

DEPARTMENT OF PUBLIC WORKS

2016 Annual Report

I. OVERVIEW

In 2016, the Public Works Department prepared 93 City Council agenda items and staff attended meetings related to the Palouse Basin Aquifer Committee (PBAC), and Palouse Regional Transportation Planning Organization (PRTPO), as well as continued to track the Total Maximum Daily Load (TMDL) development process for the South Fork of the Palouse River.

II. DIVISIONAL ACTIVITIES

A. Engineering Division

In 2016, engineering services were provided for the construction of the following major projects:

<u>Project:</u>	<u>Valuation:</u>
Sanitary Sewer Rehabilitation 2016 (ongoing).....	\$ 763,231.45
Accelerated Streets Resurfacing 2016	\$ 467,115.72
Stormwater Low Impact Development Retrofit Project 2016	\$ 436,139.96
WWTP Air Gap Pump Station (ongoing).....	\$ 315,944.15
WWTP Influent Pump Replacement (ongoing).....	\$ 302,594.60
Orion Drive & Wheatland Drive Waterlines	\$ 217,960.39
N. Grand at Ritchie Pedestrian Crossing (ongoing).....	\$ 212,573.61
Terre View Drive Bridge Deck Resurfacing	\$ 113,978.47
Neill Public Library Carpet Tile Replacement	\$ 104,161.75
College Hill Utility Upgrades	\$ 101,074.32
Sidewalks 2016	\$ 82,130.00
North Grand Avenue Path Infill.....	\$ 60,336.68
WWTP Clarifier Stair Replacement	\$ 30,212.92
	<u>\$ 3,207,454.02</u>

Inspection of the construction of the public works improvements for the following developments:

- Pullman High School remodel (ongoing) – NW Greyhound Way
- SEL zBeta Building – 1830 NE Schweitzer Drive
- SEL Industrial Building – 2454 NE Andrus Dr.
- Carson’s Cove – NE Stadium Way
- Bestebreuer Tri-Plex – SE Barnes Court
- The Flats Apartments (ongoing) – NE Terre View Drive
- Courtyard by Marriott – NE North Fairway Drive
- Golden Hills Apartments West (ongoing) – SE Golden Hills Drive
- Riverwalk Residences – NE Maple Street

Mosher Drive
Starbucks – NE Stadium Way
Paradise Hills (subd) – Military Hill
Sunnyside Heights (subd) – Sunnyside Hill
Whispering Hills West 2.0 (subd) – Sunnyside Hill

Other significant activities include:

- Design of Arterial Streets Resurfacing 2017
- Design of Accelerated Streets Resurfacing 2017
- Design of City Hall Masonry Restoration & Garage Level Painting
- Design of Davis Way Welcome Park
- Design of Fuel Island Relocation
- Design of M&O Roofing Replacement
- Design of N. Grand Water Line Replacement
- Design of Sanitary Sewer & Stormwater Improvements 2017
- Design of Sidewalks 2017
- Design of Grand Avenue/Center Street Traffic Signal
- Installation of radar speed signs on Center Street
- City-owned street light LED conversion (ongoing)
- WWTP Facility Plan

B. Protective Inspections Division

Activity in the Protective Inspections division was up:

- Inspections were up in 2016 with 3,165 inspections made compared to 2,848 in 2015, an increase of 11%.
- Permit activity in 2016 was up with 687 permits issued for work valued at a total of \$170,774,463 and \$1,321,141.85 in fees collected compared to 680 permits issued for work valued at a total of \$45,948,581 and \$550,058.63 in fees collected in 2015.
- 10 housing life/safety complaints were received; 4 resolved, 5 in progress, 1 closed for non-responsive complainant

Major building activity included the following:

