WATER DISTRIBUTION AND SANITARY SEWER COLLECTION SYSTEM CAPITAL IMPROVEMENTS PLAN

TOWN OF LYONS, COLORADO

JANUARY 2017

RGA JOB NO.: 1088.0001

RG AND ASSOCIATES, LLC
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DEFINITIONS, ACRONYMS, AND ABBREVIATIONS (NOT ALL MAY BE FOUND IN THIS REPORT)

BOD_5	5-Day Biochemical Oxygen Demand
CDPHE	Colorado Department of Public Health and Environment
CDPS	Colorado Discharge Permit System
cm/sec	Centimeters per second
CY	Cubic Yards
DOLA	Department of Local Affairs
EA	Each
EDU	Equivalent Dwelling Unit
ECHO	Enforcement and Compliance History Online
EPA	Environmental Protection Agency
ft	Feet
gal	gallons
gpcd	Gallons per capita-day
gpd	Gallons per day
gpm	Gallons per minute
hp	Horsepower
HVAC	Heating, Ventilating and Air Conditioning
I&I	Inflow and Infiltration
kW	Kilowatts
lb/ac-day	Pounds per acre-day
lb/day	Pounds per day
LF	Linear Feet
LS	Lump Sum
mg/L	Milligrams per Liter
MGD	Million Gallons per Day
N/A	Not available or applicable
O&M	Operations and Maintenance
OMB	Office of Management and Budget
PEL	Preliminary Effluent Limitations
PVC	Polyvinyl Chloride
PW	Present Worth
RAS	Return Activated Sludge
ref.	Reference
RGA	RG and Associates, LLC
RUS	Rural Utilities Services
SCADA	Supervisory Control and Data Acquisition
SFE	Single Family Equivalent
SF	Square Feet
SOG	Slab on Grade
TSS	Total Suspended Solids
USDA	United States Department of Agriculture
VFD	Variable Frequency Drives
WAS	Waste Activated Sludge
WWTP	Wastewater Treatment Plant
YR	Year

1 EXECUTIVE SUMMARY

The purpose of the 2016 Town of Lyons Capital Improvements Plan is to provide an update to the town's 2011 Capital Improvements Plan. This plan evaluates the town's current water distribution system and wastewater collection system and identifies the improvements needed to both systems. This plan includes a water model that can be used by the Town to analyze current and future water pressure and flow throughout the system. The plan also includes a Cross-Connection Control Program (also known as a backflow prevention plan), attached as Appendix A.

The proposed wastewater collection system improvements consist of four pipeline replacement projects, four pipeline repair projects, and a lift station replacement project. A summary of these capital improvement projects and their cost estimates are listed in Table 1.

Table 1 – Summary of Wastewater Capital Improvement Projects

Wastewater Capital Improvement Project	Cost Estimate
North Old Town Alleys - 4th Avenue to 5th Avenue	$520,013
Meily Street - Ewald Avenue to 5th Avenue	$168,396
Longs Peak Drive	$359,208
Broadway from Park to 2nd	$46,200
Broadway from 3rd to 5th	$63,600
Park Drive from 4th to 5th	$104,850
4th from Evans to Main Street	$48,000
High Street- 4th Avenue to 5th Avenue	$32,400
Eagle Canyon Lift Station	$192,522
TOTAL	**$1,535,190**

The proposed water distribution system improvements consist of five pipe replacement projects, pipe upsizing, and the rerouting of transmission line along St. Vrain Creek. A summary of these capital improvement projects and their cost estimates are listed in Table 2.

Table 2 – Summary of Water Distribution Capital Improvement Projects

Water Capital Improvement Project	Cost Estimate
3rd Avenue - Evans to Railroad	$99,584
High Street - 4th Avenue to 5th Avenue	$186,302
North 5th Avenue - Seward to Steamboat Valley Road	$281,813
Vasquez Court / Horizon Drive Loop	$318,994
Longs Peak Drive Loop	$331,336
St. Vrain Creek	$91,661
Upsize Four-inch Water Mains	$903,304
TOTAL	**$2,212,994**

This plan is intended to be a working document and should be updated regularly as part of the Town's routine maintenance programs.

2 BACKGROUND & OVERVIEW

2.1 PROJECT PURPOSE AND GOALS

RG and Associates, LLC (RGA) was retained to update the October 2011 Capital Improvements Plan. Updates, changes, and additions are located throughout the entirety of the capital improvements plan. RGA completed this update with the assistance of the Town of Lyons and the Town Engineer, JLB Engineering. This study was funded by a flood recovery grant from the Colorado Department of Health and Environment. The planning horizon for this capital improvement plan update is 20 years.

The Town of Lyons was severely impacted by a basin wide flood event in September 2013. One outcome of the flood event was the disruption of water and sanitary sewer service for the Town and its residents. A second outcome was the ultimate loss of private single family residences and mobile homes who chose to convey their land to the Town, which included the removal of the structure and discontinuation of the tap.

The 2016 Town of Lyons Capital Improvements Plan evaluates the town's current water distribution system and wastewater collection system and identifies the improvements needed to both systems. Specifically, this capital improvement plan evaluates the capacity of the town's distribution system through the use of a water model and the condition of the town's sewer system through the assessment of sewer system videos. This plan will also utilize the budgets established for the identified improvements to evaluate the town's water and sewer rates and determine if the current rate structure is sufficient to cover anticipated capital improvement costs or if changes to the rate structure are required. Additionally, this plan will provide updated cost estimates for capital improvement projects identified in the 2011 Capital Improvements Plan that have not been completed.

2.2 SERVICE AREA

The water service area generally consists of the Lyons Planning Area as established by the Comprehensive Plan. The 2010 Lyons Planning Area Map is attached as Appendix B. Additionally, the Town Municipal Code sets a maximum elevation serviceable by the town as 5,450 feet (NGVD29) above sea level and is defined as the "blue line". The Blue Line Ordinance (Ordinance No. 647) is attached as Appendix C. The sewer service area generally consists of the current town limits.

The Town of Lyon is approaching service area build out with approximately 80 undeveloped residential lots and 500 acres of undeveloped commercial/industrial development available within the primary planning area. Full buildout will occur when all existing developable land within the primary planning area has developed.

Full buildout of residential taps is expected to occur within the next 20 years. However, development of the 500 acres of commercial/industrial land will occur at an unknown pace. There are currently no large developments taking place on this land, and for the purposes of this plan no large developments are assumed in the next 20 years. By not assuming full buildout of this developable area, this plan avoids vastly overestimating future water and wastewater needs and exaggerating the town's capital improvement needs. The town's water and wastewater systems should be evaluated prior to major development in the 500 acres of commercial/industrial developable area.

2.3 WATER RIGHTS

The Town of Lyons purchases treated water from the City of Longmont. A copy of the current intergovernmental agreement (IGA) and amendments thereto between the Town of Lyons and the City of Longmont is attached as Appendix D. The IGA specifies the cost of service and the agreement is perpetual, although it can be terminated by the town with 2-year notice. The IGA states that Longmont shall not be required to provide Treated Water Service to more than 1,310 Service Connections, or exceed an average daily demand of 572,000 GPD, or a maximum daily demand of 2,000,000 GPD. These limits are well above existing service connections and water demands, and are expected to be sufficient for future growth over the next 20 years.

To calculate future demand, water consumption records were examined to determine the month of maximum water use, which was found to be August. Each tap drew an average of 339 gallons per day during the month of August. This demand was assigned to each additional tap, to ensure that even in the maximum demand month, the Town of Lyons would still require less than the Longmont IGA limit. It was assumed that full buildout of 80 additional residential taps will occur within the horizon of this plan. Table 3 shows the average day and maximum day demands for the maximum month for existing conditions as well as full buildout of the 80 additional residential taps. All demands are well within the limits of the Longmont IGA.

Table 3 – Demands for Existing and Residential Buildout Conditions

	Number of Taps	Max Month Avg Day Demand per Tap (GPD)	Total Max Month Avg Day Demand (GPD)	Total Max Month Max Day Demand (GPD)
Existing	919	339	311,206	637,973
Full Residential Buildout	999	339	338,303	693,522

2.4 TOWN OF LYONS WATER DISTRIBUTION SYSTEM OVERVIEW

A booster pump station located off Highway 66 and North 53rd street delivers water from Longmont North Plant or Montgomery Tank to the town. The pump station and system appurtenances are owned and maintained by the town. The town also maintains the distribution system and water storage tank. The City of Longmont owns, maintains, and calibrates the master meter on the delivery to the pump station and provides calibration reports to the town every two (2) years.

Currently the town has five (5) pressure reducing valve (PRV) stations that serve to decrease pressures from the town's main transmission line and storage tank. The locations and set points of the PRV stations are included in the water capital improvements exhibits, Figure 1 through Figure 4. The normal operating pressures within the town are 50 psi and higher, although pressures in Vasquez Court are lower due to it being a dead end and at high elevation (over 5,500'). Due to the distribution system's high pressures in the majority of the town, most homes have internal PRVs.

The residents of Apple Valley Road experience low pressures when the tank is filling and drawing. Section 13-1-120 of the Town Municipal Code sets a maximum elevation serviceable by the town as 5,450 feet above sea level and is defined as the "blue line". The Blue Line Ordinance (Ordinance No. 647) is attached as Appendix C. There are approximately 30 homes on Apple Valley Road, of which 12 are above the blue line. The town provides water service to these homes due to their proximity to the town's major water main; however, these homes operate with a blue line variance (see section 13-1-120 of the Town Municipal Code). Several additional variances are granted in the upper reaches of the

main part of town in the Vasquez Court area. These homes do not receive adequate pressures from the water storage tank or the booster pump station.

The town operates a one (1) million gallon (MG) storage tank. The tank is 30 feet high with a 75 foot diameter. The tank operates with a common inlet and outlet at the bottom center of the tank. The tank floats on the distribution system pressure, meaning when there is excess demand, the tank is drawn down to feed the town, and when demand is low, the tank refills. There is a shutoff valve for the tank located on Apple Valley Road, within five feet of the tank outlet, and a valve vault located 20 feet away from the tank. The town regularly maintains the Apple Valley tank including inspections. The most recent cleaning, inspections, and repairs were completed during the aftermath of the 2013 flood while the tank was dry.

The water transmission and distribution systems were impacted by the 2013 flood. The Apple Valley tank became disconnected from the transmission system in the Apple Valley as a result of a major evulsion of the North St Vrain Creek. During the recovery activities, the pump station control were modified to operate as a closed loop system until the transmission line was repaired. This operation came with some challenges as the existing 500 gpm vertical turbine pumps were each operated as booster pumps during normal operations. Given the typical low demand of the town, these pumps were set to cycle more often and the operating pressures in the remaining parts of town served by the system were set to a broader range. This operation program remains as an option for the pump station. In addition, the confluence neighborhood was also disconnected from the town distribution system as the existing water crossings of the North St Vrain Creek were damaged or destroyed. Both the water transmission main and distribution systems are restored with durable and significantly more resilient crossings of the creek.

2.5 TOWN OF LYONS SEWER COLLECTION SYSTEM OVERVIEW

The town's collection system primarily consists of 8-inch vitrified clay pipe (VCP) in Old Town Lyons and 8-inch SDR35 polyvinyl chloride (PVC) pipe in the newer subdivisions. The town does not experience significant infiltration and inflow (I&I) from the newer parts of the system. Video-inspection of the town's collection system was done as part of this report and showed some areas of deteriorated pipe in need of repair and/or replacement. The locations and conditions of these areas are detailed in Section 4.

The collection system includes four (4) lift stations to deliver wastewater to the newly constructed wastewater treatment facility. The town owns and operates three of the lift stations and the fourth is privately owned. The town owned lift stations are all Gorman Rupp package lift stations. The install date and capacity of each are shown in Table 4.

Table 4 – Town-Owned Lift Stations

Lift Station	Intallation Date	Capacity
Stone Canyon	2006	2 pumps @ 80 gpm
Eagle Canyon	1996 [1]	2 pumps @ 20 gpm
Lyons Valley Park	2007	2 pumps @ 230 gpm

1 Install date approximate

The collection system flows into the Town of Lyons wastewater treatment facility (WWTF). The WWTF currently operates under CDPHE permit number CO-0020877, attached as Appendix E. This permit sets

a hydraulic capacity of 0.381 MGD (30-day average) and an organic loading limit of 705 lbs BOD_5 per day (30-day average).

To ensure compliance with hydraulic loading limits, increased hydraulic loadings were calculated for full buildout of residential taps. In the last two years, the highest 30-day average flow through the treatment plant was 0.238 MGD (during November of 2014). To conservatively estimate future flow, this number was set as the existing hydraulic loading. The increase in potable water demand for full buildout was then added to the existing hydraulic loading (it was conservatively assumed that 100% of water demand would be collected in the wastewater facility). This yielded a hydraulic loading of 0.265 MGD at full residential buildout, significantly under the permitted limit. Table 5 shows the hydraulic loading for the WWTF for existing and full residential buildout conditions. Note that this table displays number of sewer taps in the collection system, and is not equivalent to the number of water taps in the distribution system.

Table 5 – Existing and Residential Buildout Hydraulic Loading for Town of Lyons WWTF

	Number of Taps	Hydraulic Loading (MGD)
Existing	861	0.238
Residential Buildout	941	0.265

For the last two years, the reported values for organic loading have been extremely variable with instances of exceeding the facility's permitted capacity. It is impossible to accurately calculate total future BOD_5 without a reliable baseline, but it is possible to calculate the additional loading from 80 new residences. Using the typical design values of 2.5 capita per residence and 0.2 lbs BOD_5 per day per capita, it was found that 40 lbs BOD_5 per day will be added to the facility's hydraulic loading at full residential buildout. It is recommended that the WWTF be analyzed to ensure there is sufficient organic loading capacity for an additional 40 lbs BOD_5 per day before this development occurs.

3 WATER DISTRIBUTION SYSTEM CAPITAL IMPROVEMENTS

The Town Engineer has prepared a list of water main replacements that should occur in the next five years or as soon as possible. RGA has added projects in areas where aging and undersized water mains should be replaced. Water maps of the North Old Town, South Old Town, Apple Valley area, and Stone Canyon are shown in Figure 1 through Figure 4. The locations and extents of the capital improvement projects are shown in each figure, and a description and cost estimate for each project follows. The water and wastewater project maps are also attached as Appendix F.

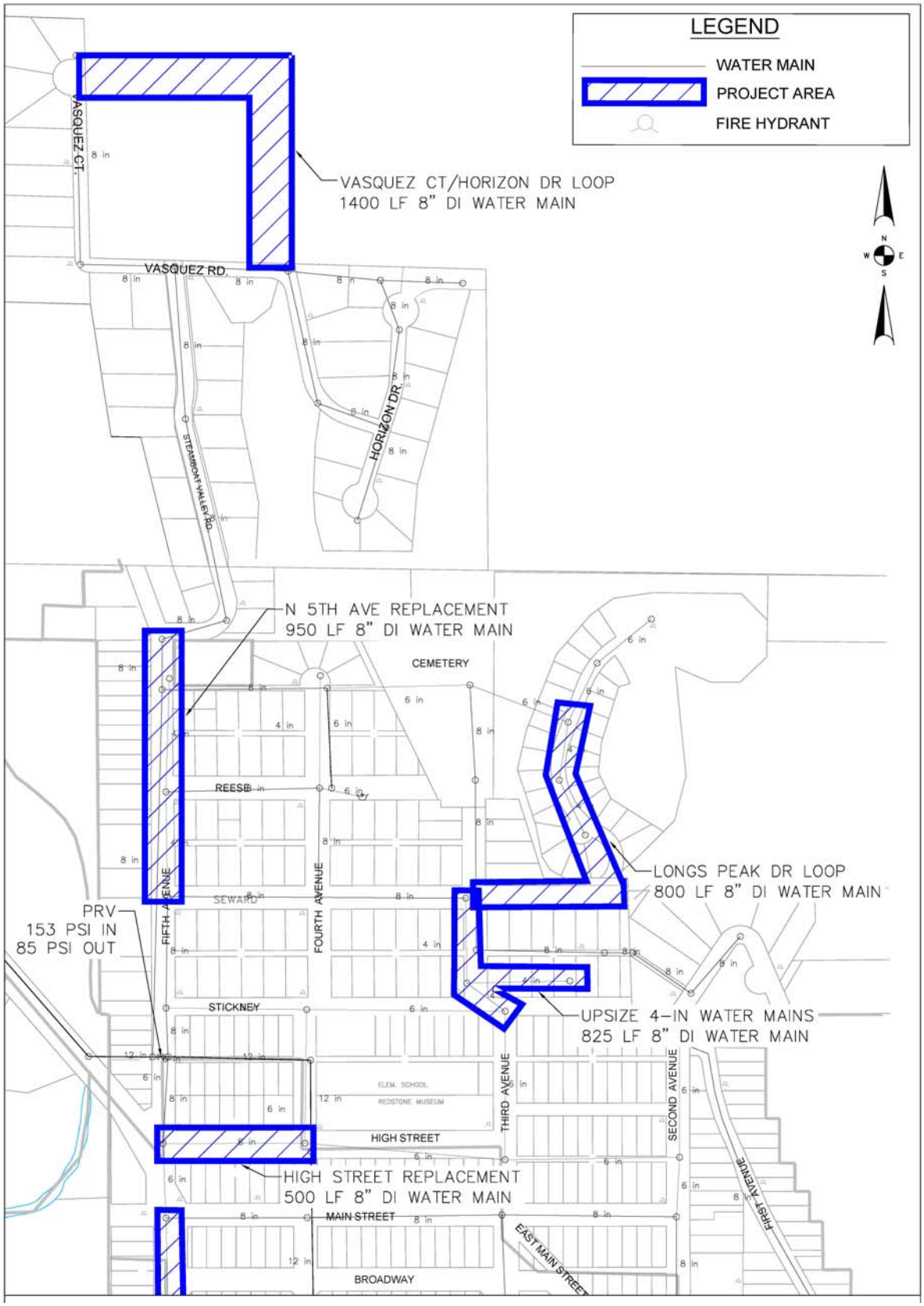


Figure 1 – Water Capital Improvement Projects in North Old Town Area

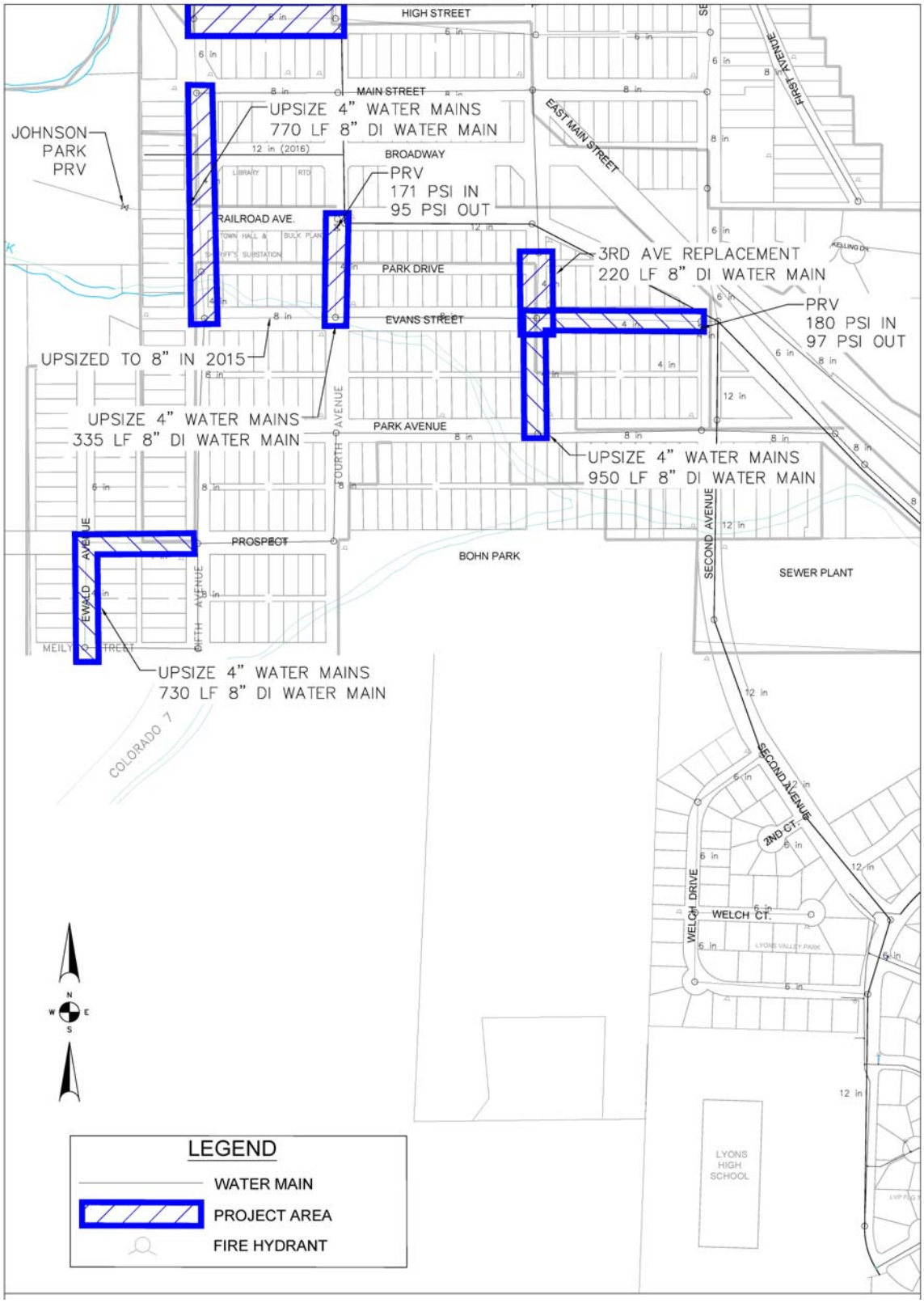


Figure 2 – Water Capital Improvement Projects in South Old Town Area

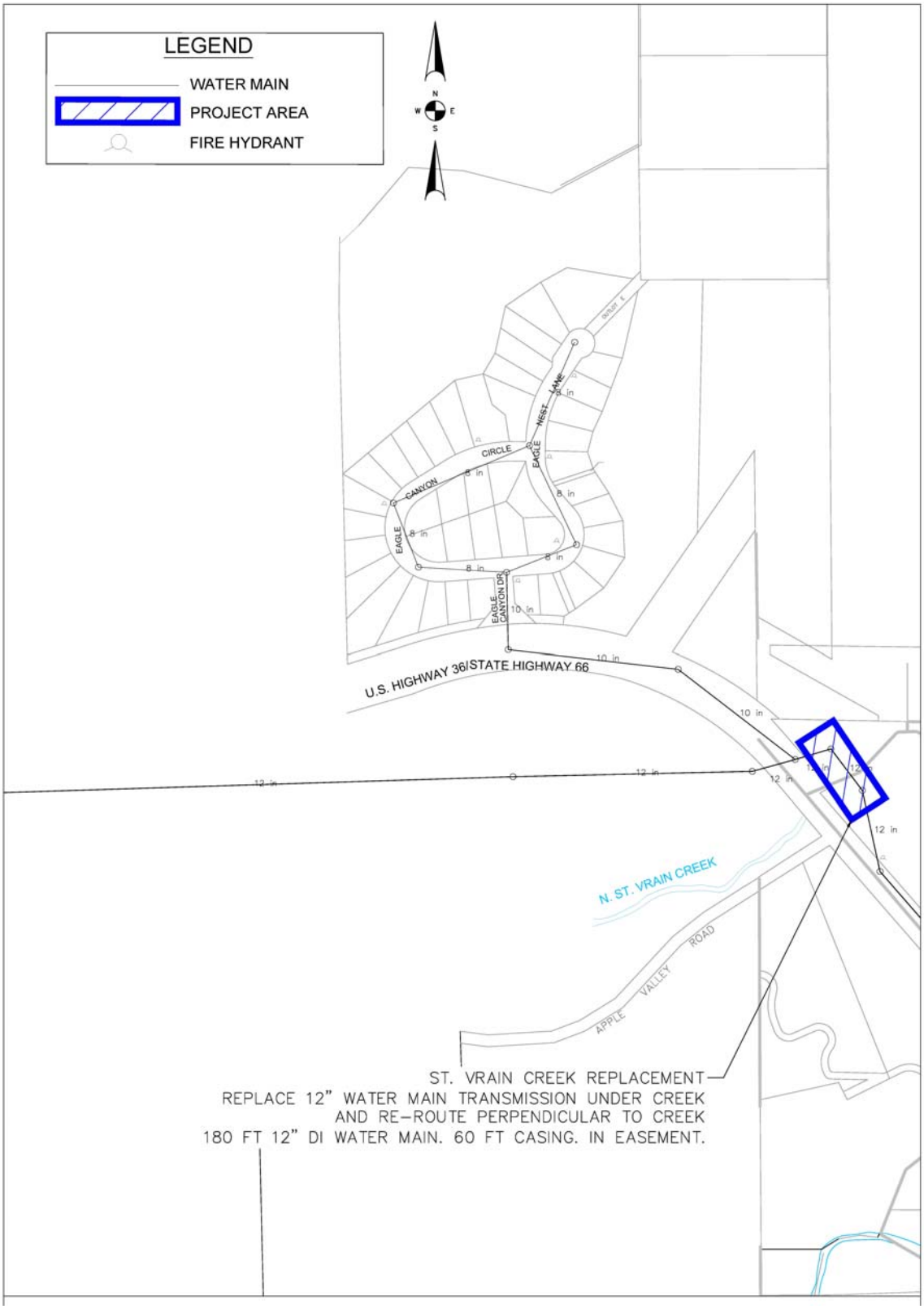


Figure 3 – Water Capital Improvement Projects in Apple Valley Area

Figure 4 – Stone Canyon Area: No Water Capital Improvement Projects Planned

3.1 WATER MAIN REPLACEMENTS

High Street: 4th Avenue to 5th Avenue

Currently, there is only a 12-inch transmission main in High Street. Installing an 8-inch water main in High Street between 4th Avenue and 5th Avenue will provide looping in the commercial area of town and allow for better fire protection with new hydrants. The services should be removed from the transmission line and reconnected to the new 8-inch water main. Stainless steel Dresser couplings will be required on the 12" transmission main to repair each removed tap location. This project includes the installation of 500 linear feet of new 8-in water line, a new hydrant, and services.

Table 6 – Cost Estimate for High Street: 4th Ave to 5th Ave

Item	Description	Qty	Unit	Unit Price	Subtotal
1	8" Ductile Iron Pipe	500	LF	$80	$40,000
2	Asphalt Patch	4,000	SF	$4	$16,000
3	Remove and Replace Unsuitable Subgrade	220	CY	$40	$8,800
4	Fire Hydrant Assembly	1	EA	$6,000	$6,000
5	Water Main Lowering	1	EA	$2,500	$2,500
6	Service Reconnection	13	EA	$3,500	$45,500
				Subtotal	**$118,800**
Mobilization, Demobilization, Bonds & Insurance					$5,940
Site Restoration					$2,376
Traffic & Erosion Control					$5,940
Construction Survey					$2,000
Engineering, Survey, Geotechnical Analysis & Permitting					$14,256
Construction Management					$5,940
				SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS	**$36,452**
				TOTAL PROJECT COST	**$155,252**
				CONTINGENCY (20% OF TOTAL PROJECT COST)	**$31,050**
TOTAL PROJECT COST + CONTINGENCY					**$186,302**

North 5th Avenue: Seward Street to Steamboat Valley Road

The North 5th Avenue project would replace the 4-inch water main in 5th Avenue from Seward Street to Steamboat Valley road with 8-inch water main in order to achieve the required fire flow demands.

