

Department of Public Works



Park Cemetery's "second" pond--the largest of the three ponds and located at the center of the facility--was drained, "mucked out", and refilled in the fall of 2011. Over 800 cubic yards of accumulated organic material was removed in the effort.

The Fire Departments front line fire truck is being towed in by the Motor Pool Division with engine failure. One of the local tow companies wanted \$1500.00 to tow this unit four city blocks. The Motor Pool Division was able to perform this task for under \$300.00, saving the City \$1200.00.



Catch Basin Cleaning



Root Cutting



PUBLIC WORKS 2011-12 ANNUAL REPORT

In accordance with Section 2-80 of the City Code, listed below is a summary of activities for the Department of Public Works for the 2011-2012 fiscal year.

Water Transmission & Distribution

To better protect the integrity of the water distribution system for our customers we implemented hydrant meters that have a reduced pressure zone (RPZ) backflow device incorporated in the meter that attaches to the hydrant. The RPZ prevents contaminants from tankers or other sources from being sucked back into the distribution network in the event of a loss of system pressure or a tank having more pressure than our system. We now require the request be made to a specific hydrant location and water distribution personnel install the hydrant and lock it at the requested location. The program has also helped eliminate possible damage to hydrants from untrained operators.

During the annual sewer lateral and point repair contract, we have been replacing failing/leaking galvanized water services when they are located in the same trench with the replaced orangeburg sewer laterals. The inclusion of water service replacements in the same trenches as the sewer laterals has greatly reduced the costs involved in these replacements. With the replacement of the older galvanized water services in these areas we hope to minimize potential repair work needed in the short term.

We continue to test our large meters by contract to outside vendors. This ensures that our large users and the City of Marquette are benefiting from accurately metered water consumption. Additionally we are required by contract to yearly test the meters delivering water to Marquette Township by an independent certified testing service. Completion of this year's testing found ten (10) of the thirty four (34) large meters tested not meeting the American Water Works Association (AWWA) Specification. Nine (9) of the failed meters were repaired with one (1) being replaced.

On the residential meter side, the City began implementation of the new electromagnetic meter program. The new meters will increase the City's ability to register low flows which the current positive displacement meters fail to detect. The new program uses a twenty year replacement cycle instead of a ten year test/replacement cycle. About 150 of the new meters are in service.

To ensure water quality to our customers, maintenance crews changed out water on the dead end portions of the system. Annually 150,000 gallons are used to accomplish the desired results of ensuring water quality. To document system performance we include sampling of these areas to facilitate possible frequency increase if warranted. Approximately another 950,000 gallons were used to flush through a third of the water distribution network to clean our mains. Our annual goal of one third of the total distribution system was met this year.

A project was completed this past year to improve the existing irrigation system on the soccer fields at Kaufman Sports Complex. The shallow well that supplied irrigation water was abandoned because of water hardness of the well supply. This was causing premature failure of the pump and zone valves requiring extensive maintenance. The supply was connected to the existing water main that runs through this facility. This project will benefit both the maintenance requirements to the irrigation system and also greatly improve the water quality being delivered to residents at Island Beach.

- Water main repairs – 6
- Water service line repairs – 7
- Water service line replacements – 35
- Residential meter change-out – 150
- Total cross connection accounts – 691*
- High hazard accounts (reinspected every 36 months) – 552*
- Low hazard accounts (reinspected every 72 months) – 139*
- New cross connection accounts – 48*
- High hazard reinspections completed – 184*
- Low hazard reinspections completed – 23*
- Cross connections found to exist during inspection – 20*
- Cross connections corrected of the newly found connections – 14*
- Cross connections corrective action in progress – 6*
- Backflow prevention devices in system – 902*
- Backflow devices tested – 363*
- Large meters tested – 34
- Large meters not meeting AWWA specifications – 10

* Statistics are calendar year due to the time frame that is required by the Michigan Department of Natural Resources and Environment for the Water Supply Cross Connection Report that is due yearly.

Street Division

The street maintenance division of Public Works remained busy with restorations from the large number of sewer lateral replacements done during the year. Most of these required not only bituminous street paving but concrete curbing, sidewalk and sometimes driveway replacement. Our brush, yard waste, leaf collections, and the operation of the compost and rubbish site are still well liked by most residents. The volume of materials collected for disposal and recycled continues to increase. The upcoming year will be the final year of the current three year solid waste contract.

2011 marks the 19th consecutive year the City of Marquette has been awarded the “Excellence in Salt Storage Award” by the Salt Institute.

