

2014 PUBLIC WORKS CITY OF WEST FARGO

I. CITY OF WEST FARGO FEATURES

Population: The population within the City of West Fargo is **29,621** (as of January 2013) and determined by the City of West Fargo Planning Department.

Geographic Size: The City of West Fargo encompasses **9,709 acres** within its city limits (as of 1/1/2013). The City has undergone significant annexation the past several years (the area in 2002 was 4,433 acres).

Infrastructure: Infrastructure is defined as all physically measurable items within the City that forms, or is essential to, normal, day-to-day operations. Items that are included in this report are: roadways (including curb and gutter), sanitary sewer (including manholes), storm sewer (including catchbasins and manholes), watermains (including hydrants and gate valves), sanitary sewer lift stations, storm sewer lift stations, wastewater stabilization ponds, watertowers, wells, Sheyenne River, Sheyenne River Diversion (includes West Fargo Project and Horace Project), bikeways/sidewalks, buildings, stormwater retention ponds and green areas.

-Roadways: The City of West Fargo has a total of **345.4 lane miles** of roads (as of 6/1/2013) within the city limits. This is compared to a total of 140 lane miles in 2000.

Items that have not been documented in the past include **125.1 miles** of sidewalks (which includes **1,576** ADA ramps), **29.6 miles** of 10' wide bikepaths, **2700** light poles, **21** signalized intersections, **6,865** traffic control signs and **8,500 trees** (within the Public ROW).

-Sanitary sewer: The City of West Fargo's sanitary sewer system consists of 905,471 feet of gravity and 152,190 feet of forcemain lines (as of 1/01/13) for a total of **1,057,661 feet** (compared with 407,035 feet in 2001). Also within the system are **3844** manholes, **95** gate valves and **212** cleanout structures. Forcemain lines older than 20 years are beginning to experience failures. These failures result in a shutdown of the system during repairs, as well as occasional sewer

backups in basements.

Gravity sanitary sewer lines tend to be very trouble free as long as routine yearly maintenance occurs. However, we occasionally experience clay pipe failures in the old part of the City. Public Works budgets \$100,000 per year for the maintenance of failing sewer lines.

-Sanitary sewer lift stations: The City currently has **33** sanitary lift stations that pump wastewater for ultimate disposal at the stabilization ponds. These stations are of several designs including submersible duplex and wetwell/drywell types. Currently, there is one (1) additional sanitary lift station under construction/bid.

Sanitary sewer lift stations need extensive routine maintenance in order for the City to provide uninterrupted service. Routine maintenance is typically done throughout the year.

-Watermain: The water system consists of **1,012,638 feet** of 4" to 16" PVC and cast iron watermain (as of 1/01/13), (this is compared to 509,942 feet in 2002. The City has been replacing all cast iron watermain with PVC, when possible, therefore there is only an estimated 2000 feet of cast iron remaining. The water system also consists of **1445** fire hydrants and **3601** gate valves.

-Storm sewer: The storm sewer system contains **1,257,418 feet** (1/01/13) of gravity pipe ranging in size from 12" to 60". There are also **33,368 feet** of 12" to 24" forcemain within the storm sewer system. Also within the system are **4692** manholes and **5699** catch basins. An integral part of this system are the dedicated drains. Drain 21, Drain 45 and numerous railroad and road ditches provide overland flow. As part of the overland flow storm sewer system, there are **180** culvert openings.

An integral part of the storm sewer system are the storm water retention ponds that are situated throughout the community. The City has **39** "lakes" (dry retention and wet retention) for a total area of **157** acres. As part of these "lakes" fountains and bubblers are included which maintain water quality (with a side benefit of better aesthetics). Significant manpower is required for the maintenance of these "lakes" including

mowing, pond maintenance, fountain and bubbler maintenance. Significant energy requirements are also seen at these lakes due to the power consumption by the compressors for the bubblers.

-Storm sewer lift stations: The storm sewer system also contains **58** storm lift stations. These range in size from a 3/4 hp single pump to the Drain 45 lift station which contains 3 - 150 Hp vertical turbine pumps and the 9th Street storm lift which contains 3 - 250 Hp pumps. As with the Sanitary Sewer lift stations, yearly maintenance is required in order for these stations to remain operable.

