City of Grand Island Utilities Department Annual Report for 2022

Utilities Department – Highlights for 2022

Production Division

- Engineering, Operations, Maintenance, and I & C staff completed 1,089 corrective work orders repairing equipment that was not operating properly. They also completed 5,246 preventative maintenance items such as changing oil, calibrating equipment and cleaning equipment to keep Platte Generating Station, Burdick Generating Station gas turbines and water pumps running.

Platte Generating Station

- Issues with D-mill were repaired after extensive review of air flow and an inspection of wear components. The changes have removed the risk of causing mill puffs.
- Several contractors and farmers have used scrubber ash as a beneficial agricultural supplement. As word spread, interest in using the scrubber ash as a supplement to raise the soil ph increased to the point that the landfill was emptied.
- After the top rail of the Wildwood rail crossing failed, it was repaired within two days so coal could continue to be delivered to the plant.
- Coal deliveries were a significant issued that plagued 2022. Utility management had several meetings and constantly monitored the trains keeping continuous communications with Union Pacific to keep the coal supply at a volume that would keep PGS operating.
- The Spring outage was completed in April and included cleaning the precipitator and ductwork, blasting and cleaning the boiler, and hydro blasting the bottom ash system. It also included inspections of the condenser, cleaning the cooling tower, repairing several small valves, and fixing piping that had worn thin.
- Continuous Emissions Monitoring equipment used to monitor the air leaving the chimney is calibrated daily and recertified annually to verify that the instruments are accurately measuring nitrous oxides, carbon dioxide, mercury, and sulfuric acid gases.
- Platte Generating Station ran at an 86% capacity factor for the month of July, which is the highest it has ever been. The normal capacity factor is 65% to 72%. PGS had a coal consumption of 42,402 tons, producing 64,275 MWh.
- Over the summer, the coal supply has slipped to 18 days of reserve, but we have had higher capacity factors than in the past, especially for the month of July, where the capacity factor was 86%. Union Pacific has a cycle time of 13 days for delivering 5.8 days of coal.
- The valve that controls the amount of water being pumped through the boiler as replaced with a new valve, known as the feed water control valve.
- A cooling tower fan blade failed and needed to be replaced. The fan has a diameter of 28 feet and is one of the 5 fans used for condensing steam that has been through the turbine.
- The below zero weather in December caused several issued from ice buildup on the cooling tower to a controller for the air heater drain being covered in ice. Plant personnel were able to correct the issues and keep the unit operating at full load.

Burdick Station

- Burdick Well 6 was upgraded to be the third well to be used for cooling the water supply to GT2 and GT3.
- GT1, the black start gas turbine was placed back into service after the starting engine was rebuilt because a coolant leak in a cylinder liner was detected last summer. The starting engine is a 1967 military grade Cummins diesel engine and parts were very hard to acquire. A national search was conducted to find all of the parts needed to do the rebuild. Utility maintenance personnel were able to perform the work which saved the department money as a new engine would have been very difficult and expensive to fit into the existing space.

- The Mobile Generation Station (MGS) was moved to Roger pumping station for the annual mobility testing. The MGS can be moved to different areas of the city and can provide 1.5 MW of power in an emergency to run a pumping station, wellfield, or start our larger gas turbines if a blackout is to occur.
- GT2 and GT3 were ran 21 of the 31 days in July, producing 5,758 MWh.
- The demolition contractor Spirtas has completed the demolition of the #6 fuel oil tanks, removed underground and above ground #6 fuel oil piping, and completed the demolition of the turbine building.
- The exhaust seal on GT2 was replaced.

Water System

- Roger pumping station pump #3 Variable Frequency Drive (VFD) was replaced. Having this pump on a VFD allows operations to run the pump at a reduced speed, saving the amount of energy needed to pump water.
- Burdick pumping station cone valves were replaced with check valves and motor drives were adjusted.
- Wellfield well #19 had a new Programable Logic Controller (PLC) installed to update the controls that operate the well. Once testing is done, the rest of the wells will get new controllers.
- The motor of the #3 pump at Rogers Pumping Station was rebuilt.
- The wellfield well #5 pump failed and was replaced with a new turbine pump.
- There was a water main break on Fonner Park Rd which caused the water demand to go from 6,000 gpm to 17,000 gpm. Alert Operators were able to start another pump and maintain city water pressure until Water Shop personnel isolated and repaired the leak.

