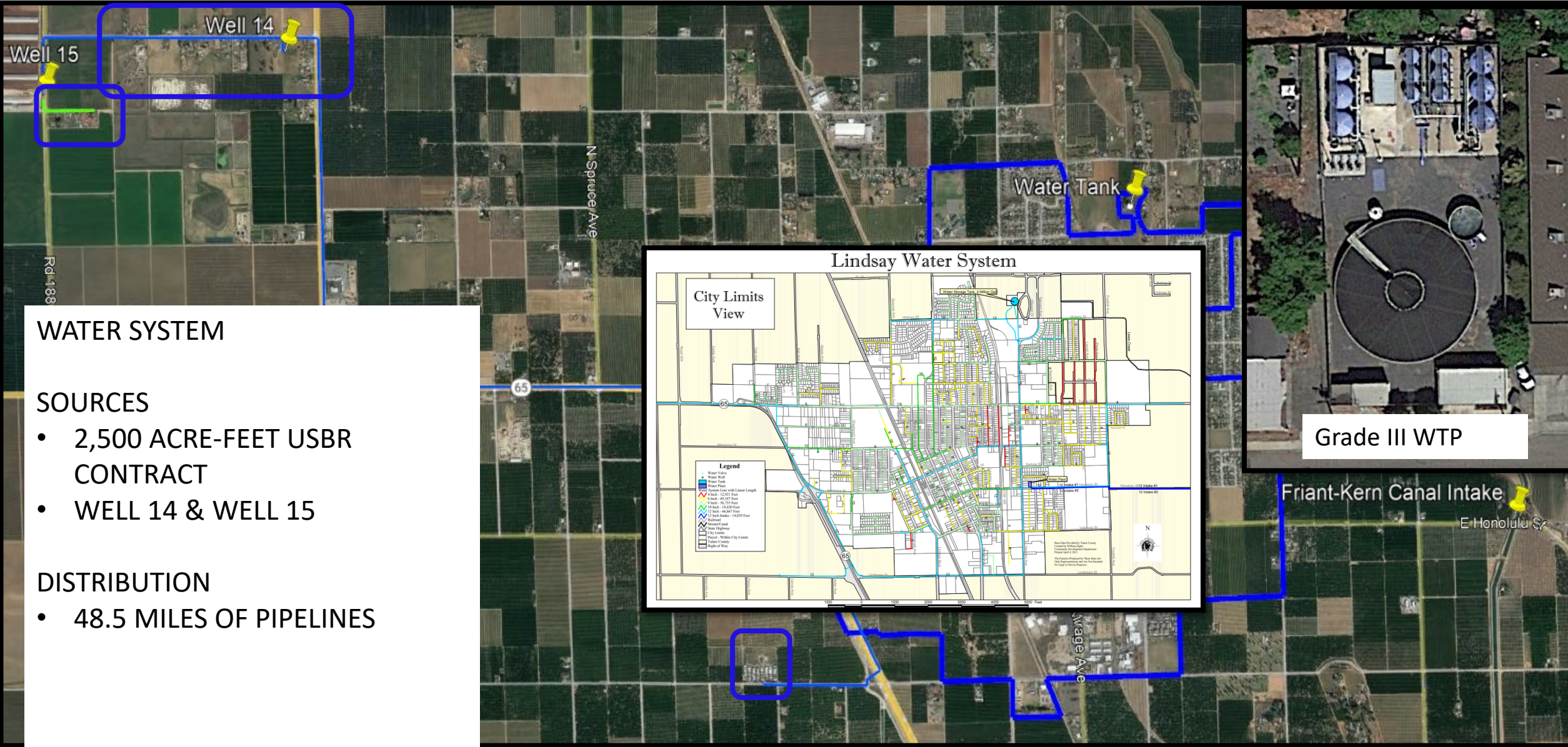




Water and Sewer System Assessment

SEPTEMBER 18, 2024





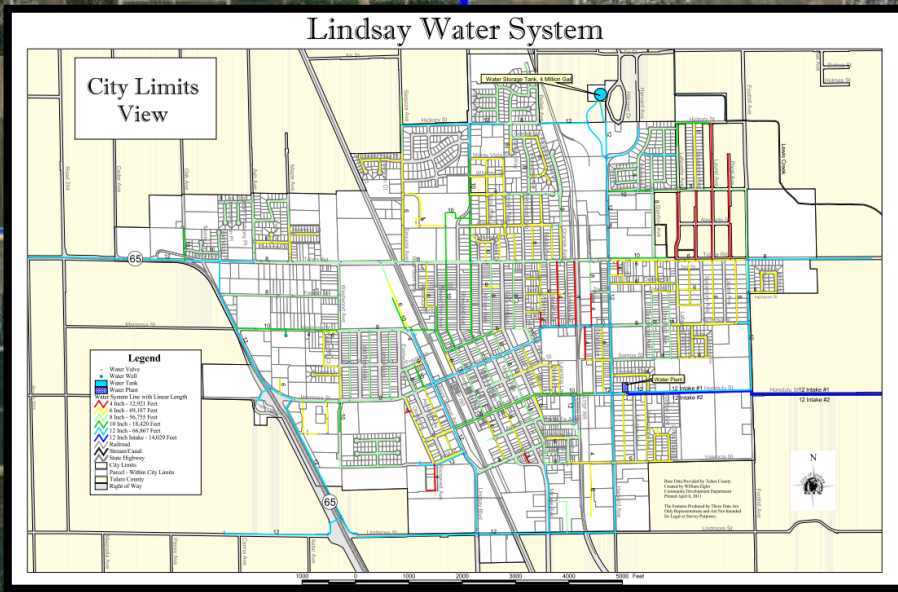
WATER SYSTEM

SOURCES

- 2,500 ACRE-FEET USBR CONTRACT
- WELL 14 & WELL 15

DISTRIBUTION

- 48.5 MILES OF PIPELINES



Grade III WTP

Friant-Kern Canal Intake
E Honolulu St

EVALUATION OF THE WATER SYSTEM

CITY OF LINDSAY
WATER FEASIBILITY STUDY

JANUARY 2023

Prepared for:

City of Lindsay

Prepared by:

Provost & Pritchard Consulting Group
Chico, California

✓ Water System Demand

- ❖ Historic Supply and demand numbers
- ❖ Future Demands

✓ Water System Supply

- ❖ Evaluation
 - Winter –When surface water supply is not available due to maintenance/no allocation
 - Summer – When surface water supply is available but not enough to meet demand

✓ Surface Water Treatment Facility

- ❖ Water thru USBR allocations
- ❖ Current Operations
- ❖ Deficiencies

✓ Distribution System-

- ❖ Evaluated using Computer model to simulate the operation of the system
- ❖ Identified Areas with Substandard Operating Pressures
- ❖ Recommendations for Water Main Improvements

✓ Storage System

- ❖ Sufficient available storage volume



DIFICIENCIES

✓ Water Treatment System

❖ Water Supply

- USBR Allocations
- Well 14 & 15
- Projects Identified
- Well 11 (Off-Line)

