



THE  
LANGDON  
GROUP



GATEWAY  
MAPPING  
INC.

J-U-B FAMILY OF COMPANIES

## MEMORANDUM

DATE: September 6, 2023 (*April 2024 revisions in italics*)  
TO: Mayor Tim Verzal; Deer Park City Council Members  
CC: Roger Krieger; Clint Drury; *Dan Pratt*  
FROM: Samuel Mineer, P.E.  
SUBJECT: **City of Deer Park 2024 Water System Plan Update  
Executive Summary**



The purpose of this executive summary is to inform the Mayor, City Council, and Public on items prepared within the 2024 Update to the Water System Plan for the City of Deer Park (Water System ID #185006). Some information has been omitted from this Executive Summary. Complete report information, figures, and appendices can be found in the full 2024 Water System Plan Update document and associated appendices.

The proposed improvements for additional well sources and additional storage in the 20-year planning period is recommended to keep up with increased demand due to forecasted growth and to address peak water use during the summertime. Other improvements are described herein to improve fire flow to parts of the distribution system, improve capacity of the booster pump system, and improve resiliency for the wells and booster stations.

### Improvements between 2015 and 2023

- Metering Improvements
  - Converted water meters to “real-time” read meters, improved accounting.
- Source Improvements
  - A new N. Dalton #2 Well was constructed in the summer of 2018, providing 1,000 gpm flow into the system.
  - A replacement N. Dalton #1 Well was drilled in 2022, with rehabilitation completed in 2023/2024, restoring 800 gpm well capacity into the system (*new source S09*).
- Storage Improvements
  - The replacement 6<sup>th</sup> Street reservoir was constructed in the summer of 2022, providing 600,000 gallons of storage for the lower pressure zone.
- Distribution Line Improvements

- Approximately 20,840 linear feet of 8-inch and 10-inch water main improvements, driven by residential development, improved service to the Deer Park Municipal Airport, and other locations within the water system.

## Current Population, Service Connections, ERUs

See **Table 1** for historical and current population and water use. The annual population growth rate between 2011 and 2021 averaged 2.41 percent. The City currently estimates that there are approximately 2.72 persons per household, based on the OFM data.

An ERU is a system-specific unit of measure used to express the amount of water consumed by a typical full-time single family residence. For the City of Deer Park, the number of ERUs in the system and average daily demand (ADD) water consumption is calculated using residential water demand, population, and OFM persons per household.

As of the end of 2022, there are 1,855 service connections for the water system. Approximately 663 service connections are in the upper pressure zone (east of Forest Street). Due to subdivision development in recent years, it is estimated the number of connections for the system has increased an average 45 connections per year. Service connections are broken into two main categories, as summarized below:

1. Single-family residential
2. Combined Commercial, including:
  - Government
  - Industrial
  - Multi-family residential
  - Irrigation
  - Recreation
  - Bulk water sales

During peak water usage, one Commercial connection uses as much water as seven Residential connections.