Water Department

Statistics from the Water Shop Include:

- 261 - Work Orders Opened and Closed/Pending
- 76 - Trouble Calls responded to after hours
- 2 – Ludlow Fire Hydrant Change Out Program
  - Newcastle and Coventry Lane
  - 2nd and Cleburn
- 8 - New fire hydrants were installed/fire hydrants relocated by the Water Shop at:
  - Northeast corner of 2nd and Locust
  - 1st and Wheeler
  - 2512 W. 4th Street
  - 916 N. Shady Bend Rd
  - Bismark and Joehnck
  - 2nd and Elm
  - 2 at Burdick Station
- 404 – Spring hydrant checks were completed. These checks were on American B-62-B hydrants only
- 1,858 - Fall hydrant checks were completed
- 1,008 - Fire hydrants were painted
- 393 - Dead end Fire Hydrants were flushed
- 16 - Hydrants were repaired or replaced that had been damaged by motor vehicles at:
  - 2515 S. Blaine
  - 2015 N. Broadwell
  - South Front and Walnut
  - 2525 W. Old Lincoln Highway
  - 2nd and Lincoln
  - South Locust and Stagecoach
  - 6th and Locust
  - 1512 E. 4th St

  - Arapahoe and Old Potash Highway
  - Lincoln and Phoenix
  - 11th and Clark
  - 13th and Mansfield
  - 2924 S. Locust
  - Airport and Academy Rd
  - Charles and Adams
  - O'Flannagan and St. Patrick
- 2 - Private fire hydrants were repaired/replaced at:
  - 3419 W. State
  - SW corner of the GI Mall by Whitey's
- 19 - Broken Water Mains were repaired – 2" through 12" at:
  - Sutherland and Plum
  - Church Rd and Spring Rd
  - 2nd and Locust
  - 1907 S. Sylvan
  - LaMar and Arthur
  - Sky Park and Mirage
  - 233 S. Kimball
  - Midway and Isle
  - College and Sheridan
  - 1311 S. Sylvan
  - 1811 Ada
  - Fonner Park Rd and Vine
  - Swift Rd and Museum Dr
  - Chery and Groff
  - 588 E. 18th
  - 2523 W. LaMar
  - 112 E. Ashton
  - 2504 LaMar
  - 3801 Sky Park Rd
- 0 - Water Main and Service that was damaged by Contractor were repaired
- 8 - 4" through 18" Line Valves added or broken/replaced with new valves at:
  - Joehnck and MacArthur
  - 2525 August St
  - 2707 Apache Rd
  - 2nd and Cedar (two 8" valves, one 12" valve)
  - 2nd and Elm
  - August Parkway and Belfry
- 0 – 4" through 18" water main installed by the Water Department
- 291 - 4" through 24" main line valves were exercised
- 26 - Water mains/line valves were turned off and on for plumbers and contractors
- 43 - Broken water services were checked by the Water Department
- 13 - Backflow Preventors were tested for all City Departments
- 93 - Fire hydrant meters and backflow assemblies were set out for contractors
- 4 - Abandoned water mains had services capped at:
  - 3565 Sky Park Rd
  - Five 2" services on Academy Rd
  - 1st and Walnut
  - 4th and Plum
- 0 – Frozen services thawed
- 53 - ¾" Service Taps were made - new/replacement
- 180 - 1" Service Taps were made – new/replacement
- 9 - 1 ½" Service taps were made
- 2 - 2" Water Mains were tapped, with test taps
- 3 – 4" Water Mains were tapped
- 14 – 6" Water Mains were tapped
- 6 – 8" Water Mains were tapped
- 2 – 10" Water Main was tapped