- WSU Building Permits (plan review and inspections), including:
 - 700 NE Thatuna Street - Chinook Student Center
 - 1600 NE Wilson Road - WSU Museum of Art
 - 405 SE Spokane Street - Elson S. Floyd Multicultural Center
 - 1270 SE Washington Street - Digital Classroom
 - 1470 E College Avenue – Troy Hall Renovation
 - 2035 NE Ferdinand Lane - Ferdinand’s Remodel
 - 2201 NE Grimes Way - Public Safety Building (completion)
 - WSU Annual Permit
- Pullman High School - continuing construction
- Pullman-Moscow Regional Airport runway re-alignment grading

- SEL Z beta building – 1830 NE Schweitzer Drive
- SEL Industrial Building – 2454 NE Andrus Drive
- Carsons Cove– 500 block of NE Stadium Way (completed)
- Courtyard by Marriott – 1295 NE North Fairway Drive
- Jefferson Elementary School addition – 1150 NE Bryant Street (completed)
- Whispering Hills Apartments West - 635 SW Golden Hills Drive (continuing)
- The Flats Apartments - 1880 NE Terre View Drive (completion)
- Permits were issued for:
 - 49 new single family homes
 - 3 townhouses buildings, for a total of 7 units
 - 2 duplexes
 - 7 multi-unit apartment buildings, for 114 new units
 - 2 added units
 - 1 new mobile home
 - 268 building remodels and additions
 - 157 for mechanical/plumbing work
 - 16 signs
 - 11 demolitions
 - 26 WSU
 - 127 other

C. Stormwater Services Division

2016 saw successful implementation of the City’s Stormwater Management Program. Notable activities included:

General Program Administration (including S5.A. and S9)

- Represented Pullman at the Stormwater Management Manual for Eastern Washington (SWMMEW) update meetings (1/8, 10/25).
- Represented Pullman at the Eastern Washington Stormwater Group (EWSWG) regional coordination meetings (5/26, 9/15).
- Received a grant from DOE totaling \$25,000 for acquisition of asset inventory equipment and Total Maximum Daily Load (TMDL) related water quality monitoring.

Public Education & Outreach (S5.B.1.)

- Pursued education and outreach efforts via website, news media, radio PSAs and personal interaction with customers.
- Partnered with PCEI, Pullman School District and private schools to integrate stormwater concepts into the 5th and 8th grade science curriculum, totaling 15 lessons delivered to 402 students.
- Other Stormwater K-12 Education
 - 2nd Grade Jefferson Elementary (6/2 - 75 students)
- Successfully implemented the Pullman Adopt-A-Stream Program. Stream Stewards were active on 15 of the 16 available segments.

Stewards collectively participated in 40 clean-up events throughout the year. Stormwater Services staff responded to 17 Steward requests for trash removal.

- Sponsored the 12th Annual Pullman Stream Clean-up event on April 16th; 268 volunteers spent 804 hours cleaning Pullman streams, removing an estimated 6 cubic yards of litter and recyclables from 4.4 miles of stream.
- Coordinated Missouri Flat Creek Riparian Restoration: WSU College of Agricultural, Human and Natural Resource Sciences (400 students).
- Coordinated independent volunteer stream clean-up (4/2); 55 sorority members spent 165 hours removing 2 cubic yards of trash & recyclables.
- Sponsored two interns.
- Mentored one WSU Senior Engineering Design student group project: *Whispering Hills 2.0 Underground Detention* (Spring 2016).
- Sponsored WSU Class Projects – General Ecology (BIO 372): MFC Invertebrate Study
- Leadership/Community (HD 415): Dog Doogity

Public Involvement (S5.B.2.)

- Posted updated Stormwater Management Program (SWMP) Plan on city website.
- Posted Phase II Municipal SW Permit 2015 Annual Report on city website.

Illicit Discharge Detection & Elimination (S5.B.3. & G3)

- Responded to, investigated, resolved and reported to DOE nine formal IDDE complaints.
- Responded to, investigated and resolved 24 other, non-IDDE-related complaints including pet waste, solid waste, drainage, etc.