-Wastewater Stabilization Ponds: The West Fargo wastewater treatment facility consists of **nine (9)** stabilization ponds with a total surface area of **377** acres. The system consists of three (3) primary ponds, one of 75 acres, one of 34 acres and one of 31 acres. There are also six (6) secondary ponds (total acreage of 237 acres). The 34 acre primary pond (#3) also has eight (8) wind generated mixers to reduce BOD, increase dissolved oxygen and vent odors more efficiently. **The City is currently in the process of designing/bidding an additional 80 acre secondary stabilization pond that will be fully functional in 2014. This will increase our total surface area to 457 acres.**

-Watertowers: The City currently has **three (3)** 500,000 gallon and **one (1)** 1.5 million gallon watertowers. An additional 1 million gallon tower is programmed (in the future) for the area near the new 9th Grade Academy located near 40th Ave S (east of the Sheyenne River).

-Wells: There are **eight (8)** existing wells within the City. The total pumping capacity of all wells together is 3,500 gallons per minute (**5 million gallons per day**).

-Sheyenne River: The Sheyenne River meanders through the City of West Fargo from south to the north. Property owners along the River within the City limits are experiencing bank erosion...at times severe. The City of West Fargo needs to address this issue in regards to whether financial aid is/will be available for these property owners. Public Works (in cooperation with Moore Engineering) completed a detailed streambank survey of the Sheyenne River

between 52nd Ave (to the south) and the Diversion pumping station (to the north). This survey located (and documented) every streambank slide. This data has been presented as a mitigation proposal to FEMA. As of this date, no federal funding has been located.

-Sheyenne River Diversion: The Diversion was constructed and brought on line by the United States Army Corp of Engineers in the summer of 1993. The Diversion 'diverts' the Sheyenne River around the City of West Fargo. There is a diversion structure located immediately south of I-94 and the City limits where it then runs the water to the west and north around the City of West Fargo. There is a Sheyenne River pumping station located north of West Fargo where the Diversion connects back up with the river. There is also a major lift station located on Drain 21 (near 12th Ave N. and the existing Diversion lift station). The purpose of the Drain 21 station. These two stations keep the City "flood free" during times of heavy precipitation events.

The purpose of the Diversion is to divert the Sheyenne River around the City of West Fargo during flood events. It ultimately removed the City of West Fargo and other adjacent lands (south of I94) from the 100 year flood plain. The City north of I94 is protected to a 500 year flood.

-Green Area: The City of West Fargo Public Works Department is responsible for mowing and maintaining over **182 individual sites** (over **526 acres** of area), not included in that total is the maintenance of the Sheyenne Diversion which has a total acreage of **852 acres**.

II. STATE OF THE DEPARTMENTS

Sanitation Department: (20 employees)

With the continued annexation of land, and the resulting increase in residential, commercial and industrial subdivisions, the staffing (and equipment) needs in this department needs to be continually reviewed.

ROLL-OFF PROGRAM: The current roll-off program consists of the use of two roll-off trucks and a series of 20 and 30 cubic yard "boxes". These boxes are placed not only at home building sites for demolition materials, but also at several area businesses for inert and/or Municipal Solid Waste (MSW) materials. Table 1 lists the number of "pulls" the City of West Fargo is conducting on a yearly basis since 2000. Also shown on the table is the revenue generated. The City receives \$65 for each pull, above and beyond any rental or disposal fee. Not included in Table 1 is the number of roll-off "pulls" due to the compost drop-off sites. In 2010 there were 1,144 compost pulls and in 2011 there were 756 compost pulls, and in 2012 there were 560 pulls

Table 1

Year	Pulls	Revenue
2000	970	\$ 63,050
2001	1224	\$ 79,560
2002	1213	\$ 78,845
2003	1202	\$ 78,130
2004	1269	\$ 82,485
2005	1096	\$ 71,240
2006	1278	\$ 83,070
2007	1346	\$ 87,490
2008	1502	\$ 97,630
2009	1147	\$ 74,555
2010	1318	\$ 85,670
2011	1527	\$ 99,255
2012	1610	\$104,650

TRANSFER STATION: The City of West Fargo owns a transfer station (operated by the City of West Fargo). This transfer station is located along Main Avenue on the westerly side of the City. Currently all Municipal Solid Waste (MSW) is being transported to the Fargo landfill. The Transfer Station is currently being used for city residents to drop off inert items as well as additional MSW items they accumulate.

INERT LANDFILL: The City of West Fargo currently owns and operates an Inert Landfill.

RECYCLING PROGRAM: The Curb-side Recycling program is still operating at approximately 33% participation. To put this in perspective, the national average is 28.5% (with the Midwest at a 22% rate). At this participation rate, the Recycling Truck is running approximately 36 hours per month. Table 2 lists the statistics for the Sanitation Department for the years 1999 - 2012. A recent addition to the recycling program are drop off site for cardboard and plastics located at the Eagle Run Water Tower site on 40th Ave as well as the corner of 9th Street East and 13th Ave E (at the All-Stop), Table 2 doesn't address the totals for cardboard/plastic recycling...Cardboard 2012 was 36.24 tons and Plastic 2012 was 8.06 tons.