**Table 1: Historical and Future Population and Water Use Data Forecast**

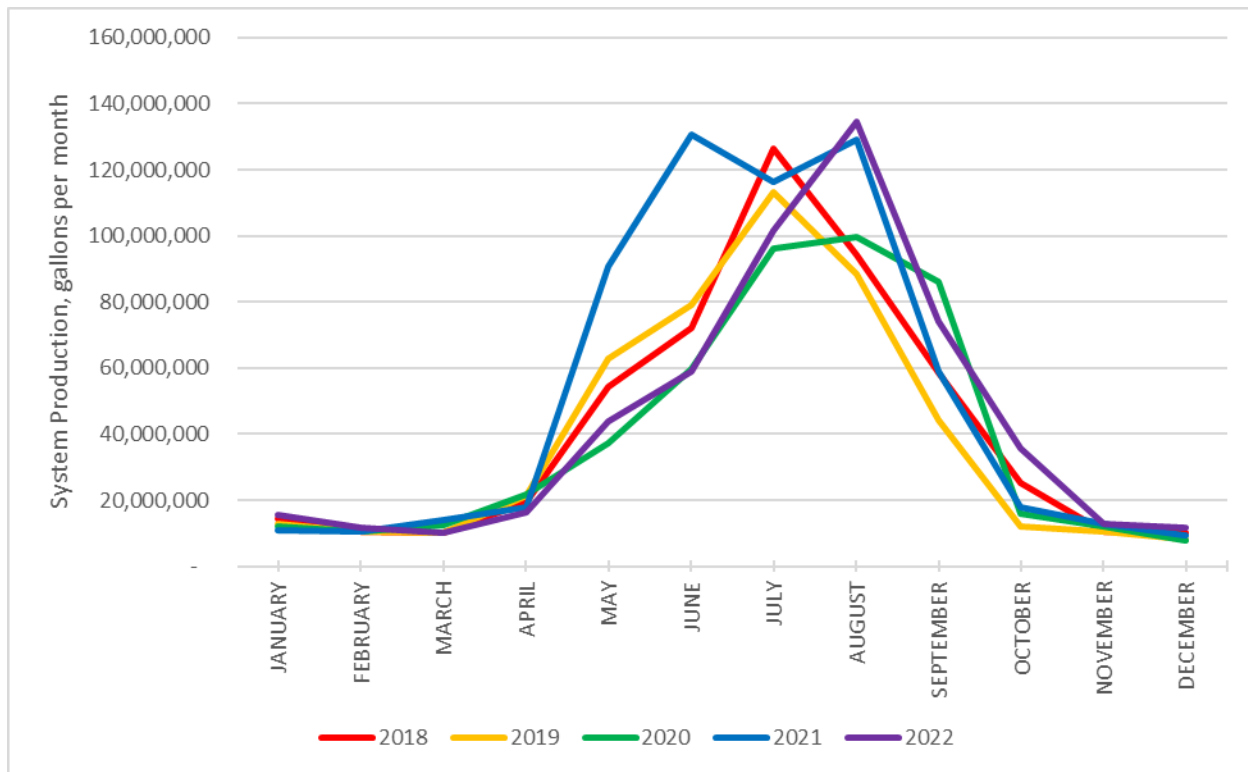
	2020	2021	2022	Future Estimates	
				6-year 2028	20-year 2042
<b>Population</b>					
Persons	4,485	4,612	4,670	<b>5,389</b>	<b>7,526</b>
Annual Population Growth Rate (percent)	2.2%	2.8%	1.3%	2.41%	2.41%
Ten year Average	2.28%	2.41%	2.29%		
<b>Authorized Water Consumption and Connections</b>					
Total Number of Connections	1,740	1,805	1,855	--	--
Average Daily Consumption (mgd)	1.202	1.608	1.346	--	--
Number of Single-Family Residential Connections	1,517	1,576	1,622	--	--
Average Single-Family Residential Consumption (mgd)	0.645	0.820	0.691	--	--
Number of Commercial/Multi-Family Connections	223	229	233	--	--
Average Multi-Family/Commercial Consumption (mgd)	0.558	0.788	0.656	--	--
Number of ERUs (estimated)	3,482	3,302	3,408	<b>3,783</b>	<b>5,085</b>
ADD, gpd/ERU (estimated)	370	513	415	--	--
Minimum Daily Demand, mgd (from City Flow Records)	0.254	0.301	0.332	--	--
<b>Total Water Production (Demand)</b>					
Total Annual Well Production (mg/year)	470.7	618.3	527.4	<b>593.721</b>	<b>798.121</b>
Average Daily Well Production (mgd)	1.290	1.694	1.413	<b>1.627</b>	<b>2.187</b>
<b>Distribution System Leakage (percent)</b>					
	6.8%	5.1%	4.7%	--	--

## Water Production

Annual production is shown in **Table 1**. Well production by month is summarized in **Figure 1**. Overall water usage is lowest from October to April. Water demand increases between May and September for irrigation and summertime usage. Generally, summertime water demand is nearly ten times that of wintertime water demand. As shown in **Table 1** and **Figure 1**, more water was produced and consumed in 2021 due to drought-like conditions for the region and hot weather starting earlier in the year and lasted through the end of the summer season.

Water consumption values used for planning purposes are summarized in **Table 2**.

**Figure 1: Well Production by Month (2018-2022)**



**Table 2: Current Water Consumption**

Planning Value	Systemwide	Per ERU
Average Day Demand (ADD)	709,738 gallons per day (gpd) (residential consumption)	415 gpd per ERU
Maximum Day Demand (MDD)	2,173,500 gpd (residential consumption)	1,340 gpd per ERU
Minimum Day Demand	332,000 gpd (systemwide)	--
Peak Hour Demand	5,300 gallons per minute (gpm) (systemwide for 3,408 ERUs)	--

## Future Demand Estimates

Historical and forecasted average day demand for water is shown in **Table 1**, with an annual growth rate of 2.41 percent per year. Overall, annual water production has increased 40,000 gallons per year, with variations from year to year. The 6-year daily water production (demand) is estimated at 1.627 MGD for 3,783 ERUs in 2028. The 20-year daily water production (demand) is estimated at 2.187 MGD for 5,085 ERUs in 2042. This growth is assumed that the proposed improvements listed in the 2023 Water System Plan Update are implemented to meet the growth demand for the future.

## Water Rights

Since the last WSP update, two water rights have been added and one has been relinquished. The City has modified the water rights through DOE to authorize withdrawal from any of the well locations within the water system.

Current water rights support 6,530 gpm instantaneous withdrawal and 3,060.85 acre-ft/year (997.4 MG) per year. Based on production and usage data from 2022, the water system is using 72.3% of the allowed instantaneous withdrawal and 51.7% of the allowed annual withdrawal rate.