- 0 – 12” Water Main were tapped
- 0 – Line Stop/”Team” insert valves were placed
- 288 – New water meters were installed - 5/8” through 6”
- 367 – Replacements meters were installed – 5/8” through 6”
- 18 – Meters were repaired/rebuilt
- 122,905 - gallons of water sold to contractors/trucking companies
- 2 – Private water services were located/traced
- 196 – Water services were turned on/off at the request of the customer service office
- 10,891 - Locates were performed that had been requested through Digger’s Hotline of Nebraska

Backflow Program

2022 Backflow Prevention Device Testing Statistics:

- 4,594 – First Notice reminders mailed
- 915 – Certified letters delivered
- 254 – 48 hour notices left at the door
- 29 – Water services shut off for failure to test

Transmission – Phelps Control Center

- Due to the inability to obtain replacement parts, the main DC panels that provide control power to the Substation H and G breakers were replaced. This included adding a second battery bank and separating DC circuits to ease installation.
- All 386 wood poles, 393 steel transmission poles and 11 steel lattice structures were inspected for corrosion. Sic wood poles were flagged as needing replaced. Pole inspections are typically done every 10 years.
- With the development of an online outage map, a system was developed and implemented to allow customers to submit an outage ticket online.
- Several feeders that had a significant imbalance between the three phases were re-balanced by shifting some single-phase load from one phase to another. Further adjustments will take place, as needed, during 2023.
- A contract was awarded for new concrete walls around Substation B (Faidley and Highway 281) and Substation A (Blaine St south of Highway 34). The wall around Substation B is complete and the wall around Substation A has an anticipated completion date of Spring, 2023.
- The original HVAC units for the Phelps Control Center wings were replaced.
- Due to age, most of the batter chargers in the substations were replaced. Properly operating chargers are necessary to avoid damage to the battery banks.
- All 115 kV breakers in the system were tested in order to meet NERC standards. This testing is required every six years.
- Due to unreliable operation of the 13.8 kV bus breakers at Substation H, they were replaced with new, more reliable breakers.
- A new fiber optic cable was installed between Phelps and Substation A for communications to several field devices as well as provide some redundancy for several other communication paths.
- Due to delays beyond AEP’s control, the contract with Prairie Hills Wind for a 50 MW wind farm in Custer County was terminated.
- After working with Tenaska Power Services for the past 10 years, a switch was made to Next Era as our Southwest Power Pool Market Participation Services Contract. This required a large number of changes to the way various functions were performed at Phelps and most of the issues have been worked out.

- Phase 1 of the remodel at the Line Shop was completed a couple of years ago. The next phase was started and will upgrade the bathroom, locker room area and the hallways.
- Feeder relays that were installed approximately 20 years ago are starting to fail. They are being replaced, starting with Substation H.
- The demolition of Burdick Station began and made it necessary to complete the disconnection of Substation G from Burdick Station.
- New transmission relays have been purchased and an engineering firm has been hired to calculate the settings. Relays will be replaced in 2023 in conjunction with a new communications backbone.
- In 2022, Al Ziola, a long-time custodian at Phelps, retired.
- Mike Evans, a long-time Substation Technician, passed away unexpectedly in the fall of 2022.
- With the recent reports of substation intrusion, discussions and plans have been made to increase security at our substations. Plans will begin as soon as possible.
- Additional access control was installed at the Burdick Gas Turbine site. This will allow use of the existing entry cards for access to the various buildings at Burdick Station.

