

City of Guadalupe

Wastewater Collection System and Treatment Plant Master Plan

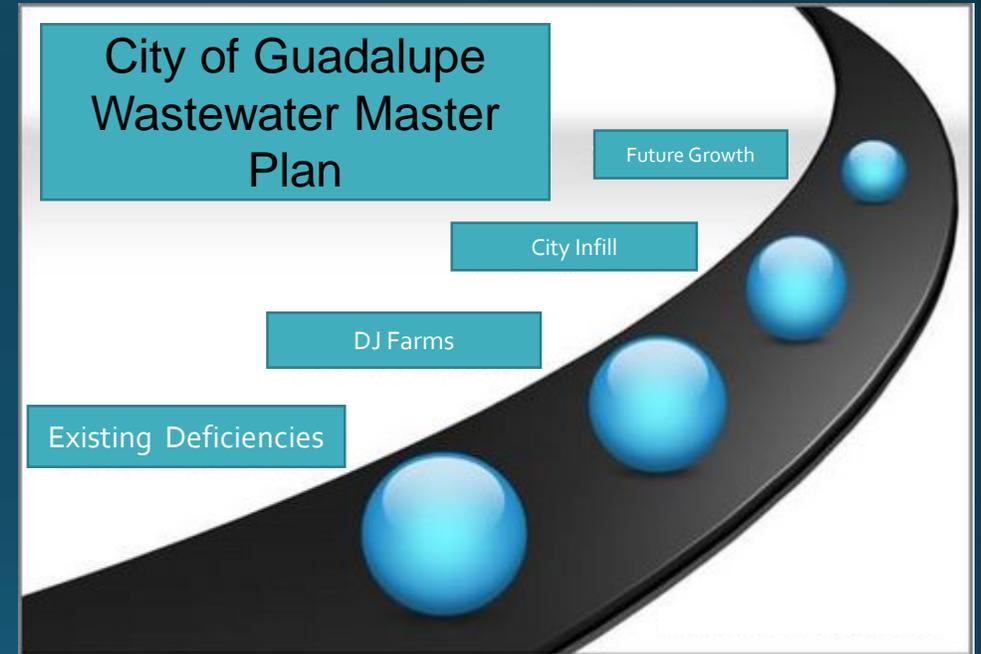
October 28, 2014

Prepared By:



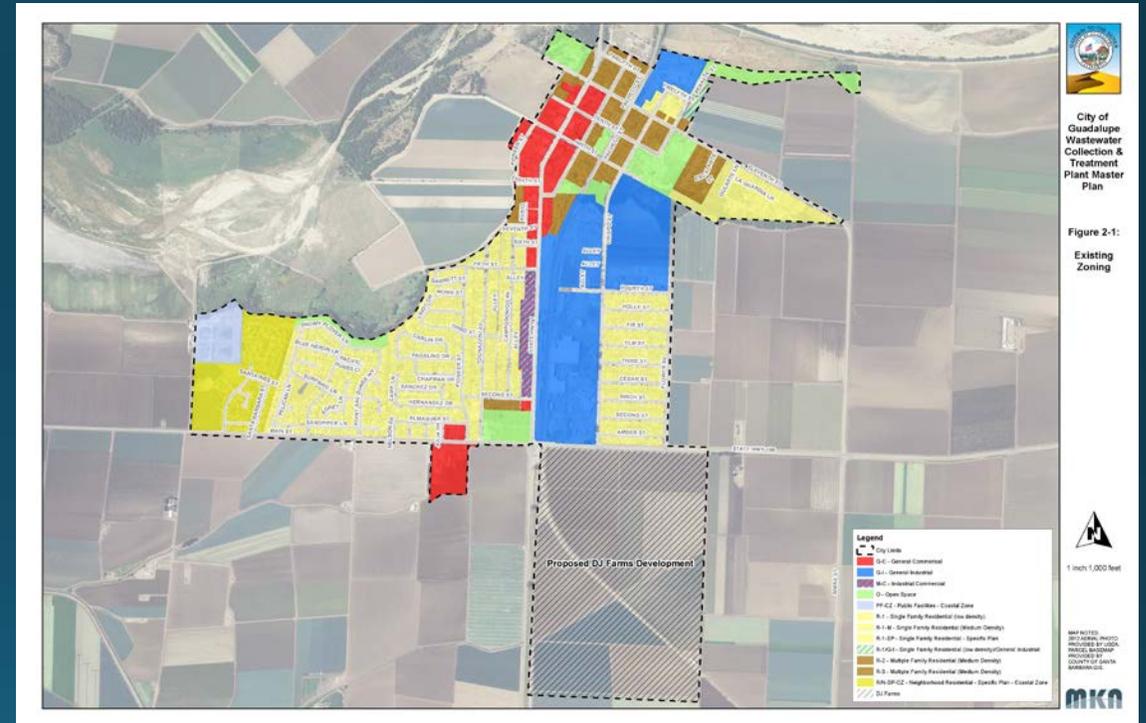
Purpose of the Master Plan

The 2014 Wastewater Master Plan is a roadmap for system improvements necessary to maintain City services and support growth for the next 20 years.