Depending on growth, infrastructure improvements, and water usage during peak summertime usage, additional water rights should be pursued by the end of the 20-year planning period, in order to manage additional growth beyond 2042.

## Existing Water System Infrastructure

The water system is supplied by groundwater. The eight active and five inactive groundwater well sources are summarized in **Table 3**.

The groundwater wells pump water to the reservoir and booster stations in the system. The three water storage reservoirs are summarized in **Table 4**. The old standpipe 6th Street reservoir (not listed in **Table 4**) was taken offline in 2022 with the construction of a replacement steel tank on concrete pedestal reservoir. More than half of the standpipe reservoir capacity was considered dead storage space and the high costs for rehabilitating the reservoir don't provide the needed benefit for meeting demand in the future. It is recommended that the old standpipe reservoir and foundation be demolished and removed from the system.

The water system has two pressure zones. The lower pressure zone is a majority of the City, generally east of Forest Avenue. Two booster stations feed water from the wells and two lower zone reservoirs to the upper zone reservoir (Cedar Road). Booster Stations are summarized in **Table 5**. A pressure reducing station allows water to flow from the upper zone to the lower zone.

Water distribution pipe size and lengths are summarized in **Table 6**.

The City provides chlorination at the well sources to maintain a minimum residual of 0.2 ppm throughout the system. Chlorine is injected at the well discharge pipe using chlorine gas. No other system wide treatment processes are used for the water system.



The current SCADA system meets the needs of Deer Park for system control and monitoring. With updates and expansions as needed, the system should serve the City well for many years to come.

**Table 3: Groundwater Source Inventory**

Name	DOH ID No.	Pump Rate (gpm)	Maximum Yield (mgd)
West	S01	222	0.266
South	S02	200	0.240
Swinyard	S03	1000	1.200
North	S04	300	0.360
North Dalton #1	S09	800	0.960
South Dalton #2	S06	900	1.080
Perrins Field	S07	300	0.360
North Dalton #2A	S08	1000	1.200
North Dalton #1 S05	Inactive		
South Dalton #1	Inactive		
Iron	Inactive		
Airport	Inactive		
North Dalton #2	Inactive		
Boyle	Inactive		
<b>Total</b>		<b>4,722</b>	<b>5.666</b>

**Table 4: Reservoir Capacity Inventory**

Name	Volume, gallons	Effective Storage
Cedar Road Reservoir #20 - 2009	495,700	495,700
<i>Upper Zone Total</i>	<i>495,700</i>	<i>495,700</i>
6th Street Reservoir #10 – 2022	603,690	603,690
Crawford Avenue Reservoir #11 – 1963	797,526	334,938
<i>Lower Zone Total</i>	<i>1,401,216</i>	<i>938,628</i>
<b>System Total</b>	<b>1,896,916</b>	<b>1,434,328</b>

**Table 5: Booster Station Inventory**

Booster Station	Pump HP	Pump QTY	Max. Inst. Yeild, gpm	Max. Daily Yield, mgd
Mission Street (Five 10 HP primary pumps)	10 HP each	5	1,250	1.500
6th Street (Three 10 HP primary pumps)	10 HP each	3	750	0.900
<b>Primary Pump Total</b>			<b>2,000</b>	<b>2.400</b>
6th Street (One 50 HP fire pump)	50 HP	1	1,500	1.800
<b>Booster Pumps Combined Total</b>			<b>3,500</b>	<b>4.200</b>

**Table 6: Distribution Pipe By Size and Length**

Pipe Diameter	System Quantity, linear feet
2-inch	5,822
3-inch	10,476
4-inch	6,782
6-inch	59,849
8-inch	72,585
10-inch	29,510
12-inch	55,965
14-inch	1,327
16-inch	11,425
18-inch	128
<b>Total</b>	<b>253,869</b>

## Distribution System Leakage

Historically, the piping distribution system has maintained between 3.0 and 6.9 percent distribution system leakage per year, averaging 27.0 MG per year. Since this is less than 10 percent, no water loss control action plan is needed in this planning document.

Distribution system leakage can come from:

- Accounted non-revenue water types
  - Water used for fire protection
  - System flushing
  - Reservoir cleaning
- Unaccounted water types
  - Water lost through pipelines, service connections, reservoirs, valves, and hydrants
  - Reservoir overflows
  - Inaccurate service or supply meters
  - Other uses that are not recorded or accounted for

## System Capacity Limitations

### Source Limitations

Current well sources provide 4,722 gpm instantaneously and 5.666 MG per day (running 20-hours per day).

Existing sources can meet MDD for 4,229 ERUs through the year 2032 (less than 900 ERUs capacity remaining).