Underground Division

- **New businesses or expanded Subdivisions requiring installation of Underground conduit and related cable and transformers**
  - U-Haul Storage complex (2210 S. Webb)
  - Legacy 34 apartment section (3607 Innate Cir)
  - Wildwood, Highway 281 and Jurgen intersections upgrades
  - Temporary casino at Fonner Park (915 E. Fonner Park Rd)
  - Spectrum Communications fiber system booster (3990 Old Potash)
  - Ellington Subdivision (west side of North Rd between 13th and Faidley)
  - Jaxon Subdivision (south of Old Potash and west of North Rd)
  - Copper Creek Subdivision (south of Old Potash and east of Engleman)
  - Brown Reception Hall (4058 Enterprise)
  - Super Saver car charging station
  - Hornady Manufacturing (3625 Old Potash)
  - McCoy Meadows Subdivision
  - Big Fish Auto (3536 S. Locust St)
  - Spectrum Booster (803 Bronze Rd)
  - Pump and Pantry (Highway 34 and S. Locust)

- **Rebuild needs were integrated with service upgrades being done by customers. Combining the two met the need of customers and maintenance of the system:**
  - Continued to review electric needs at West Park Plaza on West Highway 30 and Kingswood Estates – 2323 Bellwood Dr. as the park owners, Ascentia, convert to park owned, all-electric housing units.
  - Residence – 3530 Curren Ave for a customer upsizing their service
  - Levander Auto – 3620 W. Old Potash
  - Diamond Plastics – 1212 Johnstown Rd
  - Residence – 1208 S. Adams St
  - Mental Health – 2815 S. Locust
  - McCain Foods – 207 Roberts St
  - Crews continue to review the secondary locations with the electrical contractor that is installing new/larger services in Kingswood Estates and West Park Plaza

- **Replaced transformers and cables due to degradation of the transformer cabinets**
  - Rodeway Inn – 3205 S. Locust

- Substation E control house power – 450 Museum Drive
- AT&T Center – 144 Roberts St
- Stolley Park railroad area
- College Park – 3180 W. Highway 34
- Residence – 3632 Hidden Point Drive
- Residence – 3018 Big Horn Place
- Residence – 3112 Laramie Dr
- Residence – 3316 Buffalo Ct
- Residence – 4180 Indianhead Dr
- Residence – 3833 Meadow Way Trail
- Residence – 1512 Rainbow Rd
- Residence – 1107 E. Oklahoma
- Residence – 404 Johnson Dr

- **Equipment and Building and Grounds Maintenance**
  - Received, located and followed up electronically as needed, 10.889 locates that had been requested through Digger's Hotline of Nebraska per Nebraska Statutes 76-2301 through 76-2332.
  - Snow and ice abatement was provided at various Utility parking lots and related areas.

- **Assisted other Departments or Divisions**
  - Crews assisted with the lifting of various pumps, motors and screens at Platte Generating Station
  - Crews assisted with the lifting or other needs of the Substation Tech division
  - Crews installed conduit for and the pulling of fiber lines in various location as we expand the needs of monitoring or communication related needs.
  - Assisted with the annual off-site generation of the Mobile Generating Station (MGS)
  - The mobile crane was utilized to assist the Street Department with the tightening of signal light arms in seven locations.
  - Crews prepped for and assisted with the installation of festoon lighting and related needs for the lighting circuits along the downtown areas of 3rd Street.
  - Crews energized and confirmed the correct phasing between the two feeds into the Veterans Hospital.
  - The installation of different and additional building cameras at the 1306 complex continues.
  - Repairs related to the annual inspection of the Underground Division's various units has begun. The units include 6 various sized cranes, bucket truck and forklift.
  - Crews facilitated the repair of the backflow on the sprinkler system at Sub F.
  - Crews were involved with the rebuilding of the street lighting along the 2nd Street overpass over Blaine/Custer and the Highway 30 overpass over Highway 281.

- ***Overhead to Underground Conversion Projects*:**
  - JBS Plant Fabrication area (555 S. Stuhr Rd)
  - Riverside Golf Course
  - Intersection areas of Highway 34 and S. Locust and related directions (south 2000 feet, east 1500 feet and west 1000 feet)

Overhead Division

- In 2022, the Overhead Division maintained and upgraded the overhead distribution lines which entailed 3,710 linear feet of single-phase line, and 1,500 linear feet of 3-phase line being rebuilt. These upgrades eliminated old primary lines and secondary service wires to provide safer and more reliable service to utility customers and kept the interruption indices (SAIDI) and (SAIFI) well below national averages.