The Master Planning Process

- Collect and review existing planning and wastewater system data
- Determine existing and future wastewater flows
- Condition assessment and development of collection system hydraulic model
- Condition assessment of wastewater treatment plant (WWTP)
- Determine improvements and recommendations
- Prepare capital improvement program cost and prioritization



Existing Facility Conditions

LIFT STATIONS

- Pioneer and Highway 1 Lift Stations are **50 years old** and at the end of their useful life
- Pioneer and Highway 1 Lift Stations are confined spaces and potential safety hazards to operations staff for entry and maintenance

COLLECTION SYSTEM

- City-wide shallow pipe slopes will require consistent pipeline cleaning to reduce debris buildup in pipes
- Fats, oils, and grease (FOG) were observed issues with respect to blockages in sewer pipes

WWTP

- Access dirt road to effluent pump station is unpassable when ground is wet
- Effluent pump station has single pump in operation with no backup pump available



Summary of Improvements for Existing Deficiencies

LIFT STATIONS

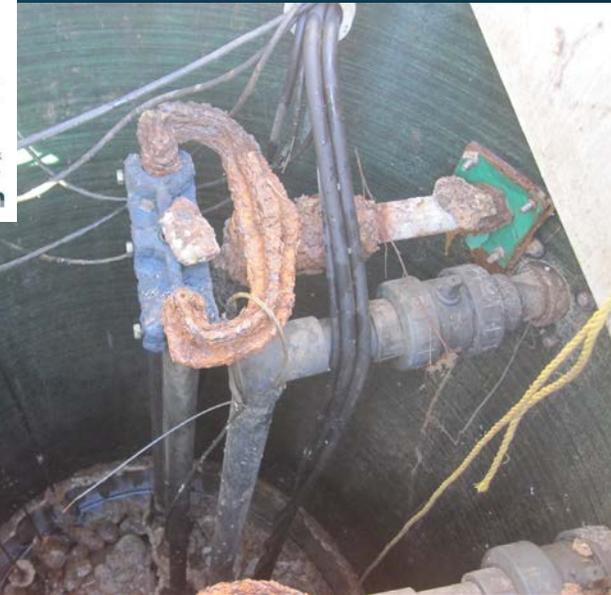
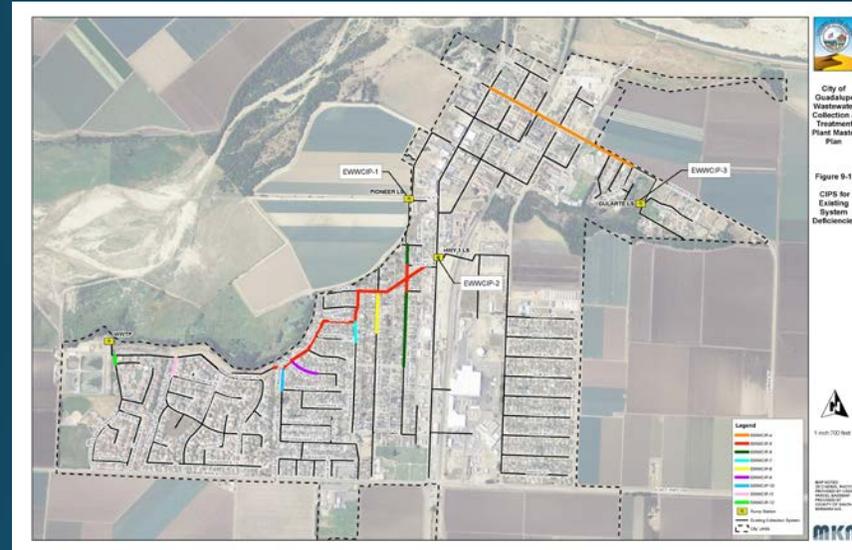
- Replacement of Pioneer Lift Station
- Replacement of Highway 1 Lift Station
- Maintenance of Gularte Lift Station

COLLECTION SYSTEM

- Upsize 12-inch trunk sewer upgrade from Highway 1 Lift Station to 24-inch trunk main
- Replacement of ancillary pipe segments throughout collection system