- Existing MDD for system 4.347 mgd (3,407 ERUs \* 1,340 gpd/ERU)
- Future MDD for system – 6 years 5.069 mgd (3,783 ERUs \* 1,340 gpd/ERU)
- Future MDD for system – 20 years 6.814 mgd (5,085 ERUs \* 1,340 gpd/ERU)

Existing sources cannot meet PHD for the current system demand and relies on reservoir capacity to buffer the peak demand (irrigation during summertime).

- Existing PHD for system 5,300 gpm for 3,407 ERUs
- Future PHD for system – 6 years 5,860 gpm for 3,783 ERUs
- Future PHD for system – 20 years 7,798 gpm for 5,085 ERUs

### Booster Station Limitations

Current booster stations provide 2,000 gpm instantaneously and 2.400 MG per day (running 20-hours per day).

The booster pumps are projected to have sufficient capacity to meet MDD for the 6-year and 20-year period.

- Upper zone MDD – Current 1.522 mgd (1,136 Upper Zone ERUs \* 1,340)
- Upper zone MDD – 6 years 1.690 mgd (1,261 Upper Zone ERUs \* 1,340)
- Upper zone MDD – 20 years 2.271 mgd (1,695 Upper Zone ERUs \* 1,340)

The booster pumps are projected to not have sufficient capacity to meet PHD for the 6-year and 20-year period, without the operation of the 50 HP fire pump. The booster stations rely on storage capacity in the upper reservoir in order to meet PHD for the upper pressure zone.

- Upper zone PHD – Current 1,918 gpm for 1,136 ERUs
- Upper zone PHD – 6 years 2,105 gpm for 1,261 ERUs
- Upper zone PHD – 20 years 2,751 gpm for 1,695 ERUs



## Storage Capacity Limitations

The available effective storage from the three active reservoirs is 1,434,328 gallons for the water system. The two pressure zones are considered as one system since storage from one zone could meet the demand of the other through the booster stations or PRV station.

Useful water storage comprises four distinct components:

- Operational storage
- Equalizing storage
- Fire suppression storage
- Standby storage

Operational storage is approximately 271,200 gallons, with a 7 foot drawdown height in the reservoirs. This height can be adjusted by staff using the SCADA monitoring and control system. 7-foot operational depth has been found to be optimal.

Equalizing storage is needed since the well sources cannot keep up with current PHD in the system. The amount of equalizing storage demands on the number of ERUs and associated PHD.

- |                  |                           |                   |
|------------------|---------------------------|-------------------|
| • Existing       | (5,300 – 4,722 gpm) x 150 | = 86,700 gallons  |
| • Future 6-year  | (5,844 – 4,722 gpm) x 150 | = 168,249 gallons |
| • Future 20-year | (7,777 – 4,722 gpm) x 150 | = 458,223 gallons |

Fire suppression storage is typically two hours of fire flow at 3,000 gpm or 360,000 gallons. This volume can be nested with equalizing storage, in coordination with the local fire district (Spokane County Fire District #4). For this plan, fire suppression storage is nested with equalizing storage.

Standby storage is 200 gallons per day per ERU, in the event the wells are out for a day.

- |                          |                                      |
|--------------------------|--------------------------------------|
| • Existing Standby       | 200 x 3,407 ERUs = 681,400 gallons   |
| • Future Standby 6-year  | 200 x 3,783 ERUs = 756,600 gallons   |
| • Future Standby 20-year | 200 x 5,085 ERUs = 1,017,000 gallons |

If no source improvements are made, then the existing reservoirs are limited to providing service to approximately 4,300 ERUs through year 2034 (less than 900 ERUs remaining).

## Distribution System/Hydraulic Capacity Limitations

Modeling was used to simulate the existing and future growth for the system. Results of the hydraulic modeling show the primary water system, as it currently exists, requires few

improvements within the 6-year and 20-year planning period. Current improvements primarily require replacement of small diameter pipe to improve fire flow and minimal pipe looping, approximately 4,200 linear feet of pipe sections recommended at 5 locations.

As expansion of the system is contemplated for new development, the hydraulic model will be used to evaluate a project specific proposal to determine improvements within the water infrastructure to meet new growth. Future growth in the 6-year and 20-year planning period were assumed in the hydraulic model, which indicates that new main lines are needed to service new development, where existing water mains are not currently installed. New lines prompted by development would be paid for by the project proponents.

## Recommended Improvements

### Source Improvements

One or more well sources should be added to the system by the year 2032 to keep up with MDD and PHD for the system. Water rights allow for 1,800 gpm of additional source production to be added, to help meet MDD and PHD conditions and extend storage capacity for the water system. A 900 gpm well is recommended by the year 2032 and another 900 gpm well by 2041.

In addition to the two wells discussed above, a new well would be recommended to replace the capacities of low yield wells or wells with water quality issues (i.e., one new well at 900 gpm to replace three smaller wells). The existing wells are able to continue operating, so the replacement of these smaller wells could be in the next 6-year period.