❖ Contact Clarifier

- Retrofit or Upgraded

❖ Disinfecting By Products (DBP) MCL exceedance

- Project Identified

✓ Water Distribution System

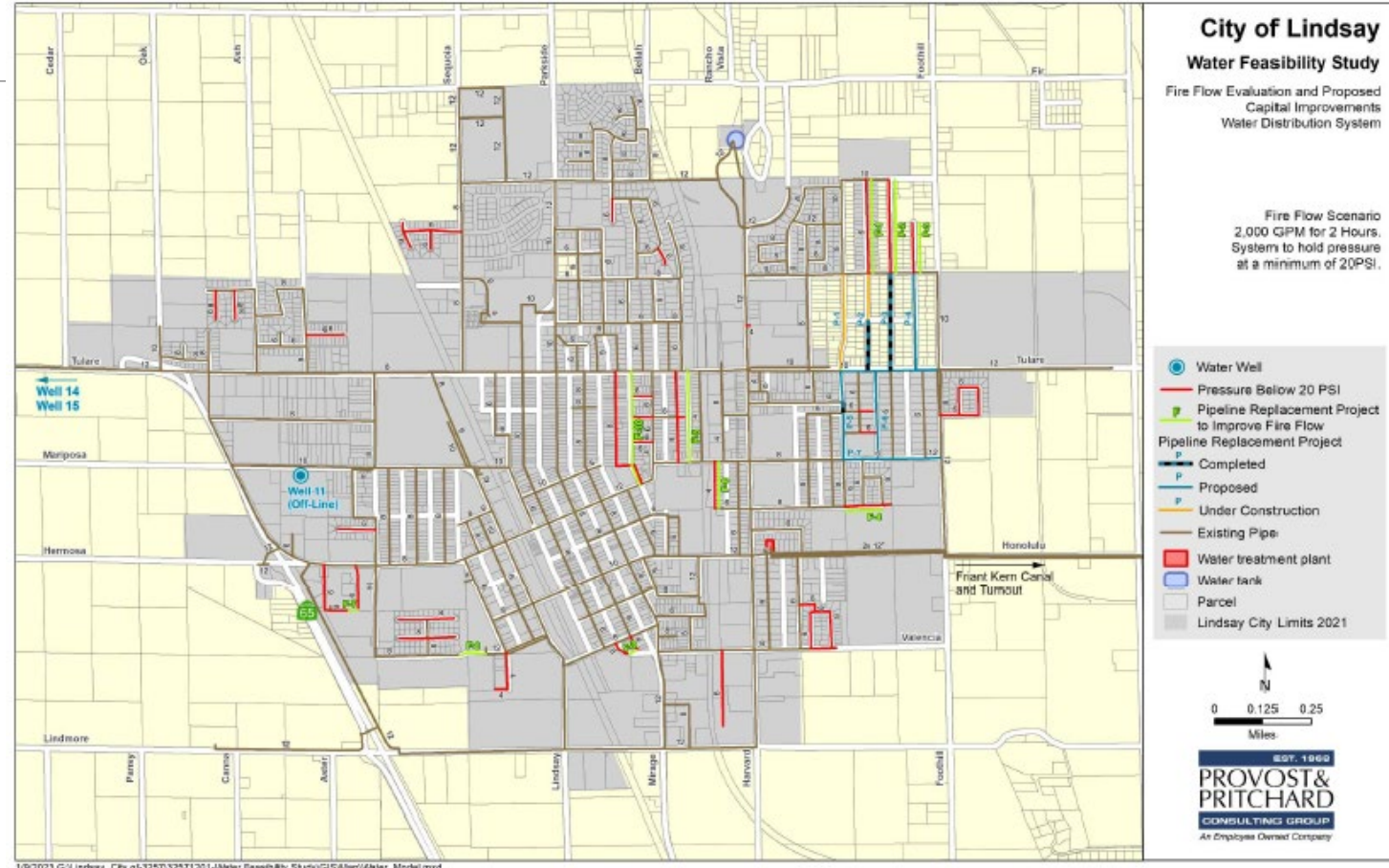
❖ Aging Infrastructure

❖ Not meeting fire flow requirements due to pipe size

❖ Projects Identified

✓ Storage System

❖ None



1/10/2021 10:41 AM Lindsay - Fire Flow Evaluation and Proposed Capital Improvements - Water Distribution System - Model.mxd

SOLUTIONS

Project No.	Project Type	Project Description	Notes	Project Limits	Project Specifics				Project Timing						Estimated Grand Total	Possible Funding Source
					Ex. Size/	New Size/	Replace/	Length	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029		
Pipelines																
Varies (See Table 3-11)	C	Main Line Replacement/ Dead End Elimination	1, 2	TBD	8 in	8 in					\$988,000	\$988,000	\$988,000	\$988,000	\$6,916,000	Enterprise
Groundwater Wells																
GW-1	C	Drinking Water Test Well #1	1	TBD			New		\$300,000						\$300,000	Enterprise
GW-2	C	New Well #1 (Winter Demand)	2, 4	TBD		850 gpm	New			\$2,220,000					\$2,220,000	Enterprise
GW-3	C	New Well #1 Infrastructure	2	TBD			New			\$2,700,000					\$2,700,000	Enterprise
GW-4	C	Drinking Water Test Well #2	1	TBD			New				\$300,000				\$300,000	Enterprise
GW-5	C	New Well #2 (Winter Demand)	2,4	TBD		1,000 gpm	New				\$2,220,000				\$2,220,000	Enterprise
GW-6	C	New Well #2 Infrastructure	2	TBD							\$2,700,000				\$2,700,000	Enterprise
GW-7	C	Drinking Water Test Well	1	TBD								\$300,000			\$300,000	Enterprise
GW-8	C	Replacement Well	2, 3	TBD		750 gpm	Replace						\$2,220,000		\$2,220,000	Enterprise
GW-9	C	New Well #3 (Winter Demand)	2, 3, 5	TBD		750 gpm	New							\$2,220,000	\$2,220,000	Enterprise
