

**TO: Board of Directors – Platte Canyon Water and Sanitation District
Board of Directors – Southwest Metropolitan Water and Sanitation District**

FROM: Scott Hand, Operations Supervisor

THROUGH: Pat Fitzgerald, District Manager

DATE: October 1, 2020

SUBJECT: Maintenance Goals for 2021

The following projected maintenance schedule for 2021 identifies the maintenance levels and the manpower requirements needed to fulfill the proposed maintenance goals for the Platte Canyon, Southwest Metropolitan, Bow Mar and Columbine Water and Sanitation Districts and Valley Sanitation District. These goals have been determined to be necessary for the effective, efficient, and economical operation of the Districts' water distribution and wastewater collection systems.

The maintenance goals prescribe the frequency in which the various infrastructure maintenance activities are performed. For example, all water gate valves are fully exercised or inspected once each year. All fire hydrant maintenance tasks are performed once each year. All sewer mains are televised at least once every four years and re-televised, cleaned, root-cut, or chemically treated for roots on an "as needed" basis. A more detailed description of each maintenance activity is referenced in this memo, as well as in the Districts' maintenance job standards.

The maintenance activities to be performed in 2021 are scheduled throughout the year by considering job standards, manpower requirements, equipment levels and reliability, and expectations of time needed to perform non-routine maintenance activities. Manpower requirements are developed by applying the District's job standards to the maintenance task schedule. By applying the number of man-hours required to complete each maintenance task (job standards) to the number of maintenance tasks to be completed, the total man-hours required to complete the maintenance schedule is calculated. Through several iterations of schedule development, the optimum combination and level of permanent and seasonal labor requirements is calculated.

Maintenance Goals - 2021

Quality Assurance will continue to be the focus and emphasis of maintenance operations in 2021. Quality assurance procedures enable the operations supervisor and foreman to monitor and control the quality of work being produced. For water related activities, completed work orders are submitted by all maintenance employees to the operations supervisor after the activities are completed. The operations foreman inspects randomly selected assets to confirm the assigned work has been completed in accordance with job standards. Then, he documents and assigns any needed follow up maintenance. Deficiencies are reported to the operations supervisor for review and correction and are noted on each employee's monthly productivity report.

Sewer maintenance activities are also monitored by the operations supervisor. Random work orders are compared to the television inspection video produced in the field to ensure the accuracy of the information logged in the work order. The quality and accuracy of these reports are also incorporated into the employees' monthly productivity reports.

The Districts will continue to rely on the Infor computerized maintenance management system (CMMS) to schedule, generate work orders and record all maintenance activities. The CMMS supports the Districts' mobile workforce effort which eliminates paperwork orders and maintenance records. Laptop computers are issued to all operations employees and mounting equipment is installed in all maintenance vehicles. This equipment combined with the Districts' CMMS and Geographic Information System (GIS) has greatly enhanced the efficiency of conducting the various maintenance programs described in detail below.

The procedures for hydraulic root cutting of sewer mains that were implemented in 2006 continue to be very effective. Prior to implementation of revised root cutting procedures, no post-video inspection was conducted. It was discovered that even when cutting equipment was used properly, all roots were not being effectively removed. The revised procedures require television inspection of sewer mains as root cutting is conducted. This provides assurance that all roots are cut and removed from the pipelines. The procedure requires additional manpower but is essential for quality assurance and control.

The projected sewer maintenance schedule now reflects scheduled root treatment activities. Root treatment has been conducted since 2012 with more scheduled for 2021. Staff is currently developing an effective way to amend root cutting activities and incorporate additional root treatment activities into the scheduled maintenance. Vaporooter Sanifoam is a restricted-use-pesticide and requires certification from the Colorado Department of Agriculture to purchase and apply the chemical. All five operations staff have "certified applicator" certification. The operations foreman and I are "qualified supervisors". The District must have at least one qualified supervisor to oversee the certified applicators during chemical application.

It may be necessary to hire seasonal temporary employees to accommodate preventive water maintenance. For the past several years, maintenance goals have been accomplished with current

operations staff. Should a new or extended task arise, seasonal temporary employees would be considered to accomplish the maintenance goals.