Construction Site Runoff Control (S5.B.4.)

- Issued 83 City of Pullman Stormwater Permits for new and re-development projects.
- Reviewed 38 Site Plans and Stormwater Pollution Prevention Plans (SWPPPs) for large grading and new construction projects.
- Reviewed 76 Erosion and Sediment Control (ESC) plans for projects of duplex size or smaller (mostly single-family residential homes).
- Conducted 110 documented construction related erosion control inspections.
- Continued monitoring of an Inter-Agency agreement with WSU for regulation of Construction and Post-Construction activities.

Post-Construction Stormwater Management (S5.B.5.)

- Reviewed 12 drainage reports and civil drawings of post-construction stormwater BMPs included in site plans for newly proposed development.
- Inspected 22 post-construction BMPs at eight sites, during installation.
- Inspected 20 post-construction BMPs after project completion (within 5 years).
- Received six stormwater facility O&M plans.
- Coordinated stormwater treatment BMP training for local design professionals (9/21).

Municipal Operations and Maintenance (S5.B.6.)

- Number of City Stormwater Facilities Inspected (excluding catch basins) – 10
 - Detention Ponds – 4
 - Treatment – 6

Compliance with TMDLs (S7)

- Coordinated with DOE's TMDL Lead on TMDL implementation.
- Coordinated with WSU-EHS on TMDL implementation.
- Continued implementation of pet waste management program, including:
 - Pet waste education/outreach radio PSAs.
 - Inspected and performed maintenance on 90 pet waste stations and 25 waste receptacles.
 - Installed two pet management signs near Lincoln Middle School.
 - 66 volunteer hours spent on pet waste stations in 2016 (filling with bags, removing waste, inspecting for damage, etc.).
- Completed Dry Fork Creek (DFC) Fecal Coliform Bacteria Quality Assurance Project Plan (QAPP) and received DOE approval.
- Implemented DFC fecal coliform bacteria monitoring plan to assess progress toward TMDL waste load allocation reduction targets (2 samples taken at each of three sites, twice per month).
- Repaired and/or replaced public sanitary sewer lines and manholes (suspected fecal coliform bacteria sources) in nine locations, totaling 4,289 lineal feet and 26 manholes. Total cost: \$763,000.

Amount of sanitary sewer pipe repaired/replaced by drainage basin:

- Missouri Flat Creek - 2,573 LF
- Dry Fork Creek - 1,205 LF
- Hatley Creek - 511 LF

Monitoring and Assessment (S8)

- Represented Pullman at Effectiveness Monitoring meetings.

Capital and Infrastructure Improvement Projects

- Completed construction of stormwater retrofits and Low Impact Development (LID) BMPs on two city owned parking lots (Neill Public Library & South Street Lot).

D. Transit Division

Fixed-Route:

Total ridership on the Fixed-Route was 1,319,781. This is a decrease of 31,855, or just over 2%, from 2015.

Fixed-Route ridership for 2016 compared to 2015 is as follows:

	Jan – May	June – Aug	Sept – Dec	TOTAL
2015	630,386	115,544	611,976	1,357,906
2016	630,238	118,526	571,017	1,319,781

Dial-A-Ride:

Ridership for Dial-A-Ride service was 21,279. This is a decrease of 1,842, or 8% from 2015, which was the first year ridership exceeded 20,000 riders.

Dial-A-Ride ridership for 2016 compared to 2015 is as follows:

	Jan - May	June – Aug	Sept – Dec	TOTAL
2015	9,902	5,834	7,385	23,121
2016	9,116	5,056	7,107	21,279

Transit – Operating Statistics:

Population 32,650

Fixed-Route

Passenger Service Hours 28,857
 Passenger Service Miles 409,867
 Passenger Trips 1,319,781
 Employees (FTEs) 24.0
 Passenger Trips/Service Hour 45.7
 Passenger Trips/Service Mile 3.2
 Service Hours/Employee 1,202