GW-10	C	New Well #3 Infrastructure	2	TBD			New							\$2,700,000	\$2,700,000	Enterprise
GW-11	C	Harvard Park Irrigation Well	1	TBD			New							\$1,500,000	\$1,500,000	Enterprise
GW-12	C	City Park Irrigation Water Well	1	TBD			New							\$1,500,000	\$1,500,000	Enterprise
Groundwater Well Treatment																
WT-1	P	Well 11 - Treatment A/Bs	1, 2	Well 11			New		\$25,000						\$25,000	Enterprise
WT-2	P	Well 11 - Treatment P&E	1, 2	Well 11											\$150,000	SRF ⁵
WT-3	C	Well 11 - Water Treatment	1, 2	Well 11											\$5,943,000	SRF ⁶
WT-4	C	Well 14 - Upgrades	1	Well 14			New		\$150,000						\$150,000	Enterprise
Surface Water Projects																
SW-1	C	DBP Mitigation	1, 2	SWTP			New		\$500,000						\$500,000	Enterprise
SW-2	C	Filter Bank D Renovations	1	SWTP			Replace		\$400,000						\$400,000	Enterprise
SW-3	C	Water Plant Upgrades	1, 2	SWTP			Replace			\$100,000					\$100,000	Enterprise
SW-4	C	Clarifier Renovations	1, 2	SWTP			Replace		\$10,000						\$10,000	Enterprise
SW-5	C	Turnout Upgrades	1	Canal Turnout			Replace				\$100,000	\$100,000			\$200,000	Enterprise
SW-6	C	Appurtenances (Approved CIP)	1	TBD			Replace		\$120,000	\$766,800	\$472,000	\$570,000	\$20,000		\$1,948,800	Enterprise
SW-7	C	Water Meters Digital Upgrade	1	TBD			Replace							\$2,000,000	\$2,000,000	Enterprise
Storage Improvements																
T-1	C	Storage Tank Improvements	1	TBD											\$450,000	Enterprise

A. PIPELINES PROJECTS

B. GROUNDWATER WELLS

C. GROUNDWATER WELL TREATMENT

D. SURFACE WATER PROJECTS

E. STORAGE IMPROVEMENTS

P = Planning Project; C = Construction Project

¹ Project Listed in Draft Capital Improvement Plan Provided by the City.