In order to maintain high quality, effective water and sanitary sewer operation and maintenance programs, it is strongly recommended that current maintenance schedules and job standards be retained. The following Exhibits A, B, and C reflect current maintenance schedules, job standards, and proposed man-hours.

The Hourly Labor Distribution Table (Exhibit A) depicts the actual man-hours utilized for maintenance activities between 2016 and 2019, estimated man-hour allocations for 2020, and projected 2021 man-hour requirements necessary to complete maintenance tasks listed in Exhibit C. The Proposed 2021 Maintenance Schedule (Exhibit B) summarizes actual scheduled maintenance activities for 2020, estimated year end maintenance accomplishments, and 2021 proposed maintenance activities for Platte Canyon, Southwest Metropolitan, Bow Mar, Columbine and Valley. Exhibit C, Projected 2021 Maintenance, breaks down maintenance activities by month and district and allocates manpower requirements based on job standards for each activity.

Following is a brief description of the work to be completed for each maintenance activity.

Hydraulic Sewer Cleaning

Sewer television inspections have identified sewer problem areas that require periodical cleaning on a regularly scheduled basis. Maintenance crews hydraulically clean only those sewer runs that are known to be problem areas as determined by television inspections or previously reported deficiencies. The job standard for hydraulic sewer cleaning is 3,750 feet per day.

Root Cutting

Sewer television inspections have identified sewer problem areas that require periodical root cutting on a regularly scheduled basis. Maintenance crews mechanically cut only those sewer runs that are known to be problem areas as determined by television inspections or previously reported deficiencies. The job standard for root cutting is 2,250 feet per day.

Root Treatment

Sewer television inspections have identified sewer problem areas that require chemical applications to kill and reduce root growth intruding into the sewer mains through pipe joints, broken pipes, and customer's service laterals. Maintenance crews apply the chemical only to those sewer runs that are known to be problems area as determined by television inspections or previously reported deficiencies. The job standard for root treatment is 2,500 feet per day.

Television Inspections

The District has adopted a plan to televise every sewer reach on a four year rotating cycle. In addition, television inspections occasionally identify sewer reaches that require inspection at more frequent intervals. A sewer main rating system is used to determine future scheduling for all sewer maintenance activities. The rating is based on the observed structural integrity and root content of each reach compared to the rating condition standards. Each sewer reach is prioritized for future maintenance as follows:

<u>Condition</u> <u>(Priority, condition 5 being highest)</u>	<u>Re-Televise Schedule</u> <u>(According to Condition)</u>
1	4 year intervals
2	2 year intervals
3	1 year interval
4	6 month intervals
5	3 month intervals

The job standard for television inspections is 3,500 feet per day.

General Scheduled Maintenance

General scheduled maintenance activities include those that are performed on a recurring daily, weekly, or monthly basis. These activities include:

- Pump stations inspection and maintenance
- Lift station inspection and maintenance
- Vehicle maintenance
- Staff and safety meetings
- Pressure monitoring

General Unscheduled Maintenance

General unscheduled maintenance activities include those that are performed on an “as needed” basis, but are necessary tasks requiring significant man-hours. These activities include:

- Customer service
- Utility locations
- Building and landscape maintenance
- New water and sewer service inspections
- Warranty inspections
- Messenger service
- General maintenance of facilities
- Corrective maintenance
- Overlay operations
- Maintenance administration
- Water and sewer emergencies

The Jefferson County Street Overlay Program is an unscheduled maintenance item which is projected into the maintenance schedule and may impact scheduled activities and manpower requirements. A schedule from the County will not be available until the first of the year. These overlay programs usually require an additional two man crew from the district.

Distribution System Flushing

In order to maintain high quality drinking water, it is necessary to flush and test water quality at dead end water mains at least once a year. This is accomplished by opening a blow-off valve or fire hydrant and flushing that main line until the water runs clear. Crews will then perform water quality testing at each site, meeting the criteria set forth by Denver Water for chlorine residual and temperature. The entire system is flushed and tested annually. The job standard for distribution system flushing is 30 units per day.

Fire Hydrants – Service Cycle

Fire hydrant service cycle maintenance consists of exercising the branch valve, operating the hydrant, oiling and greasing the operating mechanisms, recording static pressure reading, and checking for leaks and proper drainage of the hydrant. These activities are performed biennially. The job standard for fire hydrant servicing is 25 units per day.