- In addition to normal line maintenance, 8,500 linear feet of 336.4 ACSR wire was converted to 4/0 T2 along Highway 34 to increase the reliability of feeders A-23, A-24, and A-25.
- The crews upgraded H36 from Sub H to JBS. This included the replacement of poles and reconductoring the line. This allows for us to have an additional feeder to JBS along with additional primary metering.
- We had 2 storms in 2022 - a minor windstorm in April which contributed to tree damage and damage to secondary services. And a tornado on July 4th, which contributed to a series of outages and 7 broken poles.
- The well line at the corner of 1R and Quandt Rd. was relocated to allow the area to be irrigated with a pivot. 2,600 linear feet of 3 phase was relocated.
- Crews completed feeder rebalancing of various feeders to improve reliability and power quality.
- Crews removed 1,130 linear feet of primary 3-phase line at Riverside Golf course and 575 liner feet of 3-phase primary in the 3100 block of Kaufman Ave. as the result of converting the area to underground.
- Crews removed 4,100 linear feet of 3-phase primary on South Locust and Highway 34 for the conversion of Overhead to Underground. Along with the replacement of 9 wood streetlight poles with aluminum poles.
- During 2022, crews were busy installing power supplies for dewatering wells and relocation of streetlights for the installation of sanitary sewer at the airport. They installed 7 spans of 3 phase primary and hooked up 4- 277/480 banks for dewatering.
- Three new primary fused disconnects were installed to serve new businesses.
- Fourteen secondary pedestals were installed for service upgrades.
- Crews installed 4,600 linear feet of ADSS fiber from Phelps Control to the wastewater treatment plant.
- Four spans of primary were removed at Diamond Plastics for conversion to underground, along with the addition of primary metering and an additional capacitor bank.
- Eight deteriorated primary poles, two deteriorated streetlight poles, and six service poles were replaced.
- In an ongoing effort to maintain reliability with primary feeders, eight switches/fuse disconnects were installed or upgraded.
- Eight primary poles and 20 streetlight poles were replaced that had been damaged by motor vehicles.
- The Overhead Division continued its vegetation management program to keep power lines clear of all vegetation. This was accomplished with the division's own tree trimming crew and the use of a contractor in clearing nine sections of lines and removing approximately 193 trees.
- In 2022, 351 high pressure sodium lights were converted to LED lights in our service area. In addition to the conversions, 21 new LED fixtures and poles were installed on Ewoldt Street, McCoy Subdivision and Jaxson Sub, and four new poles and lights were installed for security lights at Howard Elementary and Destiny Church.
- Streetlights from Eddy Street to Willow were converted from HPS to LED
- Crews installed 12 poles with LED lights as part of the Capital Ave. road expansion. Nine new poles with lights were installed on the new Faidley and North Rd. roundabout.
- Six bronze fiberglass poles and lights were installed along Legacy 34 development.
- 29 street light poles were replaced to be used as small cell antennas for US Cellular.
- Streetlights and parking lot lights were relocated for the addition of Amur Plaza Park.
- Six crew members assisted with Hurricane Ian in Florida
- Crews installed 6 blocks of festoon lights on 3rd street from Sycamore to Elm Street. This included adding 12 concrete poles for lighting supports.
- Line crews installed or replaced 160 transformers. This has improved system reliability and power quality for utility customers as load continues to increase.

- The automated meter infrastructure project continues to be a success. There are currently 16,050 electric AMI meters in the system. The daily read percentage has been 99.4%. The system has been useful for meter readings, performing disconnects, and troubleshooting for both water and electric service.
- In 2022, 2,098 AMI meters were installed, of which 306 were installed on delinquent accounts. In the process, 4,238 disconnect/connect commands were performed without rolling a truck.