WWTP

- Rehabilitate Influent Lift Station
- Replace effluent ditch with effluent pipeline
- Rehabilitate effluent storage ponds
- Rehabilitate irrigation pump station and sprayfields



Summary of CIPs for Existing Deficiencies

“Near Term” Recommendations

Lift Stations - \$1.1M

Pipelines - \$1.3M

WWTP - \$2.4M

“Longer Term” Recommendations

Lift Stations - None

Pipelines - \$1.6M

WWTP - \$0.6M

| Capital Improvements Recommended to Address Existing Deficiencies | | | | | | | | | |
|--|---|--|---|---|---|--------------------------|--|----------------------|-------------|
| Lift Stations | | | | | | | | | |
| Project | Project Name | Location | Existing Facility | Deficiency | Capital Improvement Project (CIP) | Notes | Priority | Opinion of Cost (\$) | |
| EWWCIP-1 | Pioneer Lift Station Replacement | Pioneer Street at Eighth Street | 250 GPM @ 70 TDH | Confined Space Safety Hazard, pumps are oversized for existing ADF & PHFs, force main not located within City easement | Replace existing lift station with submersible pump station or above-grade Smith & Loveless replacement. Reroute existing force main to Highway 1 at Eighth Street | | Near | \$454,350 | |
| EWWCIP-2 | Highway 1 Lift Station Replacement | Highway 1 at Sixth Street | 400 GPM @ 15 TDH | Confined space safety hazard, existing PHF exceed pump capacity in simplex operation, function of downstream gravity manhole causes wastewater backup in TrusPro pipeline | Replace existing lift station with larger pumps (500-600 gpm) in submersible pump station or above-grade Smith & Loveless replacement. Reroute force main (160 lf) to manhole at Highway 1 and Sixth Street. | | Near | \$607,880 | |
| EWWCIP-3 | Gularte Lift Maintenance Project | Gularte Lane and | 100 GPM @ 32 TDH | Sufficient hydraulic capacity, but wet well, pipes, and fitting show be evaluated and rehabilitate to extend useful life | Perform physical inspection/evaluation of existing lift station facility and rehabilitate facility components to extend useful life as necessary | | Near | \$20,000 | |
| Subtotal Lift Stations | | | | | | | | \$1,082,230 | |
| Collection System Pipelines | | | | | | | | | |
| Project | Project Name | Location | Existing Facility | Deficiency | Capital Improvement Project (CIP) | Notes | Priority | Opinion of Cost (\$) | |
| | | | | ADF (d/D > 0.50) | PHF (d/D > 0.75) | | | | |
| EWWCIP-5 | 12-inch Trunk Sewer | Sixth Street to Mahoney Lane | 2,900 lf of 12-inch pipe | 1.00 | 1.00 | 2,900 lf of 18-inch pipe | This CIP eliminates deficiencies #3 thru #9 identified in Section 6. Would also include rerouting gravity sewer from private property into City right-of-way | Near | \$1,261,500 |
| Subtotal Collection System Pipelines | | | | | | | | \$1,261,500 | |
| Wastewater Treatment Plant and Effluent Disposal/Reuse Facilities | | | | | | | | | |
| Project | Project Name | Location | Existing Facility | Deficiency | Capital Improvement Project (CIP) | Notes | Priority | Opinion of Cost (\$) | |
| EWWCIP-14 | Treated Effluent Pipeline and Holding Pond Rehabilitation | Wastewater Plant treated effluent facilities | Effluent ditch, three holding ponds | Effluent ditch is unprotected. Holding pond levees and roadways have eroded and ponds are subject to flooding. | Install 2,200 LF of welded HDPE or PVC pipe in place of effluent ditch. Rehab holding pond levees and increase height to protect from flooding. Repair eroded roadways. | | Near | \$1,620,000 | |
| EWWCIP-15 | Irrigation Pump Station | Wastewater Plant treated effluent facilities | Wet well with one operational irrigation pump. Alarm system not functional, VFDs and controls in cramped space with minimal protection. | Irrigation pump station is past design life, and in need of repairs and rehabilitation. | Replace irrigation pumps (3) and controls to match requirements of new spray irrigation system. Install electrical building with dust control and ventilation. Install effluent filters, fencing, and new alarm system with telemetry. Install all weather access road. | | Near | \$750,000 | |
| Subtotal Wastewater Treatment Plant and Effluent Disposal/Reuse Facilities | | | | | | | | \$2,370,000 | |
| Total | | | | | | | | \$4,713,730 | |