Fire Hydrants – Inspection Cycle

Fire hydrant inspection cycle maintenance consists of inspecting the branch valve, operating the hydrant, oiling and greasing the operating mechanisms, recording static pressure reading, and checking for leaks and proper drainage of the hydrant. These activities are performed biennially. The job standard for fire hydrant inspections is 30 units per day.

Fire Hydrants – Painting Cycle

Fire hydrant painting cycle consists of removing dirt and grease from the hydrant, which sometimes requires the use of sand blasting equipment. Paint is applied using pneumatic spraying equipment. The hydrants are painted biennially on the Service – Inspection Cycle. The job standard for fire hydrant painting is 50 units per day.

Valves – Exercise Cycle

Water valves are exercised biennially by completely operating the valve and counting the turns based on valve size. The valve box is painted to identify the opening direction, as well as the position of the valve. The job standard for valve exercising is 30 units per day.

Valves – Inspection Cycle

Water valves are inspected biennially by placing a valve key on the valve nut and confirming position of the valve. The valve box is painted to identify the opening direction, as well as the position of the valve. The job standard for valve inspections is 40 units per day.

Pressure Reducing Valves

P.R.V.'s are maintained and inspected annually. The valves which isolate the P.R.V. are exercised and painted. Flushing of all the plumbing is performed and well as confirmation of proper operation. Upstream and downstream pressures are taken and recorded. These valves are used to reduce pressure between hydraulic zones. These valves are critical for the proper and efficient operation of the Districts' water systems. The job standard for pressure reducing valve maintenance is 5 units per day.

Air-Vacuum Valves

Air-vacuum valves are inspected biannually, once in the winter months to wrap the standpipe to prevent freezing, and then again in the spring to remove the wrapping from the standpipe. During each visit the hand valves are exercised and the assemblies are flushed to confirm proper operation and system tightness. The valves are used to allow air to enter water mains during isolation procedures and also to allow air to exit the water mains during filling. The job standard for air-vacuum valve maintenance is 10 units per day.

EXHIBIT A

Hourly Maintenance Labor Distribution (2016-2021)

DISTRICT	2016	2017	2018	2019	2020 ¹	2021 ²
Platte Canyon Maintenance						
Regular Full-time	3,845	3,887	3,775	3,312	3,707	4,207
Regular Overtime	96	108	207	125	32	114
Temporary – Seasonal	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total Hours	3,941	3,995	3,982	3,437	3,739	4,321
Southwest Metro Maintenance						
Regular Full-time	7,237	7,524	7,230	7,673	7,784	8,218
Regular Overtime	159	138	140	270	206	183
Temporary – Seasonal	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total Hours	7,396	7,662	7,370	7,943	7,990	8,401
Bow Mar Maintenance						
Regular Full-time	542	360	397	196	354	370
Regular Overtime	15	19	17	19	17	17
Temporary – Seasonal	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total Hours	557	379	414	215	371	387
Columbine Maintenance						
Regular Full-time	367	354	372	320	402	471
Regular Overtime	9	4	10	16	12	10
Temporary – Seasonal	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total Hours	376	358	382	336	414	481
Valley Maintenance						
Regular Full-time	486	464	586	605	448	427
Regular Overtime	19	38	31	20	30	28
Temporary – Seasonal	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total Hours	505	502	617	625	478	455
Regular Hours	12,477	12,589	12,360	12,106	12,695	13,693
Seasonal Hours	0	0	0	0	0	0
Overtime Hours	<u>298</u>	<u>307</u>	<u>405</u>	<u>450</u>	<u>297</u>	<u>352</u>
TOTAL HOURS	12,775	12,896	12,765	12,556	12,992	14,045