Utility Warehouse Division

- In 2022, the Utility Storeroom quoted, purchased, received, and stocked $4,499,014.43 worth of materials. This represents only the material that is on the inventory system.
- The Storeroom issued $3,421,251.89 worth of materials while salvaging, cleaning, and restocking $435,629.54.
- During the past year the Storeroom purchased and received $1,498,011.38 worth of items that are not on the inventory system for the Overhead, Underground and Storeroom divisions.
- The Storeroom sold 14,326 KVA's of pole mount and pad mount obsolete or damaged transformers for a total of $69,481.10.
- There were no issues with the 2022 audit.

Utilities Engineering Division

The Utilities Engineering Division provided full engineering services for the department's electrical and water infrastructure projects. The work involves research, design, plans and specifications, construction surveys, inspection, observation, and maintaining accurate maps and data records of the related infrastructure activities. Over the past year, work consisted of the following:

- Over 37 separate overhead and underground power line projects, easement verifications, and research for service for upgrades, additions, new residential and commercial developments
- Nine public water main projects were placed in service after being inspected and tested for compliance by the division's staff. These projects totaled approximately 10,760 linear feet of new water mains. The projects abandoned over 2,790 linear feet of existing water mains which needed to be replaced. The Engineering Division also assisted the Building Department with 17 commercial water services.
- Prepared 14 easements, easement vacates or permit documents for department projects.
- Prepared eight contracts and/or requests for proposals.
- Reviewed and approved plans for nine public water main projects.
- Performed project related construction surveys using high-accuracy GPS.
- Drafted, edited, and revised CAD files and GIS related database files.
- Maintained mobile technology resources for the Electric Overhead and Underground Divisions, and the Water Division.
- Continued development of the internal Electric/Streetlight/Water combined base GIS map.

CITY OF GRAND ISLAND
UTILITIES DEPARTMENT

2022 Electrical Feeder Summary

Transformers			
	Polemount Not in service	581	
	Polemount in Service	6,109	
	Padmount Not in Service	374	
	Padmount in Service	2,831	
	Total	9,895	
Capacitor Banks			
	Fixed	74	
	Switched	100	
	Total	174	
Total Cable			
	Underground Primary Single Phase	108	Miles
	Undergrouns Primary 3 phase	87	Miles
	Total Under Ground	194	Miles
	Over Head Primary 3 Phase	295	Miles
	Over Head Primary Single Phase	87	Miles
	Total over head	382	Miles
Total Poles			
	Total Poles	18,634	

2022 Pipe Totals (4" and Larger)

25-Jan-23

City

Distribution Length by Diameter (Includes Hydrant Assembly)

Year	4	6	8	10	12	14	16	18	20	24	30	36	Total	Percent Growth
2016	24,939.00	752,140.61	229,610.00	121,272.00	200,540.00	17,244.00	115,557.00	53,788.00	74,060.00	7,222.00	787.00	11.00	1,597,170.61	N/A
2017	25,460.72	754,284.26	230,954.94	122,372.06	204,275.59	17,244.54	115,525.56	53,964.96	76,489.03	7,221.93	787.00	11.00	1,608,591.59	0.72%
2018	25,461.00	754,704.00	232,674.00	127,185.00	208,177.00	17,242.00	115,420.00	53,958.00	76,613.00	6,877.00	787.00	11.00	1,619,109.00	0.65%
2019	25,403.00	748,452.00	244,361.00	129,005.00	210,170.00	17,246.00	115,613.00	54,281.00	76,622.00	6,909.00	733.00	11.00	1,628,806.00	0.60%
2020	24,882.00	747,671.00	254,273.00	128,561.00	209,876.00	17,336.00	115,604.00	54,278.00	76,733.00	6,896.00	731.00	15.00	1,636,856.00	0.49%
2021	24,916.00	746,586.00	259,510.00	128,426.00	209,989.00	17,244.00	115,615.00	54,278.00	76,733.00	6,896.00	731.00	15.00	1,640,939.00	0.25%
2022	22,519.95	746,266.82	267,963.38	129,141.26	210,008.06	17,239.73	115,459.47	54,419.24	76,176.37	6,900.05	730.86	15.16	1,646,840.35	0.36%