Demand-Response (Dial-A-Ride)

Passenger Service Hours 7,279
 Passenger Service Miles 59,311
 Passenger Trips 21,279
 Employees (FTEs) 6.1
 Passenger Trips/Service Hour 2.9

Passenger Trips/Service Mile	0.35
Service Hours/Employee	1,193
Fixed-Route	
Operating Cost	\$ 2,878,947
Operating Cost/Vehicle Service Hour	\$ 99.76
Operating Cost/Passenger Trip	\$ 2.18
Farebox Revenues	\$ 2,207,628
Farebox Recovery Ratio	76%
Demand-Response (Dial-A-Ride)	
Operating Cost	\$ 733,735
Operating Cost/Vehicle Service Hour	\$ 100.80
Operating Cost/Passenger Trip	\$ 34.48
Farebox Revenues	\$ 6,072
Farebox Recovery Ratio	0.8%

Fixed route recovery ratio includes WSU and Pullman School District (PSD) contracts.

E. Maintenance & Operations Division

Stormwater:

- Crews spent 903.25 hours sweeping city streets.
- Labor hours expended on storm drain maintenance: 1,451.25.

Streets:

- 1,241 labor hours were spent painting and/or maintaining the paint on street centerlines, fog lines, curbs, crosswalks and bike lines.
- Crews spent 641.50 labor hours grading alleys as well as identifying and filling potholes in city streets.
- Snow and ice control operations involved 3,091.50 labor hours.
- Crews spent 287 hours inventorying street lights, maintaining traffic signals and providing traffic control.
- 120 sign work orders were completed for new installations, vandalism and/or damage repairs. Labor hours related to sign work totaled 1,022.50.

Water:

- M&O crews completed a total of 1,095 work orders for water related assets.
- The water asset related work order summary follows:

	# of work orders	
	2015	2016
○ Backflow Assemblies		
▪ Repair	10	12
○ Hydrant Meters		
▪ Tracking hydrant meter water use	53	35

○ Operations Facilities		
▪ Booster stations, wells, reservoirs miscellaneous and preventive maintenance	302	314
○ Water Meters		
▪ New installations	36	80
▪ Age related meter & register replacements	274	257
▪ Register replacements only	2	6
▪ Replace radio read transmitters	13	56
▪ Large meter tests	121	133
▪ Miscellaneous activities	71	75
○ Water Service Lines		
▪ Repairs	2	23
▪ Replacements	32	19
▪ Stub ins	40	6
▪ Removed	1	1
○ Fire Hydrants		
▪ Repairs	8	23
▪ Replacement	32	1
▪ Storz fitting installations	130	0
▪ General maintenance	3	0
○ Water Mains		
▪ Repaired broken mains (details below)	12	8
▪ General maintenance and/or replaced	1	0
▪ Flush water mains	15	45

<u>MAIN BREAK VICINITY</u>	<u>PIPE SIZE & TYPE</u>	<u>DATE</u>
1125 NW Clifford Street	6" cast iron	01/23/16
230 NW Thomas Street	8" cast iron	02/28/16
1100 N Grand Avenue	12" cast iron	04/19/16
820 NE Linden Street	6" cast iron	05/29/16
1060 SW Viento Drive	6" cast iron	07/02/16
Spring Street & Main Street	8" cast iron	07/03/16
912 W. Main Street	8" cast iron	11/25/16
100 SE Crestview Street	8" cast iron	12/28/16

- 773.50 hours were spent maintaining city backflow assemblies, testing city assemblies, and new installations.
- As part of the on-going backflow testing program, 1,438 backflow tests were performed on city, commercial, and private residential devices. City personnel performed 113 tests while outside contractors performed the other 1,325 tests.
- Crews spent just over 4,895.50 labor hours maintaining city water tanks, wells, reservoirs, booster stations, and their grounds.
- The number of routine water samples taken was 467. There were 43 new construction samples taken. There were 53 investigation samples taken.
- The existing 107.38 miles of water mains were increased by 1.18 miles to 108.56 miles.