¹Estimated actual hours worked

² Hours necessary to complete maintenance tasks listed in Exhibit C

EXHIBIT B
Proposed 2021 Maintenance Schedule

	<u>Platte Canyon</u>	<u>Southwest Metro</u>	<u>Bow Mar</u>	<u>Columbine</u>	<u>Valley</u>	<u>Totals (feet)</u>
Sewer Maintenance						
<i>Television Inspection</i>						
2020 Proposed	120,305	186,144	8,901	18,317	40,855	374,522
2020 Actual (est.)	111,172	199,477	8,901	22,375	38,237	380,162
2021 Proposed	102,652	204,920	19,334	32,980	27,738	387,624
<i>Hydraulic Cleaning</i>						
2020 Proposed	38,545	196,126	6,903	9,858	31,320	282,752
2020 Actual (est.)	40,613	203,524	6,903	16,679	31,147	298,866
2021 Proposed	33,365	365,421	528	17,471	16,085	432,870
<i>Root Cutting</i>						
2020 Proposed	32,890	3,364	9,161	2,276	6,490	54,181
2020 Actual (est.)	58,692	9,580	9,161	5,685	11,262	94,380
2021 Proposed	34,837	6,123	0	0	7,818	48,778
<i>Root Treatment</i>						
2020 Proposed	16,742	883	760	339	4,427	23,151
2020 Actual (est.)	16,742	883	760	339	4,427	23,151
2021 Proposed	13,553	1,287	361	1026	1,196	17,423
<i>Grease Interceptors</i>						
						(Units)
2020 Proposed	140	412	--	12	--	564
2020 Actual (est.)	140	412	--	12	--	564
2021 Proposed	140	412	--	12	--	564

EXHIBIT B (continued)
Proposed 2021 Maintenance Schedule

	<u>Platte Canyon</u>	<u>Southwest Metro</u>	<u>Bow Mar</u>	<u>Columbine</u>	<u>Valley</u>	<u>Totals (feet) (units)</u>
Water Maintenance						
<i>Valves</i>						
2020 Proposed	1,160	3,171	134	--	--	4,465
2020 Actual (est.)	1,194	3,171	133	--	--	4,498
2021 Proposed	1,171	3,171	133	--	--	4,475
<i>Fire Hydrants (Service)</i>						
2020 Proposed	491	1,557	59	--	--	2,107
2020 Actual (est.)	488	1,557	59	--	--	2,104
2021 Proposed	489	1,557	59	--	--	2,105
<i>Fire Hydrants (Paint)</i>						
2020 Proposed	225	658	59	--	--	942
2020 Actual (est.)	181	679	59	--	--	919
2021 Proposed	270	679	0	--	--	949
<i>Distribution System</i>						
<i>Flushing</i>						
2020 Proposed	148	494	3	--	--	645
2020 Actual (est.)	185	386	3	--	--	574
2021 Proposed	148	491	3	--	--	642
<i>Pressure Regulating Valves</i>						
2020 Proposed	11	19	--	--	--	30
2020 Actual (est.)	11	19	--	--	--	30
2021 Proposed	11	20	--	--	--	31
<i>Air Vac Valves</i>						
2020 Proposed	16	80	--	--	--	96
2020 Actual (est.)	14	82	--	--	--	96
2021 Proposed	14	82	--	--	--	96

(Hourly Labor Distribution Table)
Leave Time for Projected Maintenance Report for 2021

1. There are **11 Holidays** each calendar year. Each employee has **88** hours, per year, for Holiday Leave Time.
2. Each employee has 2 days **Personal Time** or **16 hours** per year.
3. Each employee has up to 2 **Safety Days** or **16 hours** per year.
4. There are **1,992 total work hours available from each employee;** (249 days x 8 hrs.)
5. Vacation Leave Time is as follows:

4 weeks (20 days) = (160 hours)
 3 weeks (15 days) = (120 hours)
 2 weeks (10 days) = (80 hours)

Scott Hand:	Vacation	(20 days)	(160 hours)	
	Pers. Time	(2 days)	(16 hours)	
	Safety Days	(2 days)	(16 hours)	
Total Leave Time		(24 days)	(192 hours)	
Total Work Hours		(249 days x 8 hrs. = 1,992 – 192 hrs. =)		(1,800 hours)

Armando Quintana:	Vacation	(20 days)	(160 hours)	
	Pers. Time	(2 days)	(16 hours)	
	Safety Days	(2 days)	(16 hours)	
Total Leave Time		(24 days)	(192 hours)	
Total Work Hours		(249 days x 8 hrs. = 1,992 – 192 hrs. =)		(1,800 hours)