Summary of CIPs for Future Deficiencies

“Future” Recommendations

Lift Stations - None

Pipelines - None

WWTP - \$4.0M

| Lift Stations | | | | | | | | | |
|---|---------------------------|----------------------------|--|---|----|--|--|--------------------------------|----------------------|
| Project | Project Name | Location | Existing Facility | Deficiency | | Capital Improvement Project (CIP) | Notes | Priority | Opinion of Cost (\$) |
| NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Collection System Pipelines | | | | | | | | | |
| Project | Project Name | Location | Existing Facility | Deficiency | | Capital Improvement Project (CIP) | Notes | Priority | Opinion of Cost (\$) |
| NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Wastewater Treatment Plant and Effluent Disposal/Reuse Facilities | | | | | | | | | |
| Project | Project Name | Location | Existing Facility | Deficiency | | Capital Improvement Project (CIP) | Notes | Priority | Opinion of Cost (\$) |
| FWWCIP-1 | Influent Pump Station | Wastewater Treatment Plant | (3) 20-hp pumps with VFDs | 4th pump is required to maintain redundancy at future flows | | Install 4th pump, mounting components, guide rails, discharge piping and valves, and VFD. | Install before PHF > 2350 gpm | Phased with Future Development | \$35,000 |
| FWWCIP-2 | Grit Removal System | Wastewater Treatment Plant | Abandoned grit system | With historical clogging problems, grit system was bypassed and equipment has been abandoned. | | Remove and replace existing grit pump, grit classifier, piping and valves. Convert grit pumping to top-mounted pump configuration. | Design completed with 2012 WWTP Improvements (Dudek). Review hydraulics and efficiencies at future flows before implementing project. | Phased with Future Development | \$424,000 |
| FWWCIP-3 | Extended Aeration Basin 2 | Wastewater Treatment Plant | (1) Extended aeration basin with 2 integral clarifiers | Future flows and loadings are greater than design criteria for existing aeration basin. | | Install second aeration basin (Biolac) with aeration equipment and 2 integral clarifiers, and (3) blowers. Basin and clarifiers are to be same size as existing. | Install when BOD loadings for existing basin are between 12 and 15 ppd/1000 CF. (At existing loads, this is estimated to occur between 0.74 and 0.93 MGD). | Phased with Future Development | \$3,580,000 |
| Subtotal Wastewater Treatment Plant and Effluent Disposal/Reuse Facilities | | | | | | | | | \$4,039,000 |
| Total | | | | | | | | | \$4,039,000 |

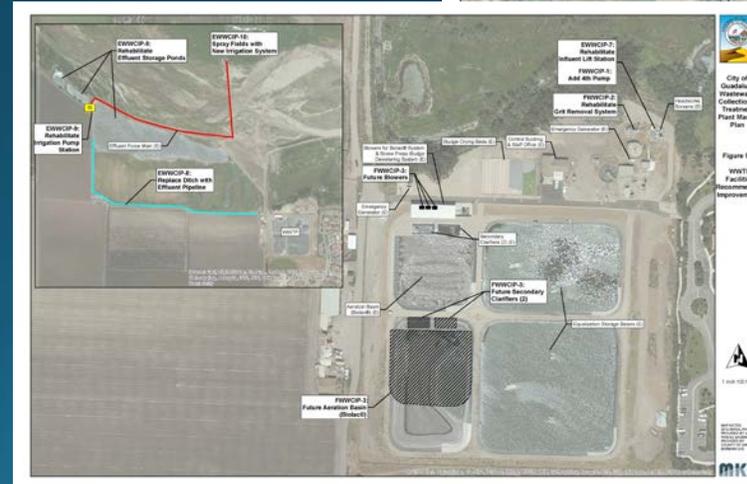
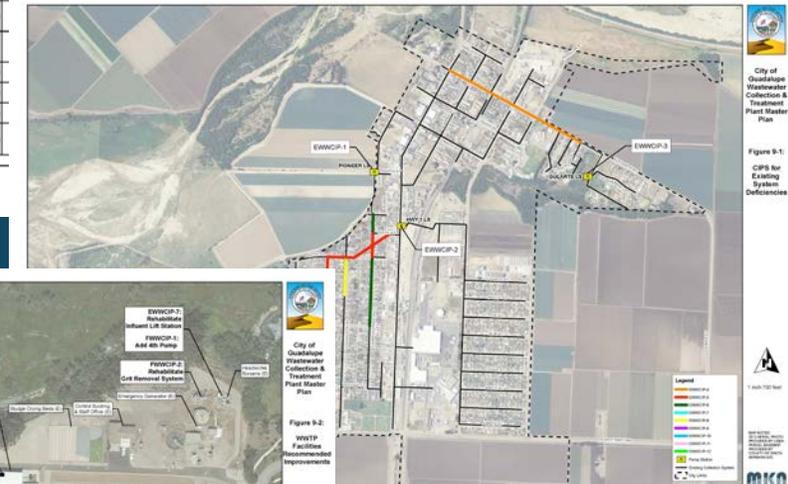
Master Plan Summary