² Project Proposed for Inclusion in CIP; additional details in Water Feasibility Study.

³ Supply Projects are potentially interchangeable based on timing and demand needs.

⁴ Planned well replacement by the year 2030, as a result of reaching useful life expectancy.

⁵ Additional well will be needed sometime after 2030 to address supply needs, as illustrated in Figure 3-1.

⁶ SRF refers to the California State Revolving Fund



A- PIPELINE PROJECTS

Table 3-11: Pipeline Projects (From Water Model)

Project No.	Project Description	Project Limits	Project Specifics			
			Ex. Diam. (in)	New Diam. (in)	Replace / New	Length (ft)
Fire Flow Projects						
F-1	Replace existing undersized, old main	Sycamore Ave from Hickory St to Sierra View St	6	8	Replace	1,275
F-2	Replace existing undersized, old main	Laurel Ave from Hickory St to Sierra View St	4	6	Replace	1,275
F-3	Replace existing undersized, old main	Page Ave from Sierra View St north to end of cul-de-sac	4	6	Replace	630
F-4	Replace existing undersized, old main	Samoa St from Lafayette Ave to Sycamore Ave	6	8	Replace	525
F-5	Replace existing undersized, old main	Orange Ave from Tulare Rd to Hermosa St	4	8	Replace	675
F-6	Replace existing undersized, old main	Oxford Ave from Hermosa St to Samoa St	4	8	Replace	1,300
F-7	Install new main to complete loop	Behind shopping center near Hermosa St and Westwood Ave	---	8	New	180
F-8	Install new main to complete loop	Apia St along edge of Olive Grove Ball Park	---	8	New	380
F-9	Install new main to complete loop	Easement from Elmwood Ave to alley off Lewis St between Elmwood Ave and Mirage Ave	---	8	New	200
F-10	Relocate existing rear yard main to street ROW; complete loop	Homassel Ave from Tulare Rd to Hermosa St	8	8	Replace	1,625
Pipeline Replacement Projects						
P-1	Replace existing undersized, old main	Lafayette Ave from Sierra View St to Tulare Rd	4	6	Replace	1,300
P-2 ¹	Replace existing undersized, old main	Sycamore Ave from Sierra View St to Tulare Rd	4	6	Replace	1,300
P-3 ²	Replace existing undersized, old main	Laurel Ave from Sierra View St to Tulare Rd	4	6	Replace	1,300
P-4	Replace existing undersized, old main	Page Ave from Sierra View St to Tulare Rd	4	6	Replace	1,300
P-5	Relocate existing rear yard main to street ROW and upsize	Lafayette Ave from Hermosa St to Tulare Rd	6	8	Replace	1,275
P-6	Relocate existing rear yard main to street ROW and upsize	Sycamore Ave from Hermosa St to Tulare Rd	6	8	Replace	1,250
P-7	Replace undersized main	Hermosa St from Lafayette Ave to Foothill Ave	6	8	Replace	1,350

¹ Completed from Tulare to Alameda

² Completed

Table 3-12: Pipeline Projects Construction Cost

Project No.	Construction Cost	Construction Contingency (30%)	Engineering & Construction Management (18%)	Total Preliminary Cost Estimate
Fire Flow Projects				
F-1	\$391,900	\$117,600	\$70,500	\$580,000
F-2	\$391,900	\$117,600	\$70,500	\$580,000
F-3	\$192,900	\$57,900	\$34,700	\$285,500
F-4	\$162,300	\$48,700	\$29,200	\$240,200
F-5	\$208,200	\$62,500	\$37,500	\$308,200
F-6	\$398,000	\$119,400	\$71,800	\$589,000
F-7	\$55,100	\$16,500	\$9,900	\$81,500
F-8	\$116,300	\$34,900	\$20,900	\$172,100
F-9	\$61,200	\$18,400	\$11,000	\$90,600
F-10	\$499,000	\$149,700	\$89,800	\$738,500
Subtotal				\$3,665,600
Pipeline Replacement Projects				
P-1	\$412,000	\$123,600	\$74,200	\$609,800
P-2	\$199,000 ¹	\$59,700 ¹	\$35,800 ¹	\$294,500 ¹
P-3	Completed	Completed	Completed	--
P-4	\$398,000	\$119,400	\$71,800	\$589,000
P-5	\$413,300	\$124,000	\$74,400	\$611,700
P-6	\$391,900	\$117,600	\$70,500	\$580,000
P-7	\$382,700	\$114,800	\$68,900	\$566,400
P-8	\$413,300	\$124,000	\$74,400	\$611,700
Subtotal				\$3,253,300

¹ Remaining estimated cost, as project has already been partially completed.