Bruce Yarish:	Vacation	(20 days)	(160 hours)	
	Pers. Time	(2 days)	(16 hours)	
	Safety Days	(2 days)	(16 hours)	
Total Leave Time		(24 days)	(192 hours)	
Total Work Hours		(249 days x 8 hrs. = 1,992 – 192 hrs. =)		(1,800 hours)

John Mathias:	Vacation	(20 days)	(160 hours)	
	Pers. Time	(2 days)	(16 hours)	
	Safety Days	(2 days)	(16 hours)	
Total Leave Time		(24 days)	(192 hours)	
Total Work Hours		(249 days x 8 hrs. = 1,992 – 192 hrs. =)		(1,800 hours)

Justin Roquemore:	Vacation	(20 days)	(160 hours)	
	Pers. Time	(2 days)	(16 hours)	
	Safety Days	(2 days)	(16 hours)	
Total Leave Time		(24 days)	(192 hours)	
Total Work Hours		(125 days x 8 hrs. = 1,000 – 192 hrs. =)		(808 hours)

Mike Chavez:	Vacation	(15 days)	(120 hours)	
	Pers. Time	(2 days)	(16 hours)	
	Safety Days	(2 days)	(16 hours)	
Total Leave Time		(19 days)	(152 hours)	
Total Work Hours		(249 days x 8 hrs. = 1,992 – 152 hrs. =)		(1,840 hours)

David Williams:	Vacation	(10 days)	(80 hours)	
	Pers. Time	(2 days)	(16 hours)	
	Safety Days	(2 days)	(16 hours)	
Total Leave Time		(14 days)	(112 hours)	
Total Work Hours		(249 days x 8 hrs. = 1,992 – 112 hrs. =)		(1,880 hours)

Ben Dorak:	Vacation	(15 days)	(120 hours)	
	Pers. Time	(2 days)	(16 hours)	
	Safety Days	(2 days)	(16 hours)	
Total Leave Time		(14 days)	(112 hours)	
Total Work Hours		(249 days x 8 hrs. = 1,992 – 112 hrs. =)		(1,880 hours)

* **Total 1,336 hours, Leave Time for 2021.**

6. The **Estimated** hourly number is generated by the Crystal Report, named “**Laborhours.table.rpt**”. Actual hourly number is divided by eight, that number is multiplied by twelve.

7. The **Projected** hourly number is figured as:

1,992 hrs. (Total hrs. available per employee)	(249 days x 8 hrs)	
<u>x 7.5</u>	(Total number of employees)	
14,940	(Total man-hours combined)	
<u>- 1,336</u>	(Combined leave - Vacation-Personal-Sick-Safety)	
13,604	(Total man-hours available - 2021)	

8. Add total hours projected for each District from projected maintenance spreadsheet (Exhibit C) for regular full-time hours.

9. Subtract regular full-time hours from actual hours needed to get seasonal hours required. Divide regular full-time hours to get percentage for seasonal hours needed.
10. Overtime hours are average hours from previous years.
11. Sick time is an average of 12 hours per month.

Projected Maintenance Worksheet with 7 Employees

1. To calculate total man-hours, multiply the actual number of working days by the actual hours worked (8) and then by the number of maintenance employees. Subtract **105 hours** allowed for Vacation, Personal Time, Sick Leave, and Safety Leave - **per month**.
2. Crystal Reports generate tasks to be completed.
3. General scheduled maintenance hours are pre-determined hours calculated from actual hours used to complete these tasks. These hours are not adjustable.
4. General unscheduled maintenance hours are hours which are calculated from past history. These hours are adjustable.
5. All man hours for tasks are calculated by dividing the number of tasks by a predetermined number for each task and then multiplying it by the number of hours it takes to complete this task. (See table below)

Sewer

Hydraulic Cleaning/Root Cut - Divide **3,250' per day** x 16 hrs. (2 men)

TV Inspections - Divide **3,500' per day** x 16 hrs. (2 men)

Root Treatment - Divide **2250' per day** x 16 hours (2 men)

Water

Valves - Divide **35 Valves per day** x 8 hrs. (1 man)

Hydrants - Divide **27 Hydrants per day** x 8 hrs. (1 man)

Hydrant Painting - Divide **50 Hydrants per day** x 16 hrs. (2 men)

Blow-offs - Divide **30 Blow-Offs per day** x 8 hrs. (1 man) - Water Quality Flushing of dead-end mains.