The location of new well source(s) have not yet been determined. Hydrologic analysis is recommended so that new wells can have maximum production. Depending on location, additional piping may be needed to plumb new wells into the distribution system.

Per DOH recommendation, documentation for securing the sanitary control area (SCA) should be procured for all well sources. This documentation process is expected to be completed in the next 6 years, depending on timing of new or replacement wells in the system.

Additional water rights should be pursued if the system needs to pump more than 6,530 gpm instantaneously to keep up with peak summertime, irrigation demand. Additional water rights would also increase the rights for the system to pump more than 997.4 MG annually, as needed past the 20-year planning period. Depending on growth and water usage during peak summertime usage, additional water rights should be pursued by the end of the 20-year planning period, in order to handle additional growth beyond the year 2042.

## Booster Station Improvements

The 6th Street booster fire pump starter may need to be rehabilitated or replaced with a VFD so it can be exercised more often and rotated into the normal operation of the booster station operations. The pumping capacity of the 50 HP fire pump will be needed in order to keep up with PHD for the planning period.

The Mission Street Booster Station should have a permanent backup power generator added to improve resiliency for the upper pressure zone during a power outage.

## Storage Capacity Improvements

Since the old 6th Street standpipe reservoir is no longer in use and the potential for rehabilitation doesn't provide sufficient benefit, the standpipe reservoir and foundation should be removed as soon as the telecommunication antenna is removed from the top of the structure.

If a new 600,000 gallon water storage reservoir is added with no well improvements, the system could support an estimated 5,750 ERUs (estimated 30-year planning period) based on future growth projections.

If 1,800 gpm well capacity is added to the system (maximizing current water rights) without a new water storage reservoir, the capacity of system could support an estimated 5,000 ERUs (estimated 20-year planning period).

A new reservoir (600,000 gallons minimum) should be considered for completion before the end of the 20-year planning period, in order to keep up with future growth and related water use (MDD and PHD). The location of a new reservoir has not been determined but could be placed where the old 6<sup>th</sup> Street standpipe reservoir is currently located or near the Crawford Reservoir and Mission Street Booster Station, so that new storage capacity would benefit both the lower and upper pressure zones.

## Distribution Pipe Improvements

Recommended distribution system improvements include approximately 4,200 linear feet of pipe at 5 locations, shown at projects #1, #2, #5, #6, and #8 in **Table 7**. These improvements would improve fire flow and water looping in parts of the system.

Any new water system expansions will be funded in full and constructed by the project proponent for proposed development.

**Table 7: Recommended Distribution System Improvements from Hydraulic Modeling**

#	Deficiency Type and Location	Planned Improvements	Comments
1	4th Street from North to Main; Park Avenue from 4th to 5th	740 LF of 8-inch pipe; 350 LF of 6-inch pipe	Replaces 3-inch water lines, improve flow to hydrant(s)
2	1st Street from Larch to Fir; Larch Avenue from 1st to Crawford	700 LF of 8-inch pipe; 400 LF of 10 pipe	Replaces 4-inch water line, improve flow to hydrant(s)
3	Park Avenue from 2nd to Crawford	775 LF of 8-inch pipe	Completed by City prior to this Final WSP Update
4	Fir Avenue from 1st to Crawford	400 LF of 8-inch pipe	Optional improvement, with work completed in Item #3
5	3rd Street from Fir to North; Fir Avenue from 3rd to 2nd	380 LF of 8-inch pipe; 350 LF of 8-inch pipe	Replaces 4-inch water line, improve flow to hydrant(s)
6	2nd Street from Colville to Arcadia	740 LF of 6-inch or 8-inch pipe	Replaces 4-inch water line, improve flow to hydrant(s)
7	Park Avenue north of "H" St	340 LF of 8-inch pipe	Completed by City prior to this Final WSP Update
8	Fir Avenue from South to "D" St	530 LF of 10-inch pipe	Replaces 6-inch water line, improve flow to hydrant(s)

## Capital Improvements Plan (CIP)

**Table 8** and **Table 9** summarize recommended improvements in for the next 6-year and 20-year planning periods. Some improvements may be influenced by the rate of growth and development in the City of Deer Park, which will require review and reprioritization to meet the needs of the system.

Estimated costs will vary depending on actual project design specifics and the cost of labor, materials, and market conditions. Once an improvement plan or project element is selected for implementation, a more detailed evaluation and cost estimate should be prepared and updated through the design process. It is recommended to monitor and adjust cost estimates based on prevailing market conditions.