Street Statistics

- Local Street Mileage – 58.75
- Non-Motorized Mileage (Bikepath) – 17.6
- Major Street Mileage – 30.95
- State Trunkline Mileage – 1.95

Routine Maintenance

- Gallons of paint for pavement marking (Local Streets) – 40
- Gallons of paint for pavement marking (Major Streets) – 380
- Tons of blacktop used for sewer restorations (Local Streets) – 1,367
- Tons of blacktop used for sewer restorations (Major Streets) – 63
- Tons of blacktop used for water restorations (Local Streets) – 89
- Tons of blacktop used for water restorations (Major Streets) – 11
- Tons of blacktop used for stormwater restorations (Local Streets) – 38
- Tons of blacktop used for stormwater restorations (Major Streets) – 28
- Tons of blacktop used for street repair (Local Streets) – 49
- Tons of blacktop used for street repair (Major Streets) – 36

Winter Maintenance

- Cubic yards of snow removed (Local Streets) – 6,000
- Cubic yards of snow removed (Major Streets) – 9,000
- Tons of salt used for ice control (Local Streets) – 750
- Tons of salt used for ice control (Major Streets) – 1,100
- Tons of salt used for ice control (State Trunkline) - 112
- Cubic yards of sand used for ice control (Local Streets) – 1,850
- Cubic yards of sand used for ice control (Major Streets) – 3,000
- Gallons of liquid calcium chloride used for ice control (Local Streets) – 0
- Gallons of liquid calcium chloride used for ice control (Major Streets) – 0

Sanitation

- Collection from approximately 6,100 residential units, 100 small commercial and one dozen litter barrels throughout the City.
- Curbside contract service collection fee - \$7.76
- Other contract service collection fee - \$1.10
- City service collection fee - \$4.69
- Vehicles at Compost Site – Leaves/Grass – 6,838
- Vehicles at Compost Site – Brush – 2,827
- Vehicles at Rubbish Drop-Off Site – 5,584
- Tons of rubbish collected – 709
- Tons of metal collected – 69
- Cubic yards of leaves collected curbside – 9,000
- Cubic yards of brush collected curbside – 900
- Cubic yards of yard waste collected curbside – 6,000
- Estimated tons hauled directly to the Marquette County Landfill – 9,060

Sewer Division

The sewer maintenance department focuses largely on sewer system cleaning and repairs for the sanitary and storm sewer systems.

The total replacement of sanitary sewer laterals for houses and businesses from the right of way to the sewer main is a large part of the department excavations due to the orangeburg sewer pipe that is failing at a rapid rate. Partial replacement of sewer main pipes and structures such as manholes and catch basins on the sanitary and storm systems rounds out the excavation portion of the department's maintenance work.

Routine cleaning work that is scheduled annually in the department includes sanitary and storm main cleaning, which includes the removal of roots and grease, manhole and drainage structure cleaning, removing sediment and trash from ditches and retention basins.

Inspecting and locating services performed by the department includes televising of sanitary sewer laterals for residents as well as for engineering SIMP projects to determine condition and location of pipes and locating utilities such as water distribution pipes, sanitary sewer pipes, storm sewer pipes, and electrical lines for the Miss Dig system.

Preventative maintenance includes identifying locations in the sanitary sewer system with repeated problems for root control treatment contract, televising contract to check condition of sewer mains, the slip line contract to replace severely damaged pipe, and working with residents with sanitary sewer back-up problems to find the cause and location of problem and assist them with the proper solution.

Training consists of confined space training and atmosphere testing along with rescue training in conjunction with the fire department, trenching and shoring, proper lifting procedures, working around electrical and utilities, working around heavy equipment, personal protection equipment, MSDS, Hazwoper training, blood borne pathogens, etc.

Sewer Operations Maintenance

- Sewer backups responded to – 32 (5 due to issues in the City system)
- Sewer laterals televised – 81
- Sewer main repairs – 32
- Jet rodding (linear feet of sewer) – 90,193
- Root cutting (linear feet of sewer) – 124,822
- Sanitary Sewer Overflows (SSO) – 0
- Grease trap inspections – 129

Sewer Capital Outlay

- Sewer lateral taps – 5
- Sewer lateral replacements – 69
- Manhole repairs – 5

Stormwater Routine Maintenance

- Catch basin repair – 50
- Catch basin replacement – 2
- Storm point repairs – 5
- Storm line thawing – 1

Forestry Division

PLANTING

In-house

In-house planting efforts by the Arborist and Forestry Crew included the following:

- Two Winter King Hawthorns and one Serbian Spruce were planted within the South Front Street roundabout as the City's 2011 Arbor Day observance planting.