EXHIBIT C -- PROJECTED 2021 MAINTENANCE

	Platte Canyon		Southwest Metro.		Bow Mar		Columbine		Valley		Hours	
	Quantity	Hours	Quantity	Hours	Quantity	Hours	Quantity	Hours	Quantity	Hours		
January -	19 days -	1,036 Manhours										
Hyd. Cleaning	3,151	13	30,459	130	0	0	0	0	0	0	143	
Root Cutting	6,815	48	1,674	12	0	0	0	0	0	0	60	
Root Treatment	2,048	13	0	0	0	0	90	1	0	0	14	
T.V. Inspections	8,089	37	26,360	121	0	0	0	0	0	0	157	
Grease Traps	35	18	103	52	0	0	3	2	0	0	71	
Gen. Sched. Mntc		40		60		0		10		0	110	
Gen. Unsched. Mntc.		115		173		15		5		10	319	
Gen. Mntc. Admin.		65		85		4		4		4	162	
		350		632		19		21		14	1,036	100.00%
February -	19 days -	1,036 Manhours										
Hyd. Cleaning	8,085	34	17,403	74	0	0	91	0	3,003	13	122	
Root Cutting	8,087	58	340	2	0	0	0	0	0	0	60	
Root Treatment	418	3	0	0	0	0	0	0	0	0	3	
T.V. Inspections	10,517	48	13,763	63	0	0	0	0	9,075	41	152	
Gen. Sched. Mntc		40		60		0		10		0	110	
Gen. Unsched. Mntc.		159		238		15		5		10	427	
Gen. Mntc. Admin.		65		85		4		4		4	162	
		407		523		19		19		68	1,036	100.00%
March -	23 days -	1,276 Manhours										
Hyd. Cleaning	3,869	17	24,521	105	0	0	3,244	14	0	0	135	
Root Cutting	9,303	66	0	0	0	0	0	0	0	0	66	
Root Treatment	1,689	11	0	0	0	0	0	0	0	0	11	
T.V. Inspections	10,576	48	10,838	50	0	0	0	0	6,348	29	127	
Air Vac's	7	11	40	64	0	0	0	0	0	0	75	
Dist. System Flushing	17	5	74	20	0	0	0	0	0	0	24	
Valves	143	33	420	96	0	0	0	0	0	0	129	
Gen. Sched. Mntc		40		60		0		10		0	110	
Gen. Unsched. Mntc.		163		244		15		5		10	437	
Gen. Mntc. Admin.		65		85		4		4		4	162	
		458		723		19		33		43	1,276	100.00%