Table 7 – Cost Estimate for North 5th Ave: Seward to Steamboat Valley Road

Item	Description	Qty	Unit	Unit Price	Subtotal
1	8" Ductile Iron Pipe	950	LF	$80	$76,000
2	Asphalt Patch	7,600	SF	$4	$30,400
3	Remove and Replace Unsuitable Subgrade	400	CY	$40	$16,000
4	Fire Hydrant Assembly	2	EA	$6,000	$12,000
5	Short Service Connections (50 LF)	14	EA	$1,500	$21,000
6	Long Service Connections (100 LF)	2	EA	$2,500	$5,000
7	Reconnections	16	EA	$1,500	$24,000
				Subtotal	**$184,400**
Mobilization, Demobilization, Bonds & Insurance					$9,220
Site Restoration					$3,688
Traffic & Erosion Control					$3,688
Construction Survey					$2,500
Engineering, Survey, Geotechnical Analysis & Permitting					$22,128
Construction Management					$9,220
				SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS	**$50,444**
				TOTAL PROJECT COST	**$234,844**
				CONTINGENCY (20% OF TOTAL PROJECT COST)	**$46,969**
TOTAL PROJECT COST + CONTINGENCY					**$281,813**

Vasquez Court / Horizon Drive Loop

Existing water lines in Vasquez Court and Horizon Drive are not currently looped. This section of the distribution system experiences low pressure in some areas and does not have sufficient fire flows, less than 750 gpm). To provide adequate fire flows and increase pressure, 1,300 linear feet of 8-inch water line will be installed to provide a second feed for the area. The installation of the water line will require easement acquisition and boring under an old railroad embankment. This project is a lower priority as the town has the water system operations set to address pressure fluctuations, is more regularly flushing the line, and is continuing to evaluate the operations cost and benefit analysis to verify this is necessary or if operational changes will address this concern.

Table 8 – Cost Estimate for Vasquez Court/ Horizon Drive Loop

Item	Description	Qty	Unit	Unit Price	Subtotal
1	Easement Acquisition	28,000	SF	$2	$42,000
2	Asphalt Patch	200	SF	$4	$800
3	8" Ductile Iron Pipe	1,400	LF	$80	$112,000
4	Horizontal Boring	80	LF	$550	$44,000
5	Reconnections	3	EA	$3,000	$9,000
				Subtotal	**$207,800**
Mobilization, Demobilization, Bonds & Insurance					$10,390
Site Restoration					$4,156
Traffic & Erosion Control					$4,156
Construction Survey					$4,000
Engineering, Survey, Geotechnical Analysis & Permitting					$24,936
Construction Management					$10,390
				SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS	**$58,028**
				TOTAL PROJECT COST	**$265,828**
				CONTINGENCY (20% OF TOTAL PROJECT COST)	**$53,166**
TOTAL PROJECT COST + CONTINGENCY					**$318,994**

Longs Peak Drive Loop

Water lines running south along Longs Peak Drive dead end and could create water quality problems for nearby residents. Dead end lines can cause water stagnation and the increased water age can cause chlorine demand to exceed the available chlorine residual. The proposed loop would extend the 6-inch water main in Longs Peak Drive south and then west to connect to the 8-inch water main in Seward Street at 3rd Avenue. This project also includes replacing the existing 4-inch water main with 6-inch water main for improved fire flow in this area. Note that if sewer work in the area was done at the same time as the reference water line work, the Longs Peak Road Reconstruction would only be required to be paid once.

Table 9 – Cost Estimate for Longs Peak Drive Loop

Item	Description	Qty	Unit	Unit Price	Subtotal
1	6" Ductile Iron Pipe	1,200	LF	$70	$84,000
2	Longs Peak Road Reconstruction	1	LS	$125,000	$125,000
3	Seward Asphalt Patch	1,840	SF	$4	$7,360
				Subtotal	**$216,360**
Mobilization, Demobilization, Bonds & Insurance					$10,818
Site Restoration					$4,327
Traffic & Erosion Control					$4,327
Construction Survey					$3,500
Engineering, Survey, Geotechnical Analysis & Permitting					$25,963
Construction Management					$10,818
				SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS	**$59,754**
				TOTAL PROJECT COST	**$276,114**
				CONTINGENCY (20% OF TOTAL PROJECT COST)	**$55,223**
TOTAL PROJECT COST + CONTINGENCY					**$331,336**

3rd Avenue: Evans Street to Park Drive

According to town staff, the 3rd Avenue water line is 4-inch diameter pipe and is subject to frequent breaks. The water main should be replaced with 8-inch water main. The water main from Evans Street north to Park Drive was replaced in 2013.

Table 10 – Cost Estimate for 3rd Avenue: Evans to Park

Item	Description	Qty	Unit	Unit Price	Subtotal
1	8" Ductile Iron Pipe w/ all Appurtenances	220	LF	$80	$17,600
2	Rebuild 2nd Avenue PRV	1	LS	$7,500	$7,500
3	Asphalt Patch	1,760	SF	$4	$7,040
4	Remove and Replace Unsuitable Subgrade	170	CY	$40	$6,800
5	Fire Hydrant Assembly	2	EA	$6,000	$12,000
6	Service Reconnection	3	EA	$3,500	$10,500
				Subtotal	**$61,440**
Mobilization, Demobilization, Bonds & Insurance					$6,144
Site Restoration					$1,229
Traffic & Erosion Control					$1,229
Construction Survey					$2,500
Engineering, Survey, Geotechnical Analysis & Permitting					$7,373
Construction Management					$3,072
				SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS	**$21,546**
				TOTAL PROJECT COST	**$82,986**
				CONTINGENCY (20% OF TOTAL PROJECT COST)	**$16,597**
TOTAL PROJECT COST + CONTINGENCY					**$99,584**

St. Vrain Creek Replacement

The transmission line in this area is under the North St. Vrain Creek. The town and the property owner have agreed to relocate this aging line and the town wants to place it in a more resilient location, closer to the bridge and perpendicular across the creek. The town has secured an easement from the property owner to accomplish this task.

Table 11 – Cost Estimate for St. Vrain Creek

Item	Description	Qty	Unit	Unit Price	Subtotal
1	12" Ductile Iron Pipe w/ all Appurtenances	180	LF	$105	$18,900
2	30" Dia Steel Casing	60	SF	$150	$9,000
3	Dewatering	1	LS	$15,000	$15,000
4	Connect to Existing System	2	EA	$2,500	$5,000
5	Water Main Lowering	1	LS	$8,500	$8,500
				Subtotal	**$56,400**
Mobilization, Demobilization, Bonds & Insurance					$5,640
Site Restoration					$1,128
Traffic & Erosion Control					$1,128
Construction Survey					$2,500
Engineering, Survey, Geotechnical Analysis & Permitting					$6,768
Construction Management					$2,820
				SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS	**$19,984**
				TOTAL PROJECT COST	**$76,384**
				CONTINGENCY (20% OF TOTAL PROJECT COST)	**$15,277**
TOTAL PROJECT COST + CONTINGENCY					**$91,661**

Upsize Four-inch Water Mains

Several areas in the town's distribution system contain four-inch water mains. Through analysis using the water model described in Section 6, it was found that these small diameter pipe experience massive head loss under fire flow conditions, posing a major safety risk in the event of a fire. This aging ductile iron pipe is also likely constricted by scaling, creating an even smaller pipeline for water flow. Because the actual roughness and constricted diameter of the pipe is unknown, there may be even greater head loss and lower pressures caused by these water mains.

It is recommended that all four-inch pipe in the system be replaced with eight-inch pipe, to maintain pressure in fire flow conditions and prevent excessive head loss in the system. This project will consist of replacing approximately 4,500 linear feet of four-inch pipe with eight-inch ductile iron pipe. Due to the amount of pipe replacement recommended, this project could be phased into several sub-projects.

Table 12 – Cost Estimate for Upsize Four-inch Water Mains

Item	Description	Qty	Unit	Unit Price	Subtotal
1	8" Ductile Iron Pipe w/ all Appurtenances	3,610	LF	$80	$288,800
2	Asphalt Patch	28,880	SF	$4	$115,520
3	Remove and Replace Unsuitable Subgrade	535	CY	$40	$21,393
4	Fire Hydrant Assembly	12	EA	$6,000	$72,000
5	Service Reconnection	50	EA	$1,500	$75,000
				Subtotal	**$572,713**
Mobilization, Demobilization, Bonds & Insurance					$57,271
Site Restoration					$11,454
Traffic & Erosion Control					$11,454
Construction Survey					$2,500
Engineering, Survey, Geotechnical Analysis & Permitting					$68,726
Construction Management					$28,636
				SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS	**$180,041**
				TOTAL PROJECT COST	**$752,753**
				CONTINGENCY (20% OF TOTAL PROJECT COST)	**$150,551**
TOTAL PROJECT COST + CONTINGENCY					**$903,304**

3.2 SUMMARY OF WATER CAPITAL IMPROVEMENTS

The estimated costs for these improvements are presented on an individual project basis. If implemented on an individual basis, the total cost for all water system repairs and replacements is $2,212,994, as shown in Table 13. If the projects are grouped together, costs will likely be reduced due to increased efficiency of mobilization, demobilization, bidding, and construction administration on a per-project basis. It is recommended to combine projects based on location, project scope, and cost. A review of the Roads CIP shows that some projects should also be coordinated between roads, water, and sewer. This will prevent multiple cuts in the same road for different projects, instead allowing the construction of multiple projects with a single road excavation and reconstruction.

Table 13 – Summary of Water CIP Cost Estimates

Water Capital Improvement Project	Cost Estimate
3rd Avenue - Evans to Railroad	$99,584
High Street - 4th Avenue to 5th Avenue	$186,302
North 5th Avenue - Seward to Steamboat Valley Road	$281,813
Vasquez Court / Horizon Drive Loop	$318,994
Longs Peak Drive Loop	$331,336
St. Vrain Creek	$91,661
Upsize Four-inch Water Mains	$903,304
TOTAL	**$2,212,994**

4 WASTEWATER COLLECTION SYSTEM CAPITAL IMPROVEMENTS

Town staff has been video-inspecting the sanitary sewer lines for the last 15 years. The newer PVC lines are generally in good condition, but some of the older VCP lines show root intrusion, cracked pipe, and general deterioration. The following capital improvement projects target locations in the system in need of rehabilitation, as determined by the sewer inspection videos.

The wastewater collection system was impacted by the 2013 flood. Portions of the system were washed out within the vicinity of St. Vrain Creek and other sections were filled with flood debris. The sections of the system in the floodplain consisting of VCP were severely displaced as well. Repairs were made to areas cut off by the flood and the entire system in the confluence neighborhood inside of the North and South St. Vrain Creek was replaced as part of the flood recovery project, including the crossing of the North St. Vrain and connection to the remainder of the town's system.

Where possible, it is recommended to rehabilitate the lines with cure in place polymer (CIPP), which is a cost effective approach to repairing deteriorated pipe. CIPP does not require trenching, resulting in minimal site disturbance and lower cost than complete replacement of the line. However, if the pipe is experiencing significant root intrusions, cracks, or breaks, CIPP is not effective and it is recommended to replace the pipe. Per agreement with some property owners, certain segments of the existing system across private property must be hand dug for repairs, therefore other considerations of trenchless technologies are better applicable.

Sewer maps of the Eagle Canyon area, North Old Town, South Old Town, and Stone Canyon are shown in Figure 5 through Figure 8. The extent of the pipe rehabilitation projects are shown in each figure. A description and cost estimate of each project follows.

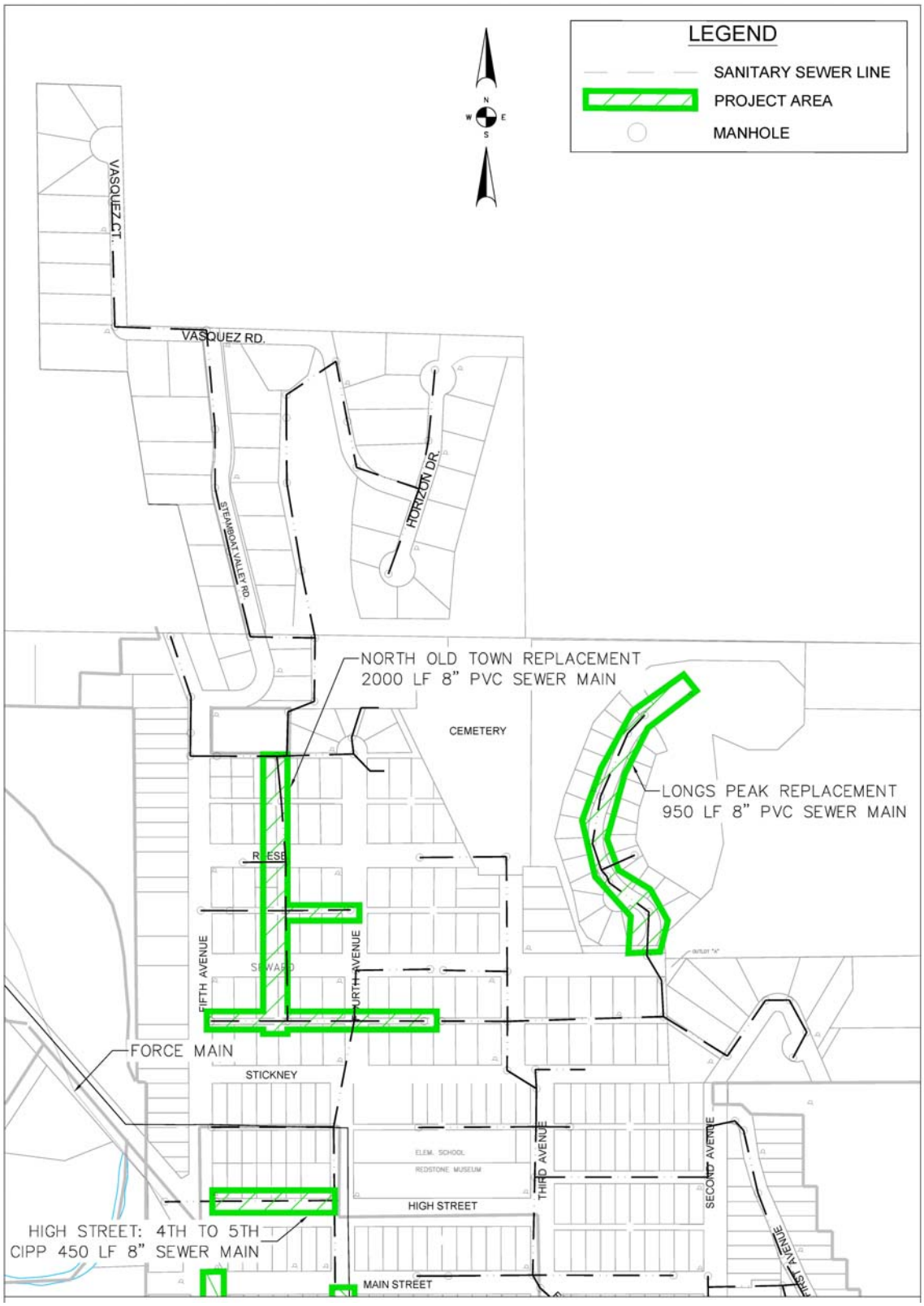


Figure 5 – Wastewater Capital Improvement Projects in North Old Town Area

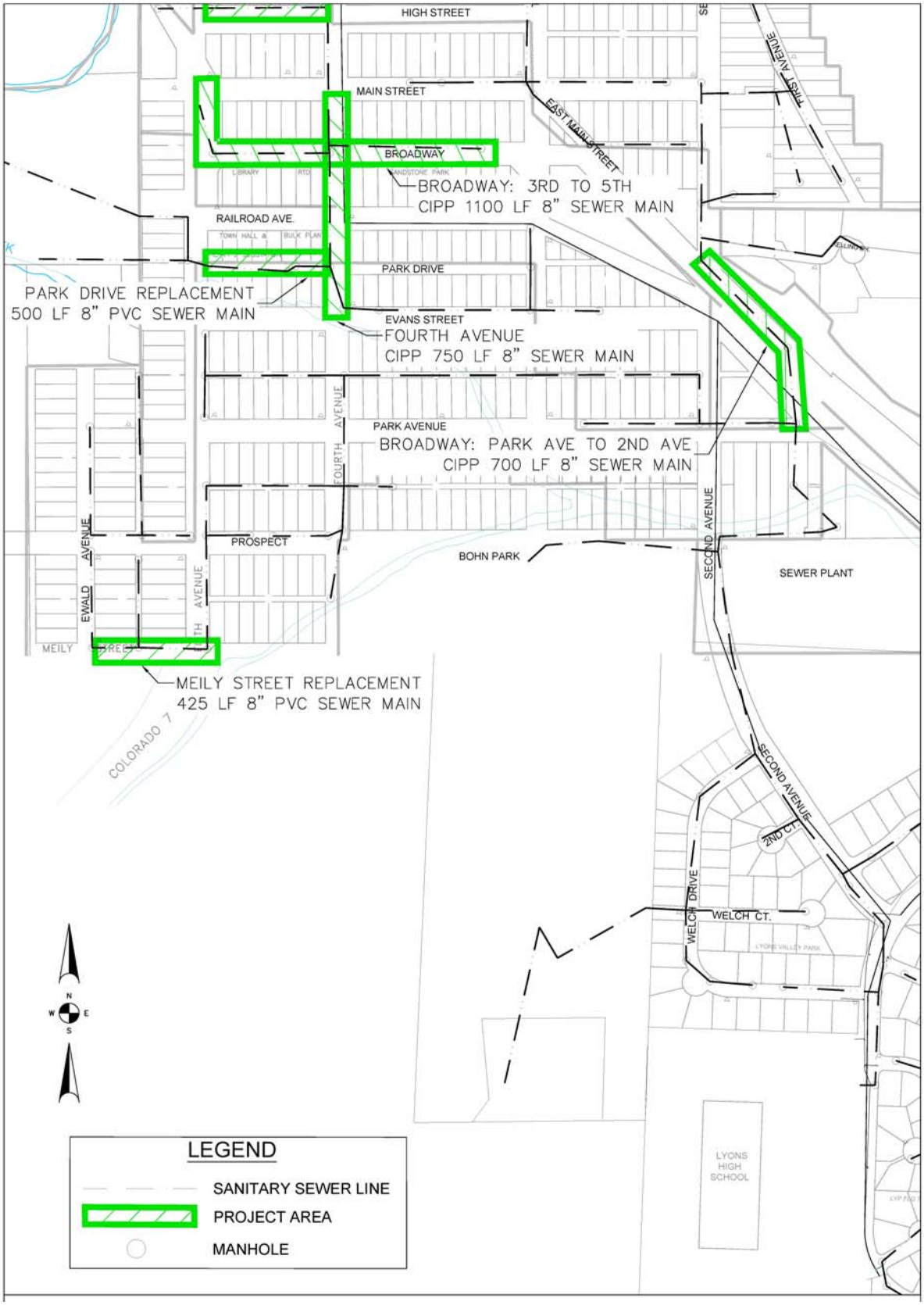


Figure 6 – Wastewater Capital Improvement Projects in South Old Town Area

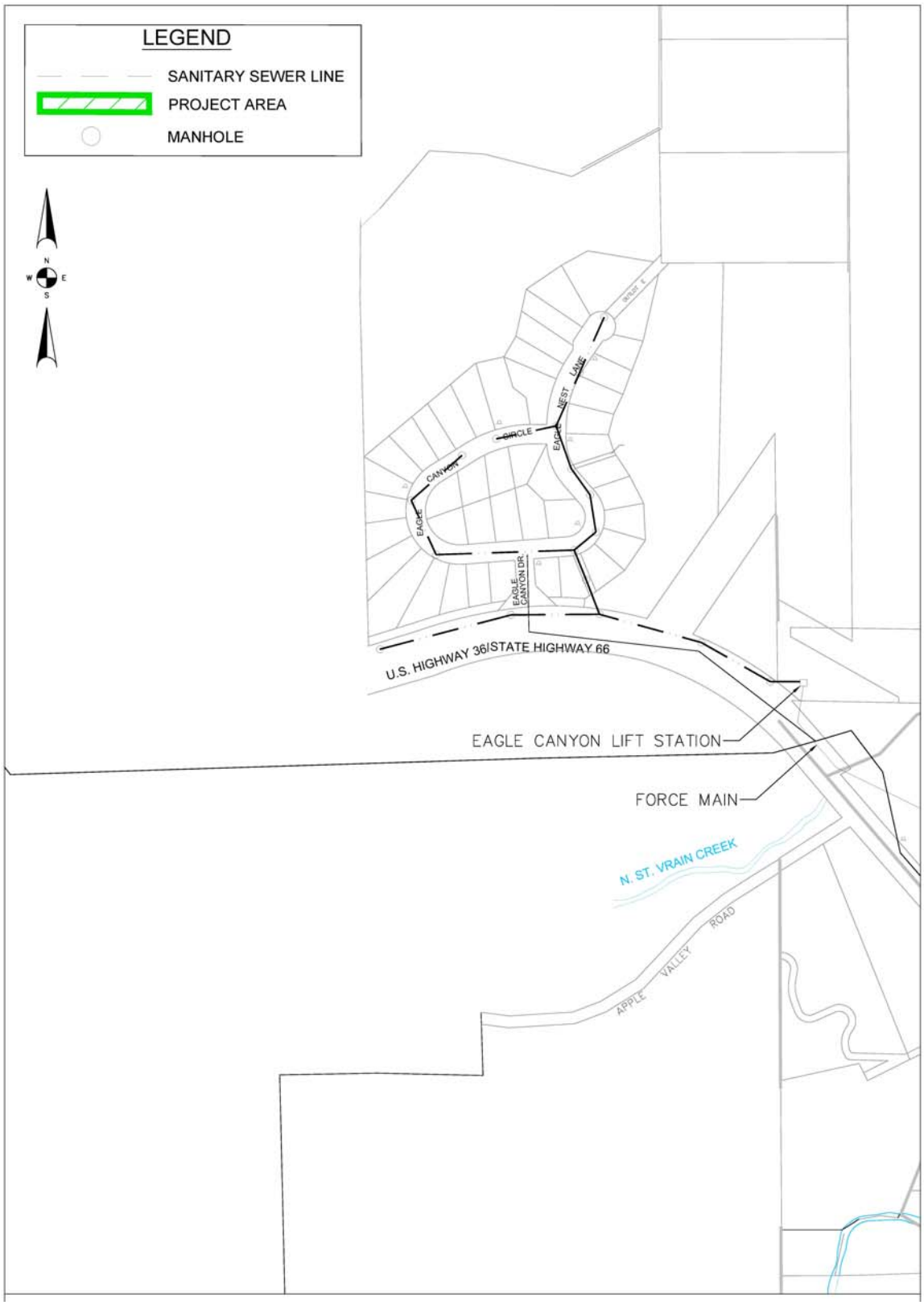


Figure 7 – Apple Valley Area: No Wastewater Capital Improvement Projects Planned

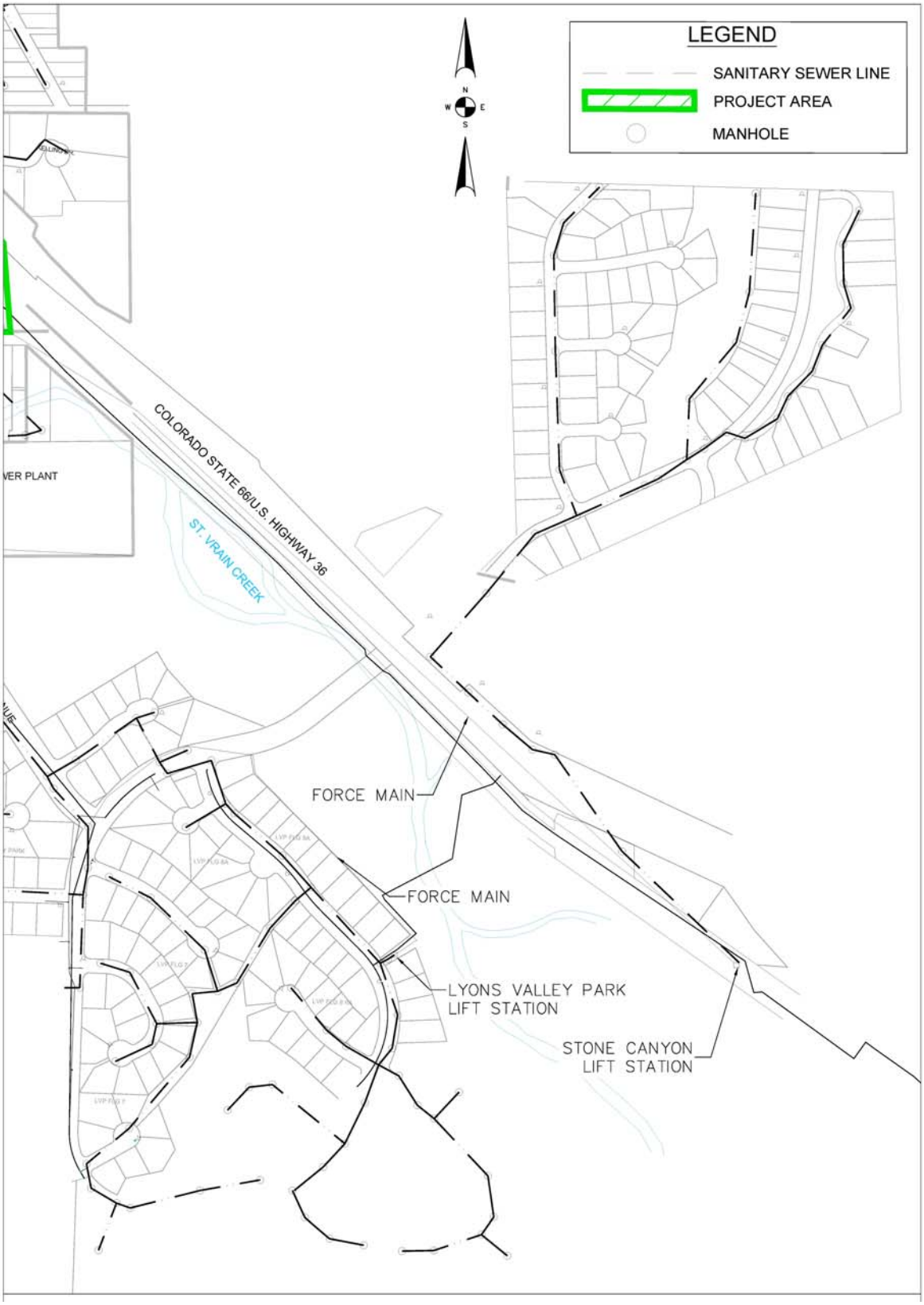


Figure 8 – Stone Canyon Area: No Wastewater Capital Improvement Projects Planned

4.1 SEWER MAIN REHABILITATION

North Old Town Alleys: 4th Avenue to 5th Avenue

The video-inspection of the sewer mains located in the alley between 4th and 5 Avenues and McCall Alley and south of Seward Street revealed that the VCP sewer lines are deteriorated and cracked due to heavy root intrusions. These sewer mains will need to be replaced.

Table 14 – Cost Estimate for North Old Town Alleys: 4th Avenue to 5th Avenue

Item	Description	Qty	Unit	Unit Price	Subtotal
1	8" SDR 35 PVC Sanitary Sewer Main	2,000	LF	$95	$190,000
2	Remove and Replace Unsuitable Subgrade	296	CY	$30	$8,889
3	Asphalt Patch	16,000	SF	$4	$64,000
4	4-ft Diameter Manholes	12	EA	$5,500	$66,000
				Subtotal	**$328,889**
Mobilization, Demobilization, Bonds & Insurance					$32,889
Site Restoration					$6,578
Traffic & Erosion Control					$6,578
Construction Survey					$2,500
Engineering, Survey, Geotechnical Analysis & Permitting					$39,467
Construction Management					$16,444
				SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS	**$104,456**
				TOTAL PROJECT COST	**$433,344**
				CONTINGENCY (20% OF TOTAL PROJECT COST)	**$86,669**
TOTAL PROJECT COST + CONTINGENCY					**$520,013**

Meily Street: Ewald Avenue to 5th Avenue

According to Public Works staff, the sewer main in Meily Street has deteriorated and is in need of replacement. There is also water main replacement in this area and the two projects should be coordinated.