Transmission Length by Diameter

Year	4	6	8	10	12	14	16	18	20	24	30	36	Total
2016	0	0	0	0	0	0	0	0	0	0	78,502	12	78,514
2017	0	0	0	0	0	0	0	0	0	0	78,496	12	78,508
2018	0	0	0	0	0	0	0	0	0	270	78,498	12	78,780
2019	0	0	0	0	0	0	0	0	0	270	78,508	23	78,801
2020	0	0	0	0	0	0	0	0	0	270	77,886	23	78,179
2021	0	0	0	0	0	0	0	0	0	270	77,886	23	78,179
2022	0	0	0	0	0	0	0	0	0	268	77,849	21	78,138

Reservoir Length by Diameter

Year	4	6	8	10	12	14	16	18	20	24	30	36	Total
2016	0	0	0	0	0	0	0	0	0	932	0	858	1,790
2017	0	0	0	0	0	0	0	0	98	932	0	858	1,888
2018	0	0	0	0	0	0	0	0	384	925	0	858	2,167
2019	0	66	0	0	0	0	0	0	386	778	0	835	2,065
2020	0	66	0	0	0	0	0	0	386	778	0	831	2,061
2021	0	66	0	0	0	0	0	0	355	778	0	831	2,030
2022	0	66	0	0	0	0	0	0	355	776	0	829	2,026

Well Header Length by Diameter

Year	4	6	8	10	12	14	16	18	20	24	30	36	Total
2016	0	139	0	17,754	913	3,233	1,670	7,856	3,553	5,974	3,440	2,049	46,581
2017	0	131	0	17,754	913	3,233	1,670	7,856	3,553	5,974	3,440	2,049	46,573
2018	0	226	0	17,752	913	3,233	1,670	7,856	3,553	5,974	3,440	2,049	46,665
2019	0	154	65	22,740	927	3,515	1,669	7,784	3,510	6,053	3,441	2,036	51,894
2020	0	87	65	20,340	24	3,120	0	7,863	3,510	6,018	3,441	1,936	46,404
2021	0	87	65	20,424	24	3,122	0	7,861	2,510	6,018	3,441	1,936	45,488
2022	0	84	65	20,339	23	3,116	0	7,851	3,507	5,732	3,438	1,911	46,066

Total D+T+R+W

Year	Total (ft)	Total (mi)
2016	1,724,056	327
2017	1,735,562	329
2018	1,746,720	331
2019	1,761,566	334
2020	1,763,500	334
2021	1,766,636	335
2022	1,773,070	336