**Table 8: 6-Year Capital Improvement Projects**

#	Improvement Description (6-year period)	Estimated Costs in Current Dollars (2023)	Year Anticipated	Total for Planning Purposes	Anticipated Construction Method and Funding
1	8-inch Water Main - W. Fourth Street Main Avenue to North Avenue	\$ 158,000	2024	\$ 162,700	City Forces City Operating Fund
2	Remove 6th Street Standpipe Reservoir	\$ 212,000	2024	\$ 218,400	City Forces City Operating Fund
3	8-inch Water Main - N. Park Avenue 4th Street to 5th Street	\$ 75,500	2025	\$ 80,100	City Forces City Operating Fund
4	8-inch Water Main - N. Larch Avenue Crawford Avenue to 1st Street (optional)	\$ 86,000	2026	\$ 94,000	City Forces City Operating Fund
5	8-inch Water Main - W. First Street Larch Street to Fir Avenue	\$ 150,000	2027	\$ 168,800	City Forces City Operating Fund
6	New 900 GPM well, to replace smaller wells or wells with water quality issue	\$ 848,000	2028	\$ 983,100	Design/Bid Process City Capital Fund
7	Secure documentation for Sanitary Control Area(s) for well(s)	\$ 40,000	2028	\$ 46,400	City Forces City Operating Fund
8	Rehabilitate 6th Street Booster Station, Fire Pump Starter VFD	\$ 120,000	2028	\$ 139,100	Design/Bid Process City Capital Fund
<b>TOTAL</b>		<b>\$ 1,689,500</b>		<b>\$ 1,892,600</b>	

**Table 9: 20-year Capital Improvement Projects**

#	Improvement Description (20-year period)	Estimated Costs in Current Dollars (2023)	Year Anticipated	Total for Planning Purposes	Anticipated Construction Method and Funding
9	8-inch Water Main - 3rd Street (Fir to North) and Fir Avenue (2nd to 3rd)	\$ 155,500	2030	\$ 191,200	City Forces City Operating Fund
10	New 900 GPM well, additional capacity	\$ 848,000	2032	\$ 1,106,400	Design/Bid Process City Capital Fund
11	8-inch Water Main - 2nd Street Colville Road to Arcadia Avenue	\$ 158,000	2034	\$ 218,700	City Forces City Operating Fund
12	Mission Street Booster Station Backup Power Generation	\$ 214,000	2037	\$ 323,700	Design/Bid Process City Capital Fund
13	Backup Power Generation to Well(s)	\$ 256,000	2037	\$ 387,200	Design/Bid Process City Capital Fund
14	10-inch Water Main - Fir Avenue South Avenue to "D" Street	\$ 113,500	2038	\$ 176,800	City Forces City Operating Fund
15	New 900 GPM well, additional capacity	\$ 848,000	2041	\$ 1,443,700	Design/Bid Process City Capital Fund
16	New 600,000 gallon Reservoir	\$ 6,765,000	2042	\$ 11,862,500	Design/Bid Process City Capital Fund
17	Additional Water Rights	\$ 2,006,000	2042	\$ 3,517,500	City Forces City Funds (TBD)
<b>TOTAL</b>		<b>\$ 11,364,000</b>		<b>\$ 19,227,700</b>	

## Financial Program

The water system is operated as an "Enterprise Fund", one of many within the City's accounting system. Deer Park has demonstrated positive financial health by maintaining a positive net income each year, shown in **Table 10**. The City has maintained a positive end of year balance



between the operating fund and improvement fund. The City has also obtained various grant funding to help offset the capital cost of improvements.

The current debt service related to water system improvements are summarized below:

- 2006 SRF Loan, 20 years (ends 2026), \$180,000 annually.
- 2020 SRF Loan, 20 years @ 1% (ends 2040), \$228,804 annually.

Future operational and capital budget projections for 2023 to 2028 are summarized in **Table 11**. Adjustments to the capital improvements program will be made on an annual basis to meet upgrade and maintenance needs with available funds. Capital improvements for the next 6-years period include:

- Water line upsizing at four locations (2,190 linear feet of pipe replacement)
- Removal of 6<sup>th</sup> Street standpipe reservoir and foundation
- New 900 GPM well, to replace smaller wells
- Secure documentation for SCA for well(s)
- Rehabilitate 6<sup>th</sup> Street Booster Station, Fire Pump Starter with VFD

The City of Deer Park has the goal to maintain a minimum of three months of operational expenses in reserves. The City also intends to use revenue generated from rates to replace water meters (or the batteries for the wireless meter read) and to address any leaks and repairs for the system as needed.

The City plans to pay for all capital improvements with revenues, reserves, loans, and grants. Reserves are kept so that smaller scale capital improvement projects (such as small-diameter pipe replacement) can be paid for out of reserves using the City workforce.

Based on Resolution 2022-012, the water rate structure is \$31.06 per month for the first 4,000 gallons used and \$0.79 for each 1,000 gallons used above 4,000 per month. The City has an adjusted monthly rate for customers outside corporate City limits. At this time, only one rate tier exists above the basis monthly fee. The rate per unit for excess use is fairly expensive and therefore conservation oriented. The City of Deer Park has demonstrated that their rate structure is a fair and consistent rate for the community.