The 2014 Wastewater Master Plan provides:

A roadmap for system improvements necessary to maintain City services and support growth for the next 20 years:

- *Condition and Capacity assessment of*
 - *Wastewater collection*
 - *Treatment*
 - *Disposal*
- *Prioritization of recommended CIPs*
- *Cost estimates to assist City budgeting*
- *Staffing Recommendations*

| Table 9-3: Capital Improvements Recommended to Address Existing Deficiencies | | | | | | | | |
|--|-------------------------------------|--|--------------------------|---|--|--|---------------|---------------------|
| Lift Stations | | | | | | | | |
| Project | Project Name | Location | Existing Facility | Deficiency | Capital Improvement Project (CIP) | Notes | Priority | Option of Cost (\$) |
| EWWCP-1 | Pioneer Lift Station Replacement | Pioneer Street at Eighth Street | 250 GPM @ 70 TPD | Confined Space Safety Hazard, pumps are oversized for existing ACF & PFFs, force main not located within City easement | Replace existing lift station with submersible pump station or above grade Smith & Lovelace replacement. Reroute existing force main to Highway 1 at Eighth Street. | | 0 to 2 Years | \$454,350 |
| EWWCP-2 | Highway 1 Lift Station Replacement | Highway 1 at Sixth Street | 400 GPM @ 15 TPD | Confined space safety hazard, existing PFF exceed pump capacity in simplex operation, function of downstream gravity mainline causes wastewater backup in TruPro pipeline | Replace existing lift station with larger pumps (300-400 gpm) in submersible pump station or above grade Smith & Lovelace replacement. Reroute force main (360 ft) to manhole at Highway 1 and Sixth Street. | | 0 to 2 Years | \$607,880 |
| EWWCP-3 | Gularte Lift Maintenance Project | Gularte Lane and | 100 GPM @ 32 TPD | Sufficient hydraulic capacity, but wet well, pipes, and fitting show be evaluated and rehabilitate to extend useful life | Perform physical inspection/evaluation of existing lift station facility and rehabilitate facility components to extend useful life as necessary | | 0 to 2 Years | \$30,000 |
| Subtotal Lift Stations | | | | | | | | \$1,092,230 |
| Collection System Pipelines | | | | | | | | |
| Project | Project Name | Location | Existing Facility | Deficiency | Capital Improvement Project (CIP) | Notes | Priority | Option of Cost (\$) |
| EWWCP-4 | Eleventh Street Gravity Sewer | Highway 1 to Gularte Lane | 2,300 ft of 6-inch pipe | ADP (d/D) > 0.56 PFF (d/D) > 0.75 | 2,300 ft of 8-inch pipe | | 2 to 10 Years | \$829,400 |
| EWWCP-5 | 12-inch Trunk Sewer | Sixth Street to Mahoney Lane | 2,900 ft of 12-inch pipe | 1.00 1.00 | 2,900 ft of 18-inch pipe | This CIP eliminates deficiencies #3 thru #9 identified in Section 6. Would also include rerouting gravity sewer from private property into City right-of-way | 0 to 2 Years | \$1,245,500 |
| EWWCP-6 | Campanico Avenue Gravity Sewer | Fifth Street to Third Street | 520 ft of 6-inch pipe | 0.17 1.00 | 520 ft of 12-inch pipe | | 2 to 10 Years | \$196,090 |
| EWWCP-7 | Pioneer Street Gravity Sewer | Wing Street to Marykocil Drive | 270 ft of 6-inch pipe | | | | | |
| EWWCP-8 | Topazzini Avenue Gravity Sewer | Fifth Street to mid-block Topazzini Avenue | 98 ft of 6-inch pipe | | | | | |
| EWWCP-9 | Carlin Drive Gravity Sewer | Carlin Drive to Mahoney Lane | 410 ft of 8-inch pipe | | | | | |
| EWWCP-10 | Mahoney Lane Gravity Sewer | Carlin Drive to Papagian Drive | 310 ft of 8-inch pipe | | | | | |
| EWWCP-11 | Surford Lane Gravity Sewer | From Blue Heron Lane to Snowy Plover Lane | 265 ft of 8-inch pipe | | | | | |
| EWWCP-12 | Riverview Development Gravity Sewer | Riverview Development at entrance to WWTP | 125 ft of 8-inch pipe | | | | | |



Thank You.

Questions?