Table 15 – Cost Estimate for Meily Street: Ewald Avenue to 5th Avenue

Item	Description	Qty	Unit	Unit Price	Subtotal
1	8" SDR 35 PVC Sanitary Sewer Main	425	LF	$95	$40,375
2	Remove and Replace Unsuitable Subgrade	63	CY	$30	$1,889
3	Meily Road Base (1/2 ROW)	6,400	CY	$3	$19,200
4	Meily Asphalt Patch (1/2 ROW)	3,200	CY	$4	$12,800
5	Seeding and Landscaping	1	LS	$1,500	$1,500
6	4-ft Diameter Manholes	3	EA	$5,500	$16,500
				Subtotal	**$92,264**
Mobilization, Demobilization, Bonds & Insurance					$4,613
Erosion Control					$10,000
Construction Survey					$15,000
Engineering, Survey, Geotechnical Analysis & Permitting					$9,226
Construction Management					$9,226
				SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS	**$48,066**
				TOTAL PROJECT COST	**$140,330**
				CONTINGENCY (20% OF TOTAL PROJECT COST)	**$28,066**
TOTAL PROJECT COST + CONTINGENCY					**$168,396**

Longs Peak Drive

The northern end of the sewer main in Longs Peak Drive does not have a manhole. A new manhole should be installed in order to facilitate cleaning and root-cutting in case of a blockage. The majority of the sewer main in Longs Peak Drive is in poor condition and has considerable root intrusion and should be replaced. Note that if sewer work in the area was done at the same time as the reference water line work, the Longs Peak Road Reconstruction would only be required to be paid once.

Table 16 – Cost Estimate for Longs Peak Drive

Item	Description	Qty	Unit	Unit Price	Subtotal
1	8" SDR 35 PVC Sanitary Sewer Main, Open Cut LP-1 to LP-4	950	LF	$95	$90,250
2	Remove and Replace Unsuitable Subgrade	141	CY	$30	$4,222
3	Longs Peak Drive Reconstruction	1	LS	$125,000	$125,000
4	4-ft Diameter Manholes	10	EA	$5,500	$55,000
				Subtotal	**$219,472**
Mobilization, Demobilization, Bonds & Insurance					$10,974
Erosion Control					$10,000
Construction Survey					$15,000
Engineering, Survey, Geotechnical Analysis & Permitting					$21,947
Construction Management					$21,947
				SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS	**$79,868**
				TOTAL PROJECT COST	**$299,340**
				CONTINGENCY (20% OF TOTAL PROJECT COST)	**$59,868**
TOTAL PROJECT COST + CONTINGENCY					**$359,208**

Broadway: Park Street to 2nd Avenue

The video-inspection of the sewer mains located in Broadway between Park Street and 2nd Avenue revealed that the VCP sewer mains will need to be repaired with CIPP. This will require installing approximately 700 linear feet of CIPP.

Table 17 – Cost Estimate for Broadway: Park Street to 2nd Avenue

Item	Description	Qty	Unit	Unit Price	Subtotal
1	CIPP 8" Sanitary Sewer Main	700	LF	$30	$21,000
				Subtotal	**$21,000**
Mobilization, Demobilization, Bonds & Insurance					$3,500
Engineering					$9,500
Construction Management					$4,500
				SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS	**$17,500**
				TOTAL PROJECT COST	**$38,500**
				CONTINGENCY (20% OF TOTAL PROJECT COST)	**$7,700**
TOTAL PROJECT COST + CONTINGENCY					**$46,200**

Broadway: 3rd Avenue to 5th Avenue

The video-inspection of the sewer mains located in Broadway between 3rd Avenue and 5th Avenue revealed that the VCP sewer lines are deteriorated and will need to be repaired with CIPP. This will require installing approximately 1,100 linear feet of CIPP.

Table 18 – Cost Estimate for Broadway: 3rd Avenue to 5th Avenue

Item	Description	Qty	Unit	Unit Price	Subtotal
1	CIPP 8" Sanitary Sewer Main	1,100	LF	$30	$33,000
				Subtotal	**$33,000**
Mobilization, Demobilization, Bonds & Insurance					$3,500
Engineering					$12,000
Construction Management					$4,500
				SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS	**$20,000**
				TOTAL PROJECT COST	**$53,000**
				CONTINGENCY (20% OF TOTAL PROJECT COST)	**$10,600**
TOTAL PROJECT COST + CONTINGENCY					**$63,600**

Park Drive: 4th Avenue to 5th Avenue

The video-inspection of the sewer mains located in Park Drive between 4th Avenue and 5th Avenue revealed that the VCP sewer lines are deteriorated and will need to be replaced. This will require installing approximately 500 linear feet of CIPP.

Table 19 – Cost Estimate for Park Drive: 4th Avenue to 5th Avenue

Item	Description	Qty	Unit	Unit Price	Subtotal
1	8" SDR 35 PVC Sanitary Sewer Main, Open Cut LP-1 to LP-4	500	LF	$95	$47,500
2	Remove and Replace Unsuitable Subgrade	74	CY	$30	$2,222
3	Asphalt Patch	4,000	SF	$4	$16,000
4	4-ft Diameter Manholes	3	EA	$5,500	$16,500
				Subtotal	**$47,500**
Mobilization, Demobilization, Bonds & Insurance					$2,375
Erosion Control					$10,000
Construction Survey					$15,000
Engineering, Survey, Geotechnical Analysis & Permitting					$8,000
Construction Management					$4,500
				SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS	**$39,875**
				TOTAL PROJECT COST	**$87,375**
				CONTINGENCY (20% OF TOTAL PROJECT COST)	**$17,475**
TOTAL PROJECT COST + CONTINGENCY					**$104,850**

4th Avenue: Evans to Main Street

The video-inspection of the sewer mains located in 4th Avenue from Evans to Main Street revealed that the VCP sewer lines are deteriorated and will need to be repaired with CIPP. This will require installing approximately 750 linear feet of CIPP.

Table 20 – Cost Estimate for 4th Avenue: Evans to Main Street

Item	Description	Qty	Unit	Unit Price	Subtotal
1	CIPP 8" Sanitary Sewer Main	750	LF	$30	$22,500
				Subtotal	**$22,500**
Mobilization, Demobilization, Bonds & Insurance					$3,500
Engineering					$9,500
Construction Management					$4,500
				SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS	**$17,500**
				TOTAL PROJECT COST	**$40,000**
				CONTINGENCY (20% OF TOTAL PROJECT COST)	**$8,000**
TOTAL PROJECT COST + CONTINGENCY					**$48,000**

High Street: 4th Avenue to 5th Avenue

The video-inspection of the sewer mains located in High Street from 4th Avenue to 5th Avenue revealed that the VCP sewer lines are deteriorated and will need to be repaired with CIPP. This will require installing approximately 450 linear feet of CIPP.

Table 21 – High Street: 4th Avenue to 5th Avenue

Item	Description	Qty	Unit	Unit Price	Subtotal
1	CIPP 8" Sanitary Sewer Main	450	LF	$30	$13,500
				Subtotal	**$13,500**
Mobilization, Demobilization, Bonds & Insurance					$3,500
Engineering, Survey, Geotechnical Analysis & Permitting					$5,500
Construction Management					$4,500
				SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS	**$13,500**
				TOTAL PROJECT COST	**$27,000**
				CONTINGENCY (20% OF TOTAL PROJECT COST)	**$5,400**
TOTAL PROJECT COST + CONTINGENCY					**$32,400**

4.2 BOOSTER PUMP STATIONS

Eagle Canyon Lift Station

The Eagle Canyon Lift Station was installed around 1996. This lift station is approximately reaching its end of life and should be replaced within the next 5 years.

Table 22 – Cost Estimate for Eagle Canyon Lift Station

Item	Description	Qty	Unit	Unit Price	Subtotal
1	Pumps, Floats, Rails, Chains, Control Panel, Etc.	1	LS	$35,000	$35,000
2	Precast Concrete Wetwell	1	LS	$6,500	$6,500
3	Precast Concrete Valve Vault	1	LS	$4,500	$4,500
4	4" Swing Check Valve Flg	2	EA	$850	$1,700
5	4" Plug Valve Flg	3	EA	$600	$1,800
6	Overflow Storage	1	LS	$12,000	$12,000
7	Site Electrical	1	LS	$10,000	$10,000
8	Misc. Yard Piping (Force Main, Gravity Main, Etc.)	1	LS	$15,000	$15,000
					$86,500
Mobilization, Demobilization, Bonds & Insurance					$4,325
Site Restoration					$1,730
Traffic & Erosion Control					$1,730
Construction Survey					$2,500
Engineering, Survey, Geotechnical Analysis & Permitting					$55,000
Construction Management					$8,650
				SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS	**$73,935**
				TOTAL PROJECT COST	**$160,435**
				CONTINGENCY (20% OF TOTAL PROJECT COST)	**$32,087**
TOTAL PROJECT COST + CONTINGENCY					**$192,522**

Lyons Valley Park Lift Station

The LVP Lift Station was installed around 2007. This lift station will reach its end of life in approximately 2022and should be replaced within the next 15 years.

Stone Canyon Lift Station

The Stone Canyon Lift Station was installed around 2006. This lift station will reach its end of life in approximately 2026 and should be replaced within the next 20 years.

4.3 SUMMARY OF WASTEWATER CAPITAL IMPROVEMENTS

The estimated costs for these improvements are presented on an individual project basis. If implemented on an individual basis, the total cost for all sewer system repairs and replacements is $1,083,479.40, as shown in Table 23. If the projects are grouped together, costs will likely be reduced due to increased efficiency of mobilization, demobilization, bidding, and construction administration on a per-project basis. It is recommended to combine projects based on location, project scope, and cost. A review of the Roads CIP shows that some projects should also be coordinated between roads, water, and sewer. This will prevent multiple cuts in the same road for different projects, instead allowing the construction of multiple projects with a single road excavation and reconstruction.

Table 23 – Summary of Cost Estimates for Wastewater Capital Improvement Projects

Wastewater Capital Improvement Project	Cost Estimate
North Old Town Alleys - 4th Avenue to 5th Avenue	$520,013
Meily Street - Ewald Avenue to 5th Avenue	$168,396
Longs Peak Drive	$359,208
Broadway from Park to 2nd	$46,200
Broadway from 3rd to 5th	$63,600
Park Drive from 4th to 5th	$104,850
4th from Evans to Main Street	$48,000
High Street- 4th Avenue to 5th Avenue	$32,400
Eagle Canyon Lift Station	$192,522
TOTAL	**$1,535,190**

5 ROUTINE MAINTENANCE RECOMMENDATIONS

5.1 WASTEWATER COLLECTION SYSTEM RECOMMENDATIONS

The Town should develop an annual program to clean and inspect a portion of their collection system each year. By video-inspecting the lines during the cleaning process, the Town can monitor any changes within the system and better inform the development of capital improvement projects. The Town may also select older or problematic areas to monitor more frequently, as the newer areas will not need as much maintenance. The sewer system inspection program should also include manhole inspections, to better monitor and reduce inflow and infiltration.

Annual inspections should also be performed on force mains and wet wells. Wet well piping should be inspected for any corrosion from hydrogen sulfide (H_2S) gas produced by long wet well retention times, joint leakage, and displacement. Pumps should be inspected for routine wear, unusual noises or vibrations, and proper discharge pressures and pump speeds. Any increase in pump pressure could indicate a grease build-up within the force main.

5.2 WATER DISTRIBUTION SYSTEM RECOMMENDATIONS

At some locations in the Town of Lyons distribution system, long water retention times are causing areas of low chlorine residual. As of April 2016, the Colorado Department of Public Health and Environment (CDPHE) requires that the residual disinfectant concentration must be greater than or equal to 0.2 mg/L at ALL points in the distribution system. See Appendix G for the complete Disinfection Treatment Technique Requirements, as stated in the Colorado Primary Drinking Water Regulations.

The water main looping projects recommended in the Capital Improvements Plan should prevent low chlorine residual in some of the problem areas. However, the Town should implement a regular hydrant flushing program to prevent stagnation, flush sediment from the lines, and improve overall water quality.

The City of Longmont retains responsibility for maintaining the master meter from Longmont, according to Section 2.1 of the 2003 Intergovernmental Agreement.

Storage Tank Recommendations

Effective April 2016, CDPHE implemented a Storage Tank Rule that requires water suppliers to perform periodic and comprehensive inspections of their water storage tanks, and sets procedures for documenting these inspections. Periodic inspections of each tank must be scheduled quarterly, while comprehensive inspections must be schedule at least every five years. The complete Storage Tank Rule is attached as Appendix H, as found in the Colorado Primary Drinking Water Regulations. The Town should ensure its storage tank maintenance plan complies with this new regulation.

6 WATER DISTRIBUTION SYSTEM MODEL

6.1 BACKGROUND

RG and Associates, LLC (RGA) created a water distribution system model in order to analyze existing conditions and to provide the town with a model for analysis of future development.

The model was created in EPANET 2.0, a water distribution modeling software published by the Environmental Protection Agency (EPA). This model uses demand inputs along with details of the study area such as pipe length and roughness to model flows, velocity, and head loss through a system. Outputs from the model show flow through all pipe in the study area and helps to analyze current flows and velocities at average day, peak day, and peak hour conditions.

The town provided RGA with a model of their system that was previously created. Data from this model was utilized as the base for the 2016 EPANET model of the system and was updated to included capital improvements made over the past 5 years and current water demands. Other inputs into the model include pipe diameter, pipe roughness coefficients, and base demands.

6.2 DEMAND INPUTS

Three model scenarios were analyzed: average day, peak day, and peak hour, along with a separate fire flow analysis. The average daily demands for the Town of Lyons were based on the town's 2015 Meter Consumption Report. Demands were distributed evenly throughout the town across 100 nodes that were identified as "demand nodes". These nodes accounted for approximately half of the nodes throughout the model. The other nodes represent junctions and fire hydrants, which are not assigned any demand except during a fire flow analysis. The average daily demand per node for the town was found to be 0.0020 MGD, as shown in Table 24.

To calculate peak day flow, a peaking factor was calculated based on the ratio of the maximum daily flow to the average daily flow (MD:AD). To calculate this peaking factor, the flow from the month with the maximum flow (August 2015) was divided by the average monthly flow for the year, which is calculated by dividing the yearly flow by 12. The resultant peaking factor is 2.05. Using this peaking factor, the peak day flow can be calculated using the average day flow and results in a peak day demand per node of 0.0041 MGD, as shown in Table 24.

The peak hour flow was calculated by first calculating a peaking factor based on the number of people in the town. The equation to calculate the peak hour peaking factor is

$$\frac{Q_{PH}}{Q_{AD}} = \frac{18 + \sqrt{P}}{4 + \sqrt{P}}$$

where Q_{PH} is the peak hour flow, Q_{AD} is the average day flow, and P is population in thousands. The US Census in 2010 found the population of Lyons to be 2,033 and estimates that the population in 2015 was 2,147. Using the estimated population in 2015 from the US Census and the equation above, the peak hour peaking factor is calculated to be 3.56. Using this peaking factor, the peak hour flow can be

calculated using the average day flow and results in a peak hour demand per node of 0.0072 MGD, as shown in Table 24.

Table 24 - Average Day, Peak Day, and Peak Hour Demands per Demand Node

	Daily Flow (MGD)	Number of Demand Nodes	Demand per Node (MGD)	Demand per Node (GPM)
Average Day	0.20	100	0.0020	1.39
Peak Day	0.41	100	0.0041	2.85
Peak Hour	0.71	100	0.0071	4.94

6.3 ROUGHNESS COEFFICIENTS

In areas of the system where pipe age and type are not available, the roughness coefficient (C) values were estimated to be 100. In areas where pipe age and type were known, C values were calculated using equations derived by Denver Water based on measured roughness coefficients for non-cast iron (non-CI) and lined cast iron (CI), large unlined CI Pipes (diameter > 10"), and small unlined CI pipes (diameter < 10"). For example, in areas where new ductile iron pipe was installed about two years ago, the roughness was calculated as 135 (using the equation 137 – 0.57 * 2). The data points for these pipe types and the derived equations to calculate C values for each pipe type are shown in Figure 9, which was provided by Denver Water. The C values change with respect to age.

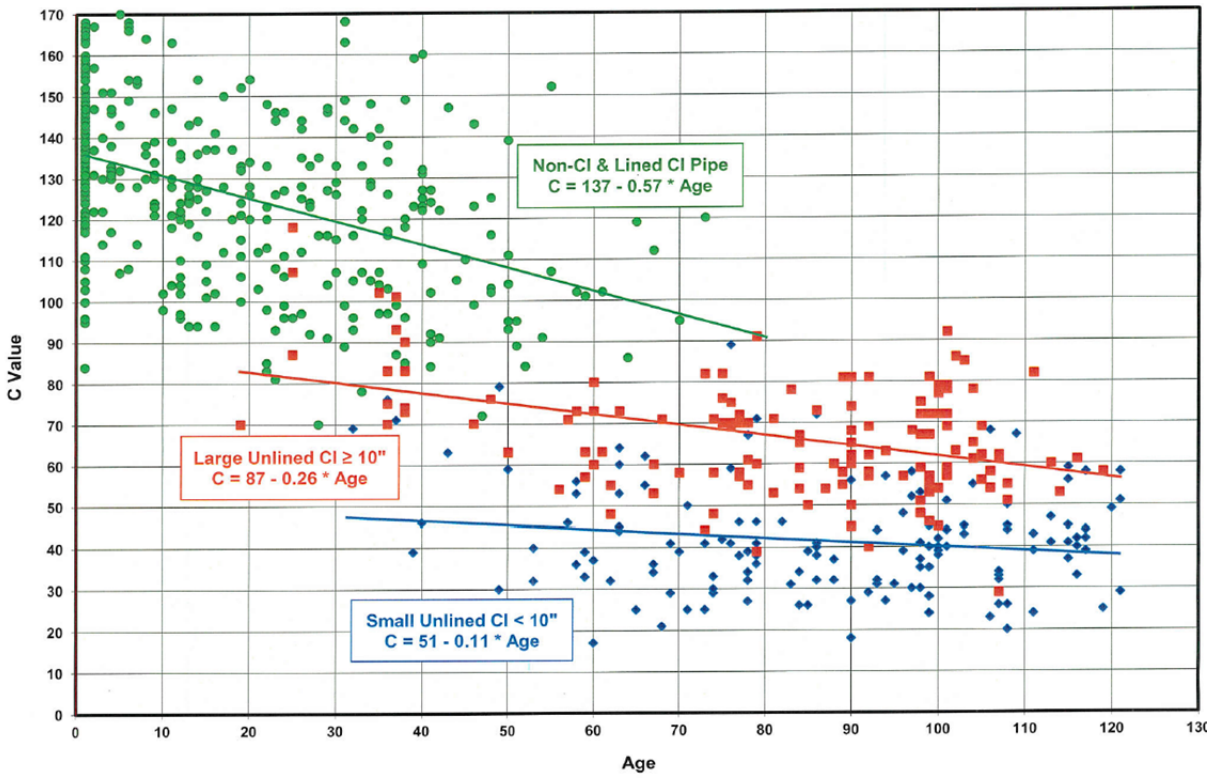


Figure 9 – Measured roughness coefficients vs pipe age and derived C value equations

6.4 PIPE DIAMETER

Pipe diameters for the system were obtained from the previously created model provided by the town and were updated based on the towns records or pipe replacement throughout the system. For pipe diameter modeling purposes, it was assumed that the projects completed from the 2011 Capital Improvements Plan were constructed as described in the 2011 Capital Improvements Plan. Figure 10 shows existing pipe diameters throughout the town.

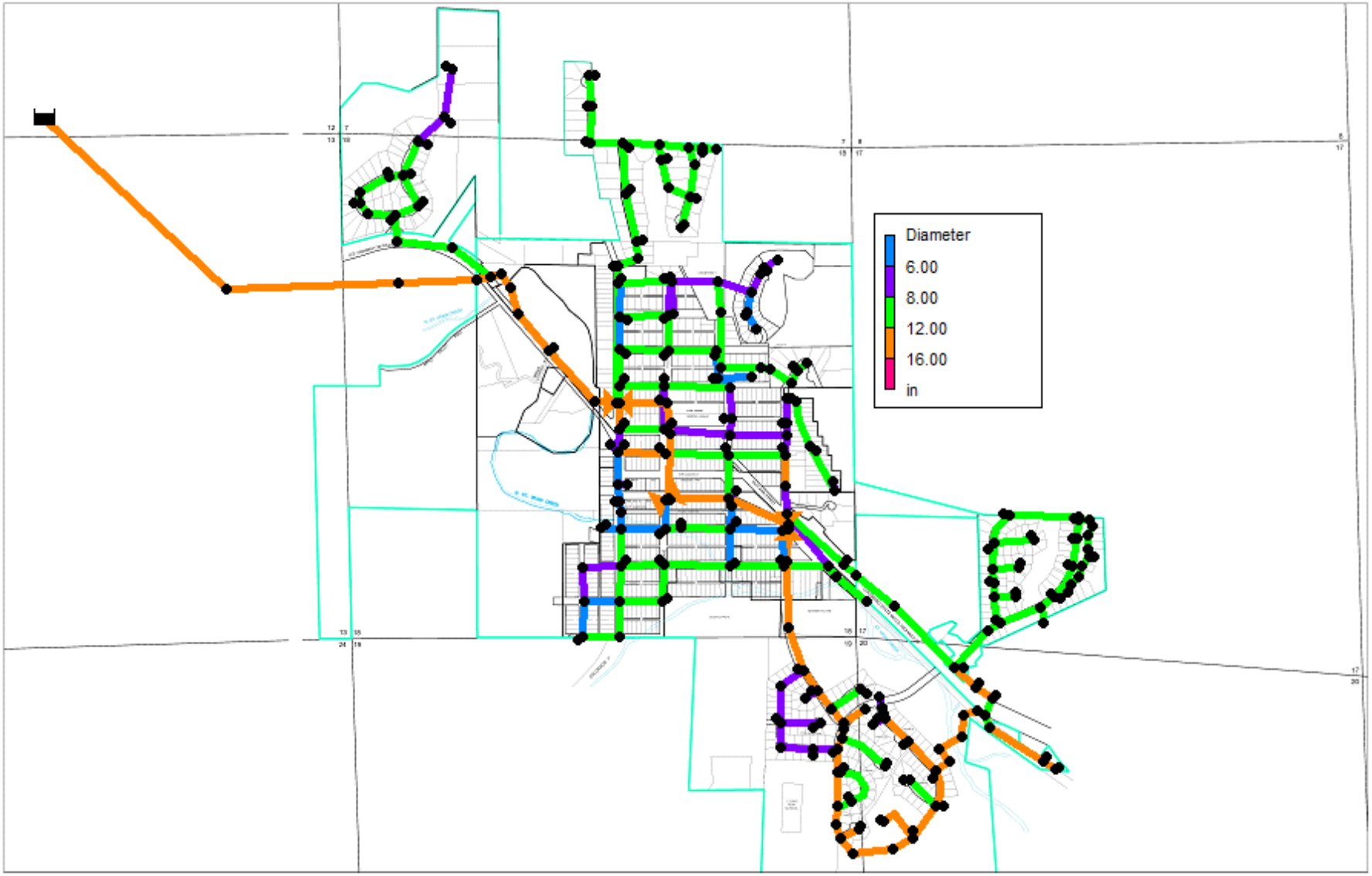


Figure 10 – Pipe Diameters in the Town of Lyons Distribution System

6.5 RESULTS

Average Day, Max Day, and Peak Hour Conditions

The existing distribution system was analyzed under each demand scenario to measure pressures and head loss throughout the system. The pressures throughout the distribution system in each scenario are shown in Figure 11 through Figure 13.

Typical engineering standards dictate that water distribution mains should maintain a minimum pressure of 40 psi during peak hour demand and a maximum of 110psi static pressure. The pressures in the lower elevations of the distribution system were higher than recommended, reaching up to 125 psi. However, most homes have internal PRVs and the town has a rebate program for homeowners to purchase PRVs if the building does not already have one. The high pressures in the system are therefore not of concern at this time.

Typical engineering standards also dictate that the maximum head loss in water distribution mains should be 2 feet per 1000 feet under peak hour conditions. For average day and maximum day scenarios, the head loss remained under this limit. In the peak hour scenario, though, head loss reached up to 3.92 ft per kft.

Table 25 summarizes the existing system pressures and maximum head loss in average day, maximum day, and peak hour conditions.

Table 25 – Summary of Pressures and Head Loss for Average Day, Maximum Day, and Peak Hour

	Daily Flow (MGD)	Number of Demand Nodes	Demand per Node (MGD)	Demand per Node (GPM)
Average Day	0.20	100	0.0020	1.39
Peak Day	0.41	100	0.0041	2.85
Peak Hour	0.71	100	0.0071	4.94

Fire Flow

A fire flow analysis was conducted to analyze pressures and head loss throughout the system in the even that a fire hydrant is opened. First, a fire hydrant node was selected within the lowest pressure area of the distribution system, located at the north edge of the service area (near the "blue line" 5,450' elevation service limit). This selection allowed for analyzing the minimum pressure scenario, with a fire hydrant drawing high flow in an area already experiencing relatively low pressures. Demand at the hydrant node was set at 1500 GPM to model the opening of the fire hydrant, as is typically utilized for modeling purposes. Pressure and flow throughout the distribution system was modeled for the fire flow event at average day, maximum day, and peak hour demand scenarios. In each scenario, demand nodes near the hydrant experienced negative pressures. This is due in part to four-inch diameter pipelines in these locations that create excessive head loss in high flow conditions.

Other fire hydrant nodes were selected throughout the distribution system to test effects of fire flow at various locations. In most locations, pressures and head loss remained acceptable during a fire flow

event. However, in locations where a hydrant is connected to a four-inch water main, excessive head loss in the pipe resulted in negative pressures. These hydrants would not be able to properly function in the event of a fire.

6.6 WATER DISTRIBUTION SYSTEM MODELING SUMMARY AND RECOMMENDATIONS

It is recommended that all four-inch pipe in the distribution system be replaced with eight-inch pipe. This will allow adequate pressures to be maintained in the system during a fire flow event, even under peak hour demand. This pipe replacement project, with its associated exhibits and cost estimates, can be found in Section 3 of this plan under "Upsize Four-inch Pipelines".

It is also recommended that the town continue their education and rebate program to ensure all homes in high pressure zones have internal PRVs. The system currently provides pressures that are too high for appropriate distribution pressures without internal PRVs.