J-U-B ENGINEERS, INC.



THE LANGDON GROUP



GATEWAY MAPPING INC.

J-U-B FAMILY OF COMPANIES

Table 10: Historical Budget (2017-2022)

Operating Fund						
	2017	2018	2019	2020	2021	2022
Beginning Funds Balance	\$ 512,789	\$ 449,104	\$ 412,845	\$ 302,602	\$ 307,293	\$ 325,105
Meter/Merchandise Sales	\$ 17,849	\$ 11,447	\$ 13,984	\$ 36,048	\$ 42,223	\$ 60,820
Water Sales/Physical Environment	\$ 844,226	\$ 898,852	\$ 876,494	\$ 952,431	\$1,104,383	\$1,144,397
Water Development Fees	\$ 27,980	\$ 8,256	\$ 9,235	\$ 34,655	\$ 31,468	\$ 28,337
Miscellaneous Fines and Penalties	\$ 27,705	\$ 23,113	\$ 23,658	\$ 7,143	\$ 3,357	\$ 27,591
Interest and Other Earnings	\$ 5,228	\$ 11,452	\$ 11,173	\$ 2,549	\$ 400	\$ 5,519
Rents, Leases and Concessions	\$ 1,193	\$ 1,223	\$ 1,251	\$ 1,287	\$ 1,311	\$ 1,350
Other Miscellaneous Revenue	\$ 2,020	\$ 6,865	\$ 5,397	\$ 10,249	\$ 17,994	\$ 33,754
Nonrevenues	\$ 153	\$ 157	\$ 2,970	\$ 2,970	\$ 3,630	\$ 3,600
<b>Total Revenues</b>	<b>\$1,439,144</b>	<b>\$1,410,470</b>	<b>\$1,357,007</b>	<b>\$1,349,935</b>	<b>\$1,512,059</b>	<b>\$1,630,473</b>
Operations - General	\$ 633,671	\$ 628,882	\$ 727,786	\$ 713,320	\$ 903,063	\$ 802,613
Nonexpenditures	\$ 43,634	\$ 42,855	\$ 3,300	\$ 2,640	\$ 3,960	\$ 62,629
Redemption of Long-Term Debt - Government Funds	\$ 195,983	\$ 198,191	\$ 198,264	\$ 199,581	\$ 217,426	\$ 465,029
Interest and Other Debt Service Costs	\$ 16,751	\$ 15,197	\$ 12,554	\$ 14,628	\$ 13,476	\$ 68,176
Transfers	\$ 100,000	\$ 112,500	\$ 112,500	\$ 112,500	\$ -	\$ -
<b>Total Expenses</b>	<b>\$ 990,040</b>	<b>\$ 997,625</b>	<b>\$1,054,405</b>	<b>\$1,042,669</b>	<b>\$1,137,925</b>	<b>\$1,398,447</b>
<b>Ending Operating Fund Balance</b>	<b>\$ 449,104</b>	<b>\$ 412,845</b>	<b>\$ 302,602</b>	<b>\$ 307,293</b>	<b>\$ 374,134</b>	<b>\$ 232,026</b>

Improvement Fund						
	2017	2018	2019	2020	2021	2022
Beginning Fund Balance	\$ 251,910	\$ 212,613	\$ 187,867	\$ 422,393	\$ 727,656	\$ 502,556
Intergovernmental Revenues	\$ 259,460	\$ 37,771	\$ 257,946	\$ -	\$3,146,749	\$ 632,494
Planning and Development Services	\$ 55,958	\$ 16,512	\$ 67,549	\$ 183,523	\$ 81,544	\$ 135,378
Investment Interest	\$ 3,062	\$ 2,201	\$ 7,811	\$ 3,550	\$ 527	\$ 6,962
Rents, Leases and Concessions	\$ 57,354	\$ 59,669	\$ 68,283	\$ 63,778	\$ 58,381	\$ 53,079
Other Financing Sources - Transfers	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ -	\$ 77,968
<b>Total Revenues</b>	<b>\$ 727,744</b>	<b>\$ 428,766</b>	<b>\$ 689,455</b>	<b>\$ 773,244</b>	<b>\$4,014,856</b>	<b>\$1,408,437</b>
Operating Expenditures	\$ -	\$ -	\$ -	\$ 1,709	\$ 2,711	\$ 7,514
Capital Expenditures	\$ 515,131	\$ 240,900	\$ 267,062	\$ 43,880	\$3,509,589	\$ 911,667
<b>Total Expenses</b>	<b>\$ 515,131</b>	<b>\$ 240,900</b>	<b>\$ 267,062</b>	<b>\$ 45,589</b>	<b>\$3,512,300</b>	<b>\$ 919,181</b>
<b>Ending Improvement Fund Balance</b>	<b>\$ 212,613</b>	<b>\$ 187,656</b>	<b>\$ 422,393</b>	<b>\$ 727,656</b>	<b>\$ 502,556</b>	<b>\$ 489,256</b>



J-U-B ENGINEERS, INC.