Private

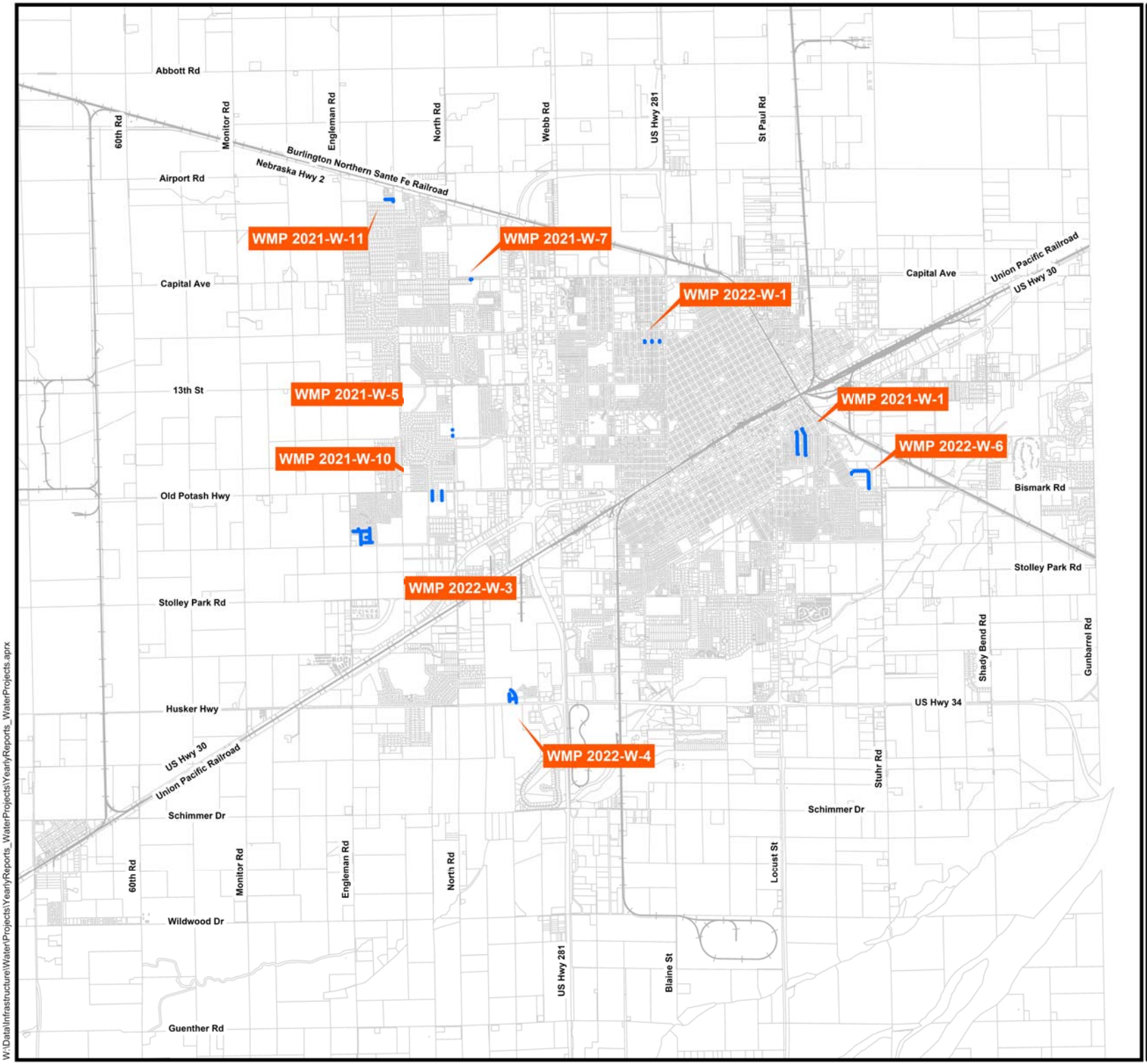
Fire Protection Only/Service Length by Diameter

Year	4	6	8	10	12	14	16	18	20	24	30	36	Total	Percent Growth
2016	28,242	89,372	60,480	25,467	17,243	0	0	0	0	0	0	0	220,804	N/A
2017	28,327	90,556	60,858	25,467	17,243	0	0	0	0	0	0	0	222,451	0.75%
2018	28,711	92,728	63,686	25,467	17,293	0	0	0	0	0	0	0	227,885	2.44%
2019	28,872	94,128	63,686	25,467	17,293	0	0	0	0	0	0	0	229,446	0.68%
2020	29,111	94,752	64,449	25,566	17,287	0	0	0	0	0	0	0	231,165	0.75%
2021	29,029	96,510	67,358	25,720	17,287	0	0	0	0	0	0	0	235,904	2.05%
2022	29,268	97,802	67,735	26,430	17,201	0	0	0	0	0	0	0	238,436	1.07%

Total (City+Private)

Year	Total (ft)	Total (mi)
2016	1,944,860	368
2017	1,958,013	371
2018	1,974,605	374
2019	1,991,012	377
2020	1,994,665	378
2021	2,002,540	379
2022	2,011,506	381

EX-6



CITY OF GRAND ISLAND
UTILITIES DEPARTMENT

Water Distribution Network

2022 Districts/Projects

1/20/2023

LEGEND

- 2022 Piping
- Property Lines

City of Grand Island

Utilities Department

W:\Data\Infrastructure\Water\Projects\YearlyReports_WaterProjects\YearlyReports_WaterProjects.aprx