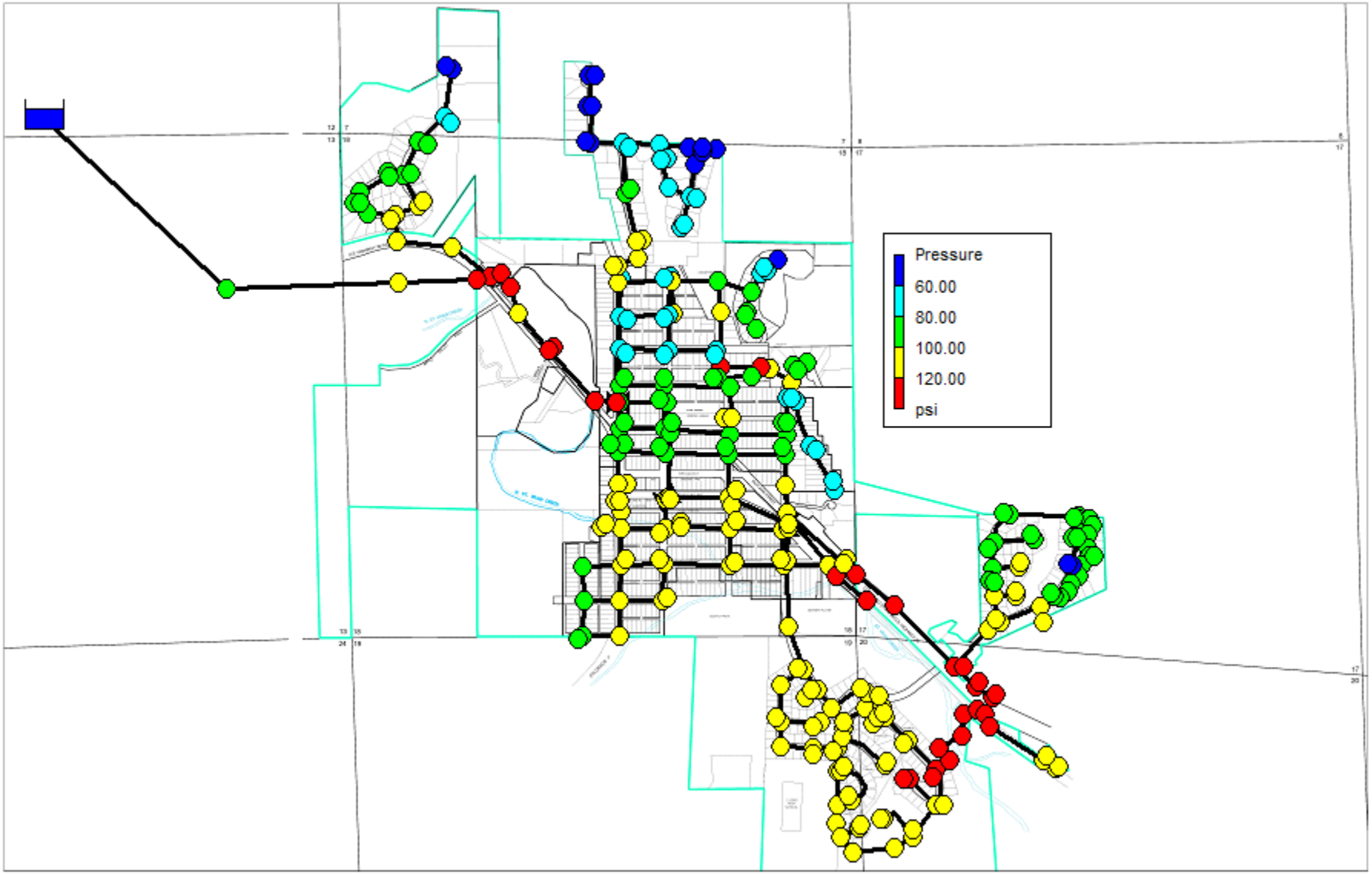


Figure 11 – Water Distribution System Pressures at Average Day Demand

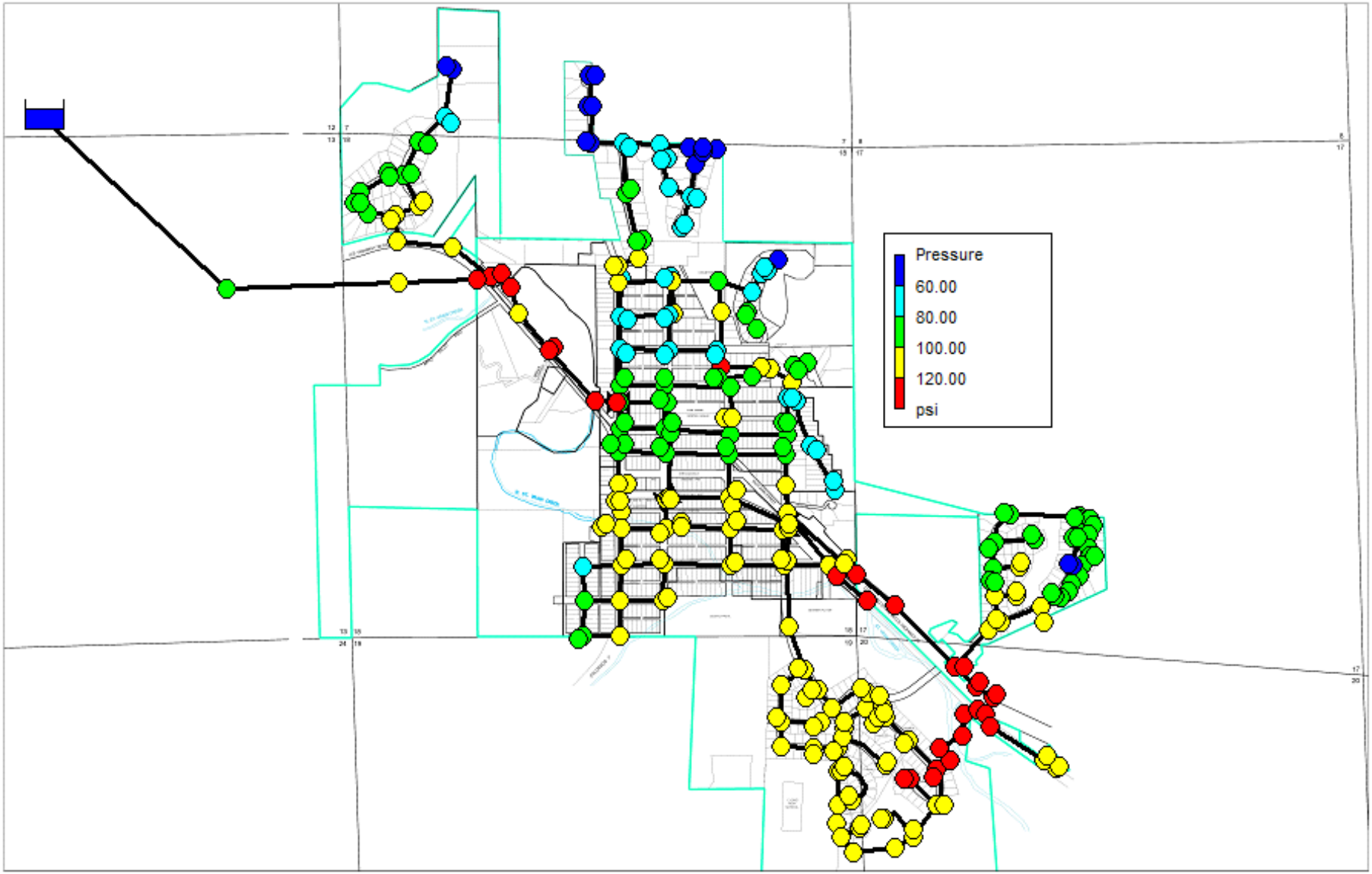


Figure 12 – Water Distribution System Pressures at Maximum Day Demand

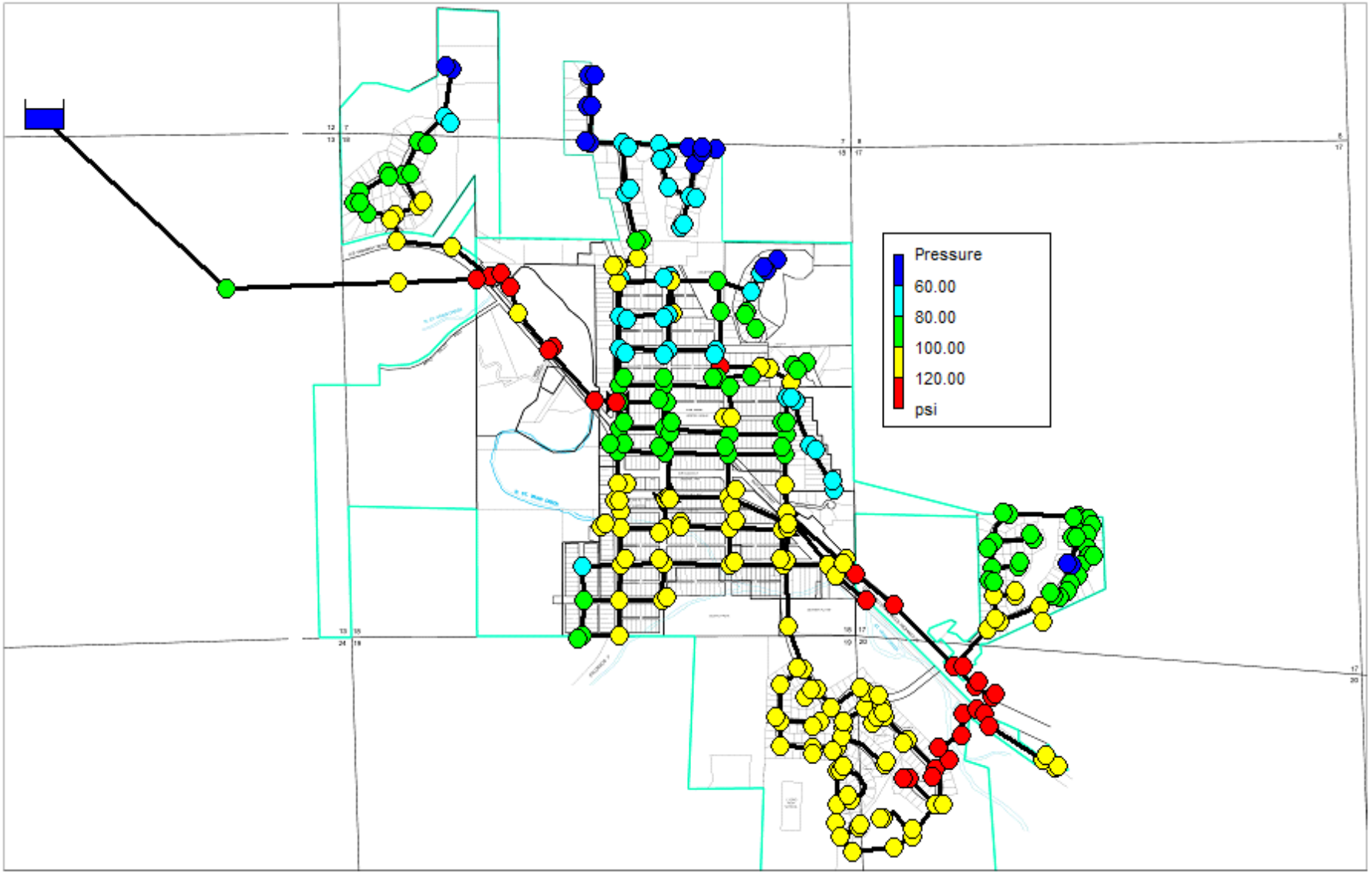


Figure 13 – Water Distribution System Pressures at Peak Hour Demand

7 CAPITAL IMPROVEMENTS PLAN SUMMARY & RECOMMENDATIONS

Although all recommended improvements documented in this Capital Improvements Project would benefit the Town of Lyon's water distribution and sanitary sewer collection system, some improvements are more crucial and time critical than others and have been noted as immediate capital improvements. These immediately needed improvements are as follows:

Water

- Upsize 4" waterline in Stickney Street. This project includes the installation of 325' of 8" watermain, one fire hydrant, connect to existing watermain, reconnect water taps, and pavement patching.
- Rebuild 2nd Avenue PRV. This project includes the reconstruction of the automated relief system discharge piping and pavement patching.
- Replace watermain from Railroad Avenue south to Evans Street including pavement patching.

Sewer

- Replace pumps and appurtenances in Eagle Canyon Lift Station.

The Town of Lyons is balancing capital improvements and expenditures with on-going flood recovery efforts and capital demands. As such, the town anticipates implementing the immediate capital improvements for water and sanitation as noted in 2017, but will likely defer any further improvements until 2019 or 2020.

The Town of Lyons may fund water and sanitation capital improvements through capital reserves in holding by the town. Other options for funding improvements may include financing all or part of the projects.

APPENDIX A

LYONS 2016 CROSS-CONNECTION CONTROL PROGRAM

CROSS-CONNECTION CONTROL PROGRAM

INTRODUCTION

This Policy addresses Article 12 of the Colorado Primary Drinking Water Regulations that states a public water system shall have no uncontrolled cross-connections to a pipe, fixture, or supply, any of which contain water not meeting provisions of the drinking water regulations.

A cross-connection is any point in a water distribution system where chemical, biological, or radiological contaminants may come into contact with potable water. During a backflow event, these contaminants can be drawn or pushed back into the potable water system. A backflow prevention device installed at every point of cross-connection prevents contaminated water from entering the potable water distribution system.

Any hazardous cross-connection discovered to be uncontrolled will be corrected within 10 days or the water service will shut off. The Colorado Department of Public Health and Environment will be informed of the hazardous connection and the corrective action being taken.

IDENTIFICATION OF POTENTIAL CROSS-CONNECTIONS

Per Article 12, the town's operator performed a survey of the public water system on _____, 20__ and identified a list of potentially hazardous cross-connections, prioritized by degree of hazard. This list is included on an attached sheet. From this date forward, any new water service installation will be inspected for compliance with these requirements for backflow prevention.

PUBLIC EDUCATION

The city will educate system users about the potential health risk that cross-connections pose, with an emphasis on cross-connections at or within homes and other residences.

INSTALLATION OF DEVICES

The town will require system users to install and maintain backflow prevention devices on potentially hazardous service connections, as stated in Article 12. All service connections within the water system must comply with Article 12 and the *Colorado Cross-Connection Control Manual.*

Each cross-connection may require a different type of backflow prevention device, commensurate with the degree of hazard posed by the cross-connection. Approval for the devices needs to be given by the water system operator or water system engineer.

ANNUAL TESTING

Article 12 requires that backflow prevention devices be tested annually by a certified backflow prevention technician. The following is a list of certified technicians in our area, their ABPA Number, and contact information:

COMPANY NAME	CONTACT INFORMATION	ABPA #
Backflow Consulting Testing and Repairs, Inc.	Fred Spengler info@backflowconsulting.com 720-353-5532	06-04563
Morrison Backflow Testing, LLC	Dan Morrison Mbt-Morrison@comcast.net 303-906-5542	06-00528

RECORD KEEPING

Testing and maintenance records will be kept for three years, per the requirements of Article 12.

LIST OF BACKFLOW PREVENTION DEVICES

The following approved devices can be used for backflow prevention:

- Vacuum breaker
- Double-check valve assembly
- Reduced pressure principal backflow assembly
- Air gap

The Colorado Department of Public Health and Environment accepts the use of backflow preventers that have received approval by either University of Southern California Foundation of Cross-Connection Control and Hydraulic Research or the American Society of Sanitary Engineers (ASSE).

The following is a list of common cross-connections and devices that may be used to prevent backflow:

TYPE OF CROSS-CONNECTION	BACKFLOW PREVENTION DEVICE
Hose bib	Vacuum breaker
Fire sprinkler system; Solar house using potable water as heat source	Double check valve assembly on water only line. Approved reduced pressure principal backflow assembly on branch lines carrying chemicals
Photographic processors and developers	Reduced pressure principal backflow assembly
Hot water boilers	Reduced pressure principal backflow assembly
Water hauler tank filling station	Air gap

Additional resource: *Colorado Cross-Connection Control Manual;* Corporate Discount Books, (303) 465-0465

POTENTIAL CROSS-CONNECTIONS SAMPLE LIST

System Survey Conducted By: _____ Date: _____

POTENTIAL CROSS-CONNECTION	STREET ADDRESS OF POTENTIAL CROSS-CONNECTION	DEGREE OF HAZARD: CONTAMINATION OR HEALTH HAZARD = HIGH POLLUTION HAZARD = LOW
Elementary School Fire Sprinkler System		
Photo Developer		
Car Wash		
Apartment Building Boiler System		
Irrigation Sprinkler System		
Ice Cream Dipper Well		
Construction Site		
Residential Hose Bibbs		

CROSS CONNECTION CONTROL PLAN FOR PWSID CO 0153600

In accordance with Article 12 of the Colorado Primary Drinking Water Regulations, the following Cross Connection Control Program has been implemented to minimize the risk of contamination during a backflow and back pressure event.

It is the responsibility of this water system to:

- Identify potentially uncontrolled hazardous cross connections
- Require all service connections to install a containment device that is consistent with the degree of the potential for hazards posed by the uncontrolled cross connection
- Approve of the installation of all containment devices
- Verify and retain records of annual testing for each containment device by a certified cross control technician for three years
- Verify and retain records of maintenance for each containment device for three years

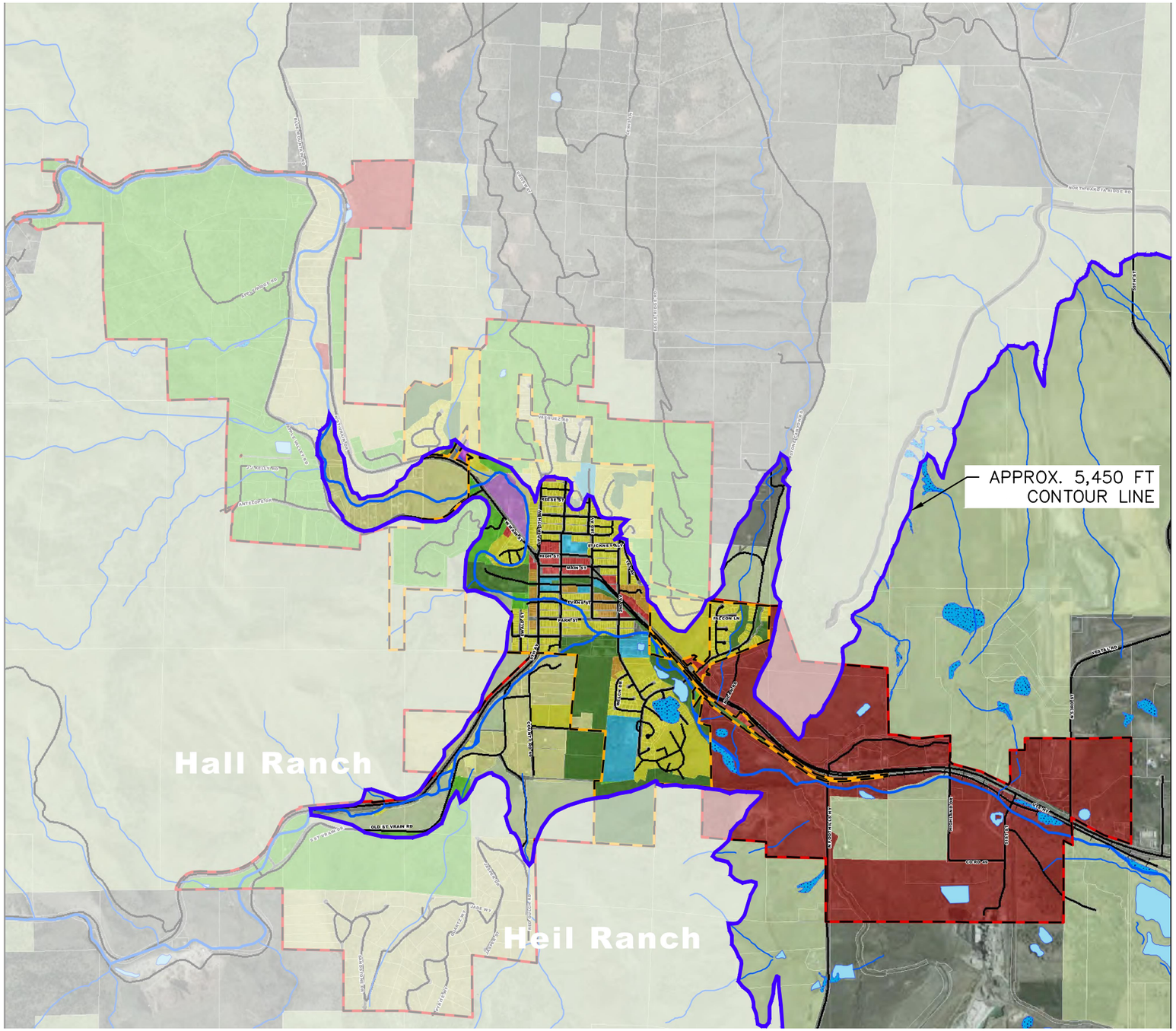
ADDRESS	LAND USE DESCRIPTION (RESIDENTIAL, RETAIL, TOXIC INDUSTRIAL, ETC.)	REQUIRED DEVICE TYPE	INSTALLATION CONFIRMED? (Y/N)	ANNUAL TESTING, MAINTENANCE LOGS? (HAVE/NEED)

APPENDIX B

LYONS 2010 COMPREHENSIVE PLAN MAP

PLANNING MAP WITH "BLUE LINE"

SCALE 1"=2500'



Legend

- Town Boundary
- Lyons Planning Area (Future)

Land Use

- Agriculture
- Park
- Boulder County Open Space
- Municipal Facilities
- Estate Residential
- Low Density Residential
- Medium Density Residential
- Commercial
- Employment Area
- Commercial Entertainment
- Light Industrial
- General Industrial

Note: Land uses are defined in Appendix A

N
W E
S

NOTE:
LOCATIONS AND MEASUREMENTS SHOWN ARE APPROXIMATE.

RG AND ASSOCIATES, LLC
4885 Ward Road, Suite 100 • Wheat Ridge, CO • 80033
303-293-8107 • 303-293-8106 (fax) • www.rgengineers.com

S:\1088 - Lyons\0001 - Rate Study\dwg\Planning Map with Elevation.dwg, 8/24/2016 8:05:50 AM

APPENDIX C

"BLUE LINE" ORDINANCE

Sec. 13-1-120. - Blue line variances for water and wastewater services.

(a) Limit of service. No water or wastewater service shall be provided by the Town Utility Departments to any property under the same ownership located wholly or partially above a line defined by the five-thousand-four-hundred-fifty-foot elevation mark, except in accordance with this Section and the granting of a blue line variance. The five-thousand-four-hundred-fifty-foot elevation line shall be known as the *blue line*.

(b) Application for blue line variance. An owner seeking consideration of a blue line variance shall submit to the Town Clerk an application for a blue line variance. The application shall, at a minimum, identify the nature and extent of any proposed development to be served by water and wastewater services and shall include plans and documentation generally consistent with the documentary requirements associated with the submission and review of sketch plans pursuant to the subdivision regulations of the Town. The Town Administrator may promulgate an application form and procedures necessary to ensure conformance with this Section.

(c) Preliminary review. Following a determination by the Town Administrator that the application is complete, the Town Administrator shall refer the application to the Planning Commission for preliminary review. The preliminary review shall be conducted as an administrative proceeding, and the Planning Commission shall consider whether the proposed service area described in the application conforms to the goals and policies of the Comprehensive Plan, as amended. Subject to ratification of the Board of Trustees, the Planning Commission may reject an application following the preliminary review where the requested service extension would be contrary to the Comprehensive Plan; in such event, the applicant may elect to pursue the Board of Trustees' approval for a waiver of any mandatory connection requirements imposed by this Chapter in order to permit the on-site provision of water and wastewater services.

(d) Feasibility study. Following preliminary review and acceptance of the application by the Board of Trustees, the Board of Trustees may authorize a licensed engineer to determine if existing water and wastewater lines can be extended to provide service to the proposed development. All fees incurred by the Town for the licensed engineer and all other costs and expenses of review shall be paid by the applicant. The Town Administrator may require that a deposit of the estimated costs of review be paid by the owner prior to commencing any review. In lieu of engineering review as provided by this Subsection, an owner may submit completed engineering plans and construction documentation for a water tank and pumping station independent from the existing Town water system to provide water for the proposed development and wastewater management plans for an-site treatment of waste and effluent. Such plans shall fully comply with all applicable Town engineering and design specifications, including the provision of sufficient water pressure and volume to provide adequate firefighting capabilities to the property.

(e) Granting of blue line variance. Where the extension and provision of water and wastewater services to the property is found to be feasible, the Board of Trustees may grant a blue line variance and may condition such variance upon conditions necessary to ensure that the service will not detrimentally

affect the health, safety or welfare of the residents of the proposed development or consumers of the public water and wastewater systems. A blue line variance shall be a legislative act by the Board of Trustees, shall be subject to public referendum and shall be made by written resolution containing a legal description of the property affected by the variance and all terms and conditions of the variance.

(f) Effect of blue line variance. A blue line variance shall be deemed to approve only the extension above the blue line of the public water and wastewater system to the property described in the application subject to any conditions imposed by the Board of Trustees. A blue line variance shall not be construed to grant any approval of, or consent for, any aspect of the development described in the application. A blue line variance shall not be construed to grant or reserve capacity, pressure or volume associated with any Town Utility System. Nothing in this Section shall be deemed to waive or modify the applicability and requirements of any other provision of this Code.

(g) Variance to run with property. A blue line variance shall be appurtenant to and run with the property described in the variance until expiration of the variance or completion of all improvements necessary to provide services to the property.

(h) Expiration of blue line variance. Any blue line variance shall automatically terminate two (2) years after the date of approval by the Board of Trustees. The Board of Trustees may extend the effective date of a variance by not more than one (1) year from the date of expiration upon a finding that the owner has diligently pursued the extension of services and the development of the property described in the variance.

(Prior code 7-1-12; Ord. 956 §1, 2014)

APPENDIX D

LYONS-LONGMONT INTERGOVERNMENTAL AGREEMENT (IGA)

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Boulder County Clerk, CO AG R 116.00 D 0.00

COPY

INTERGOVERNMENTAL AGREEMENT
(TREATED WATER SERVICE)

This Intergovernmental Agreement ("Agreement") is made and entered into this 21st day of July, 2003, between the TOWN OF LYONS, as a statutory municipal corporation organized under the laws of the State of Colorado and also acting by and through its Water Fund, an Enterprise of the Town of Lyons ("Lyons"), and the CITY OF LONGMONT, a municipal corporation organized under the laws of the State of Colorado and acting by and through its Water Utility Enterprise ("Longmont").

RECITALS

A. Lyons is located in Boulder County, Colorado, at the confluence of North and South St. Vrain Creeks. Lyons owns water rights in the St. Vrain Basin and also owns and operates facilities for the distribution of treated water to customers in or near Lyons.

B. Longmont is a home rule municipality in Boulder County, Colorado, located on St. Vrain Creek, downstream of Lyons. Longmont owns and operates a municipal water treatment and distribution system with diversion, storage and treatment facilities near Lyons. Longmont is presently constructing a new raw water treatment facility near Lyons.

C. Lyons and Longmont have previously entered into an Agreement, dated April 21, 1969 (the "Button Rock Agreement"), making three hundred (300) acre-feet of water available to Lyons from Longmont's Button Rock Reservoir.

D. Section 11.1 of Longmont's Municipal Charter authorizes Longmont to contract with other municipalities for the purpose of furnishing any municipal services, within or without the corporate limits of Longmont, provided such agreement will clearly benefit the inhabitants of Longmont. In addition, § 29-1-203 of the Colorado Revised Statutes provides that municipalities may contract with one another to provide any function, service or facility lawfully authorized to each of the contracting units of government.

E. As neighboring municipalities, Lyons and Longmont share a common interest in providing high quality treated water to their present and future customers in an economical manner and without unnecessary duplication of facilities or services.

F. Lyons and Longmont desire to enter into this Agreement to provide for the treatment and delivery of potable water to Lyons by Longmont. Under this Agreement, Lyons and Longmont would continue to own their water rights individually and separately, each relying on the yield of its own water rights to provide the raw water necessary for its own purposes. Under the terms contained herein, such an agreement will clearly benefit the inhabitants of both Lyons and Longmont.