THE LANGDON GROUP



GATEWAY MAPPING INC.

J-U-B FAMILY OF COMPANIES

Table 11: Projected Budget (2023-2028)

Operating Fund						
	2023	2024	2025	2026	2027	2028
Beginning Funds Balance	\$ 232,026	\$ 211,602	\$ 245,932	\$ 290,193	\$ 344,566	\$ 581,120
Meter/Merchandise Sales	\$ 25,000	\$ 25,500	\$ 26,010	\$ 26,530	\$ 27,061	\$ 27,602
Water Sales/Physical Environment	\$1,173,000	\$1,196,460	\$1,220,389	\$1,244,797	\$1,269,693	\$1,295,087
Water Development Fees	\$ 20,000	\$ 20,400	\$ 20,808	\$ 21,224	\$ 21,649	\$ 22,082
Miscellaneous Fines and Penalties	\$ 23,000	\$ 23,460	\$ 23,929	\$ 24,408	\$ 24,896	\$ 25,394
Interest and Other Earnings	\$ 5,500	\$ 5,610	\$ 5,722	\$ 5,837	\$ 5,953	\$ 6,072
Rents, Leases and Concessions	\$ 1,300	\$ 1,326	\$ 1,353	\$ 1,380	\$ 1,407	\$ 1,435
Other Miscellaneous Revenue	\$ 15,000	\$ 15,300	\$ 15,606	\$ 15,918	\$ 16,236	\$ 16,561
Nonrevenues	\$ 3,000	\$ 3,060	\$ 3,121	\$ 3,184	\$ 3,247	\$ 3,312
<b>Total Revenues</b>	<b>\$1,497,826</b>	<b>\$1,502,718</b>	<b>\$1,562,870</b>	<b>\$1,633,470</b>	<b>\$1,714,709</b>	<b>\$1,978,665</b>
Operations - General	\$ 821,100	\$ 837,522	\$ 854,272	\$ 871,358	\$ 888,785	\$ 906,561
Nonexpenditures	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000	\$ 4,000
Redemption of Long-Term Debt - Government Funds	\$ 449,124	\$ 403,264	\$ 402,405	\$ 401,546	\$ 228,804	\$ 228,804
Interest and Other Debt Service Costs	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000
Transfers	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 500,000
<b>Total Expenses</b>	<b>\$1,286,224</b>	<b>\$1,256,786</b>	<b>\$1,272,677</b>	<b>\$1,288,904</b>	<b>\$1,133,589</b>	<b>\$1,651,365</b>
<b>Ending Operating Fund Balance</b>	<b>\$ 211,602</b>	<b>\$ 245,932</b>	<b>\$ 290,193</b>	<b>\$ 344,566</b>	<b>\$ 581,120</b>	<b>\$ 327,300</b>

Improvement Fund						
	2023	2024	2025	2026	2027	2028
Beginning Fund Balance	\$ 489,256	\$ 535,256	\$ 288,796	\$ 346,029	\$ 392,108	\$ 366,189
Intergovernmental Revenues	\$ 350,000	\$ -	\$ -	\$ -	\$ -	\$ 350,000
Planning and Development Services	\$ 65,000	\$ 66,300	\$ 67,626	\$ 68,979	\$ 70,358	\$ 71,765
Investment Interest	\$ 7,000	\$ 7,140	\$ 7,283	\$ 7,428	\$ 7,577	\$ 7,729
Rents, Leases and Concessions	\$ 60,000	\$ 61,200	\$ 62,424	\$ 63,672	\$ 64,946	\$ 66,245
Other Financing Sources - Transfers	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 500,000
<b>Total Revenues</b>	<b>\$ 971,256</b>	<b>\$ 669,896</b>	<b>\$ 426,129</b>	<b>\$ 486,108</b>	<b>\$ 534,989</b>	<b>\$1,361,928</b>
Operating Expenditures	\$ -	\$ 381,100	\$ 80,100	\$ 94,000	\$ 168,800	\$ 46,400
Capital Expenditures	\$ 436,000	\$ -	\$ -	\$ -	\$ -	\$1,122,200
<b>Total Expenses</b>	<b>\$ 436,000</b>	<b>\$ 381,100</b>	<b>\$ 80,100</b>	<b>\$ 94,000</b>	<b>\$ 168,800</b>	<b>\$1,168,600</b>
<b>Ending Improvement Fund Balance</b>	<b>\$ 535,256</b>	<b>\$ 288,796</b>	<b>\$ 346,029</b>	<b>\$ 392,108</b>	<b>\$ 366,189</b>	<b>\$ 193,328</b>