EXHIBIT C -- PROJECTED 2021 MAINTENANCE

	Platte Canyon		Southwest Metro.		Bow Mar		Columbine		Valley		Hours	
	Quantity	Hours	Quantity	Hours	Quantity	Hours	Quantity	Hours	Quantity	Hours		
April -	22 days -	1,216 Manhours										
Hyd. Cleaning	0	0	23,444	100	0	0	91	0	0	0	100	
Root Cutting	0	0	0	0	0	0	0	0	0	0	0	
Root Treatment	2,113	14	0	0	0	0	0	0	558	4	17	
T.V. Inspections	7,219	33	22,557	103	0	0	0	0	0	0	136	
Grease Traps	35	18	103	52	0	0	3	2	0	0	71	
Dist. System Flushing	35	9	35	9	0	0	0	0	0	0	19	
Valves	194	44	421	96	0	0	0	0	0	0	141	
Hydrants	49	15	249	74	0	0	0	0	0	0	88	
Hyd. Painting	28	9	152	49	0	0	0	0	0	0	58	
Gen. Sched. Mntc		40		60		0		10		0	110	
Gen. Unsched. Mntc.		114		171		15		5		10	315	
Gen. Mntc. Admin.		65		85		4		4		4	162	
		360		798		19		21		18	1,216	100.00%
May -	20 days -	1,096 Manhours										
Hyd. Cleaning	0	0	44,868	191	0	0	0	0	0	0	191	
Root Cutting	0	0	0	0	0	0	0	0	0	0	0	
Root Treatment	700	4	0	0	0	0	0	0	638	4	9	
T.V. Inspections	10,343	47	22,808	104	0	0	0	0	0	0	152	
Dist. System Flushing	13	3	45	12	3	1	0	0	0	0	16	
Valves	161	37	398	91	0	0	0	0	0	0	128	
Hydrants	106	31	165	49	59	17	0	0	0	0	98	
Hyd. Painting	71	23	77	25	0	0	0	0	0	0	47	
Gen. Sched. Mntc		40		60		0		10		0	110	
Gen. Unsched. Mntc.		61		92		15		5		10	183	
Gen. Mntc. Admin.		65		85		4		4		4	162	
		312		709		37		19		18	1,096	100.00%
June -	22 days -	1,216 Manhours										
Hyd. Cleaning	5,467	23	33,806	144	0	0	2,280	10	2,380	10	187	
Root Cutting	0	0	0	0	0	0	0	0	0	0	0	
Root Treatment	0	0	0	0	0	0	0	0	0	0	0	
T.V. Inspections	12,649	58	16,137	74	0	0	2,189	16	0	0	147	
Dist. System Flushing	11	3	61	16	0	0	0	0	0	0	19	
Valves	135	31	406	93	0	0	0	0	0	0	124	
Hydrants	112	33	262	78	0	0	0	0	0	0	111	
Hyd. Painting	48	15	140	45	0	0	0	0	0	0	60	
Gen. Sched. Mntc		40		60		0		10		0	110	
Gen. Unsched. Mntc.		106		159		15		5		10	296	
Gen. Mntc. Admin.		65		85		4		4		4	162	
		375		754		19		44		24	1,216	100.00%

EXHIBIT C -- PROJECTED 2021 MAINTENANCE

	Platte Canyon		Southwest Metro.		Bow Mar		Columbine		Valley		Hours	
	Quantity	Hours	Quantity	Hours	Quantity	Hours	Quantity	Hours	Quantity	Hours		
July -	21 days -	1,156 Manhours										
Hyd. Cleaning	110	0	19,475	83	322	1	0	0	0	0	85	
Root Cutting	0	0	0	0	0	0	0	0	0	0	0	
Root Treatment	2,226	14	0	0	0	0	0	0	0	0	14	
T.V. Inspections	0	0	9,380	43	19,334	88	2,240	10	0	0	142	
Grease Traps	35	18	103	52	0	0	3	2	0	0	71	
Dist. System Flushing	17	5	71	19	0	0	0	0	0	0	23	
Valves	154	35	408	93	0	0	0	0	0	0	128	
Hydrants	110	33	307	91	0	0	0	0	0	0	124	
Hyd. Painting	63	20	167	53	0	0	0	0	0	0	74	
Gen. Sched. Mntc		40		60		0		10		0	110	
Gen. Unsched. Mntc.		77		116		15		5		10	224	
Gen. Mntc. Admin.		65		85		4		4		4	162	
		307		695				31		14	1,156	100.00%
August -	22 days -	1,216 Manhours										
Hyd. Cleaning	9,052	39	26,566	113	0	0	7,114	30	0	0	182	
Root Cutting	0	0	0	0	0	0	0	0	0	0	0	
Root Treatment	650	4	0	0	0	0	761	5	0	0	9	
T.V. Inspections	10,806	49	13,283	61	0	0	13,181	60	0	0	170	
Dist. System Flushing	25	7	100	27	0	0	0	0	0	0	33	
Valves	165	38	434	99	0	0	0	0	0	0	137	
Hydrants	51	15	356	105	0	0	0	0	0	0	121	
Hyd. Painting	27	9	81	26	0	0	0	0	0	0	35	
Gen. Sched. Mntc		40		60		0		10		0	110	
Gen. Unsched. Mntc.		91		136		15		5		10	257	
Gen. Mntc. Admin.		65		85		4		4		4	162	
		356		712		19		114		14	1,216	100.00%
September -	21 days -	1,156 Manhours										
Hyd. Cleaning	2,096	9	27,793	119	0	0	2,280	10	0	0	137	
Root Cutting	0	0	0	0	0	0	0	0	0	0	0	
Root Treatment	0	0	0	0	361	2	0	0	0	0	2	
T.V. Inspections	12,686	58	15,295	70	0	0	13,181	60	0	0	188	
Dist. System Flushing	16	4	52	14	0	0	0	0	0	0	18	
Valves	159	36	384	88	133	30	0	0	0	0	155	
Hydrants	61	18	218	65	0	0	0	0	0	0	83	
Hyd. Painting	33	11	62	20	0	0	0	0	0	0	30	
Gen. Sched. Mntc		40		60		0		10		0	110	
Gen. Unsched. Mntc.		96		144		15		5		10	271	
Gen. Mntc. Admin.		65		85		4		4		4	162	
		337		664		52		89		14	1,156	100.00%