AGREEMENT

Accordingly, in consideration of the above recitals and of the mutual covenants, agreements and promises set forth herein, Lyons and Longmont agree as follows:

1. Definitions.

1.1 "Longmont C-BT Diversion Points" shall mean, either alone or in combination:

A. The Carter Lake Pipeline, which runs south beginning at Carter Lake from a point 1250 feet West of the East Section line of Section 10, 750 feet North of the South line of Section 10, T4N, R70W of the 6th P.M., Larimer County, Colorado.

B. The St. Vrain Supply Canal Intake, located in the NE1/4 of Section 20, T3N, R70W of the 6th P.M., in Boulder County, Colorado, at the point where Longmont diverts C-BT Water and Windy Gap Water into the Longmont Water System.

C. The St. Vrain Supply Canal Outlet into St. Vrain Creek, located at the point the Windy Gap/St. Vrain Supply Canal discharges into St. Vrain Creek in the NE1/4 of Section 20, T3N, R70W of the 6th P.M., Boulder County, Colorado.

1.2 "Longmont Diversion Points" shall mean, either alone or in combination:

A. The South Pipeline, also known as the Longmont Pipe Line, the headgate or point of intake of which is on the South Fork of St. Vrain Creek at a point whence the West quarter corner of Section 19, T3N, R70W of the 6th P.M., bears South 70°30' West a distance of 1,657 ft.

B. The North Pipeline, also known as the Longmont Water Works Pipe Line, the headgate or point of intake of which is on the North Fork of St. Vrain Creek at a point whence the Northeast corner of Section 16, T3N, R71W of the 6th P.M., bears North 45°37' East a distance of 2,532 ft.

C. The Highland Ditch headgate, located on the north side of St. Vrain Creek in the N1/2 of Section 20, T3N, R70W of the 6th P.M., at a point whence the Northwest corner of said Section 20 bears North 39°18' West a distance of 1720 ft. more or less; the North line of the NW1/4 of said Section 20 as bearing 84° West with all bearings relative thereto.

D. The Supply Ditch headgate, located on the north side of St. Vrain Creek in the N1/2 of Section 20, T3N, R70W of the 6th P.M., at a point whence the Northwest corner of said Section 20 bears North 86°46' West a distance of 470 ft. more or less; the North line of the NW1/4 of said Section 20 as bearing North 84° West with all bearings relative thereto.

E. A proposed intake to an existing Longmont pipeline running under St. Vrain Creek at Lyons, which by subsequent modification, could be made capable of diverting water from St. Vrain Creek.

1.3 "Longmont Water System" shall mean any and all equipment, structures, facilities and improvements, including, but not limited to the Longmont Diversion Points, the Longmont C-BT Diversion Points and the Longmont Water Treatment Facilities, utilized by Longmont in connection with the diversion, treatment, distribution and delivery of Treated Water to customers within or without Longmont's corporate limits, now owned or hereafter acquired by Longmont through purchase, construction, or otherwise, whether situated within or without Longmont's corporate limits.

1.4 "Longmont Water Treatment Facilities" shall mean Longmont's existing 'North,' 'South,' and 'Wade Gaddis' water treatment plants, and Longmont's new water treatment plant at Dowe Flats scheduled to begin operating in approximately 2005.

1.5 "Lyons Button Rock Water" shall mean the water stored in an amount up to three hundred (300) acre-feet each year in Longmont's Button Rock Reservoir, pursuant to the water right decreed to Longmont in Case No. 20716, District Court, Boulder County, and available to Lyons pursuant to the Button Rock Agreement.

1.6 "Lyons C-BT Water" shall mean the approximately 598 allotment units of the Colorado-Big Thompson Project presently owned by Lyons, and any additional units which Lyons may subsequently own, whether accounted for as presently allocated or as carried-over.

1.7 "Lyons Pipeline Priorities" shall mean, either alone or in combination, the adjudicated priorities associated with the Lyons Pipeline, as more fully described on Exhibit A, attached hereto and incorporated herein.

1.8 "Lyons Service Area" shall mean the area within the boundaries of the 'Lyons Planning Area,' as set forth in the December 19, 2002 Lyons Planning Area Intergovernmental Agreement between Boulder County and Lyons ("Lyons Planning Area Agreement"), approved by the Lyons Board of Trustees on November 4, 2002, by Resolution 2002-48, and as depicted on the map attached as Exhibit B and incorporated herein, as may be amended in accordance with the Lyons Planning Area Agreement. Nothing in this Agreement shall be construed to prevent or preclude Lyons' and Boulder County's mutual agreement to modify the boundaries of the Lyons Planning Area in accordance with the provisions of Section 2.0 of the Lyons Planning Area Agreement, but in no event shall such modification of the Lyons Planning Area extend beyond the 'Planning Boundary' depicted by the dashed line on the map attached as Exhibit B.

1.9 "Lyons Water Dedication" shall mean raw water, from the Lyons Water Rights, made available to Longmont in an amount equal to one hundred percent (100%) of the Treated Water demand within the Lyons Service Area for that Water Year, together with an

additional amount of raw water, from the Lyons C-BT Water, equal to fifteen percent (15%) of the Treated Water demand within the Lyons Service Area for that Water Year (said total of 115% being the Lyons Water Dedication).

1.10 "Lyons Water Distribution System" shall mean any and all equipment, structures, facilities and improvements utilized by Lyons in connection with the distribution and delivery of treated water to customers within the Lyons Service Area, now owned or hereafter acquired by Lyons through purchase, construction, or otherwise, whether situated within or without the boundaries of the Lyons Service Area.

1.11 "Lyons Water Rights" shall mean, either alone or in combination, the Lyons Pipeline Priorities, the Lyons C-BT Water, the Lyons Button Rock Water, and other water rights approved by Longmont.

1.12 "Metering Point" shall mean the measuring point at which Longmont is obligated to provide Treated Water Service to Lyons, and beyond which Lyons assumes all responsibility for the distribution of Treated Water to individual customers within the Lyons Service Area.

1.13 "Pump Station" shall mean a facility for pumping Treated Water through the Metering Point, into the Lyons Water Distribution System to facilitate the delivery of Treated Water to the Lyons Service Area.

1.14 "Service Connection" shall mean a three-quarter inch (3/4") single family residential water tap, or the equivalent thereof.

1.15 "System Availability Charge" shall mean a charge assessed to Lyons for the provision of Treated Water Service by Longmont, as reimbursement for pro rata capital costs associated with the construction of the Longmont Water System.

1.16 "Treated Water" shall mean water treated to applicable mandatory federal and state drinking water standards for use in a municipal potable water supply system.

1.17 "Treated Water Service" shall mean the process of diverting, treating, and delivering water, with the end result being the provision of Treated Water.

1.18 "Water Year" shall mean a twelve month period beginning on November 1 and ending on October 31.

2. Treated Water Service. Subject to the terms of this Agreement, Longmont shall furnish, up to the Metering Point, Treated Water Service to Lyons for the operation of the Lyons Water Distribution System for customers within the Lyons Service Area, to the extent (and only to the extent) Lyons has provided Longmont the water and water rights for treatment.

2.1 Compliance with Drinking Water Standards. The Treated Water to be furnished by Longmont shall be potable water which complies with applicable mandatory federal and state drinking water standards.

A. No Higher Duties. This Agreement shall not impose any higher duties or financial obligations on Longmont with respect to the quality of Treated Water provided to Lyons than those Longmont otherwise owes in providing Treated Water to customers within Longmont's own service area.

B. Incident Responsibility. If there is any incident in which the Treated Water governed by this Agreement fails to comply with applicable mandatory federal and state drinking water standards, then the party responsible for such non-compliance shall bear all costs associated with any regulatory and third party liability arising out of such incident, including costs of defense incurred by both parties. Responsibility for non-compliance shall be determined using the records of water quality monitoring and sampling at the Metering Point. If such records demonstrate that the Treated Water at the Metering Point complied with applicable mandatory federal and state drinking water standards at the time of the incident, then Lyons shall be deemed responsible for the incident. If such records demonstrate that the Treated Water at the Metering Point did not comply with applicable mandatory federal and state drinking water standards at the time of the incident, then Longmont shall be deemed responsible for the incident. This paragraph shall not be deemed to impose strict or absolute liability on either party or waive any defenses available to either party, including but not limited to those set forth in the Colorado Governmental Immunity Act.

2.2 Limitations on Location of Use, Resale, and Commingling. Lyons shall not distribute Treated Water to customers outside the Lyons Service Area without the prior written consent of Longmont, nor shall Lyons provide Treated Water for resale by others. Notwithstanding the foregoing limitations, Lyons may sell water for purposes of limited bulk water hauling for sale and use outside the Lyons Service Area. Lyons shall not commingle water from other sources in the Lyons Water Distribution System without the prior written consent of Longmont.

2.3 Annual Limit on New Service Connections. Absent the prior written consent of Longmont, Lyons shall not increase the number of Service Connections in the Lyons Service Area by more than one hundred twenty (120) per Water Year.

2.4 Maximum Service Connections and Daily Demand. Longmont shall not be required to provide Treated Water Service:

A. To more than 1,310 Service Connections; or

B. Exceeding an average daily demand of 572,000 gallons per day, or a maximum daily demand of 2,000,000 gallons per day.

Lyons will exercise such land use and planning authority as necessary to ensure compliance with these limitations.

3. Conditions Precedent. Longmont's obligation to provide Treated Water Service to Lyons shall not commence until the occurrence of the following conditions precedent:

3.1 Connection. No later than September 1, 2004, Lyons shall construct and install, at Lyons expense, all lines, facilities and equipment necessary to connect the Lyons Water Distribution System to the Longmont Water System at the Metering Point, including, but not limited to a back-flow prevention device(s) approved by Longmont.

3.2 County and Regulatory Approvals. No later than September 1, 2004, Lyons shall obtain all regulatory approvals required for its connection to the Longmont Water System. Lyons shall be responsible for and shall bear all costs associated with obtaining any such approvals, including any and all approvals from Boulder County that may be required pursuant to the Boulder County Land Use Code prior to making such connection. Longmont shall cooperate as may be reasonably necessary in any such approval processes.

3.3 Pump Station. No later than September 1, 2004, Lyons shall construct the Pump Station, and the Pump Station shall be fully operational by that date. Prior to July 3, 2003, Lyons and Longmont shall agree to a location for the Pump Station at either the Longmont South Water Treatment Plant, the Longmont North Water Treatment Plant, or Longmont's Montgomery Water Tank, and Longmont shall sell to Lyons property and/or easements reasonably necessary for the location of and access to the Pump Station, at a fair market value agreed to by the parties. If the parties cannot agree on a fair market value, the value shall be determined by an appraiser jointly selected by the parties, and the parties shall share equally the cost of the appraiser.

3.4 Change of Water Rights Application. No later than September 1, 2004, Lyons shall obtain a final decree approving the diversion and use of the Lyons Pipeline Priorities at the Longmont Diversion Points. No later than July 31, 2003, Lyons shall file in the District Court, Water Division No.1, an application seeking to change the points of diversion of the Lyons Pipeline Priorities to allow alternate points of diversion at the Longmont Diversion Points. No later than fifteen (15) days prior to filing the application, Lyons shall provide Longmont with an opportunity to review and comment on a draft of the application. Longmont will not oppose such application, provided the application complies with the terms of this Agreement. Longmont may join as a co-applicant. Longmont shall provide such information on the Longmont Water System as reasonably may be required by Lyons in the processing of Lyons' application. Lyons shall bear primary responsibility for all costs associated with prosecuting the change application, but Longmont shall bear all its own attorney fees.

A. No Change In Use. Nothing herein is intended to change the end use of the Lyons Pipeline Priorities, because such rights shall continue to be used for their decreed purposes within the Lyons Service Area.

B. Pipeline Alternative. If Lyons is unable to obtain a final decree approving its application, Lyons shall construct, at its own expense, a raw water pipeline from its existing diversion point to deliver water derived from the Lyons Pipeline Priorities to Longmont's forebay/afterbay pond (known as the North Pond) located adjacent to and used in conjunction with the North Pipeline near Lyons. Treated Water Service by Longmont to Lyons shall not commence until either a final change decree has been entered for the Lyons Pipeline Priorities or the raw water pipeline is constructed and operational. Notwithstanding the foregoing limitation, Lyons and Longmont may otherwise agree to commence Treated Water Service prior to entry of a decree or construction of a pipeline by, in the interim, adjusting the Fixed Dedication, as more fully described in subparagraph 5.2, to offset the inability to divert the Lyons Pipeline Priorities.

3.5 Initial System Availability Charge. No later than September 1, 2004, or commencement of Treated Water Service to Lyons, whichever date is earlier, Lyons shall pay to Longmont a System Availability Charge. The amount of the System Availability Charge shall be established at least thirty (30) days prior to the date of payment of the System Availability Charge in accordance with the following procedure:

A. At least sixty (60) days prior to the date of payment of the System Availability Charge, Lyons shall declare in writing to Longmont: (i) the amount of the Town's projected average daily demand and maximum daily demand of the Lyons Water Distribution System, as measured at the Metering Point; and (ii) the total number of Service Connections within the Lyons Service Area. Such declaration shall not exceed 300,000 gallons per day average daily demand, or 664,000 gallons per day maximum daily demand.

B. Using Lyons' declared demands and number of Service Connections, Longmont shall promptly calculate and report to Lyons the amount of the System Availability Charge based on the incremental capacity method described in Exhibit C attached to this Agreement. Such calculation by Longmont shall use as a maximum System Availability Charge One Million Three Hundred Ninety-Eight Thousand Dollars ($1,398,000.00) for a declaration of 300,000 gallons per day average daily demand, 664,000 gallons per day maximum daily demand, and 736 Service Connections. The Parties recognize that Lyons may declare a projected average daily demand and maximum daily demand of the Lyons Water Distribution System less than 300,000 gallons per day average daily demand and 664,000 gallons per day maximum daily demand and, as a result, the System Availability Charge will be less than One Million Three Hundred Ninety-Eight Thousand Dollars ($1,398,000.00).

3.6 Deadline Extensions. The September 1, 2004 deadlines established in the preceding subparagraphs shall be extended, so long as Lyons is proceeding diligently and in good faith to accomplish the work required to satisfy the conditions precedent. If the deadline is extended for the payment of the System Availability Charge, such charge will be recalculated based upon the then current data, and adjusted if higher. In no event shall the deadlines be extended beyond December 31, 2005.

3.7 Initial Payment. Upon execution of this Agreement, Lyons shall pay Longmont Fifty Thousand Dollars ($50,000.00). Such payment shall be non-refundable but shall be credited towards the System Availability Charge due September 1, 2004.

3.8 Longmont 1041 Permit. Longmont received approval from Boulder County (the "County") to construct its new water treatment plant at Dowe Flats pursuant to Resolution 2001-155 of the Boulder County Commissioners (the "Longmont 1041 Permit"). If compliance with any of the foregoing conditions precedent results in invalidation, rescission, or nullification of the Longmont 1041 Permit in any manner, or the imposition upon Longmont by the County of a new condition or requirement of the Longmont 1041 Permit that is deemed by Longmont as adverse to the Longmont 1041 Permit, then Longmont in its sole discretion may immediately terminate this Agreement upon written notice to Lyons. If compliance with any of the foregoing conditions precedent results in a determination by the County that Longmont must apply for a modification of the Longmont 1041 Permit, other than a joint application with the Town of Lyons for a modification to allow Longmont to provide Treated Water Service to the Lyons Service Area, then Longmont in its sole discretion may immediately terminate this Agreement upon written notice to Lyons.

4. Point of Delivery.

4.1 Master Meter. Treated Water Service from Longmont shall be provided to Lyons at the Metering Point, the location of which shall be above the discharge point of the Pump Station to the Lyons Water Distribution System. Lyons shall install the necessary back-flow devices to ensure that no water from the Lyons Water Distribution System shall flow back into the Longmont Water System through the Metering Point.

4.2 Ownership and Operation.

A. Lyons Water Distribution System. Lyons shall be solely responsible for the construction, operation, maintenance and replacement of the Lyons Water Distribution System. Lyons shall be solely responsible for complying with any and all water quality design, construction and other regulatory requirements applicable to the Lyons Water Distribution System, including applicable mandatory federal and state drinking water standards.

B. Metering Point. Lyons shall, at its expense, construct, install, replace, own, and provide electricity to the Pump Station and all treated water meter vaults, meters, data recording and transmissions systems, back-flow prevention devices and all associated facilities located at the Metering Point. A remote automated monitoring system shall be linked to the measuring devices located at the Metering Point, capable of securely transmitting data from the measuring devices to both Lyons and Longmont. Plans and specifications for the Metering Point, Pump Station and associated facilities shall be provided to and approved by Longmont prior to their construction; Longmont's approval shall not be withheld unreasonably.

C. Operation and Maintenance. Longmont shall be responsible for the operation and maintenance of the Pump Station and all treated water meter vaults, meters, back-flow prevention devices and all associated facilities located at the Metering Point, except that Lyons shall be responsible for all reasonable costs associated with such operation and maintenance, to be separately billed by Longmont to Lyons on a quarterly basis. Longmont shall test and calibrate measuring device(s) at the Metering Point in accordance with the standards established by the American Water Works Association. Upon one (1) year written notice to the other party, Longmont may terminate, or Lyons may assume, Longmont's obligations under this subparagraph, and Lyons shall have full responsibility for operations and maintenance of the Pump Station. If Longmont terminates its obligations under this subparagraph, or Lyons assumes the obligation, then Lyons may contract with a third party to perform operation and maintenance of the Pump Station.

5. Raw Water Obligation. Every Water Year, Lyons shall make available to Longmont, from the Lyons Water Rights, an amount of raw water lawfully divertible at the Longmont Diversion Points or the Longmont C-BT Diversion Points, equal to the Lyons Water Dedication. Such raw water shall be of a quality which is capable of being treated by the Longmont Treatment Facilities to satisfy applicable mandatory federal and state drinking water standards when placed into the Longmont Water System.

5.1 Treated Water Service Estimates. On November 1st of each Water Year, Lyons shall provide a written report to Longmont projecting the estimated Treated Water requirements in the Lyons Service Area for the current Water Year, the next five consecutive years, and at full build out. The estimates shall be based on the amount of actual Treated Water used within the Lyons Service Area during the prior twelve month period, historical Treated Water use in the Lyons Service Area, projected development plans, any projected changes in technology or use that might affect water requirements, and other relevant factors. The report shall also provide a projection of the yield of the Lyons Water Rights to meet the Lyons Water Dedication for the same periods. If the projected demand for a future Water Year(s) cannot be satisfied by Lyons Water Rights, then Lyons shall, one (1) year or more prior to the projected shortfall, acquire and dedicate additional Lyons C-BT water, or water from such other sources as may be mutually agreed upon, in an amount sufficient to meet the Lyons Water Dedication. The report shall also identify the number of Service Connections added within the Lyons Service Area during the prior Water Year, and the average and maximum daily water demands for the Lyons Service Area during the prior Water Year.

5.2 Fixed Dedication. On November 1st of each Water Year, Lyons shall dedicate and assign to Longmont for use during that Water Year, a fixed amount of water from the Lyons C-BT Water, in accordance with any applicable procedures established by the Northern Colorado Water Conservancy District, and, if applicable, the Lyons Button Rock Water, as follows (the "Fixed Dedication"):

A. Base Amount. Five hundred (500) units of the Lyons C-BT Water.

B. Additional Service Connections - Pre-Existing Commitments. For each Service Connection added within the Lyons Service Area in accordance with a land use approval or contractual commitment(s) existing as of the date of this Agreement, one (1) additional unit of Lyons C-BT Water shall be required for the Fixed Dedication. If all of the present 598 units of Lyons C-BT Water are required for the Fixed Dedication, then Lyons may dedicate one (1) acre-foot of Lyons Button Rock Water for each additional Service Connection added within the Lyons Service Area in accordance with a land use approval or contractual commitment(s) existing as of the date of this Agreement, but in no event shall Lyons dedicate more than forty (40) acre-feet of Lyons Button Rock Water for such purposes.

C. Additional Service Connections - New Approvals. For each Service Connection added within the Lyons Service Area in accordance with a land use approval or contractual commitment(s) subsequent to the date of this Agreement, one (1) additional unit of Lyons C-BT Water shall be required for the Fixed Dedication. During the term of this Agreement, Lyons shall maintain and enforce a raw water dedication requirement for new taps and new annexations equal to or greater than its regulatory or contractual requirements existing on the date of this Agreement, but in no event shall such dedication requirement be for less than one (1) C-BT unit for each Service Connection. The dedication requirement for non-single family development shall be determined by calculating a single family residential water use equivalent for such development and multiplying said equivalent by the dedication requirement applicable to a single family residential Service Connection.

D. Adjustment. Lyons C-BT Water required for the Fixed Dedication shall be enrolled in the Northern Colorado Water Conservancy District's fixed quota program. Prior to May 1st of every Water Year the number of units required for the Fixed Dedication shall be increased if the yield of the previously dedicated units will be less than 0.7 acre-foot per unit; such increase shall be sufficient to offset the decreased yield. Prior to November 1st of every Water Year, Longmont and Lyons may mutually agree to increase or decrease the base amount of units for the Fixed Dedication, based on an evaluation of factors including, but not limited to the status of the decree changing the Lyons Pipeline Priorities as described in this Agreement, new or revised policies of the Northern Colorado Water Conservancy District for C-BT water, and the operational experience under this Agreement.

5.3 Priority of Water Supplied. The Lyons Water Rights shall be utilized in the following order to provide raw water to Longmont for Treated Water Service, unless operational constraints or physical conditions at the point of diversion, including but not limited to turbidity, dictate otherwise:

A. Raw water shall first be diverted pursuant to the Lyons Pipeline Priorities, when in priority and legally divertible at the Longmont Diversion Points;

B. If the Lyons Pipeline Priorities are out-of-priority or otherwise unavailable, then raw water shall be diverted utilizing the Lyons C-BT Water and the Lyons Button Rock Water allocated to the Fixed Dedication; and

C. If the Lyons Pipeline Priorities are out of priority or otherwise unavailable and water from the Fixed Dedication is unavailable, then raw water shall be provided by a release or book-over of the undedicated Lyons Button Rock Water to Longmont.

5.4 Surplus. If, in any Water Year, some of the dedicated Lyons C-BT Water may go unused in the Lyons Water Distribution System, then Longmont shall so notify Lyons no later than October 1st of that Water Year. Upon such notice, Lyons agrees to carry-over the maximum amount of the surplus Lyons C-BT water allowed by the Northern Colorado Water Conservancy District for carry-over within the C-BT system. Alternately, if Longmont determines that there is excess capacity in the Longmont Water System, Lyons may elect to carry-over the surplus Lyons C-BT Water in the Longmont Water System for use into the next Water Year, provided said capacity is not required by Longmont to store water diverted pursuant to its own water rights. In this event, Longmont shall be entitled to retain and use twenty percent (20%) of the surplus Lyons C-BT Water as consideration for use of the available capacity during the next Water Year.

5.5 Shortfall. Longmont only shall be obligated to provide Treated Water Service to Lyons to the extent Lyons provides adequate raw water for treatment pursuant to this Agreement. Longmont shall provide notice to Lyons if, in any Water Year, Longmont anticipates that the yield of the Lyons Water Rights, less treatment and delivery losses, will be insufficient to satisfy the Treated Water demand of the Lyons Service Area. Upon such notice, Lyons shall provide additional raw water acceptable to Longmont, or shall implement water demand management measures designed to achieve water savings commensurate with the shortfall in yield. To the extent such measures fail to offset a shortfall, and in lieu of curtailing Treated Water Service during the shortfall, Longmont may, at its sole discretion, agree to lease additional raw water to Lyons at a municipal raw water rate established by Longmont. Additionally, in any month that a shortfall occurs and Longmont elects to continue to provide Treated Water Service, Lyons shall pay a surcharge rate for such Treated Water Service equal to three (3) times the then current rate per thousand gallons charged to Lyons for Treated Water Service.

5.6 Regulatory Approvals. Lyons and Longmont shall cooperate to obtain any regulatory approvals that may be necessary to facilitate the diversion of raw water attributable to the Lyons Water Rights at the Longmont Diversion Points and to otherwise accomplish the goals of this Agreement, including, but not limited to, approval(s) by the State or Division Engineers of exchanges or substitute supply plans, approval(s) by the Northern Colorado Water Conservancy District, and approval(s) of Lyons' application(s) to the County for land use permits (e.g., 1041 permit, subdivision exemption) by the County. Longmont may join as a co-applicant in any such 1041 permit application(s).

5.7 Records and Accounting. Longmont shall be responsible for maintaining records and accounting of Longmont's diversion and delivery to Lyons of the Lyons Water Rights under this Agreement, and Longmont shall annually provide copies of such records and accounting to Lyons. Lyons may inspect all such records and accounting during normal business hours at Longmont's offices, upon reasonable notice to Longmont.

5.8 Assessments and Other Costs. Lyons shall pay all assessments, costs and carriage fees associated with the Lyons Water Rights.

5.9 System Losses. Longmont shall maintain complete and unilateral control over Longmont Water System operations. Longmont shall not be liable for any losses of raw water diverted pursuant to the Lyons Water Rights that occur within the Longmont Water System, provided such losses are allocated and shared among all other customers and users of the Longmont Water System.

5.10 No Alienation of Lyons Water Rights. Lyons shall not pledge, sell, convey, dedicate, encumber, or otherwise divest itself of any of the Lyons Water Rights during the term of this Agreement. A lease of one year or less shall not be considered an encumbrance in violation of this Agreement, except that Lyons shall not lease the Lyons Button Rock Water. Lyons warrants and represents to Longmont that the Lyons Water Rights are owned by Lyons on the date of this Agreement, free and clear of all liens, encumbrances, pledges, leases or sale contracts.

6. System Availability Charge. System Availability Charges calculated for Longmont's provision of Treated Water Service at both current and estimated buildout of the Lyons Water Distribution System are set forth in Exhibit C, attached to this Agreement. The System Availability Charge calculations set forth in Exhibit C are developed using the incremental capacity method, and based on average and maximum daily water demand multiplied by unit costs for treatment, transmission and storage. Lyons acknowledges that System Availability Charges are subject to change during the term of this Agreement based on factors including, but not limited to, subsequent changes to the Longmont Water System that benefit Lyons and the results of comprehensive cost of service analyses that may be conducted by Longmont in the future. Notice of change to System Availability Charges shall be provided to Lyons no later than ninety (90) days prior to change.

6.1 New Taps. On or before December 1st of each Water Year, Longmont shall bill Lyons the then applicable System Availability Charge for each new Service Connection issued within the Lyons Service Area during the prior Water Year. The initial System Availability Charge shall be Three Thousand Fifty-One Dollars ($3051.00) per Service Connection, but is subject to change as previously acknowledged in this Paragraph 6.

6.2 Additional Demand. On or before December 1st of each Water Year, if Lyons has, in the prior Water Year, exceeded the average and maximum day water demands assumed for the total System Availability Charges paid by Lyons through that prior Water Year, then Longmont shall bill Lyons an additional System Availability Charge based on such exceedance.