B & C-GROUNDWATER WELLS

Table 3-14: Groundwater Well Treatment Projects Construction Cost

Project Name	Project Description	Construction Cost	Construction Contingency (30%)	Engineering & Construction Management (18%)	Total Preliminary Cost Opinion
WT-1	Well 11 – Treatment Alternatives	--	--	--	\$25,000 ¹
WT-2	Well 11 – Treatment PS&E	--	--	\$150,000	\$150,000
WT-3	Well 11 - Treatment	\$5,943,000	--	--	\$5,943,000 ¹
WT-4	Well 14 Upgrades	\$150,000	--	--	\$150,000

¹ Costs already included in Draft CIP from City.

D-SURFACE WATER PROJECTS

Table 3-15: Surface Water Treatment Projects Construction Cost

Project Name	Project Description	Construction Cost	Construction Contingency (20%)	Engineering & Construction Management (15%)	Total Preliminary Cost Estimate
SW-1	DBP Mitigation	--	--	--	\$500,000 ^{1,2}
SW-2	Filter Bank D Renovations	--	--	--	\$400,000 ²
SW-3	Water Plant Upgrades	--	--	--	\$100,000 ²
SW-4	Clarifier Renovations	--	--	--	\$10,000 ²
SW-5	Turnout Upgrades	--	--	--	\$200,000 ²
SW-6	Appurtenances (Approved CIP)	--	--	--	\$1,948,800 ²
SW-7	Water Meters Digital Upgrade	--	--	--	\$2,000,000 ²

¹ Discussed in section 3.7.2
² Costs already included in Draft CIP from City.



SOLUTIONS

Project No.	Project Type	Project Description	Notes	Project Limits	Project Specifics				Project Timing							Estimated Grand Total	Possible Funding Source	
					Ex. Size/ Diam.	New Size/ Diam.	Replace/ New	Length	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030			
Pipelines																		
Varies (See Table 3-11)	C	Main Line Replacement/ Dead End Elimination	1, 2	TBD	8 in	8 in	Replace	1,300 ft	\$988,000	\$988,000	\$988,000	\$988,000	\$988,000	\$988,000	\$988,000	\$988,000	\$6,916,000	Enterprise
Groundwater Wells																		
GW-1	C	Drinking Water Test Well #1	1	TBD			New		\$300,000								\$300,000	Enterprise
GW-2	C	New Well #1 (Winter Demand)	2, 4	TBD		850 gpm	New			\$2,220,000							\$2,220,000	Enterprise
GW-3	C	New Well #1 Infrastructure	2	TBD			New			\$2,700,000							\$2,700,000	Enterprise
GW-4	C	Drinking Water Test Well #2	1	TBD			New				\$300,000						\$300,000	Enterprise
GW-5	C	New Well #2 (Winter Demand)	2,4	TBD		1,000 gpm	New					\$2,220,000					\$2,220,000	Enterprise
GW-6	C	New Well #2 Infrastructure	2	TBD			New					\$2,700,000					\$2,700,000	Enterprise
GW-7	C	Drinking W															\$300,000	Enterprise
GW-8	C	Replacem															\$2,220,000	Enterprise
GW-9	C	New Well															\$2,220,000	Enterprise
GW-10	C	New Well															\$2,700,000	Enterprise
GW-11	C	Harvard Pa															\$1,500,000	Enterprise
GW-12	C	City Park															\$1,500,000	Enterprise
Ground Water Well Treatment																		
WT-1	P	Well 11 - T															\$25,000	Enterprise
WT-2	P	Well 11 - T															\$150,000	SRF ⁶
WT-3	C	Well 11 - V															\$5,943,000	SRF ⁶
WT-4	C	Well 14 - U															\$150,000	Enterprise
Surface Water Projects																		
SW-1	C	DBP Mitig															\$500,000	Enterprise
SW-2	C	Filter Bank D Renovations	1	SWTP			Replace		\$400,000								\$400,000	Enterprise
SW-3	C	Water Plant Upgrades	1, 2	SWTP			Replace			\$100,000							\$100,000	Enterprise
SW-4	C	Clarifier Renovations	1, 2	SWTP			Replace			\$10,000							\$10,000	Enterprise
SW-5	C	Turnout Upgrades	1	Canal Turnout			Replace				\$100,000	\$100,000					\$200,000	Enterprise
SW-6	C	Appurtenances (Approved CIP)	1	TBD			Replace		\$120,000	\$766,800	\$472,000	\$570,000	\$20,000				\$1,948,800	Enterprise
SW-7	C	Water Meters Digital Upgrade	1	TBD			Replace								\$2,000,000		\$2,000,000	Enterprise
Tank Improvements																		
T-1	C	Storage Tank Improvements	1	TBD			Replace				\$450,000						\$450,000	Enterprise
Totals									\$2,833,000	\$12,727,800	\$2,310,000	\$8,678,000	\$1,308,000	\$3,208,000	\$10,908,000	\$38,872,800		

PROJECTED TOTAL PROJECT CAPITAL IMPROVEMENT
NEEDED

\$38,872,800

P = Planning Project; C = Construction Project

¹ Project Listed in Draft Capital Improvement Plan Provided by the City.