EXHIBIT C -- PROJECTED 2021 MAINTENANCE

	Platte Canyon		Southwest Metro.		Bow Mar		Columbine		Valley		Hours	
	Quantity	Hours	Quantity	Hours	Quantity	Hours	Quantity	Hours	Quantity	Hours		
October -	21 days -		1,156 Manhours									
Hyd. Cleaning	0	0	38,806	166	0	0	91	0	4,677	20	186	
Root Cutting	2,409	17	1,275	9	0	0	0	0	0	0	26	
Root Treatment	0	0	0	0	0	0	175	1	0	0	1	
T.V. Inspections	0	0	17,814	81	0	0	0	0	8,384	38	120	
Grease Traps	35	18	103	52	0	0	3	2	0	0	71	
Air Vac's	7	11	40	64	0	0	0	0	0	0	75	
Dist. System Flushing	14	4	53	14	0	0	0	0	0	0	18	
Valves	68	16	300	69	0	0	0	0	0	0	84	
Gen. Sched. Mntc		40		60	0			10		0	110	
Gen. Unsched. Mntc.		109		164		15		5		10	303	
Gen. Mntc. Admin.		65		85		4		4		4	162	
		279		763		19		22		72	1,156	100.00%
November -	19 days -		1,036 Manhours									
Hyd. Cleaning	208	1	38,348	164	206	1	0	0	2,044	9	174	
Root Cutting	8,223	58	0	0	0	0	0	0	2,637	19	77	
Root Treatment	2,638	17	1,287	8	0	0	0	0	0	0	25	
T.V. Inspections	5,929	27	19,174	88	0	0	0	0	3,931	18	133	
P.R.V.'s	11	35	19	61	0	0	0	0	0	0	96	
Gen. Sched. Mntc		40		60		0		10		0	110	
Gen. Unsched. Mntc.		92		137		15		5		10	259	
Gen. Mntc. Admin.		65		85		4		4		4	162	
		335		603		20		19		59	1,036	100.00%
December -	20 days -		1,096 Manhours									
Hyd. Cleaning	1,327	6	39,932	170	0	0	2,280	10	3,981	17	203	
Root Cutting	0	0	2,834	20	0	0	0	0	5,181	37	57	
Root Treatment	871	6	0	0	0	0	0	0	0	0	6	
T.V. Inspections	13,838	63	17,511	80	0	0	2,189	10	0	0	153	
Gen. Sched. Mntc		40		60		0		10		0	110	
Gen. Unsched. Mntc.		150		225		15		5		10	405	
Gen. Mntc. Admin.		65		85		4		4		4	162	
		330		641		19		39		68	1,096	100.00%

EXHIBIT C -- PROJECTED 2021 MAINTENANCE

Totals

Total Hyd. Cleaning	33,365	365,421	528	17,471	16,085	
Total Root Cutting	34,837	6,123	0	0	7,818	
Total Root Treatment	13,353	1,287	361	1,026	1,196	2
Total T.V. Inspects.	102,652	204,920	19,334	32,980	27,738	
Total Grease Traps	140	412	0	12	0	
Total Dist. Flushing Mntc	148	491	3	0	0	
Total Valve Mntc	1,179	3,171	133	0	0	
Total Hydrant Mntc	489	1,557	59	0	0	
Total Hyd. Painting	270	679	0			
Total Air Vac's	14	80	0	0	0	
Total PRV's	11	19	0	0	0	
Total Hours	4,207	8,218	370	471	427	13,692 100.00%