station tied with North Urban Growth Area (NUGA) needs. SDC Credits and Cash to developer for installation of regional sizing
  - Coordinated Water Plan
  - System Maintenance
  - Cash flow- water use is down and not generating predicted revenue

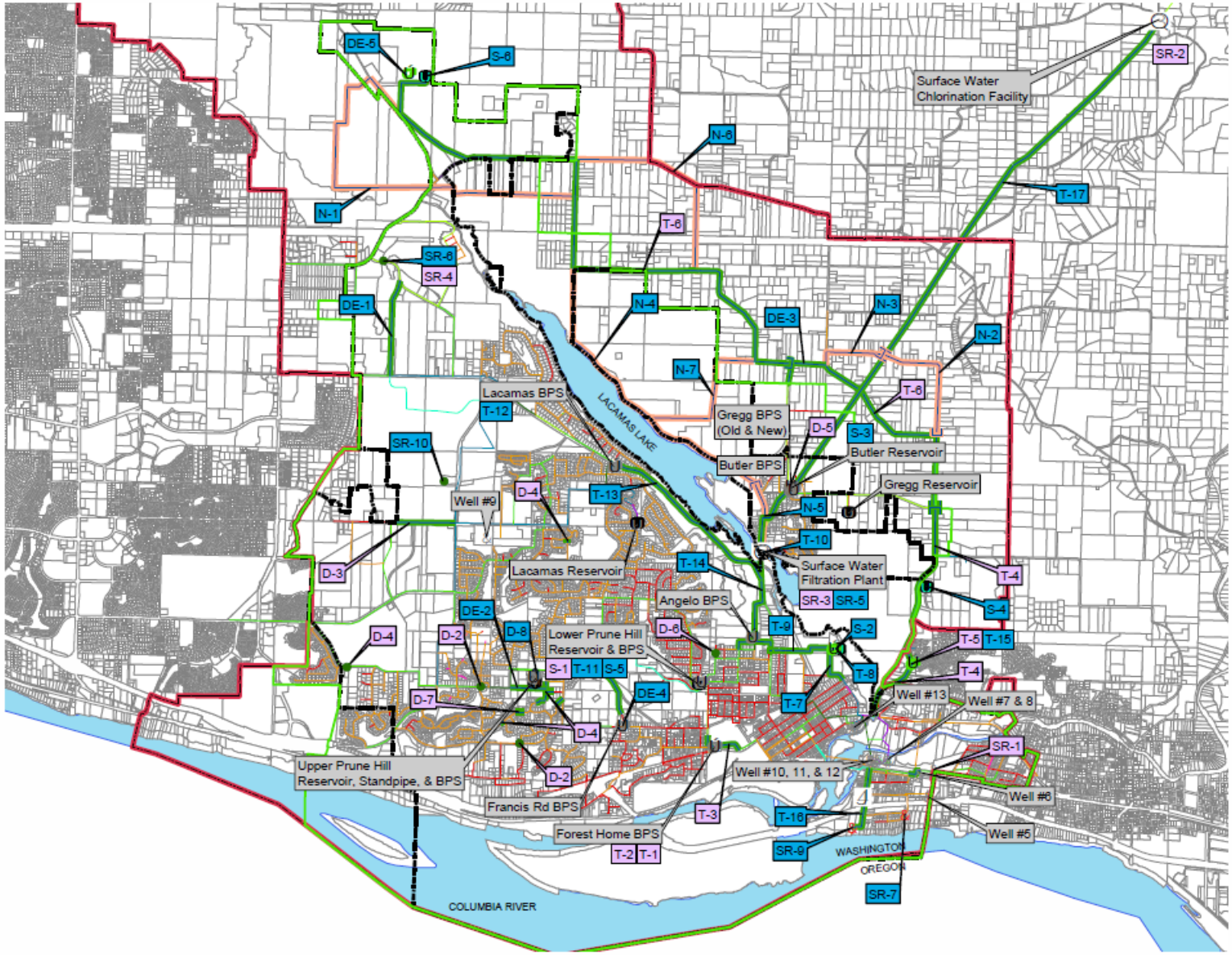


FIGURE 8-1
CAPITAL IMPROVEMENT PROJECTS

Questions on Water System?