7. Rates. Lyons agrees to pay the rate for Treated Water Service calculated by Longmont based on the pro rata cost of the Longmont Water System facilities used for providing Treated Water Service to Lyons. The initial rate shall be One Dollar and Thirty-Three Cents

($1.33) per one thousand (1000) gallons, which is calculated from Longmont's costs for water treatment, service and delivery as more fully set forth on Exhibit D, attached to this Agreement, and assumes minimal fluctuation of rate of delivery over any twenty-four hour period (excepting emergencies). Exhibit D is attached for the purposes of illustrating the factors commonly considered by Longmont in calculating water contract rates for customers of the Longmont Water System. Lyons acknowledges that the rate for Treated Water Service by Longmont is subject to change during the term of this Agreement based on factors including, but not limited to, subsequent changes to the Longmont Water System that benefit Lyons and the results of comprehensive cost of service analyses that may be conducted by Longmont in the future. "Comprehensive cost of service analyses" determine the costs of providing service to a customer and establish rates that reflect the customer's specific use and demands on the system. Notice of rate changes shall be provided to Lyons no later than ninety (90) days prior to change, and Longmont shall outline the basis for the rate change to Lyons either in such notice or at a meeting with Lyons prior to implementation of the change.

8. Payment and Billing. Longmont shall read the measuring and recording device(s) installed at the Metering Point on a monthly basis and shall, prior to the last Monday of every calendar month, bill Lyons for such measured amount of Treated Water. All payments to Longmont shall be due and payable within three (3) weeks of billing, after which time interest and penalties on overdue and unpaid balances shall accrue at the rate of one and one-half percent (1.5%) per month, simple interest. In the event of failure of the measuring and recording device(s), billing shall be estimated based on historical use or other reasonable means of estimation. Lyons shall be solely responsible for billing of customers served by the Lyons Water Distribution System and collection of such charges.

9. No Rights in Systems or Other Party's Water Rights. The Longmont Water System and Longmont's water rights are operated as an Enterprise, as that term is defined in Article X, § 20 of the Colorado Constitution, and owned by the citizens of Longmont. Similarly, the Lyons Water Distribution System and the Lyons Water Rights are operated as an Enterprise and owned by the citizens of Lyons. Nothing in this Agreement shall be construed as a grant by either party of any exclusive right or privilege. Lyons acknowledges and agrees that nothing herein is intended or should be construed to grant Lyons any interest or ownership in the Longmont Water System, Longmont's water rights, or any other Longmont facility or asset. Longmont acknowledges and agrees that nothing herein is intended or should be construed to grant Longmont any interest or ownership in the Lyons Water Distribution System, the Lyons Water Rights, or any other Lyons facility or asset.

10. Insurance. The parties will procure and maintain in full force and effect such insurance or self-insurance that will insure its obligations and liabilities under this Agreement, including, but not limited to, workers' compensation, automobile liability and general liability.

11. Term. The term of this Agreement shall be perpetual, unless terminated by Lyons upon two (2) years advance written notice to Longmont, and payment of all fees and charges to date of the termination. In the event of termination of this Agreement, for any reason, Longmont

shall retain all fees paid by Lyons pursuant to this Agreement.

12. Default. If either party to this Agreement fails to perform or otherwise breaches any of the covenants, terms, conditions, or obligations of this Agreement, then such failure shall constitute a default. In the event of a default by either party, the non-defaulting party shall give written notice of the default to the defaulting party, in accordance with the notice requirements of this Agreement. Following such written notice, the defaulting party may cure the default within thirty (30) days. Upon cure, this Agreement shall remain in full force and effect. If the defaulting party fails to cure, the non-defaulting party shall be entitled to any and all legal and equitable remedies, including, but not limited to, any specific remedies provided for in this Agreement.

12.1 Remedies for Failure to Make Payments. If Lyons is in default for failure to make any payment required by this Agreement, together with any accrued late payment charges, then Longmont may suspend the provision of Treated Water Service to Lyons until such payment is made.

12.2 Longmont's Remedies for Failure to Provide Raw Water. If Lyons is in default for failure to provide adequate raw water to satisfy the Lyons Water Dedication, then Longmont shall immediately suspend the provision of Treated Water Service to Lyons until the time Lyons provides adequate raw water to satisfy the Lyons Water Dedication. In the event of two or more such defaults in a twelve-month period, Longmont may, upon two (2) years advanced notice to Lyons, terminate this Agreement. If a court or other regulatory entity requires Longmont to provide Treated Water Service to Lyons utilizing Longmont's own water rights, despite the express provisions to the contrary contained in this Agreement, then Lyons shall pay a surcharge rate for such Treated Water Service equal to five times the then highest rate per thousand gallons charged to customers outside Longmont's municipal boundaries.

12.3 No Implied Waiver. No failure by a party to insist upon strict performance of any term, covenant or provision contained in this Agreement shall constitute a waiver of any such term, covenant or provision unless such waiver is made in writing by the party to be bound thereby. Any waiver of a breach of a term or condition of this Agreement shall not prevent a subsequent act, which would have originally constituted a default under this Agreement, from having all the force and effect of a default.

13. Governmental Immunity. Nothing in this Agreement shall be construed to waive either Lyons' or Longmont's protection from liability or the limitations on its liability due to its sovereign immunity under the Colorado Governmental Immunity Act or otherwise.

14. No Third-Party Enforcement. Only Lyons and Longmont, as parties to this Agreement, shall have the right to bring an action to enforce the respective rights and obligations under this Agreement. No other third-party shall have the right or standing to enforce the terms of this Agreement, directly or by derivative action on behalf of either party.

15. No Third-Party Control. Lyons, its employees and elected or appointed officials, agree neither to assert nor support any statement, policy, rule making, or legislation attempting to place the Longmont Water System under the rate making authority or jurisdiction of the Colorado Public Utilities Commission ("PUC"), or other regulatory entity, by virtue of this Agreement or otherwise. If the Longmont Water System is placed under the rate making authority or jurisdiction of the PUC or other regulatory entity, by such an assertion or through the support of Lyons, its employees or elected or appointed officials, then Longmont shall have the right to terminate this Agreement upon two (2) years advance written notice to Lyons. If the Longmont Water System is placed under the rate making authority or jurisdiction of the PUC or other regulatory entity absent any assertions or support by Lyons, its employees or elected or appointed officials, then Lyons and Longmont shall attempt to amend the terms of this Agreement in good faith to address the impacts of this changed circumstance; in the absence of such mutually agreeable amendment being executed by the parties within six (6) months, Longmont shall have the right to terminate this Agreement upon two (2) years advanced written notice to Lyons.

16. Force Majeure. Longmont shall not be liable for any delay or failure to perform its obligations under this Agreement caused by an event or condition beyond the reasonable control of, and without the fault or negligence of Longmont, including, without limitation failure of facilities, flood, earthquake, storm, lightning, fire, epidemic, contamination, war, terrorist act, riot, civil disturbance, labor disturbance, accidents, sabotage, or restraint by court or restrictions by other public authority which delays or prevents performance (including but not limited to the adoption or change in any rule, policy, or regulation or environmental constraints imposed by federal, state or local governments), which Longmont could not reasonably have avoided by exercise of due diligence and foresight. Upon the occurrence of such an event or condition, the obligations of Longmont under this Agreement shall be excused and suspended without penalty or damages, provided that Longmont shall give Lyons prompt written notice describing the particulars of the occurrence or condition, the suspension of performance is of no greater scope and of no longer duration than is required by the event or condition, and Longmont proceeds with reasonable diligence to remedy its inability to perform and provides progress reports to Lyons describing the actions taken to remedy the consequences of the event or condition.

17. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Colorado. In the event of litigation over this Agreement venue shall be in the District Court in and for Boulder County, State of Colorado.

18. Costs of Legal Proceedings. In the event that either party institutes legal proceedings with respect to this Agreement, the prevailing party shall recover, in addition to any other relief to which it is entitled, its costs and expenses incurred in connection with such legal proceedings, including, without limitation, reasonable attorney's fees.

19. Further Assurances. Longmont and Lyons agree and consent to execute such additional documents and to cooperate and to give such further assurances as may be reasonably necessary to further the intent and purpose of this Agreement.

20. Binding Effect. This Agreement shall be binding upon and for the benefit of the respective parties and their successors and assigns.

21. Funding Availability. All of Longmont's and Lyons' financial obligations under this Agreement are contingent upon appropriation, budgeting, and availability of specific funds to discharge those obligations. Nothing in this Agreement shall be deemed a debt, direct or indirect multi-year fiscal obligation on the part of either Longmont or Lyons, a pledge of either Longmont's or Lyons' credit, or a payment guarantee by either party to the other.

22. Amendments. This Agreement may be amended, modified or altered only by a written amendment executed by both Lyons and Longmont.

23. Complete Agreement. This Agreement constitutes the complete agreement of the parties with respect to the subject matter hereof and all prior agreements, understandings and negotiations are merged herein.

24. Negotiated Provisions. This Agreement shall not be construed more strictly against one party than against the other merely by virtue of the fact that it may have been prepared by counsel for one of the parties, it being recognized that both Lyons and Longmont have contributed substantially and materially to the preparation of this Agreement.

25. Severability. If any provision of this Agreement shall be invalid, illegal or unenforceable, it shall not affect or impair the validity, legality or enforceability of any other provision of this Agreement, and there shall be substituted for the affected provision, a valid and enforceable provision as similar as possible to the affected provision. If the obligation of Lyons to provide water and water rights to Longmont for treatment is deemed invalid, illegal and unenforceable, and no valid and enforceable substitute provision is available as provided for herein, then this Agreement shall terminate in its entirety.

26. Paragraph Headings. The headings of the paragraphs of this Agreement are inserted solely for ease of reference and are not intended to govern, limit or aid in the construction of any term or provision hereof.

27. Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be deemed an original, and all of which shall constitute one and the same agreement. Facsimile signatures shall be acceptable and binding upon all parties.

28. Payments and Notices. All notices and other communications under this Agreement shall be in writing. All such notices and communications and all payments shall be deemed to have been duly given on the date of service, if delivered and served personally, or served via facsimile (with respect to notices and communications only) on the person to whom notice is given; on the next business day after deposit for overnight deliver by a courier service

such as Federal Express; or on the third day after mailing, if mailed to the party to whom payment and notice is to be given by first class mail, postage prepaid, and properly addressed as follows:

Longmont:	City of Longmont Water/Wastewater Utilities Director 1100 South Sherman Street Longmont, Colorado 80501 Facsimile (303) 651-8812
With a Copy to:	City of Longmont City Attorney 408 Third Avenue Longmont, Colorado 80501
The Town:	Town of Lyons c/o Town Administrator 432 5th Avenue P.O. Box 49 Lyons, CO 80540 Facsimile (303) 823-8257
With a Copy to:	Robert C. Widner, Esq. Gorsuch Kirgis, LLP 1515 Arapahoe Street Tower I, Suite 1000 Denver, CO 80202

Persons and addresses to which notices are to be sent may be changed by the same method.

Entered into effective the date first above written.

THE TOWN OF LYONS, as a statutory municipal corporation organized under the laws of the State of Colorado, and also acting by and through its WATER FUND, an Enterprise of the Town of Lyons

ATTEST:

Debra K Anthony
Town Clerk

By: Richard Hinshaw
Mayor

Approved as to form by:

GORSUCH KIRGIS, LLP

By: _____
Robert C. Widner
Attorney for Town of Lyons

FRIEDLOB, SANDERSON, PAULSON & TOURTILLOTT

By: _____
Brian M. Nazarenus
Special Water Counsel for
Town of Lyons

Approved as to content:

Gary Cinnamon
Gary Cinnamon
Town Administrator

THE CITY OF LONGMONT,
acting by and through its
WATER UTILITY ENTERPRISE

ATTEST:

By: _____
Mayor

City Clerk

Approved as to form by:

Jeffery J. Friedland
Assistant City Attorney

PETROS & WHITE, LLC

By: _____
Raymond L. Petros, Jr.
Special Water Counsel for
City of Longmont

Approved as to content:

Dale Rademacher
Water/Wastewater Utilities Director

Approved as to insurance provisions:

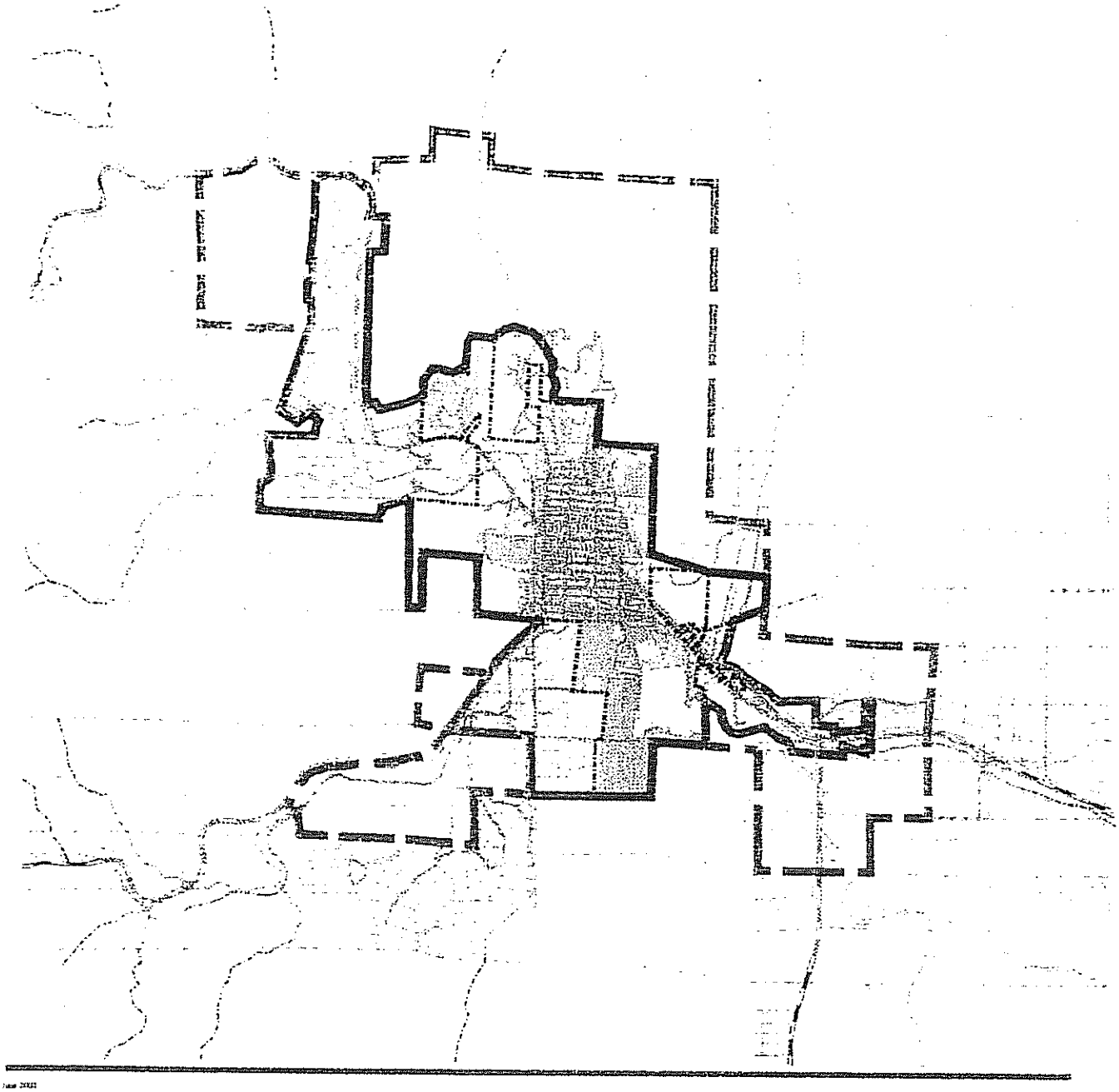
Risk Manager

Proofread

EXHIBIT A
(Lyons-Longmont IGA)

Lyons Pipeline Priorities

Structure	Adjud. Date	Previous Adjud. Date	Approp. Date	Admin. Number	Decreed Amount	Case Number
Lyons Pipeline	3-13-1907	6-02-1882	7-06-1892	15528.0000	0.50 cfs	4853
Lyons Pipeline - 1st Enlargement	2-25-1971	7-23-1951	7-06-1892	37093.15528	1.00 cfs	20716
Lyons Pipeline - 1st Enlargement	2-25-1971	7-23-1951	2-08-1910	37093.21953	0.05 cfs	20716
Lyons Pipeline - 2nd Enlargement	2-25-1971	7-23-1951	2-08-1910	37093.21953	1.95 cfs	89CW159
Lyons Pipeline - 2nd Enlargment	2-25-1971	7-23-1951	6-23-1967	42907.0000	0.54 cfs	89CW159



IGA Boundary Definitions

- City Limits
- Lyons Planning Area (LPA)
- Planning Boundary

Land Use Categories

1000 0 3000 Feet

Lyons, Colorado

Longmont Lyons IGA
For Treated Water Service
June 2003
Exhibit B

PLANNING AREAS
Lyons/Boulder County IGA

System Capacity Charge for Lyons
Using the Incremental Capacity Method
Apr-03

Max Day Flow in CFS	Current	Future
	1.38477	3.09447
Velocity (fps)	3.9691	3.94199
"8" Pipe Area	0.34889	
12" Pipe Area		0.785

Assumptions:	Avg. Day Demand (GPD)	Max Day Demand (GPD)	Service Connections 3/4" Equivalents
Current	300,000	664,000	736
Buildout	572,000	2,000,000	1310

System Component	Unit Cost Per Gallon	Unit Cost Per foot "8" line	Unit Cost Per foot "12" line	Cost to treat max day	Cost to provide treated transmission capacity 4,800 feet of line (8" current, 12" future)	Cost to provide treated storage for CT (30,000 gallons current) 62,000 future)
Treatment (See Note)	$1.87					
Transmission		$30	$45			
Storage	$0.50					

Total Cost to serve current demands:	$1,398,000	$1,239,000	$144,000	$15,000
Cost/Service Connection	$1,899			
Additional Cost to serve buildout demands:	$2,597,000	$2,494,000	$72,000	$31,000
Total Buildout Cost:	$3,996,899			
Cost/Service Connection	$3,051			

Note: Treatment costs based upon costs from the WTP project of $56,000,000 which includes the treatment facilities and the raw water transmission lines to the facility but excludes the treated water line which is included in the 8 and 12 inch water line costs shown above

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Table 2

Example Contract Water Rate Calculation
2005 Test Year

Line No.		Portion of Service Provided	Base	Max Day	Max Hour	Total
	Unit Costs, $ per gpd					
1	Water Rights	0%	0.0000	0.0000	0.0000	
2	Other Supply	100%	0.1492	0.0000	0.0000	
3	Treatment Plant(s)	60%	0.0981	0.0461	0.0000	
4	Transmission Mains	20%	0.0094	0.0074	0.0000	
5	Storage	20%	0.0006	0.0005	0.0005	
6	Distribution Mains	0%	0.0000	0.0000	0.0000	
7	Pump Stations	0%	0.0000	0.0000	0.0000	
8	Administration & General	100%	0.1106	0.0416	0.0072	
9	*Total Unit Cost*		*0.3679*	*0.0956*	*0.0077*	
	Units of Service					
10	Base (Avg Day) Demand, gpd		300,000			
	Max Day Demand, gpd					
11	Total			664,000		
12	Excess Above Base Demand			364,000		
	Max Hour Demand, gpd					
13	Total				664,000	
14	Excess Above Max Day Demand				0	
15	**Annual Cost, $**		110,370	34,798	0	145,168
16	**Volume Charge, $ per 1,000 gals**		1.01	0.32	0.00	1.33

gpd - gallons per day

November 16, 2016

Town of Lyons
Victoria Simonsen, Town Administrator
P.O. Box 49
Lyons, CO 80540

Re: Treated Water Service

We have received your letter on November 9, 2016 regarding the Town of Lyons treated water requirements. In accordance with the July 21, 2003 Intergovernmental Agreement (Treated Water Service) and the subsequent December 14, 2004 Agreement between the Town of Lyons and the City of Longmont, we have prepared a review of the terms of the treated water service, raw water obligations and system availability charges.

The following is a summary of the Service Connections as defined in paragraph 5.2 of the 2003 Agreement and reconciled in the November 30, 2009 letter from Longmont to Lyons:

Water Year	Pre-Existing Commitments	New Approvals	Additional Service Connections	Corrected Service Connections	Purchased Service Connections	Total Purchased Water Services	Balance
2003	1	0	1	706		705	-1
2004	13	0	13	719		705	-14
2005	45	0	45	764	42	747	-17
2006	32.9	19	51.9	815.9	70	817	1.1
2007	4.9	45	49.9	865.8	56.7	873.7	7.9
2008	6	7	13	878.8	13	886.7	7.9
2009	0	3	3	881.8		886.7	4.9
2010	0	3	3	884.8		886.7	1.9
2011	0	1	1	885.8		886.7	0.9
2012	0	5	5	890.8	4.1	890.8	0.0
2013	0	11	11	901.8	11	901.8	0.0
2014	0	4	4	905.8	4	905.8	0.0
2015	0	6	6	911.8	6	911.8	0.0

2016	0	7	7	918.8	7	918.8	0.0
Totals:	102.8	111	213.8		213.8		

Based on the addition of 7 new Service Connection during the 2015 Water Year, the total number of Service Connections is now 918.8. Both the number of new Service Connections added in the prior Water Year and the total number of Service Connections are well within the limits of as shown in paragraph 2 of the 2003 Agreement.

In accordance with paragraph 6 of the 2003 Agreement, Longmont calculates the additional capacity for new Service Connections and additional capacity if Lyons exceeds the capacity purchased for the prior Water Year. We have calculated the additional capacity for new Service Connections as shown in Exhibit C of the 2004 Agreement to be equal to 437 and 1,527 gallons per day (gpd) for the average and maximum day demands, respectively.

Based on a cost of $2885.00 per Service Connection as shown in Exhibit C of the 2004 Agreement, the System Availability Charge for the 7 Service Connections is $20,195.00. Based on this addition, the average and maximum daily capacities through the prior Water Year are 358,085 gallons per day (gpd) and 910,564 gpd, respectively. This includes the System Availability Charges paid by Lyons for the equivalent of 10.4 and 68.9 Service Connections for exceeding the average and maximum daily capacities during the 2006 and 2012 Water Years, respectively.

As indicated in your recent letter, the average and maximum daily demands during the prior Water Year were 261,451 gpd and 749,004 gpd, respectively, which are well within the limits as shown in paragraph 2 of the 2003 Agreement for the average and maximum daily demands that Longmont provides to Lyons.

Paragraph 5 of the 2003 Agreement requires Lyons to dedicate and assign to Longmont a fixed amount of water from the Lyons C-BT Water, and, if applicable, Lyons Button Rock Water. The fixed amount of water equals the base amount of 500 units of the Lyons C-BT Water plus 1 additional unit of Lyons C-BT Water for each Service Connection added within the Lyons Service Area, either as part of a pre-existing commitment or as a new approval. If all of the 598 units of Lyons C-BT Water identified in the 2003 Agreement are required for the base amount and for pre-existing commitments, then Lyons may dedicate 1 acre-foot of Lyons Button Rock Water for each additional Service Connection added as part of a pre-existing commitment.

As indicated in your recent letter, Lyons currently holds 724 units of C-BT Water. Based on the summary of Service Connections above and the terms of the 2003 Agreement, Lyons needs to dedicate a total of 713.8 units of Lyons C-BT Water if you choose to use Lyons C-BT Water to meet the requirements of the 2003 Agreement.

In accordance with paragraph 6 of the 2003 Agreement, Longmont completed a comprehensive Water Rate and Fee Study in 2014 that determined a rate increase was necessary in order to align the water usage characteristics of Lyons and the financial needs of the water utility. The rate increases adopted by City Council in January 2015 are listed below for 2016 through 2019. The rates go into effect each year on January 1st.

Lyons Water Rate per 1000 gallons			
Existing Rate	*2017*	*2018*	*2019*
$1.52	$1.62	$1.73	$1.85

Again, we appreciate having the opportunity to provide water service to you. Please feel free to call me at 303-651-8355 if you have further questions or concerns.

Sincerely,

CITY OF LONGMONT

Dale F. Rademacher, PE
General Manager of Public Works and Natural Resources

Cc: Jeff Friedland, Deputy City Attorney
Barbara McGrane, Business Services Manager
Bob Allen, Director of Operations
Nick Wolfrum, Director of Engineering Services
Cal Youngberg, Environmental Services Manager
Ken Huson, Water Resources Manager

APPENDIX E

LYONS WWTF PERMIT

Colorado Department of Public Health and Environment

AUTHORIZATION TO DISCHARGE UNDER THE COLORADO DISCHARGE PERMIT SYSTEM
PERMIT NUMBER CO0020877

In compliance with the provisions of the Colorado Water Quality Control Act, (25-8-101 et seq., CRS, 1973 as amended), for both discharges to surface and ground waters, and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq.; the "Act"), for discharges to surface waters only, the

Town of Lyons

is authorized to discharge from the Town of Lyons wastewater treatment plant located in the **SE 1/4 of the SE 1/4 of S18, T3N, R7W; 198 2nd Ave., Lyons, CO; at Latitude 40° 13' 9'' N, Longitude 105° 15' 52'' W**

to **St. Vrain Creek**

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I and II hereof. All discharges authorized herein shall be consistent with the terms and conditions of this permit.

The applicant may demand an adjudicatory hearing within thirty (30) calendar days of the date of issuance of the final permit determination, per the Colorado State Discharge Permit System Regulation 61.7(1). Should the applicant choose to contest any of the effluent limitations, monitoring requirements or other conditions contained herein, the applicant must comply with Section 24-4-104 CRS 1973 and the Colorado State Discharge Permit System Regulations. Failure to contest any such effluent limitation, monitoring requirement, or other condition, constitutes consent to the condition by the applicant.

This permit and the authorization to discharge shall expire at midnight October 31, 2019

Modified, Reissued and Signed this 24th day of May 2016

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Janet Kieler, Permits Section Manager
Water Quality Control Division

Permit Actions Summary
Modification #1 – Minor Amendment - Issued May 24, 2016, Effective July 1, 2016 (Part 1.A.2)
Originally Issued September 29, 2014, Effective November 1, 2014

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PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. Permitted Feature(s)

Beginning no later than the effective date of this permit and lasting through the expiration date, the permittee is authorized to discharge from, and self monitoring samples taken in accordance with the monitoring requirements shall be obtained from permitted feature(s):

001A following disinfection and prior to mixing with the receiving stream. 40° 13' 9" N, 105° 15' 52" W

UST1A is an in-stream outfall located upstream from the facility discharge to collect continous ambient temperature data estimated at 40° 13' 7.39" N, 105° 15' 44.48" W.

The location(s) provided above will serve as the point(s) of compliance for this permit and are appropriate as they are located after all treatment and prior to discharge to the receiving water. Any discharge to the waters of the State from a point source other than specifically authorized by this permit is prohibited.

In accordance with the Water Quality Control Commission Regulations for Effluent Limitations, Section 62.4, and the Colorado Discharge Permit System Regulations, Section 61.8(2), 5 C.C.R. 1002-61, the permitted discharge shall not contain effluent parameter concentrations which exceed the following limitations specified below or exceed the specified flow limitation.

2. Limitations, Monitoring Frequencies and Sample Types for Effluent Parameters

In order to obtain an indication of the probable compliance or noncompliance with the effluent limitations specified in Part I.A, the permittee shall monitor all effluent parameters at the frequencies and sample types specified below. Such monitoring will begin immediately and last for the life of the permit unless otherwise noted. The results of such monitoring shall be reported on the Discharge Monitoring Report form (See Part I.D.).

Self-monitoring sampling by the permittee for compliance with the effluent monitoring requirements specified in this permit, shall be performed at the location(s) noted in Part I.A.1 above. If the permittee, using an approved analytical method, monitors any parameter more frequently than required by this permit, then the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form (DMRs) or other forms as required by the Division. Such increased frequency shall also be indicated.