² Project Proposed for Inclusion in CIP; additional details in Water Feasibility Study.

³ Supply Projects are potentially interchangeable based on timing and demand needs.

⁴ Planned well replacement by the year 2030, as a result of reaching useful life expectancy.

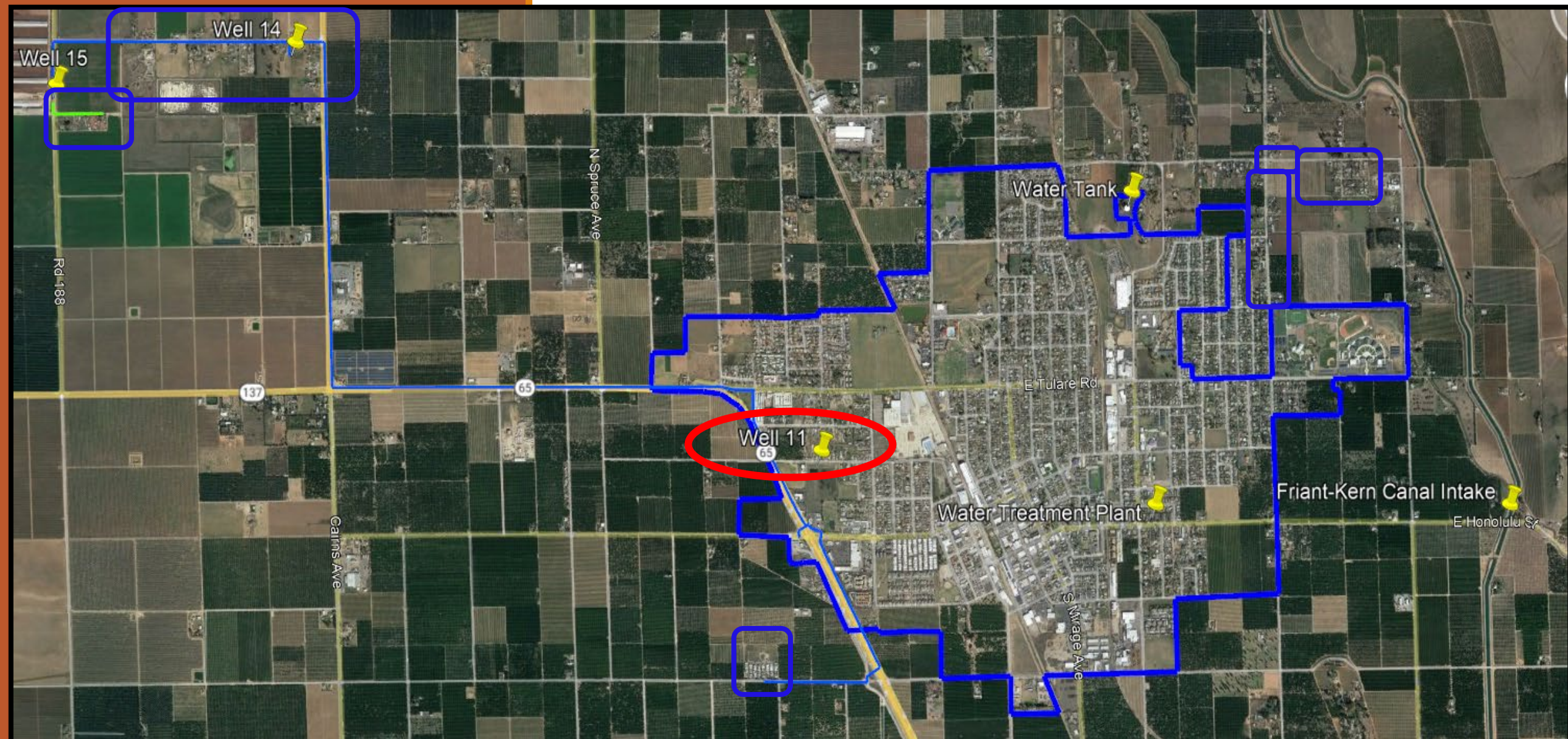
⁵ Additional well will be needed sometime after 2030 to address supply needs, as illustrated in Figure 3-1.

⁶ SRF refers to the California State Revolving Fund





WELL 11 vs WATER FEASIBILITY STUDIES?