Water Operations Statistics:

Water pumped.....	917,414,000 gallons
Water metered (sold).....	880,749,000 gallons
Water accounted for (not sold)	5,849,000 gallons
Total accounted for	886,598,000 gallons
Percentage of water accounted for	96.64%
Daily average	2.429 million gallons
Average daily usage per capita (based on 26,352 population)	91 gallons
High day usage – September 16.....	5,040,000 gallons
Low day usage – December 26.....	529,000 gallons
Total number of active services	5,353 (+69)

Number of services by user code:

01 Single-Family.....	3,730
02 Duplex.....	502
03 Multi-Family	442
04 Business/Commercial	384
05 Group	41
06 Schools.....	13
07 Irrigation	197
08 Mobile Home Parks	44

Total chlorine used.....	109, 613 pounds (salt)
Chlorine cost	\$20,470
Total hydrofluosilicic acid used.....	15,950 pounds
Fluoride cost.....	\$13,017
Total chemical cost	\$33,487
	\$0.037/kgal
Electrical consumption cost	\$238,734
	\$0.260/kgal

Sewer System:

- Crews completed 663 sewer asset related work orders. Maintenance was performed on just over 95,025 lineal feet of sewer main lines. 97 field inspection tests were performed on sewer lift stations.
- Sewer dye tests were performed on 70 new or altered connections to sewer main lines.
- The existing 95.04 miles of sewer main lines was increased by 0.56 miles to 95.60 miles.

Emergency Call outs:

- 1,140 underground utility locate requests were completed, which consumed 1,620.25 labor hours, compared to 991 locate requests and 1,285.5 labor hours in 2015.
- Ten M&O employees participated in the Weekend/Holiday On-Call Program for a total of 3,789 on-call hours.
- Fifty-eight of the 213 total call outs were handled by on-call personnel. Fifty-nine call outs were not handled by on-call personnel as the call outs occurred when no one was scheduled to be on call; that is typically 7:30 am Monday thru 4:00 pm Friday. Twenty

call outs were a result of on-call personnel calling out other maintenance personnel for additional assistance. The other seventy-six call outs were during on-call times, but were handled by personnel not on call.

- On-call maintenance personnel responded to twelve of forty-eight street related emergency call outs which included traffic signal issues, snow and ice related problems or signage issues. One call out resulted from on call personnel calling for additional assistance. Twenty-seven call outs were handled during on-call times, but were handled by personnel not on call. The other eight call outs occurred during the work week when no one is scheduled to be on call.
- On-call maintenance personnel responded to twenty-nine of the sixty-four water-related emergency call outs which included problems such as water main breaks, service line leaks, and water meter related issues. Fourteen call outs occurred during the work week when no one is scheduled to be on call. Seventeen call outs resulted from on call personnel calling for additional assistance. Four call outs were handled during on-call times, but were handled by personnel not on call.
- On-call maintenance personnel responded to nine of the seventeen sanitary sewer-related emergency call outs. Two call outs occurred during the work week when no one is scheduled to be on call. Two call outs resulted from on-call personnel calling for additional assistance. Four call outs were handled during an on-call time, but were handled by personnel not on call.
- The auto-dialer telemetry system requires response from specifically trained personnel. The system called out eighty-three times outside of normal working hours. On call personnel handled eight of those calls; thirty-four calls occurred when no one was on call, forty-one were during on-call times, but were handled by personnel not on call.
- There were not any stormwater related call outs.