- Two Blue Point Junipers and one Scarlet Oak were planted along the Mattson Park bike path in a continuing effort to both diversify the species composition of our urban forest and develop this area as an arboretum.
- Two White Spruces and one White Pine were planted at the Kaufman Sports Complex sign as an initiation of the site’s eventual landscaping. Two ash trees were also transplanted to the site from their previous locations on West Spring Street, where they conflicted with the MarqTran building construction.
- One hundred and eleven small evergreen trees were planted at various locations within Park Cemetery in screening, windbreak and reforestation efforts. These trees were salvaged from the Tourist Park’s Dead River basin in 2008, potted, maintained and stored behind the Municipal Service Center until ready for this season’s transplanting.

Contractual

The vast majority of street-side and park tree planting is administered by the Arborist and accomplished contractually. Seventy two street trees were planted by KLM Landscape of downstate Washington, Michigan, and Coryell Nursery of Munising planted 11 trees comprised of native hardwood species in the day-use picnic areas of Presque Isle Park.

SPECIAL PROJECTS

The City Arborist routinely addresses school, church and civic groups. Among the groups addressed this year were: the Philanthropic Educational Organization (PEO) Annual Friendship Dinner, and the Marquette Beautification and Restoration Committee’s September luncheon-- with presentations concerning urban forestry and, specifically, the City of Marquette’s tree care efforts.

When the Arborist started with the City twenty four years ago, Mattson Park consisted of a grassy field with nine trees; today, the park is home to over 180 trees. While promoting a park-like feel has always been the primary focus of these forestation efforts, the site has also acted as a proving ground in the effort to diversify the species composition of our urban forest. Sixteen tree species have first been introduced to Marquette via plantings along the park’s bike path.

Forestry Statistics

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| • In-house tree planting – 121 | • Large tree pruning – 172 |
| • In-house transplanting – 2 | • Tree removal – 287 |
| • Contractual – 83 | • Stump grinding – 77 |
| • Small tree pruning – 119 | |

Park Cemetery

The cemetery’s “second pond” which is the larger centrally located pond, rimmed by mausoleums, was drained and cleaned of accumulated organic debris. Water quality in the facility’s three ponds is typically quite low, with associated odor and unsightliness issues.

Routine pond draining and cleaning is now scheduled and efforts are underway to pursue aeration devices for the two most visible ponds.

With the assistance of street and park division personnel, a cemetery office, complete with vault and restroom, was established in a bay of the facility's garage. Office space, mechanical room, restroom, and vault walls were framed, insulated, dry walled, and painted. Contractors performed the required electrical and mechanical installs, while Water Division personnel plumbed the facility and the Parks Division carpenter installed doors and wood trim.

Cemetery Statistics

- Traditional Burial – 30
- Cremains Burial – 44
- Columbarium Burial – 5
- Grave Space Sale – 35
- Cremains Space Sale – 1
- Columbarium Sale – 6
- Infant Space Sale – 0
- Infant Burial – 0
- Vault Storage – 0
- Foundations – 60
- Perpetual Care Collection – 0

Motor Vehicle Equipment Division

We have implemented a “Fleet Maintenance” program which integrates with our fueling software program, Phoenix. We have developed a maintenance due report that runs every other shift. This report determines any future service needed. At the end of every shift, vehicle fuel tanks are filled at the Municipal Service Center fuel depot. The operator enters the mileage or hours used. Every 48 hours a file is converted from Phoenix to Fleet Maintenance. From this data, a report is generated that indicates which vehicles are due for service. Maintenance work is then scheduled accordingly. This process has had a positive effect on the department. It saves on labor cost by eliminating the need for an employee to manually look at each piece of equipment. It also prevents equipment from going into an “over due” maintenance status. Timely vehicle maintenance is crucial, as it prolongs the life of expensive equipment. By being proactive in vehicle repair and maintenance, there has been a substantial decrease in equipment failure, thus decreasing vehicle downtime.

During the off season all of the plows come into the service garage. Each plow goes through a complete safety inspection and evaluation, all fluids and filters are replaced, and oil samples are taken. They are sent to an independent lab and oil reports are sent back to the City where they are analyzed for premature failure and over all driveline component condition. Any needed repairs and suggestions by operators are made at this time to reduce down time during the busy winter months. The main goal of the Motor Pool Division is to have its fleet ready for any crisis that may arise with very little or no downtime.