Table 2

Year	Tin/Alum	Glass	Paper
1999	12.97 tons	25.37 tons	283.13 tons
2000	11.63 tons	23.07 tons	271.08 tons
2001	12.14 tons	30.49 tons	261.43 tons
2002	12.75 tons	28.56 tons	280.81 tons
2003	13.66 tons	18.04 tons	280.01 tons
2004	11.67 tons	21.34 tons	266.92 tons
2005	10.75 tons	20.15 tons	294.73 tons
2006	11.26 tons	25.23 tons	289.69 tons
2007	11.42 tons	28.00 tons	277.36 tons
2008	12.12 tons	37.18 tons	287.75 tons
2009	13.88 tons	49.36 tons	250.23 tons
2010	14.98 tons	66.34 tons	268.47 tons
2011	15.58 tons	64.59 tons	283.78 tons
2012	14.14 Tons	65.79 Tons	293.37 Tons

Sewer/Water Department: (22 employees)

This departments' 22 employees is comprised of the following: Public Works Director, Assistant Public Works Director, Public Works foreman, Office Associate, Receptionist, Water/Sewer/Street Infrastructure Manager, Fleet/Facility/Safety Manager, Street Foreman, Sewer/Water Foreman, City Electrician, Electrician Assistant, Meter Reader, Water Meter Crew Chief, Utility Locator, Facility Maintenance Worker, Certified Laboratory Coordinator, Mechanic and six (6) Equipment Operators.

This Department is responsible for the water production wells, water distribution system, water towers, hydrants, water meters, wastewater treatment lagoons, sanitary sewer lift stations, sanitary sewer forcemains, sanitary sewer gravity lines and manholes, operation of state certified wastewater laboratory, storm sewer lift stations, storm sewer forcemains, storm sewer gravity lines, catchbasins, manholes. Responsibilities include operation and maintenance of all the aforementioned items. Also included is the reading and installation of water meters, continued administration of the sump pump program, the Industrial Pretreatment program, the NPDES Stormwater Phase II program, the Sanitary Sewer Overflow (SSO) program, implementation of the Clean Water Act, implementation of the Bioterrorism Preparedness and Response Act, and implementation of the Capacity, Management, Operations, and Maintenance (CMOM) regulations.

There are several maintenance activities that have been prioritized. These specifically include:

- ▶ Sanitary Sewer jetting/cleaning (Vactor Truck)
- ▶ Sanitary Sewer Televising (Televising Van)
- ▶ Storm Sewer jetting/cleaning (Vactor)
- ▶ Storm Sewer Televising (Televising)
- ▶ Storm and Sanitary Sewer Lift Station Maintenance
- ▶ Stabilization Lagoon Maintenance
- ▶ Well and Tower Maintenance

These activities need to be full-time from April to December, with the lift station and well/tower maintenance a year-round activity. Four (full-time) personnel are required to operate the Vactor and televising equipment. Two full-time personnel are required to conduct lift station, lagoon and well/tower maintenance. The problem Public Works has been encountering is the lack of available manpower to accomplish these goals.

Additional activities that are "essential" are the *NPDES Stormwater Phase II* program and the *Bio-terrorism Preparedness and Response Act*. The NPDES Phase II program was initiated in March of 2003 (as presented to the City Commission in March, 2003 and the first year report presented

to the commission in March 2004. This program has a six year implementation schedule.), the program has identified six (6) minimum control measures that will be required (by the USEPA) to be implemented by the City of West Fargo. As indicated in the presentation (and handouts) this program will potentially cost the City of West Fargo upwards of \$100,000 annually.

The Bio-terrorism Preparedness and Response Act was implemented by Congress after the 9/11 tragedy. This program requires all water systems serving populations greater than 3,300 persons to: (1) conduct a vulnerability assessment (which was completed in June, 2004); (2) certify and submit a copy of the assessment to the EPA Administrator (which was completed in December 2004); (3) prepare or revise an emergency response plan that incorporates the results of the vulnerability assessment; and (4) certify to the EPA Administrator, that the system has completed such a plan. West Fargo had a target date (as set by the USEPA) of June 15, 2004 to complete this assessment and certification (Which was completed). These activities are programmed to be accomplished by the Public Works Director, Engineering Assistant and Industrial Pretreatment/Certified Laboratory Coordinator. The City of West Fargo now has a series of recommendations that are being implemented to improve security in the water system.

The Industrial Pretreatment/Certified Laboratory Coordinator also is responsible for implementing and enforcing the Industrial Pretreatment Program, operations of the Certified Wastewater Laboratory, supervision and administration of the sump pump variance program and operation of the City's Wastewater Treatment System.