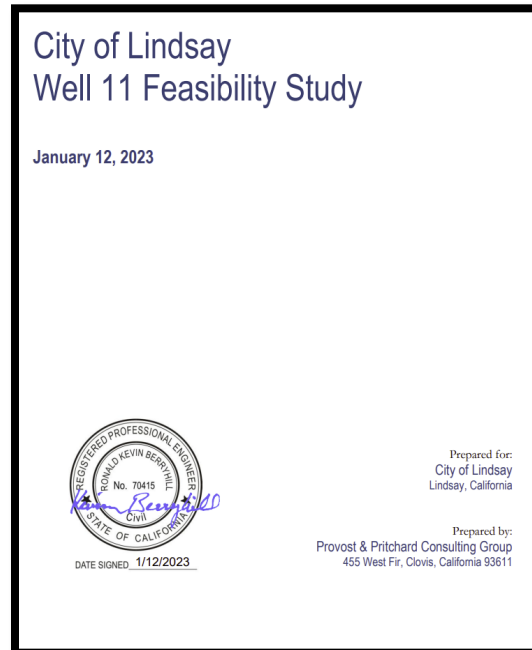
WELL 11 FEASIBILITY STUDY

WELL DESCRIPTION

- Drilled 1980
- 668' deep
- 150' sanitary seal
- Perforated from 300' to 550'
- 125 HP Submersible Pump
- Flow Rate 1,400 gpm
- Hydropneumatics pressure tank

CONTAMINANTS TO MITIGATE

- Perchlorate
- Nitrate



MITIGATION

- **Non-Treatment Alternatives**
 - Consolidation of the Water System
 - Well Modification or Replacement
 - Blending of Water sources
 - Surface Water
- **Treatment Alternatives**
 - Reverse Osmosis
 - Biological Treatment
 - Ion Exchange



RECOMMENDED TREATMENT

ION EXCHANGE TREATMENT PROCESS

STAGE 1

Ion Exchange for **Perchlorate**

Small volume of waste thru backwashing

Nonhazardous

Discharged into the basin

STAGE 2

Ion Exchange for **Nitrate**

Waste Brine

Nonhazardous-very high in TDS (i.e. Salt)

A. Off-Site Evaporation Brine Disposal

B. **On-Site Evaporation Lined Pond**



COSTS

ION EXCHANGE TREATMENT PROCESS

CAPITAL

OPERATIONAL & MAINTENANCE

				Water Produced (MG/Year)			
	<u>Fixed Cost</u>	+	<u>Variable Cost*</u>	=	<u>100</u>	or	<u>250</u>
\$5,943,000 (Evaporation Ponds)	\$119,690/year		\$1.06/kgal	=	\$225,650 (\$2.26/kgal)		\$384,690 (\$1.53/kgal)
\$5,043,000 (Off-Site Brine Disposal)	\$107,690/year		\$2.09/kgal	=	\$316,690 (\$3.17/kgal)		\$630,190 (\$2.52/kgal)

*Variable Cost=Power, perchlorate Resin, Salt, Solids Disposal



LAWSUIT-SETTLEMENT

\$9,500,000 SETTLEMENT

(\$2,850,000) 30% ATTORNEY FEES

\$6,650,000 CITY TO RECEIVE

WATER QUALITY & SAFETY

Current

- ✓ Fire Flow Supply
- ✓ Lead & Copper
- ✓ Corrosion Control
- ✓ Disinfection by Products (DBP)
- ✓ Turbidity Exceedances
- ✓ Perchlorate & Nitrate- Well 11

Future

- ✓ Hexavalent Chromium (Cr6)
- ✓ 1, 2, 3 Trichloropropane (1,2,3-TCP)

KEY FINDINGS

The Water Feasibility Study has provided valuable information in regard to the challenges facing the City's water supply system and has recommended several projects to address these.

- Aging infrastructure and equipment Capital Improvement Plan.
 - Pose a significant risk to the reliability and safety of the water supply system
- Reliable Water Supply
- Quality & Safe Drinking Water

The city's water rates revenues are significantly below the existing expenditures and do not cover the cost of providing current water services neither Capital Improvement Projects