NEXT:

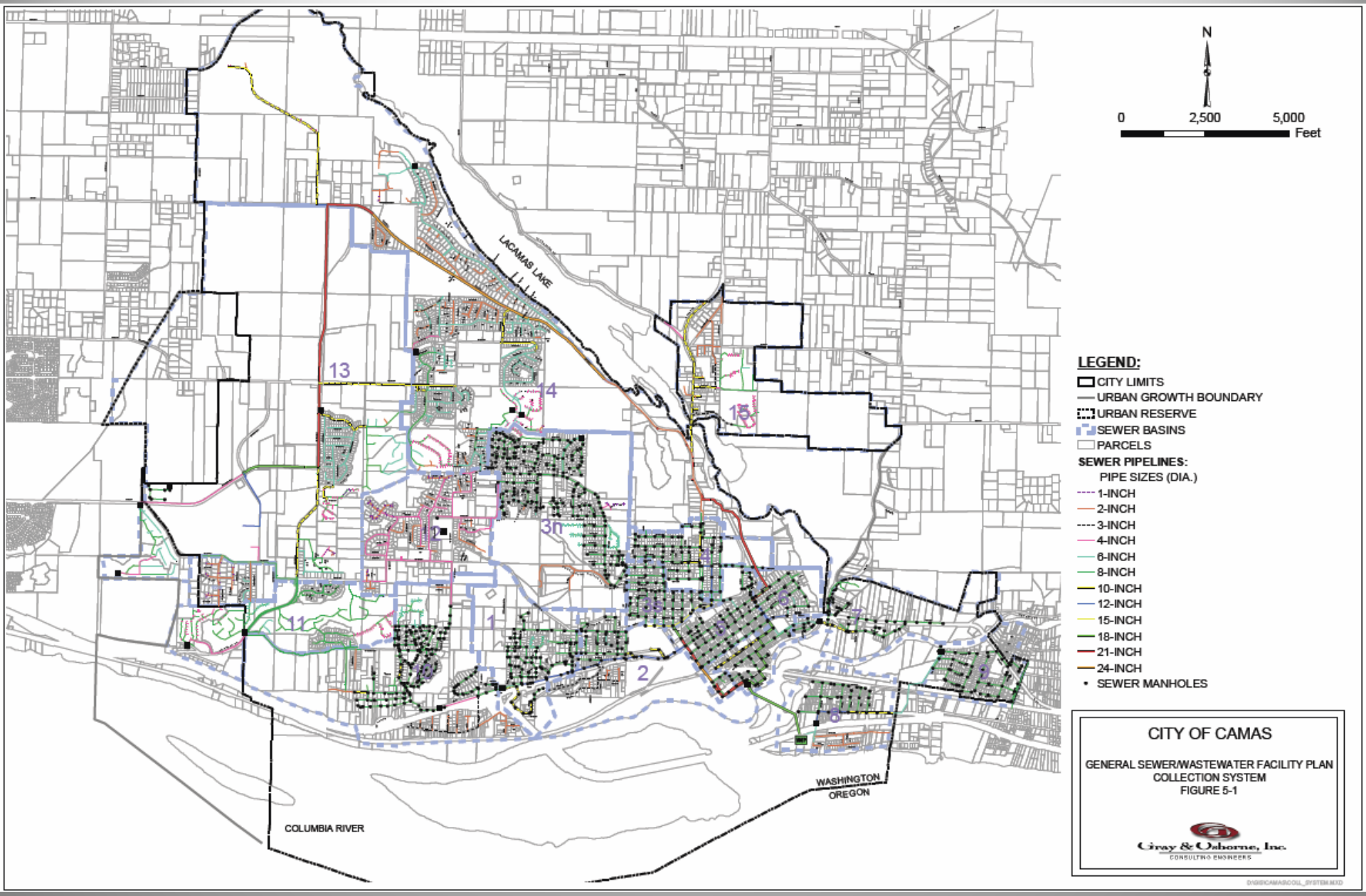
Sewer System overview

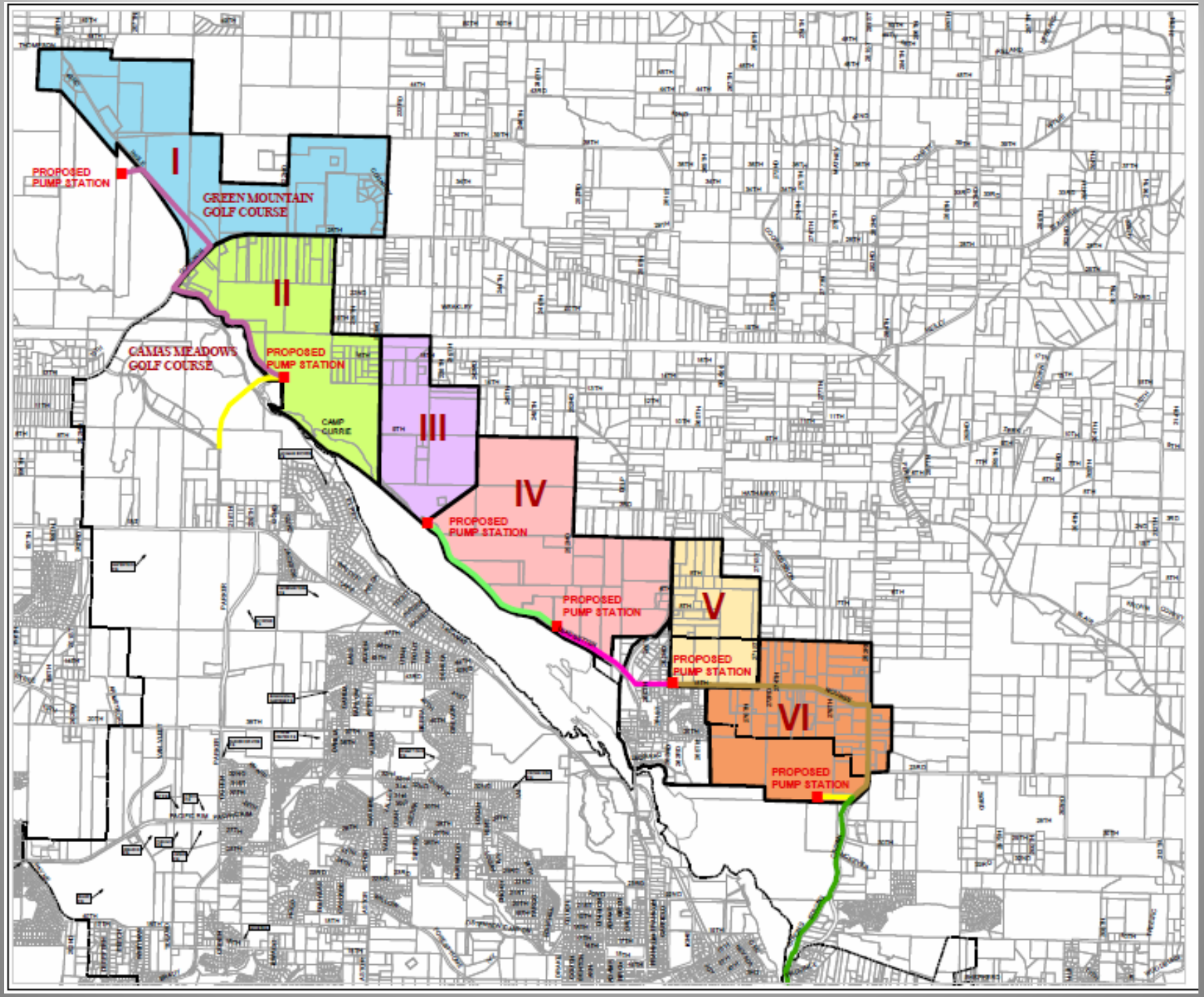
Public Works - Sewer

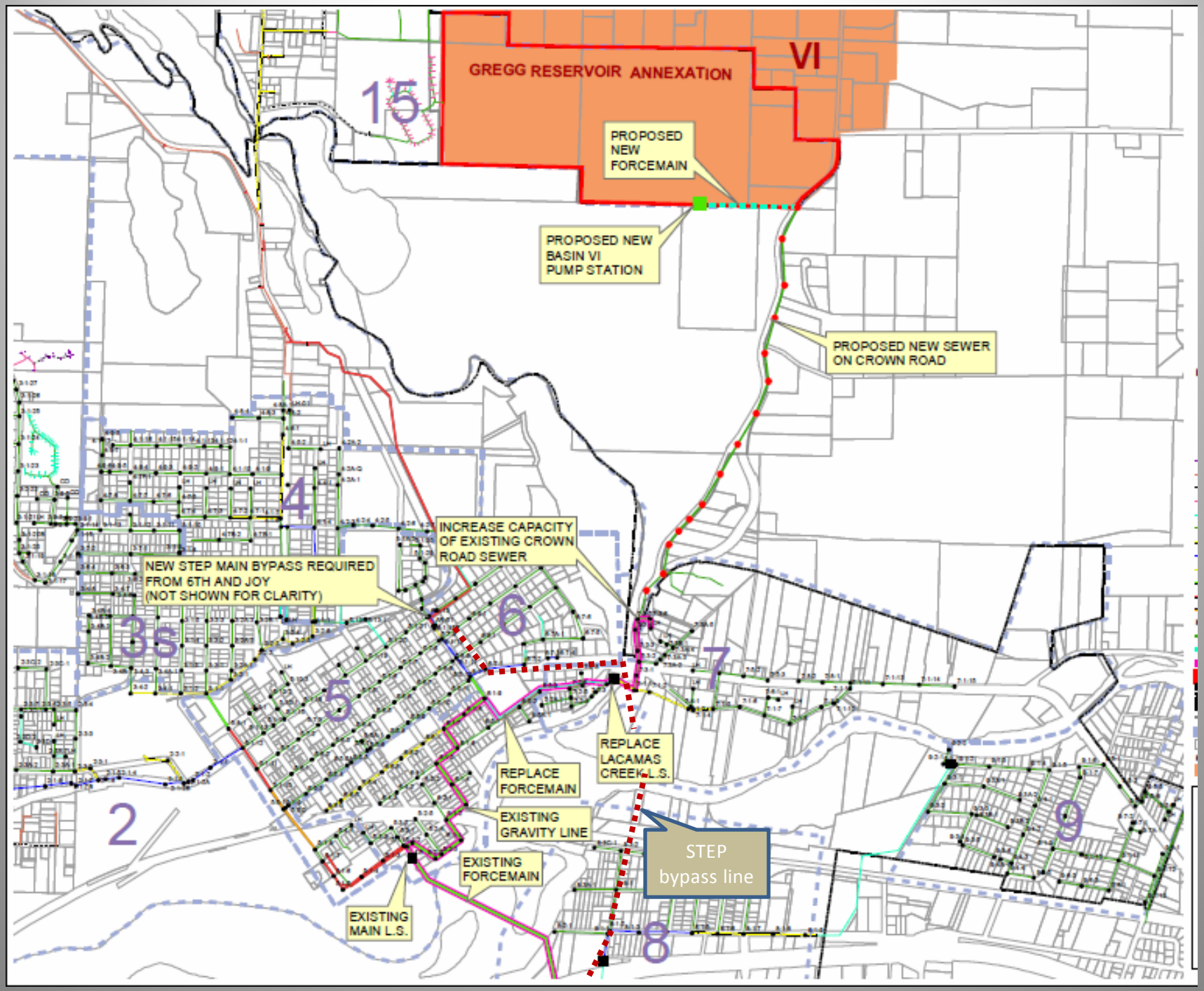
- Sewer utility:
  - Wastewater Treatment Plant (WWTP) is an activated sludge treatment facility
  - WWTP regulated under the Federal Water Pollution Control Act with Department of Ecology (DOE) responsible for oversight utilizing a National Pollution Discharge Elimination System (NPDES) permit
  - Unique blend of traditional gravity sewer, clean industrial process discharge, and STEP effluent
  - 2010 approved General Sewer Plan and NUGA amendment
  - Rate and SDC structure same as Water Utility