Percentage Removal Requirements (BOD_5 and TSS Limitations) - As noted in the limits table, the arithmetic mean of the BOD5 and TSS concentrations for effluent samples collected during the DMR reporting period shall demonstrate a minimum of eighty-five percent (85%) removal of both BOD_5 and TSS and TSS, as measured by dividing the respective difference between the mean influent and effluent concentrations for the DMR monitoring period by the respective mean influent concentration for the DMR monitoring period, and multiplying the quotient by 100.

Oil and Grease Monitoring: For every outfall with oil and grease monitoring, in the event an oil sheen or floating oil is observed, a grab sample shall be collected and analyzed for oil and grease, and reported on the appropriate DMR under parameter 03582. In addition, corrective action shall be taken immediately to mitigate the discharge of oil and grease. A description of the corrective action taken should be included with the DMR.

Total Residual Chlorine: Monitoring for TRC is required only when chlorine is in use.

Flow Recording Device: This facility has two flow recording devices located at the point of inflow into the treatment facility and at the discharge from the treatment facility. The flow recording device located at the point of inflow will be used for recording and reporting of the influent flow and the flow recording device located at the discharge point will be used for recording and reporting of effluent flows. Reported effluent flows will be used to monitor compliance with the effluent flow limitation and the influent flows will be used to monitor compliance with the hydraulic loading to the facility.

Metals: Metals concentrations measured in compliance with the effluent monitoring requirements listed in Part I.A of this permit may be used to satisfy any pretreatment or industrial waste management metals monitoring requirements listed in Part

I.B.6, if the metals are in the same form (i.e. total). The special sampling procedures (e.g. 24-hour composite samples) specified in Part I.B.6 must be followed.

Permitted Feature/Limit Set 001A

ICIS Code	Effluent Parameter	Effluent Limitations Maximum Concentrations			Monitoring Requirements	
		30-Day Average	7-Day Average	Daily Maximum	Frequency	Sample Type
50050	Effluent Flow (MGD)	0.381		Report	Continuous	Recorder
00010	Temp DM (°C)			Report	Continuous	Recorder
00010	Temp MWAT (°C) Until October 31, 2024		Report		Continuous	Recorder
00010	Temp MWAT (°C) Beginning November 1, 2024		20		Continuous	Recorder
00400	pH (su)			6.5-9.0	Daily	Continuous
51040	E. Coli (#/100 ml)	1441	3108		Weekly	Grab
50060	TRC (mg/l)	0.04		0.04	2 Days/Month	Grab
00640	Total Inorganic Nitrogen (mg/l)			30	Weekly	Composite
00610	Total Ammonia as N (mg/l)				Weekly	Composite
	January	15		72	Weekly	Composite
	February	13		Report	Weekly	Composite
	March	8.3		Report	Weekly	Composite
	April	11		Report	Weekly	Composite
	May	14		Report	Weekly	Composite
	June	77		Report	Weekly	Composite
	July	51		Report	Weekly	Composite
	August	26		Report	Weekly	Composite
	September	10		Report	Weekly	Composite
	October	8.3		70	Weekly	Composite
	November	6.0		64	Weekly	Composite
	December	11		50	Weekly	Composite
00310	BOD5, effluent (mg/l)	30	45		Quarterly	Composite
81010	BOD5 (% removal)	85 (min)			Quarterly	Calculated
00530	TSS, effluent (mg/l)	30	45		Monthly	Composite
81011	TSS (% removal)	85 (min)			Monthly	Calculated
84066	Oil and Grease (visual)			Report	2 Days/Week	Visual
03582	Oil and Grease (mg/l)			10	Contingent	Grab
01306	Cu, PD (µg/l) Until 06/30/19	Report		Report	Monthly	Composite
01306	Cu, PD (µg/l) Beginning 07/01/19	2.2		2.8	Monthly	Composite

Permitted Feature/Limit Set UST1A

ICIS Code	Effluent Parameter	Effluent Limitations Maximum Concentrations			Monitoring Requirements	
		30-Day Average	7-Day Average	Daily Maximum	Frequency	Sample Type
00010	Temp DM (°C) March-Nov, starting March 1, 2015			Report	Continuous	Recorder
00010	Temp DM (°C) December- Feb, starting December 1, 2015			Report	Continuous	Recorder
00010	Temp MWAT (°C) March-Nov, starting March 1, 2015		Report		Continuous	Recorder
00010	Temp MWAT (°C) December-Feb, starting December 1, 2015		Report		Continuous	Recorder

3. Monitoring Frequency and Sample Type Influent Parameters

Regardless of whether or not an effluent discharge occurs and in order to obtain an indication of the current influent loading as compared to the approved capacity specified in Part I.A.3 and Part I.B.2; the permittee shall monitor influent parameters at the following required frequencies, the results to be reported on the Discharge Monitoring Report (See Part I.D):

If the permittee monitors any parameter more frequently than required by the permit, using an approved test procedure or as specified in the permit, the result of this monitoring shall be included in the calculation and reporting of data to the Division.

Self-monitoring samples taken in compliance with the monitoring requirements specified below shall be taken at the following location(s): **Outfall 300I, at a representative point prior to biological treatment.**

Permitted Feature 300I

ICIS Code	Parameter	Influent Limitations Maximum Concentrations			Monitoring Frequency	Sample Type
		30-Day Average	7-Day Average	Daily Max.		
50050 G	Flow, mgd	Report		Report	Continuous [1]	Recorder [1]
00180 G	Plant Capacity (% of Capacity - Hydraulic) [1]	Report			Monthly	Calculated [1]
00310 G	BOD_5, mg/l	Report	Report		Quarterly	Composite
00310 G	BOD_5, lbs/day	Report	Report		Quarterly	Calculated
00180 G	Plant Capacity (% of Capacity - Organic) [1]	Report			Quarterly	Calculated [1]
00530G	Total Suspended Solids, mg/l	Report	Report		Monthly	Composite

1. The % capacity is to be reported against the listed capacities of 0.381 MGD for the hydraulic capacity and 705 lbs/day for the organic capacities as noted in Site Approval 4289. The percentage should be calculated using the 30-day average values divided by the corresponding capacity, times 100.

4. Special Studies and Additional Monitoring

a. Mixing Zone Analyses – Conduct remaining threshold tests for exclusion from further analysis under Mixing Zone Regulations. The second threshold test is the Application of the Mixing Zone Exclusion Tables (p. 20, Colorado Mixing Zone Implementation Guidance, February 2002). Under this compliance action, the permittee will collect the necessary site-specific data, perform the required analysis, and provide a report to the Division. The report will indicate the findings of this threshold test and, if not excluded, provide the workplan for the next threshold test (i.e., determining of the size of the physical and regulatory mixing zones).

Code	Event	Description	Due Date
50008	Submit Study Results	Collect site-specific data in a low flow condition, perform threshold tests based on Mixing Zone Exclusion Tables, and submit study results.	4/01/19

B. **TERMS AND CONDITIONS**

1. Service Area

All wastewater flows contributed in the service area may be accepted by the Town of Lyons for treatment at the permittee's wastewater treatment plant provided that such acceptance does not cause or contribute to an exceedance of the throughput or design capacity of the treatment works or the effluent limitations in Part I.A, or constitute a substantial impact to the functioning of the treatment works, degrade the quality of the receiving waters, or harm human health, or the environment.

In addition, the permittee shall enter into and maintain service agreements with any municipalities that discharge into the wastewater treatment facility. The service agreements shall contain all provisions necessary to protect the financial, physical, and operational integrity of the wastewater treatment works.

2. Design Capacity

Based on Site Approval **4289**, the design capacity of this domestic wastewater treatment works is **0.381 million gallons per day** (MGD) for hydraulic flow (30-day average) and **705 lbs. BOD_5 per day** for organic loading (30-day average).

3. Expansion Requirements

Pursuant to Colorado Law, C.R.S. 25-8-501 (5 d & e), the permittee is required to initiate engineering and financial planning for expansion of the domestic wastewater treatment works whenever throughput reaches eighty (80) percent of the treatment capacity. Such planning may be deemed unnecessary upon a showing that the area served by the domestic wastewater treatment works has a stable or declining population; but this provision shall not be construed as preventing periodic review by the Division should it be felt that growth is occurring or will occur in the area.

The permittee shall commence construction of such domestic wastewater treatment works expansion whenever throughput reaches ninety-five (95) percent of the treatment capacity or, in the case of a municipality, either commence construction or cease issuance of building permits within such municipality until such construction is commenced; except that building permits may continue to be issued for any construction which would not have the effect of increasing the input of wastewater to the sewage treatment works of the municipality involved.

Where unusual circumstances result in throughput exceeding 80% of treatment capacity, the permittee may, in lieu of initiating planning for expansion, submit a report to the Division that demonstrates that it is unlikely that the event will reoccur, or even if it were to reoccur, that 95% of the treatment capacity would not be exceeded.

Where unusual circumstances result in throughput exceeding 95% of the treatment capacity, the permittee may, in lieu of initiating construction of the expansion, submit a report to the Division that demonstrates that the domestic wastewater treatment works was in compliance at all times during the events and that it is extremely unlikely that the event will reoccur.

Where the permittee submits a report pursuant to unusual circumstances, and the Division, upon review of such report, determines in writing to the permittee that the report does not support the required findings, the permittee shall initiate planning and/or construction of the domestic wastewater treatment works as appropriate.

4. Facilities Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control including all portions of the collection system and lift stations owned by the permittee (and related appurtenances) which are installed or used by the permittee as necessary to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes effective performance, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems when installed by the permittee only when necessary to achieve compliance with the conditions of the permit.

Any sludge produced at the wastewater treatment facility shall be disposed of in accordance with State and Federal regulations. The permittee shall take all reasonable steps to minimize or prevent any discharge of sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. As necessary, accelerated or additional monitoring to determine the nature and impact of the noncomplying discharge is required.

5. Compliance Schedule(s)

a. Activities to meet Dissolved Copper Final Limits – In order to meet Dissolved Copper limitations, the following schedule are included in the permit.

Code	Event	Description	Due Date
43699	Facility Evaluation Plan	Submit a plan identifying strategies to detect sources of copper to the wastewater treatment facility.	05/01/15
43699	Facility Evaluation Plan	Submit a report that identifies sources of copper to the wastewater treatment facility.	05/01/16
00899	Implementation Schedule	Submit a report identifying strategies to control sources such that compliance with the final dissolved copper limitations may be attained.	01/01/2017
00899	Implementation Schedule	Submit a progress report summarizing the progress in implementing the strategies to control sources such that compliance with the final dissolved copper limitations may be attained.	10/01/2017
00899	Implementation Schedule	Submit a progress report summarizing the progress in implementing the strategies to control sources such that compliance with the final dissolved copper limitations may be attained.	10/01/2018
CS017	Achieve Final Compliance with Discharge Limits	Submit study results that show compliance has been attained with the final dissolved copper limitations.	06/30/2019

b. Activities to meet the MWAT Temperature Final Limit – In order to meet the MWAT temperature limitation of 20° C, the following schedule is included in the permit.

Code	Event	Description	Due Date
43699	Facility Evaluation Plan	Submit a plan identifying strategies to detect sources of elevated temperature to the wastewater treatment facility and/or temperature increased via the wastewater treatment process.	11/01/16
43699	Facility Evaluation Plan	Submit a report that identifies the sources of increased temperature in the effluent of the wastewater treatment facility.	11/01/17
43699	Facility Evaluation Plan	Submit a report that identifies strategies to control the causes of increased temperature in the effluent of the wastewater treatment facility.	11/01/18
00899	Implementation Schedule	Submit a report identifying the selected strategies to control the causes of increased temperature in the effluent of the wastewater treatment facility.	11/01/19
00899	Implementation Schedule	Submit a progress report summarizing the progress in implementing the strategies to control the causes of increased temperature in the effluent of the wastewater treatment facility such that compliance with the final limitation may be attained.	11/01/20
00899	Implementation Schedule	Submit a progress report summarizing the progress in implementing the strategies to control the causes of increased temperature in the effluent of the wastewater treatment facility such that compliance with the final limitation may be attained.	11/01/21
00899	Implementation Schedule	Submit a progress report summarizing the progress in implementing the strategies to control the causes of increased temperature in the effluent of the wastewater treatment facility such that compliance with the final limitation may be attained.	11/01/22
00899	Implementation Schedule	Submit a progress report summarizing the progress in implementing the strategies to control the causes of increased temperature in the effluent of the wastewater treatment facility such that compliance with the final limitation may be attained.	11/01/23
CS017	Achieve Final Compliance with Discharge Limits	Submit study results that show compliance has been attained with the final MWAT limitation of 20° C.	10/31/24

Regulation 61.8(3)(n)(i) states that a report should be submitted to the Division no later than 14 calendar days following each date identified in the schedule of compliance. The 14 days have already been incorporated into the above dates and therefore all reports are due on or before the date listed in the table.

6. <u>Pretreatment Program - Industrial Waste Management</u>

a. The Permittee has the responsibility to protect the Domestic Wastewater Treatment Works (DWTW), as defined at section 25.8.103(5) of the Colorado Water Quality Control Act, or the Publicly-Owned Treatment Works (POTW), as defined at 40 CFR section 403.3(q) of the federal pretreatment regulations, from pollutants which would cause pass through or interference, as defined at 40 CFR 403.3(p) and (k), or otherwise be incompatible with operation of the treatment works including interference with the use or disposal of municipal sludge.

b. Pretreatment Standards (40 CFR Section 403.5) developed pursuant to Section 307 of the Federal Clean Water Act (the Act) require that the Permittee shall not allow, under any circumstances, the introduction of the following pollutants to the DWTW from any source of non-domestic discharge:

i. Pollutants which create a fire or explosion hazard in the DWTW, including, but not limited to, wastestreams with a closed cup flashpoint of less than sixty (60) degrees Centigrade (140 degrees Fahrenheit) using the test methods specified in 40 CFR Section 261.21;

ii. Pollutants which will cause corrosive structural damage to the DWTW, but in no case discharges with a pH of lower than 5.0 s.u., unless the treatment facilities are specifically designed to accommodate such discharges;

iii. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the DWTW, or otherwise interfere with the operation of the DWTW;

iv. Any pollutant, including oxygen demanding pollutants (e.g., BOD), released in a discharge at a flow rate and/or pollutant concentration which will cause Interference with any treatment process at the DWTW;

v. Heat in amounts which will inhibit biological activity in the DWTW resulting in Interference, but in no case heat in such quantities that the temperature at the DWTW treatment plant exceeds forty (40) degrees Centigrade (104 degrees Fahrenheit) unless the Approval Authority, upon request of the DWTW, approves alternate temperature limits;

vi. Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause Interference or Pass Through;

vii. Pollutants which result in the presence of toxic gases, vapors, or fumes within the DWTW in a quantity that may cause acute worker health and safety problems;

viii. Any trucked or hauled pollutants, except at discharge points designated by the DWTW; and

ix. Any specific pollutant that exceeds a local limitation established by the Permittee in accordance with the requirements of 40 CFR Section 403.5(c) and (d).

x. Any other pollutant which may cause Pass Through or Interference.

c. EPA shall be the Approval Authority and the mailing address for all reporting and notifications to the Approval Authority shall be: USEPA 1595 Wynkoop St. 8ENF-W-NP, Denver, CO 80202-1129. Should the State be delegated authority to implement and enforce the Pretreatment Program in the future, the Permittee shall be notified of the delegation and the state permitting authority shall become the Approval Authority.

d. In addition to the general limitations expressed above, more specific Pretreatment Standards have been and will be promulgated for specific industrial categories under Section 307 of the Act (40 CFR Part 405 et. seq.).

e. The Permittee must notify the state permitting authority and the Approval Authority, of any new introductions by new or existing industrial users or any substantial change in pollutants from any industrial user within sixty (60) calendar days following the introduction or change. Such notice must identify:

i. Any new introduction of pollutants into the DWTW from an industrial user which would be subject to Sections 301, 306, or 307 of the Act if it were directly discharging those pollutants; or

ii. Any substantial change in the volume or character of pollutants being introduced into the DWTW by any industrial user;

iii. For the purposes of this section, adequate notice shall include information on:

(A) The identity of the industrial user;

(B) The nature and concentration of pollutants in the discharge and the average and maximum flow of the discharge to be introduced into the DWTW; and

(C) Any anticipated impact of the change on the quantity or quality of effluent to be discharged from or biosolids or sludge produced at such DWTW.

iv. For the purposes of this section, an industrial user shall include:

(A) Any discharger subject to Categorical Pretreatment Standards under Section 307 of the Act and 40 CFR chapter I and subchapter N;

(B) Any discharger which has a process wastewater flow of 25,000 gallons or more per day;

(C) Any discharger contributing five percent or more of the average dry weather hydraulic or organic capacity of the DWTW treatment plant;

(D) Any discharger who is designated by the Approval Authority as having a reasonable potential for adversely affecting the DWTWs operation or for violating any Pretreatment Standard or requirements;

f. At such time as a specific Pretreatment Standard or requirement becomes applicable to an industrial user of the Permittee, the state permitting authority and/or Approval Authority may, as appropriate:

i. Amend the Permittee's CDPS discharge permit to specify the additional pollutant(s) and corresponding effluent limitation(s) consistent with the applicable national Pretreatment Standards;

ii. Require the Permittee to specify, by ordinance, order, or other enforceable means, the type of pollutant(s) and the maximum amount which may be discharged to the Permittee's DWTW for treatment. Such requirement shall be imposed in a manner consistent with the program development requirements of the General Pretreatment Regulations at 40 CFR Part 403; and/or,

iii. Require the Permittee to monitor its discharge for any pollutant which may likely be discharged from the Permittee's DWTW, should the industrial user fail to properly pretreat its waste.

The state permitting authority and the Approval Authority retains, at all times, the right to take legal action against any source of nondomestic discharge, whether directly or indirectly controlled by the Permittee, for violations of a permit, order or similar enforceable mechanism issued by the Permittee, violations of any Pretreatment Standard or requirement, or for failure to discharge at an acceptable level under national standards issued by EPA under 40 CFR, chapter I, subchapter N. In those cases where a CDPS permit violation has occurred because of the failure of the Permittee to properly develop and enforce Pretreatment Standards and requirements as necessary to protect the DWTW, the state permitting authority and/or Approval Authority shall hold the Permittee and/or industrial user responsible and may take legal action against the Permittee as well as the Industrial user(s) contributing to the permit violation.

C. DEFINITION OF TERMS

1. "Composite" sample is a minimum of four (4) grab samples collected at equally spaced two (2) hour intervals and proportioned according to flow. For a SBR type treatment system, a composite sample is defined as sampling equal aliquots during the beginning, middle and end of a decant period, for two consecutive periods during a day (if possible).

2. "Continuous" measurement, is a measurement obtained from an automatic recording device which continually measures the effluent for the parameter in question, or that provides measurements at specified intervals.

3. "Daily Maximum limitation" for all parameters (except temperature, pH and dissolved oxygen) means the limitation for this parameter shall be applied as an average of all samples collected in one calendar day. For these parameters the DMR shall include the highest of the daily averages. For pH and dissolved oxygen, this means an instantaneous maximum (and/or instantaneous minimum) value. The instantaneous value is defined as the analytical result of any individual sample. For pH and dissolved oxygen, DMRs shall include the maximum (and/or minimum) of all instantaneous values within the calendar month. Any value beyond the noted daily maximum limitation for the indicated parameter shall be considered a violation of this permit. For temperature, see Daily Maximum Temperature.

4. "Daily Maximum Temperature (DM)" is defined in the Basic Standards and Methodologies for Surface Water 1002-31, as the highest two-hour average water temperature recorded during a given 24-hour period. This will be determined using a rolling 2-hour maximum temperature. If data is collected every 15 minutes, a 2 hour maximum can be determined on every data point after the initial 2 hours of collection. Note that the time periods that overlap days (Wednesday night to Thursday morning) do not matter as the reported value on the DMR is the greatest of all the 2-hour averages.

   For example data points collected at:
   08:15, 08:30, 08:45, 09:00, 09:15, 09:30, 09:45, 10:00, would be averaged for a single 2 hour average data point
   08:30, 08:45, 09:00, 09:15, 09:30, 09:45, 10:00, 10:15, would be averaged for a single 2 hour average data point
   08:45, 09:00, 09:15, 09:30, 09:45, 10:00, 10:15, 10:30, would be averaged for a single 2 hour average data point

   This would continue throughout the course of a calendar day. The highest of these 2 hour averages over a month would be reported on the DMR as the daily maximum temperature. At the end/beginning of a month, the collected data should be used for the month that contains the greatest number of minutes in the 2-hour maximum. Data from 11 pm to 12:59 am, would fall in the previous month. Data collected from 11:01 pm to 1:00 am would fall in the new month.

5. "Dissolved (D) metals fraction" is defined in the Basic Standards and Methodologies for Surface Water 1002-31, as that portion of a water and suspended sediment sample which passed through a 0.40 or 0.45 UM (micron) membrane filter. Determinations of "dissolved" constituents are made using the filtrate. This may include some very small (colloidal) suspended particles which passed through the membrane filter as well as the amount of substance present in true chemical solution.

6. "Geometric mean" for *E. coli* bacteria concentrations, the thirty (30) day and seven (7) day averages shall be determined as the geometric mean of all samples collected in a thirty (30) day period and the geometric mean of all samples taken in a seven (7) consecutive day period respectively. The geometric mean may be calculated using two different methods. For the methods shown, a, b, c, d, etc. are individual sample results, and n is the total number of samples.

   Method 1:

   Geometric Mean = $(a*b*c*d*...)^{(1/n)}$ "*" - means multiply

   Method 2:

   Geometric Mean = antilog ([log(a)+log(b)+log(c)+log(d)+...]/n)

   Graphical methods, even though they may also employ the use of logarithms, may introduce significant error and may not be used.

   In calculating the geometric mean, for those individual sample results that are reported by the analytical laboratory to be "less than" a numeric value, a value of 1 should be used in the calculations. If all individual analytical results for the month are reported to be less than numeric values, then report "less than" the largest of those numeric values on the monthly DMR. Otherwise, report the calculated value.

   For any individual analytical result of "too numerous to count" (TNTC), that analysis shall be considered to be invalid and another sample shall be promptly collected for analysis. If another sample cannot be collected within the same sampling period for which the invalid sample was collected (during the same month if monthly sampling is required, during the same week if weekly sampling is required, etc.), then the following procedures apply:

   i. A minimum of two samples shall be collected for coliform analysis within the next sampling period.

   ii. If the sampling frequency is monthly or less frequent: For the period with the invalid sample results, leave the spaces on the corresponding DMR for reporting coliform results empty and attach to the DMR a letter noting that a result of TNTC was obtained for that period, and explain why another sample for that period had not been collected.

   If the sampling frequency is more frequent than monthly: Eliminate the result of TNTC from any further calculations, and use all the other results obtained within that month for reporting purposes. Attach a letter noting that a result of TNTC was obtained, and list all individual analytical results and corresponding sampling dates for that month.

7. "Grab" sample, is a single "dip and take" sample so as to be representative of the parameter being monitored.

8. "In-situ" measurement is defined as a single reading, observation or measurement taken in the field at the point of discharge.

9. "Instantaneous" measurement is a single reading, observation, or measurement performed on site using existing monitoring facilities.

10. "Maximum Weekly Average Temperature (MWAT)" is defined in the Basic Standards and Methodologies for Surface Water 1002-31, as an implementation statistic that is calculated from field monitoring data. The MWAT is calculated as the largest mathematical mean of multiple, equally spaced, daily temperatures over a seven-day consecutive period, with a minimum of three data points spaced equally through the day. For lakes and reservoirs, the MWAT is assumed to be equivalent to the maximum WAT from at least three profiles distributed throughout the growing season (generally July-September).

    The MWAT is calculated by averaging all temperature data points collected during a calendar day, and then averaging the daily average temperatures for 7 consecutive days. This 7 day averaging period is a rolling average, i.e. on the 8th day, the MWAT will be the averages of the daily averages of days 2-8. The value to be reported on the DMR is the highest of all the rolling 7-day averages throughout the month. For those days that are at the end/beginning of the month, the data shall be reported for the month that contains 4 of the 7 days.

    Day 1: Average of all temperature data collected during the calendar day.
    Day 2: Average of all temperature data collected during the calendar day.
    Day 3: Average of all temperature data collected during the calendar day.
    Day 4: Average of all temperature data collected during the calendar day.
    Day 5: Average of all temperature data collected during the calendar day.
    Day 6: Average of all temperature data collected during the calendar day.
    Day 7: Average of all temperature data collected during the calendar day.
    1st MWAT Calculation as average of previous 7 days
    Day 8: Average of all temperature data collected during the calendar day.
    2nd MWAT Calculation as average of previous 7 days
    Day 9: Average of all temperature data collected during the calendar day.
    3rd MWAT Calculation as average of previous 7 days

11. "Potentially dissolved (PD) metals fraction" is defined in the Basic Standards and Methodologies for Surface Water 1002-31, as that portion of a constituent measured from the filtrate of a water and suspended sediment sample that was first treated with nitric acid to a pH of 2 or less and let stand for 8 to 96 hours prior to sample filtration using a 0.40 or 0.45-UM (micron) membrane filter. Note the "potentially dissolved" method cannot be used where nitric acid will interfere with the analytical procedure used for the constituent measured.

12. "Practical Quantitation Limit (PQL)" means the minimum concentration of an analyte (substance) that can be measured with a high degree of confidence that the analyte is present at or above that concentration. The use of PQL in this document may refer to those PQLs shown in Part I.D of this permit or the PQLs of an individual laboratory.

13. "Quarterly measurement frequency" means samples may be collected at any time during the calendar quarter if a continual discharge occurs. If the discharge is intermittent, then samples shall be collected during the period that discharge occurs.

14. "Recorder" requires the continuous operation of a chart and/or totalizer (or drinking water rotor meters or pump hour meters where previously approved.)

15. "Seven (7) day average" means, with the exception of fecal coliform or *E. coli* bacteria (see geometric mean), the arithmetic mean of all samples collected in a seven (7) consecutive day period. Such seven (7) day averages shall be calculated for all calendar weeks, which are defined as beginning on Sunday and ending on Saturday. If the calendar week overlaps two months (i.e. the Sunday is in one month and the Saturday in the following month), the seven (7) day average calculated for that calendar week shall be associated with the month that contains the Saturday. Samples may not be used for more than one (1) reporting period. **(See the "Analytical and Sampling Methods for Monitoring and Reporting Section in Part I.D.5 for guidance on calculating averages and reporting analytical results that are less than the PQL).**

16. "Thirty (30) day average" means, except for fecal coliform or *E. coli* bacteria (see geometric mean), the arithmetic mean of all samples collected during a thirty (30) consecutive-day period, which represents a calendar month. The permittee shall report the appropriate mean of all self-monitoring sample data collected during the calendar month on the Discharge Monitoring Reports. Samples shall not be used for more than one (1) reporting period. **(See the "Analytical and Sampling Methods for Monitoring and Reporting Section in Part I.D.5 for guidance on calculating averages and reporting analytical results that are less than the PQL).**

17. "Total Inorganic Nitrogen (T.I.N.)" is an aggregate parameter determined based on ammonia, nitrate and nitrite concentrations. To determine T.I.N. concentrations, the facility must monitor for total ammonia and total nitrate plus nitrite (or nitrate and nitrite individually) on the same days. The calculated T.I.N. concentrations in mg/L shall then be determined as the sum of the analytical results of same-day sampling for total ammonia (as N) in mg/L, and total nitrate plus nitrite (as N) in mg/L (or nitrate as N and nitrite as N individually). From these calculated T.I.N. concentrations, the daily maximum and thirty (30) day average concentrations for T.I.N. shall be determined in the same manner as set out in the definitions for the daily maximum and thirty (30) day average. **(See the "Analytical and Sampling Methods for Monitoring and Reporting Section in Part I.D.5 for guidance on calculating averages and reporting analytical results that are less than the PQL).**

18. "Twenty four (24) hour composite" sample is a combination of at least eight (8) sample aliquots of at least 100 milliliters, collected at equally spaced intervals during the operating hours of a facility over a twenty-four (24) hour period. For volatile pollutants, aliquots must be combined in the laboratory immediately before analysis. The composite must be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to either the wastewater or effluent flow at the time of sampling or the total wastewater or effluent flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically.