Equipment Rental:

- Performed preventive maintenance (service, inspections and repairs) on:
 - Ambulance - 6 Total
 - Dial-A-Ride Vans - 6 Total
 - Fire Trailers - 2 Total
 - Fire Trucks - 5 Total
 - Light Vehicles - 50 Total
 - Mini Buses - 3 Total
 - Police Cars - 13 Total
 - Trailers And Attachments - 34 Total
 - Transit Buses - 21 Total
 - Trucks 1-Ton and Over - 22 Total
 - Various Equipment - 26 Total
- Processed 2,795 equipment work orders for vehicle service and repairs.
- The following vehicles were compared to bid specifications and prepared for service; including installation of safety equipment, emblems, and radio equipment:
 - 14-392 Mv-1 Transit Van - Transit

- 15-175 Jacobsen Paint Supplier - M&O
- 16-065- Ford ½ Ton Crew Cab Pickup - Utility/Water & Sewer
- 16-201 Kubota F3990 Mower - Public Services/ Parks
- 16-218 Kubota F3990 Mower - Public Services/ Parks
- 16-241 Toyota Prius -M&O
- 17-017 Ford Utility Police Interceptor - Police
- *17-021 Ford Utility Police Interceptor - Police
- 2338- Gillig Bus - Transit
- 3341- Gillig 40-ft Bus - Transit

* This asset was purchased in 2016 but will not be put into service until 2017.

Wastewater Treatment Plant

Wastewater Statistics:

Total flow treated (effluent).....	889.8 million gallons
Maximum daily flow – Feb. 10.....	6.0 million gallons
Minimum daily flow – Nov. 28	1.3 million gallons
Maximum monthly flow – February.....	93.0 million gallons
Minimum monthly flow – July	52.7 million gallons
Average daily flow.....	2.4 million gallons
Average summer flow (May-August).....	1.92 million gallons per day (mgd)
Average winter flow (September-April).....	2.69 mgd
Design flow.....	4.3 mgd
Hydraulic capacity	13.0 mgd
Plant capacity	8.6 mgd/winter peak

- Removed 97.5% of the total suspended solids and 96.7% of the organic contaminants before discharge to the South Fork Palouse River. The City’s NPDES permit requires 85% removal of these pollutants.
- The amount of Class B bio-solids produced and applied on local farm ground was 445.0 dry tons versus 398 dry tons in 2015.
- Four groups have participated in plant tours, which is the same number as in 2015.

Major Projects Completed:

- Drained and cleaned one aeration basin, two secondary clarifiers, and one primary clarifier.
- Performed the air emissions test for boiler #2.
- Drained and cleaned two primary digesters and one secondary digester.
- Sampled and analyzed PCBs from four manholes, the plant influent and effluent.

Major Operating Expenses:

Electricity and natural gas:	\$270,245
(down \$7,710 from \$277,955 in 2015)	
Nine tons of chlorine used in disinfection process:	\$7,290
Six tons of sulfur dioxide used in the disinfection process:	\$7,632

- 185 bags (55#/bag) of polymer used in solids processing: \$23,929

Discharge Permit Violations:

- January
 - Dichlorobromomethane (DCBM) (mg/L) Daily Maximum and Monthly Average.
- February
 - DCBM (mg/L) Daily Maximum and Monthly Average.
- March
 - Effluent pH Exceeded the Daily Maximum Concentration Lower Limit.
- April
 - DCBM (mg/L) Daily Maximum and Monthly Average.
- August
 - DCBM (mg/L) Daily Maximum and Monthly Average.
- September
 - DCBM (mg/L) Daily Maximum and Monthly Average.
- October
 - PCB Exceeded the Daily Maximum Concentration
- November
 - None
- December
 - None

F. Government Buildings

Significant activities performed by Government Buildings in addition to ongoing custodial and routine maintenance include:

- Library – LED lights; new carpet; painted
- Aquatic Center – closed week cleaning/maintenance
- Aquatic Center – two new water heaters; shower mixing vault; painted
- Police Department – LED lights
- Fire Station #1 – replaced one AC unit; replaced FRP North Wall Fire Bay; new drain system behind building
- Fire Station #2 – outside electric plug for utility trailer
- Well Station by Scout House – Repaired heater
- Merman Well Station – replaced heaters