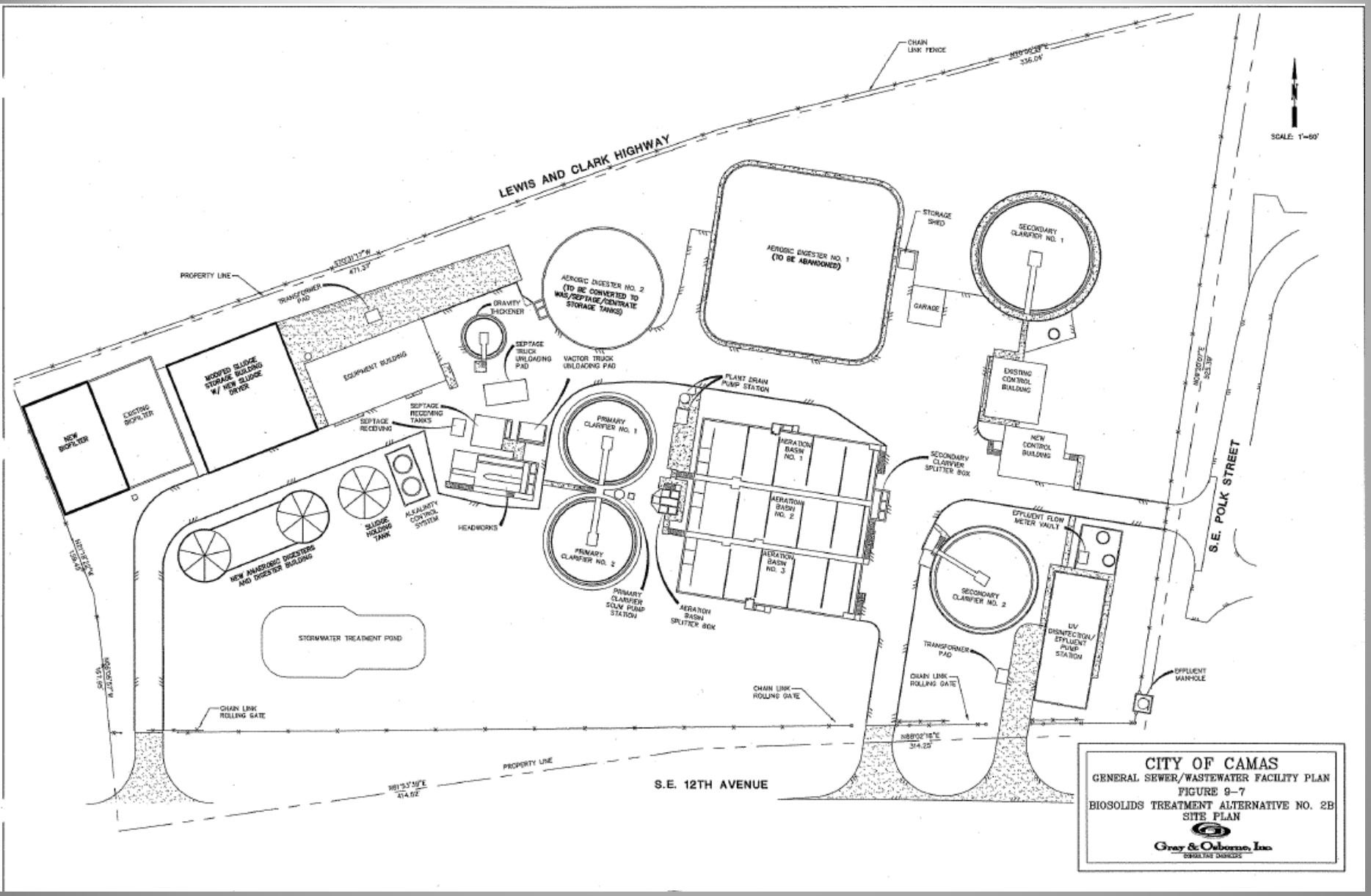
Public Works - Sewer

- Sewer Stats:
  - 2011 budget - $3,306,400 including admin, excludes capital and bond payments
  - 100 miles main, 6,600 connections including about 3,500 STEP, Treatment Plant, 23 pump stations
  - 7 FTE plus seasonal employee
  - Treatment plant rated at 6.1 MGD avg day flow and 11 MGD Peak flow
  - Current average flow 1.9 MGD


N
0
2,500
5,000
Feet
LACAMAS LAKE
13
14
15
3n
11
1
2
8
WASHINGTON
OREGON
COLUMBIA RIVER
LEGEND:
CITY LIMITS
URBAN GROWTH BOUNDARY
URBAN RESERVE
SEWER BASINS
PARCELS
SEWER PIPELINES:
PIPE SIZES (DIA.)
1-INCH
2-INCH
3-INCH
4-INCH
6-INCH
8-INCH
10-INCH
12-INCH
15-INCH
18-INCH
21-INCH
24-INCH
SEWER MANHOLES
CITY OF CAMAS
GENERAL SEWER/WASTEWATER FACILITY PLAN
COLLECTION SYSTEM
FIGURE 5-1
Gray & Osborne, Inc.
CONSULTING ENGINEERS