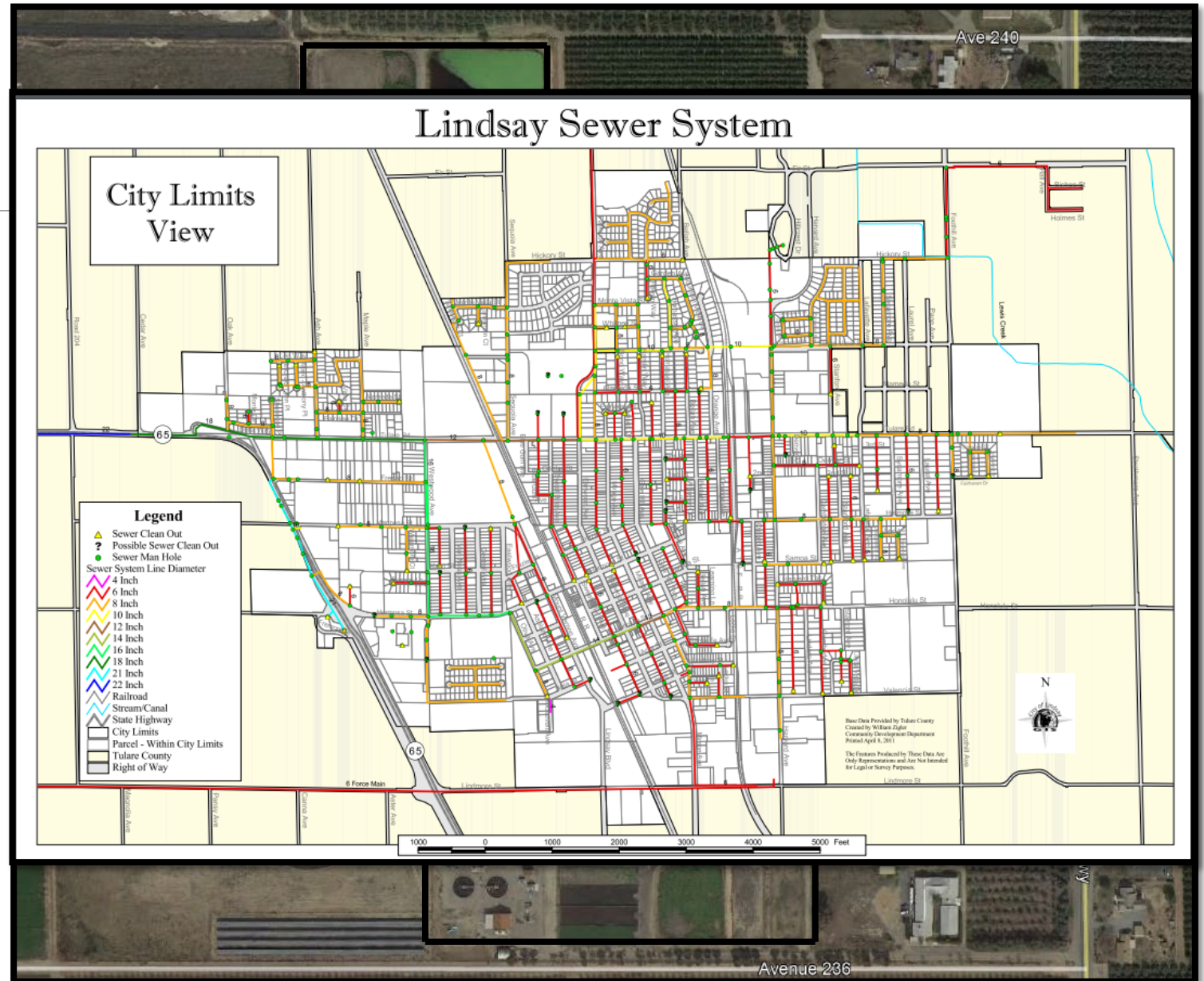
WASTEWATER SYSTEM

WWTP 1999 EXPANSION

2,250 GALLONS/DAY

41.96 MILES OF PIPE

4 LIFT STATIONS



CITY OF LINDSAY

WATER FUND HISTORY

	20/21	21/22	22/23	23/24
REVENUES	\$1,686,268.72	\$1,777,076.66	\$1,588,477.30	\$1,799,056.30
EXPENDITURES	\$1,883,927.45	\$1,876,724.08	\$2,198,666.16	\$2,174,020.92
SURPLUS/DEFICIT	(\$197,658.73)	(\$99,647.42)	(\$610,188.86)	(\$374,964.62)

Total DEFICIT over the past 4 years \$1,282,459.63

CITY OF LINDSAY

WATER FUND HISTORY

- Deficit spending is when your expenditures exceed your revenues, when this happens the funds have to be covered from the general fund and rates must increase to keep the account solvent.
- General fund is currently operating in a deficit and **can not** support other funds.
- Rates have not increased since 2009
- State audit report posted August 26, 2021 addressed concerns that our enterprise funds experience frequent DEFICIT BALANCES and that these deficits must be remedied.

CITY OF LINDSAY

WATER FUND HISTORY

Table 3

Lindsay's Enterprise Funds Experienced Frequent Deficit Balances From Fiscal Years 2015-16 Through 2019-20 (In Thousands)

FUND	2015-16	2016-17	2017-18	2018-19	2019-20
Water	\$1,039	\$1,100	\$(585)	\$(771)	\$(966)
Sewer	(1,094)	1,253	(535)	36	341
Wellness Center	(940)	(879)	(283)	(360)	(319)

Source: Lindsay's audited financial statements.

Note: These amounts include the effect of both operating and nonoperating revenues and expenditures, and therefore the operating deficits discussed in the report do not correspond directly to these amounts.

**To beginning a pathway towards the improvement of water reliability, quality and safety.
City growth & Economic Development.**

The City of Lindsay understands the need for a rate increase to maintain our water infrastructure to supply water to the community but also understands that it is important to keep the costs low for our community members. Therefore, the City has hired Bartle Wells Associates to complete a water rate study to present multiple options on increasing water rates to make the water fund solvent but least impactful to our community.