The Assistant Public Works Director is responsible for oversight of the City's over-dimensional vehicle permit program and the City's Excavation permit program. This position is also responsible for maintaining the City's Pavement Management System, the GIS system (which is utilized by the City Assessor, the City Planner, the City Engineer, Cass County as well as the citizens of West Fargo on the City Web page), mapping (again which is utilized by the City assessor, City Planner, City Engineer, Metro COG, and the City Web site), Project Concept Reports, asset management of all the City of West Fargo infrastructure features, traffic management (including maintenance of all signals), modeling of the City water and sewer system, and administration and inspection of City designed construction. The Assistant Director is also "second" in command should the Public Works Director not be available.

The oversight of installation of new and replacement water meters is accomplished by the Water Meter Crew Chief. The Public Works Office Manager is included in sewer/water. The Water/Sewer/Street Infrastructure Manager has the responsibility of administering the in-field work of the Sewer/Water and Street Department employees. The Fleet/Facility Manager is responsible for the overall maintenance of all equipment and buildings as well as designated as the City's Safety Coordinator. The remainder of the Maintenance Workers handle all the remaining operation and maintenance activities in the sewer/water department (which includes hydrant maintenance, well maintenance, water tower maintenance, sanitary sewer lift station maintenance, storm sewer lift station maintenance, stabilization pond maintenance, fixing of water main/service breaks, manhole maintenance, gate valve maintenance, as well as the day-to-day routine rounds).

The Public Works Foreman has the following responsibilities and duties:

- ▶ Day to day operation of the Overdimensional Vehicle program
- ▶ Day to day operation of the Excavation Permit program
- ▶ Day to day operation of the Sump Pump Ordinance
- ▶ Day to day operation of the City's NDPDES Stormwater Phase II program
- ▶ GIS/GPS duties to include asset management of the City's pavements, sidewalks, trees, street lights, sanitary sewer system, storm sewer system, water system, and all applicable mapping of these assets.
- ▶ Administration of the City's Forestry Dept
- ▶ Administration of Temporary full-time employees (summer mowing crews)

Street Department: (11 employees)

The Street Department is the Department that keeps the City looking vibrant. The employees basically take care of everything above ground, such as streets, curb and gutter, sidewalks, trees, boulevards, City buildings, street lights, traffic signals, signs, etc. Maintenance duties include: street sweeping, snow plowing, street sanding, street repair (patching/overlays), curb and gutter repair, sidewalk repair, mowing, street light maintenance and repair, traffic signal maintenance and repair, sign maintenance and replacement, tree pruning, street crack sealing, street striping, curb painting, etc.

Typically, three seasons demand the most out of the employees in the Street Department; spring/summer, when mowing, street sweeping and building maintenance take front row and in the winter, when snow plowing and sanding of streets moves into the forefront. Unfortunately, these three seasons cause extreme labor problems at times. During the winter, if there are frequent snow or ice events, the employees tend to acquire more overtime due to snow/ice removal requirements as placed upon them. This labor shortage also is evident during wet spring/summer months when mowing of all the City properties (including Diversion maintenance) moves into first place on every workers schedule. In fact, the City currently is maintaining over 130 individual sites (to be mowed) with a total acreage in excess of 740 acres. These mowing sites typically require hand mowing and trimming, followed by riding mowing, therefore are time consuming.

The Street Infrastructure Manager, is a working position with responsibilities of administering the in-field work; the mechanic is full-time maintenance and repair of the street/sewer/water equipment; during the summer two employees are full-time street sign maintenance and one employee street sweeping full-time from mid-April to mid-November. The remaining Maintenance Workers are responsible for street patching/repairs (this function requires a minimum of 4 employees), manning the City's two street sweepers and participating in the mowing activities which causes the other functions to take a back burner.

An area of City maintenance that is lacking is the schedule of replacing all sub-standard ADA ramps, sidewalks and curb and gutter. It is my recommendation to utilize the City Street Department to make these repairs. By utilizing the City staff for this work, the worst sidewalks, pedestrian ramps, etc. would be available for repair City-wide, every year, not just one section of town. In addition, this crew would also be available for repairs to sunken curb and gutter (a problem that is City-wide with no funding mechanisms in place for repairs), for repairs to sunken catch basins, and sunken driveways that are due to utility cuts. The Department would need a minimum of four full-time employees and an initial capital cost of equipment (equipment would include attachments for the skid steer and one pickup). These 4 employees, and equipment, would also be utilized as part of the NPDES Phase II Stormwater Program. The cleaning of mud and debris off the streets left from contractors and homeowners is a major problem within the City of West Fargo (and is part of the Phase II program).