I
II
III
IV
V
VI
PROPOSED PUMP STATION
GREEN MOUNTAIN GOLF COURSE
CAMAS MEADOWS GOLF COURSE
PROPOSED PUMP STATION
CAMP CURRIE
PROPOSED PUMP STATION
PROPOSED PUMP STATION
PROPOSED PUMP STATION
PROPOSED PUMP STATION


GREGG RESERVOIR ANNEXATION
VI
15
PROPOSED NEW FORCEMAIN
PROPOSED NEW BASIN VI PUMP STATION
PROPOSED NEW SEWER ON CROWN ROAD
4
INCREASE CAPACITY OF EXISTING CROWN ROAD SEWER
NEW STEP MAIN BYPASS REQUIRED FROM 6TH AND JOY (NOT SHOWN FOR CLARITY)
3s
6
7
5
REPLACE LACAMAS CREEK L.S.
REPLACE FORCEMAIN
EXISTING GRAVITY LINE
2
9
STEP bypass line
EXISTING FORCEMAIN
EXISTING MAIN L.S.
8


LEWIS AND CLARK HIGHWAY
CHAIN LINK FENCE
SCALE: 1"=60'
PROPERTY LINE
TRANSFORMER PAD
NEW BIOFILTER
EXISTING BIOFILTER
MODIFIED SLUDGE STORAGE BUILDING W/ NEW SLUDGE DRYER
EQUIPMENT BUILDING
GRAVITY THICKENER
SEPTAGE TRUCK UNLOADING PAD
VACTOR TRUCK UNLOADING PAD
AEROBIC DIGESTER NO. 2 (TO BE CONVERTED TO WAS/SEPTAGE/CENTRATE STORAGE TANKS)
AEROBIC DIGESTER NO. 1 (TO BE ABANDONED)
STORAGE SHED
GARAGE
SECONDARY CLARIFIER NO. 1
EXISTING CONTROL BUILDING
NEW CONTROL BUILDING
SEPTAGE RECEIVING TANKS
SEPTAGE RECEIVING
PRIMARY CLARIFIER NO. 1
PRIMARY CLARIFIER NO. 2
PLANT DRAIN PUMP STATION
AERATION BASIN NO. 1
AERATION BASIN NO. 2
AERATION BASIN NO. 3
SECONDARY CLARIFIER SPLITTER BOX
SLUDGE HOLDING TANK
ALKALINITY CONTROL SYSTEM
HEADWORKS
NEW ANAEROBIC DIGESTERS AND DIGESTER BUILDING
PRIMARY CLARIFIER SCUM PUMP STATION
AERATION BASIN SPLITTER BOX
EFFLUENT FLOW METER VAULT
SECONDARY CLARIFIER NO. 2
UV DISINFECTION/ EFFLUENT PUMP STATION
TRANSFORMER PAD
CHAIN LINK ROLLING GATE
EFFLUENT MANHOLE
STORMWATER TREATMENT POND
S.E. POLK STREET
S.E. 12TH AVENUE
PROPERTY LINE
CITY OF CAMAS
GENERAL SEWER/WASTEWATER FACILITY PLAN
FIGURE 9-7
BIOSOLIDS TREATMENT ALTERNATIVE NO. 2B
SITE PLAN
Gray & Osborne, Inc.
CONSULTING ENGINEERS

Public Works - Sewer

- Current issues
  - Bio solids permit, Class A material removal decision
  - Complete WWTP upgrade
  - Micro filter issue with DOE
  - New NPDES permit renewal expected Spring 2011
  - Serving NUGA
    - Crown rd sewer installation
    - NUGA interim service STEP vs. traditional flow
    - Downtown bottleneck and pipe condition
  - Odor control, chemical cost control
  - Sewer Use Ordinance update:
    - FOG's (fats, oils and grease) updates
    - Local limits (part of new permit discussion)
    - Inflow and infiltration
    - STEP system rule cleanup
  - Aging system and replacement schedule concern

Questions?