Equipment

- Small Equipment – 157
- Sedan/Pickups – 89
- Large Equipment – 113

Maintenance

- Tune Up – 70
- Brakes – 40
- Suspension Work – 44
- Drive Train – 7
- Engine Work – 6
- Oil Changes – 345
- Restoration Work (average restoration takes 120 hrs) – 4
- Equipment Painting – 2
- Snow Plow Under Body Changes – 78
- Schedule Maintenance (above and beyond just oil change) – 160
- New Equipment Outfitted – 6

Fuel Usage

- Waste Water Treatment Plant – 2,054 gallons
- Marquette Housing – 1,315 gallons
- Downtown Development Authority (DDA) – 1,981 gallons
- Lakeview Arena – 1,894 gallons
- Motor Pool – 98,680 gallons
- Marquette Area Public Schools (MAPS) – 43,486
- AMCAB – 5,036 gallons
- Powell Township – 4,400 gallons
- Peter White Public Library (PWPL) – 44 gallons

Facility Maintenance Division

The main goal for the department during the FY 11-12 was to complete all remaining capital improvement projects that had been approved in the previous two fiscal years. This included finishing the bonded Lakeview Arena work.

City Hall and the Lakeview Arena benefited from a majority of this year's work through the completion of several capital improvement projects. Many of these projects were driven by the need to reduce the City's energy consumption. The most notable energy reduction projects involve the replacement of Metal Halide lighting with energy efficient T8 fluorescent lighting. City personnel continue to look for ways to reduce the City's electrical and gas consumption through the use of preventative maintenance and monthly energy audits.

The following list highlights some of the major projects and accomplishments that were either completed in the fiscal year or are near completion.

- Lakeview Lighting Upgrade – One hundred and ninety two Metal Halide fixtures were replaced with high bay fluorescents over both ice surfaces. We anticipate 25% reduction in electrical usage. The project was completed by replacing hallway and locker room lighting.
- City Hall Fire Alarm Project – A new modern ADA compliant fire alarm system was deployed.
- Lakeview Scoreboard – New LED scoreboard to be installed in Russell.
- Parking Lot Sealing – City Hall and the MSC received seal coating.
- Baraga Gym Lighting Project – 18 Metal Halide fixtures to be replaced with high bay fluorescents. System included occupancy sensors and a programmable lighting control panel.

- Lakeview Arena Munters Unit - Dehumidification unit at Lakeview Arena was configured incorrectly since installation. Controller, motor overloads, and sensor errors were corrected and unit now functions 100%.
- MIOSHA visit – The City facilities received an unannounced MIOSHA inspection. Most of the hazards that were identified during the MIOSHA pre assessment at the Municipal Service Center (MSC), City Hall, Fire Departments, Lakeview Arena, Wastewater, Water Filtration, and Water Distribution Stations were corrected. The City is still waiting for the final report from MIOSHA.
- City Hall HVAC System – New circulation pumps were purchased and installed.
- Lakeview Ice Compressor Repairs and Improvements – The current ice system controller was outdated and overtaxed with other building tasks. Upgrading to a new dedicated PLC and installing VFDs and motor soft starters, significant energy reductions are expected as well as preventing wear and tear on the compressors, thereby extending their life and increasing the amount of time between compressor rebuilds.
- Russell Arena Locker Room Renovation – The project entails installing new flooring, repainting both changing areas and bathroom/shower rooms and installing new shower fixtures. The project is ongoing but will be completed for the upcoming season.
- Community Development carpeting was replaced and the office was painted.

Parks and Recreation Maintenance Division

We started out 2011 much differently than in past years. Some of our normal winter work was limited due to weather, with limited ski-trail grooming and no outdoor ice rinks. The ice rinks will be returning if the weather cooperates this year.

Park staff has been replacing/establishing facility signs at Kaufman Sports Complex, Tourist Park, McCarty's Cove, Presque Isle Park, Lakeview Arena and Mattson Park. The signs are completed for Kaufman Sports Complex, Tourist Park and McCarty's Cove. The others are in progress.

In addition to the weekly maintenance duties, park staff remodeled the Assistant City Manager, Police Captain, and the City Assessor's offices, replaced concrete side walk in the entrance area off of Spring Street and Fourth Street, repaired numerous lock and door issues and completely cleaned air ducts on all three air-handlers.

Mattson Park is still a challenge keeping the large turf areas in good condition. After the four major events held there each summer, the main area west of the concession building requires aerating, reseeding and irrigation.

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| • Miles of trail plowed – 182 | • Cook stove cleaning – 3,000 |
| • Dog boxes serviced – 2,912 | • Gravel parking lot repair – 29 |
| • Toy repairs – 37 | • Flag pole/flag maintenance – 42 |
| • Irrigation repairs – 39 | • Outdoor ice rink flooding – 0 |
| • Drinking fountain repairs – 29 | • Parking lot plowing – 500 |
| • Trash cans serviced – 21,890 | • City Hall maintenance – 400 |
| • Beach maintenance – 80 | |