19. "Twice Monthly" monitoring frequency means that two samples shall be collected each calendar month on separate weeks with at least one full week between the two sample dates. Also, there shall be at least one full week between the second sample of a month and the first sample of the following month.

20. "Visual" observation is observing the discharge to check for the presence of a visible sheen or floating oil.

21. "Water Quality Control Division" or "Division" means the state Water Quality Control Division as established in 25-8-101 et al.)

    Additional relevant definitions are found in the Colorado Water Quality Control Act, CRS §§ 25-8-101 et seq., the Colorado Discharge Permit System Regulations, Regulation 61 (5 CCR 1002-61) and other applicable regulations.

D. GENERAL MONITORING, SAMPLING AND REPORTING REQUIREMENTS

1. Routine Reporting of Data

Reporting of the data gathered in compliance with Part I.A or Part I.B shall be on a **monthly** basis. Reporting of all data gathered shall comply with the requirements of Part I.D. (General Requirements). Monitoring results shall be summarized for each calendar month and reported on Division approved discharge monitoring report (DMR) forms (EPA form 3320-1).

The permittee must submit these forms either by mail, or by using the Division's Net-DMR service (when available). If mailed, one form shall be mailed to the Division, as indicated below, so that the DMR is received no later than the 28th day of the following month (for example, the DMR for the first calendar quarter must be received by the Division by April 28th). If no discharge occurs during the reporting period, "No Discharge" shall be reported.

The original signed copy of each discharge monitoring report (DMR) shall be submitted to the Division at the following address:

Colorado Department of Public Health and Environment
Water Quality Control Division
WQCD-P-B2
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

The Discharge Monitoring Report forms shall be filled out accurately and completely in accordance with requirements of this permit and the instructions on the forms. They shall be signed by an authorized person as identified in Part I.D.8.

2. Annual Biosolids Report

The permittee shall provide the results of all biosolids monitoring and information on management practices, land application sites, site restrictions and certifications. Such information shall be provided no later than **February 19th** of each year. Reports shall be submitted addressing all such activities that occurred in the previous calendar year. If no biosolids were applied to the land during the reporting period, "no biosolids applied" shall be reported. Until further notice, biosolids monitoring results shall be reported on forms, or copies of forms, provided by the Division. Annual Biosolids Reports required herein, shall be signed and certified in accordance with the Signatory Requirements, Part I.D.1, and submitted as follows:

The original copy of each form shall be submitted to the following address:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT,
WATER QUALITY CONTROL DIVISION
WQCD-PERMITS-B2
4300 CHERRY CREEK DRIVE SOUTH
DENVER, COLORADO 80246-1530

A copy of each form shall be submitted to the following address:

WATER PROGRAM REGIONAL BIOSOLIDS PROGRAM
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION VIII,
1595 WYNKOOP STREET
DENVER, CO 80202-2466

ATTENTION: BIOSOLIDS PROGRAM MANAGER

3. Representative Sampling

Samples and measurements taken for the respective identified monitoring points as required herein shall be representative of the volume and nature of: 1) all influent wastes received at the facility, including septage, biosolids, etc.; 2) the monitored effluent discharged from the facility; and 3) biosolids produced at the facility. All samples shall be taken at the monitoring points specified in this permit and, unless otherwise specified, before the influent, effluent, or biosolids wastestream joins or is diluted by any other wastestream, body of water, or substance. Monitoring points shall not be changed without notification to and prior approval by the Division.

4. Influent and Effluent Sampling Points

Influent and effluent sampling points shall be so designed or modified so that: 1) a sample of the influent can be obtained after preliminary treatment and prior to primary or biological treatment and 2) a sample of the effluent can be obtained at a point after the final treatment process and prior to discharge to state waters. The permittee shall provide access to the Division to sample at these points.

5. Analytical and Sampling Methods for Monitoring and Reporting

The permittee shall install, calibrate, use and maintain monitoring methods and equipment, including biological and indicated pollutant monitoring methods. All sampling shall be performed by the permittee according to specified methods in 40 C.F.R. Part 136; methods approved by EPA pursuant to 40 C.F.R. Part 136; or methods approved by the Division, in the absence of a method specified in or approved pursuant to 40 C.F.R. Part 136.

Numeric Limits

If the permit contains a numeric effluent limit for a parameter, the analytical method and PQL selected for all

monitoring conducted in accordance with this permit for that parameter shall be the one that can measure at or below the numeric effluent limit. If all specified analytical methods and corresponding PQLs are greater than the numeric effluent limit, then the analytical method with the lowest PQL shall be used.

When the analytical method which complies with the above requirements has a PQL greater than the permit limit, and the permittee's analytical result is less than the PQL (the PQL achieved by the lab), the permittee shall report "BDL" on the DMR. Such reports will not be considered as violations of the permit limit, as long as the PQL obtained is lower or equal to the PQL in the table below.

When the analytical method which complies with the above requirements has a PQL that is equal to or less than the permit limitation, and the permittee's analytical result is less than the PQL, "< X" (where X = the actual PQL achieved by the laboratory) shall be reported on the DMR. For parameters that have a report only limitation, and the permittee's analytical result is less than the PQL, "< X" (where X = the actual PQL achieved by the laboratory) shall be reported on the DMR.

Report Only Limits

If the permit contains a report only requirement for a parameter, the analytical method and PQL chosen shall be one that can measure at or below the potential numeric effluent limit(s) (maximum allowable pollutant concentration as shown in the WQA or fact sheet). If all analytical methods and corresponding PQLs are greater than the potential numeric effluent limit(s), then the analytical method with the lowest PQL shall be used.

When the analytical method which complies with the above requirements has a PQL that is equal to or less than the permit limitation, and the permittee's analytical result is less than the PQL, "< X" (where X = the actual PQL achieved by the laboratory) shall be reported on the DMR. For parameters that have a report only limitation, and the permittee's analytical result is less than the PQL, "< X" (where X = the actual PQL achieved by the laboratory) shall be reported on the DMR.

Interim Report Only Followed By a Numeric Limit

If the permit contains an interim effluent limitation (a limit is report until such time as a numeric effluent limit becomes effective) for a parameter, the analytical method and PQL chosen for all monitoring conducted in accordance with this permit for the parameter shall be one that can measure to the final numeric effluent limit. If all analytical methods and corresponding PQLs are greater than the final numeric effluent limit (s), then the analytical method with the lowest PQL shall be used.

While the report only limit is effective, the reporting requirements shall follow those under the Report Only Limits section. Once the numeric limit is effective, the reporting requirements shall follow the numeric limits reporting requirements.

T.I.N.

For parameters such as TIN, the analytical methods chosen shall be those that can measure to the potential or final numeric effluent limit, based on the sum of the PQLs for nitrate, nitrite and ammonia.

Calculating Averages

In the calculation of average concentrations (i.e. daily average, 7- day average, 30-day average, 2-year rolling average) any individual analytical result that is less than the PQL shall be considered to be zero for the calculation purposes. When reporting:

If all individual analytical results are less than the PQL, the permittee shall report either "BDL" or "<X" (where X = the actual PQL achieved by the laboratory), following the guidance above.

If one or more individual results is greater than the PQL, an average shall be calculated and reported. Note that it does not matter if the final calculated average is greater or less than the PQL, **it must be reported as a value**.

Note that when calculating T.I.N. for a single sampling event, any value less than the PQL (for total ammonia, total nitrite, or total nitrate) shall be treated as zero. The T.I.N. concentration for a single sampling event shall then be determined as the sum of the analytical results (zeros if applicable) of same day sampling for total ammonia and total nitrite and total nitrate. From these calculated T.I.N. concentrations, the daily maximum and thirty day average concentrations shall be calculated and must be reported as a value.

PQLs

The PQLs for specific parameters, as determined by the State Laboratory (November 2008) are provided below for reference. If the analytical method cannot achieve a PQL that is less than or equal to the permit limit, then the method, or a more precise method, must achieve a PQL that is less than or equal to the PQL in the table below. A listing of the PQLs for further organic parameters that must meet the above requirement can be found in the Division's Practical Quantitation Limitation Guidance Document, July 2008. This document is available on the Division's website at www.coloradowaterpermits.com.

These limits apply to the total recoverable or the potentially dissolved fraction of metals.

For hexavalent chromium, samples must be unacidified so dissolved concentrations will be measured rather than potentially dissolved concentrations.

Effluent Parameter	Practical Quantitation Limits	Effluent Parameter	Practical Quantitation Limits
Aluminum	50 µg/l		
Arsenic	1 µg/l	N-Ammonia	1 mg/l
Barium	5 µg/l	N-Ammonia (low-level)	50 µg/l
Beryllium	1 µg/l	N-Nitrate/Nitrite	0.5 mg/l
BOD / CBOD	1 mg/l	N-Nitrate	0.5 mg/l
Boron	50 µg/l	N-Nitrite	10 µg/l
Cadmium	1 µg/l	Total Nitrogen	0.5 mg/l
Calcium	20 µg/l	Total Phosphorus	10 µg/l
Chloride	2 mg/l		
Chlorine	0.1 mg/l	Radium 226	1 pCi/l
Total Residual Chlorine		Radium 228	1 pCi/l
DPD colorimetric	0.10 mg/l	Selenium	1 µg/l
Amperometric titration	0.05 mg/l	Silver	0.5 µg/l
Chromium	20 µg/l	Sodium	0.2 mg/l
Chromium, Hexavalent	20 µg/l	Sulfate	5 mg/l
Copper	5 µg/l	Sulfide	0.2 mg/l
Cyanide (Direct / Distilled)	10 µg/l	Total Dissolved Solids	10 mg/l
Cyanide, WAD+A47	10 µg/l	Total Suspended Solids	10 mg/l
Fluoride	0.1 mg/l	Thallium	1 µg/l
Iron	10 µg/l	Uranium	1 µg/l
Lead	1 µg/l	Zinc	10 µg/l
Magnesium	20 µg/l		
Manganese	2 µg/l	Phenols	15 µg/l
Mercury	0.1 µg/l	Nonylphenol D7065	10 µg/l
Mercury (low-level)	0.003 µg/l	Nonylphenol D7485	0.33 µg/l
Nickel	50 µg/l		

6. Records

a. The permittee shall establish and maintain records. Those records shall include, but not be limited to, the following:

i. The date, type, exact place, and time of sampling or measurements;
ii. The individual(s) who performed the sampling or measurements;
iii. The date(s) the analyses were performed;
iv. The individual(s) who performed the analyses;
v. The analytical techniques or methods used; and
vi. The results of such analyses.
vii. Any other observations which may result in an impact on the quality or quantity of the discharge as indicated in 40 CFR 122.44 (i)(1)(iii).

b. The permittee shall retain for a minimum of three (3) years records of all monitoring information, including all original strip chart recordings for continuous monitoring instrumentation, all calibration and maintenance records, copies of all reports required by this permit and records of all data used to complete the application for this permit. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the permittee or when requested by the Division or Regional Administrator.

7. Flow Measuring Devices

Unless exempted in Part I.A of this permit, flow metering at the headworks shall be provided to give representative values of throughput and treatment of the wastewater system. The metering device shall be equipped with a local flow indication instrument and a flow indication-recording-totalization device suitable for providing permanent flow records, which should be in the plant control building.

For mechanical facilities, where influent flow metering is not practical and the same results may be obtained from metering at the effluent end of the treatment facility, this type of flow metering arrangement will be considered, and if approved, noted in Part I.A of this permit. For lagoons, an instantaneous or continuous effluent flow measuring device shall be required in addition to the above described influent flow measuring device.

At the request of the Division, the permittee must be able to show proof of the accuracy of any flow-measuring device used in obtaining data submitted in the monitoring report. The flow-measuring device must indicate values within ten (10) percent of the actual flow being measured.

8. Signatory Requirements

a. All reports and other information required by the Division, shall be signed and certified for accuracy by the permittee in accord with the following criteria:

i) In the case of corporations, by a responsible corporate officer. For purposes of this section, the responsible corporate officer is responsible for the overall operation of the facility from which the discharge described in the form originates;

ii) In the case of a partnership, by a general partner;

iii) In the case of a sole proprietorship, by the proprietor;

iv) In the case of a municipal, state, or other public facility, by either a principal executive officer, or ranking elected official. For purposes of this section, a principal executive officer has responsibility for the overall operation of the facility from which the discharge originates;

v) By a duly authorized representative of a person described above, only if:

1) The authorization is made in writing by a person described in i, ii, iii, or iv above;

2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and,

3) The written authorization is submitted to the Division.

b. If an authorization as described in this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of this section must be submitted to the Division prior to or together with any reports, information, or applications to be signed by an authorized representative.

The permittee, or the duly authorized representative shall make and sign the following certification on all such documents:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

PART II

A. NOTIFICATION REQUIREMENTS

1. Notification to Parties

All notification requirements under this section shall be directed as follows:

a. Oral Notifications**,** during normal business hours shall be to:

Water Quality Protection Section - Domestic Compliance Program
Water Quality Control Division
Telephone: (303) 692-3500

b. Written notification shall be to:

Water Quality Protection Section - Domestic Compliance Program
Water Quality Control Division
Colorado Department of Public Health and Environment
WQCD-WQP-B2
4300 Cherry Creek Drive South
Denver, CO 80246-1530

2. Change in Discharge

The permittee shall give advance notice to the Division, in writing, of any planned physical alterations or additions to the permitted facility. Notice is required only when:

a. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged, or;

b. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported pursuant to an approved land application plan.

Whenever notification of any planned physical alterations or additions to the permitted facility is required pursuant to this section, the permittee shall furnish the Division such plans and specifications which the Division deems reasonably necessary to evaluate the effect on the discharge, the stream, or ground water. If the Division finds that such new or altered discharge might be inconsistent with the conditions of the permit, the Division shall require a new or revised permit application and shall follow the procedures specified in Sections 61.5 through 61.6, and 61.15 of the Colorado Discharge Permit System Regulations.

3. Noncompliance Notification

The permittee shall give advance notice to the Division, in writing, of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements.

a. If, for any reason, the permittee does not comply with or will be unable to comply with any discharge limitations or standards specified in this permit, the permittee shall, at a minimum, provide the Division with the following information:

i) A description of the noncompliance and its cause;

ii) The period of noncompliance, including exact dates and times and/or the anticipated time when the discharge will return to compliance; and

iii) Steps being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.

b. The permittee shall report the following circumstances **orally within twenty-four (24) hours** from the time the permittee becomes aware of the circumstances, and shall mail to the Division a written report containing the information requested in Part II.A.4 (a) **within five (5) working days** after becoming aware of the following circumstances:

i) Circumstances leading to any noncompliance which may endanger health or the environment regardless of the cause of the incident;

ii) Circumstances leading to any unanticipated bypass which exceeds any effluent limitations in the permit;

iii) Circumstances leading to any upset which causes an exceedance of any effluent limitation in the permit;

iv) Daily maximum violations for any of the pollutants limited by Part I.A of this permit as specified in Part III of this permit. This includes any toxic pollutant or hazardous substance or any pollutant specifically identified as the method to control any toxic pollutant or hazardous substance.

c. Unless otherwise indicated in this permit, the permittee shall report instances of non-compliance which are not required to be reported within 24-hours at the time Discharge Monitoring Reports are submitted. The reports shall contain the information listed in sub-paragraph (a) of this section.

4. Transfer of Ownership or Control

The permittee shall notify the Division, in writing, thirty (30) calendar days in advance of a proposed transfer of the permit.

a. Except as provided in paragraph b. of this section, a permit may be transferred by a permittee only if the permit has been modified or revoked and reissued as provided in Section 61.8(8) of the Colorado Discharge Permit System Regulations, to identify the new permittee and to incorporate such other requirements as may be necessary under the Federal Act.

b. A permit may be automatically transferred to a new permittee if:

i) The current permittee notifies the Division in writing 30 calendar days in advance of the proposed transfer date; and

ii) The notice includes a written agreement between the existing and new permittee(s) containing a specific date for transfer of permit responsibility, coverage and liability between them; and

iii) The Division does not notify the existing permittee and the proposed new permittee of its intent to modify, or revoke and reissue the permit.

iv) Fee requirements of the Colorado Discharge Permit System Regulations, Section 61.15, have been met.

5. Other Notification Requirements

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule in the permit, shall be submitted on the date listed in the compliance schedule section. The fourteen (14) calendar day provision in Regulation 61.8(4)(n)(i) has been incorporated into the due date.

The permittee's notification of all anticipated noncompliance does not stay any permit condition.

All existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Division as soon as they know or have reason to believe:

a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

i) One hundred micrograms per liter (100 µg/l);

ii) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2.4-dinitrophenol and 2-methyl-4.6-dinitrophenol; and one milligram per liter (1.0 mg/l) for antimony;

iii) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with Section 61.4(2)(g).

iv) The level established by the Division in accordance with 40 C.F.R. § 122.44(f).

b. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

i) Five hundred micrograms per liter (500 µg/l);

ii) One milligram per liter (1 mg/l) for antimony; and

iii) Ten (10) times the maximum concentration value reported for that pollutant in the permit application.

iv) The level established by the Division in accordance with 40 C.F.R. § 122.44(f).

6. Bypass Notification

If the permittee knows in advance of the need for a bypass, a notice shall be submitted, at least ten (10) calendar days before the date of the bypass, to the Division. The bypass shall be subject to Division approval and limitations imposed by the Division. Violations of requirements imposed by the Division will constitute a violation of this permit.

7. Bypass

a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

b. Bypasses are prohibited and the Division may take enforcement action against the permittee for bypass, unless:

i) The bypass is unavoidable to prevent loss of life, personal injury, or severe property damage;

ii) There were no feasible alternatives to bypass such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

iii) Proper notices were submitted in compliance with Part II.A.5.

c. "Severe property damage" as used in this Subsection means substantial physical damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

d. The permittee may allow a bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance or to assure optimal operation. These bypasses are not subject to the provisions of paragraph (a) above.

e. The Division may approve an anticipated bypass, after considering adverse effects, if the Division determines that the bypass will meet the conditions specified in paragraph (a) above.

8. Upsets

a. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

b. Effect of an Upset

An upset constitutes an affirmative defense to an action brought for noncompliance with permit effluent limitations if the requirements of paragraph (b) of this section are met. No determination made during administrative review of claims

that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. Conditions Necessary for a Demonstration of Upset

A permittee who wishes to establish the affirmative defense of upset shall demonstrate through properly signed contemporaneous operating logs, or other relevant evidence that:

i) An upset occurred and that the permittee can identify the specific cause(s) of the upset; and

ii) The permitted facility was at the time being properly operated and maintained; and

iii) The permittee submitted proper notice of the upset as required in Part II.A.4. of this permit (24-hour notice); and
iv) The permittee complied with any remedial measure necessary to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reason able likelihood of adversely affecting human health or the environment.

In addition to the demonstration required above, a permittee who wishes to establish the affirmative defense of upset for a violation of effluent limitations based upon water quality standards shall also demonstrate through monitoring, modeling or other methods that the relevant standards were achieved in the receiving water.

d. Burden of Proof

In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

9. Submission of Incorrect or Incomplete Information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Division, the permittee shall promptly submit such facts or information.

B. RESPONSIBILITIES

1. Reduction, Loss, or Failure of Treatment Facility

The permittee has the duty to halt or reduce any activity if necessary to maintain compliance with the effluent limitations of the permit. Upon reduction, loss, or failure of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with its permit, control production, control sources of wastewater, or all discharges, until the facility is restored or an alternative method of treatment is provided. This provision also applies to power failures, unless an alternative power source sufficient to operate the wastewater control facilities is provided.

It shall not be a defense for a permittee in an enforcement action that it would be necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

2. Inspections and Right to Entry

The permittee shall allow the Division and/or the authorized representative, upon the presentation of credentials:

a. To enter upon the permittee's premises where a regulated facility or activity is located or in which any records are required to be kept under the terms and conditions of this permit;

b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit and to inspect any monitoring equipment or monitoring method required in the permit; and

c. To enter upon the permittee's premises in a reasonable manner and at a reasonable time to inspect and/or investigate, any actual, suspected, or potential source of water pollution, or to ascertain compliance or non compliance with the Colorado Water Quality Control Act or any other applicable state or federal statute or regulation or any order promulgated by the Division. The investigation may include, but is not limited to, the following: sampling of any discharge and/or process waters, the taking of photographs, interviewing of any person having knowledge related to the discharge permit or

alleged violation, access to any and all facilities or areas within the permittee's premises that may have any affect on the discharge, permit, or alleged violation. Such entry is also authorized for the purpose of inspecting and copying records required to be kept concerning any effluent source.

d. The permittee shall provide access to the Division to sample the discharge at a point after the final treatment process but prior to the discharge mixing with state waters upon presentation of proper credentials.

In the making of such inspections, investigations, and determinations, the Division, insofar as practicable, may designate as its authorized representatives any qualified personnel of the Department of Agriculture. The Division may also request assistance from any other state or local agency or institution.

3. Duty to Provide Information

The permittee shall furnish to the Division, within a reasonable time, any information which the Division may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Division, upon request, copies of records required to be kept by this permit.

4. Availability of Reports

Except for data determined to be confidential under Section 308 of the Federal Clean Water Act and the Colorado Discharge Permit System Regulations 5 CCR 1002-61, Section 61.5(4), all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Division and the Environmental Protection Agency.

The name and address of the permit applicant(s) and permittee(s), permit applications, permits and effluent data shall not be considered confidential. Knowingly making false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Federal Clean Water Act, and Section 25-8-610 C.R.S.

5. Modification, Suspension, Revocation, or Termination of Permits By the Division

The filing of a request by the permittee for a permit modification, revocation and reissuance, termination or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

a. A permit may be modified, suspended, or terminated in whole or in part during its term for reasons determined by the Division including, but not limited to, the following:

   i) Violation of any terms or conditions of the permit;

   ii) Obtaining a permit by misrepresentation or failing to disclose any fact which is material to the granting or denial of a permit or to the establishment of terms or conditions of the permit; or

   iii) Materially false or inaccurate statements or information in the permit application or the permit.

   iv) A determination that the permitted activity endangers human health or the classified or existing uses of state waters and can only be regulated to acceptable levels by permit modifications or termination.

b. A permit may be modified in whole or in part for the following causes, provided that such modification complies with the provisions of Section 61.10 of the Colorado Discharge Permit System Regulations:

   i) There are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit.

   ii) The Division has received new information which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of different permit conditions at the time of issuance. For permits issued to new sources or new dischargers, this cause includes information derived from effluent testing required under Section 61.4(7)(e) of the Colorado Discharge Permit System Regulations. This provision allows a modification of the permit to include conditions that are less stringent than the existing permit only to the extent allowed under Section 61.10 of the Colorado Discharge Permit System Regulations.

iii) The standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued. Permits may be modified during their terms for this cause only as follows:

(A) The permit condition requested to be modified was based on a promulgated effluent limitation guideline, EPA approved water quality standard, or an effluent limitation set forth in 5 CCR 1002-62, § 62 et seq.; and

(B) EPA has revised, withdrawn, or modified that portion of the regulation or effluent limitation guideline on which the permit condition was based, or has approved a Commission action with respect to the water quality standard or effluent limitation on which the permit condition was based; and

(C) The permittee requests modification after the notice of final action by which the EPA effluent limitation guideline, water quality standard, or effluent limitation is revised, withdrawn, or modified; or

(D) For judicial decisions, a court of competent jurisdiction has remanded and stayed EPA promulgated regulations or effluent limitation guidelines, if the remand and stay concern that portion of the regulations or guidelines on which the permit condition was based and a request is filed by the permittee in accordance with this Regulation, within ninety (90) calendar days of judicial remand.

iv) The Division determines that good cause exists to modify a permit condition because of events over which the permittee has no control and for which there is no reasonable available remedy.

v) Where the Division has completed, and EPA approved, a total maximum daily load (TMDL) which includes a wasteload allocation for the discharge(s) authorized under the permit.

vi) The permittee has received a variance.

vii) When required to incorporate applicable toxic effluent limitation or standards adopted pursuant to § 307(a) of the Federal act.

viii) When required by the reopener conditions in the permit.

ix) As necessary under 40 C.F.R. 403.8(e), to include a compliance schedule for the development of a pretreatment program.

x) When the level of discharge of any pollutant which is not limited in the permit exceeds the level which can be achieved by the technology-based treatment requirements appropriate to the permittee under Section 61.8(2) of the Colorado Discharge Permit System Regulations.

xi) To establish a pollutant notification level required in Section 61.8(5) of the Colorado Discharge Permit System Regulations.

xii) To correct technical mistakes, such as errors in calculation, or mistaken interpretations of law made in determining permit conditions, to the extent allowed in Section 61.10 of the Colorado State Discharge Permit System Regulations.

xiii) When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.

xiv) When another State whose waters may be affected by the discharge has not been notified.

xv) For any other cause provided in Section 61.10 of the Colorado Discharge Permit System Regulations.

c. At the request of a permittee, the Division may modify or terminate a permit and issue a new permit if the following conditions are met:

i) The Regional Administrator has been notified of the proposed modification or termination and does not object in writing within thirty (30) calendar days of receipt of notification,

ii) The Division finds that the permittee has shown reasonable grounds consistent with the Federal and State statutes and regulations for such modifications or termination;

iii) Requirements of Section 61.15 of the Colorado Discharge Permit System Regulations have been met, and

iv) Requirements of public notice have been met.

d. For permit modification, termination, or revocation and reissuance, the Division may request additional information from the permittee. In the case of a modified permit, the Division may require the submission of an updated application. In the case of revoked and reissued permit, the Division shall require the submission of a new application.

e. Permit modification (except for minor modifications), termination or revocation and reissuance actions shall be subject to the requirements of Sections 61.5(2), 61.5(3), 61.6, 61.7 and 61.15 of the Colorado Discharge Permit System Regulations. The Division shall act on a permit modification request, other than minor modification requests, within 180 calendar days of receipt thereof. Except for minor modifications, the terms of the existing permit govern and are enforceable until the newly issued permit is formally modified or revoked and reissued following public notice.

f. Upon consent by the permittee, the Division may make minor permit modifications without following the requirements of Sections 61.5(2), 61.5(3), 61.7, and 61.15 of the Colorado Discharge Permit System Regulations. Minor modifications to permits are limited to:

i) Correcting typographical errors; or

ii) Increasing the frequency of monitoring or reporting by the permittee; or

iii) Changing an interim date in a schedule of compliance, provided the new date of compliance is not more than 120 calendar days after the date specific in the existing permit and does not interfere with attainment of the final compliance date requirement; or

iv) Allowing for a transfer in ownership or operational control of a facility where the Division determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new permittees has been submitted to the Division; or

v) Changing the construction schedule for a discharger which is a new source, but no such change shall affect a discharger's obligation to have all pollution control equipment installed and in operation prior to discharge; or

vi) Deleting a point source outfall when the discharge from that outfall is terminated and does not result in discharge of pollutants from other outfalls except in accordance with permit limits.

vii) Incorporating conditions of a POTW pretreatment program that has been approved in accordance with the procedures in 40 CFR 403.11 (or a modification thereto that has been approved in accordance with the procedures in 40 CFR 403.18) as enforceable conditions of the POTW's permits.

g. When a permit is modified, only the conditions subject to modification are reopened. If a permit is revoked and reissued, the entire permit is reopened and subject to revision and the permit is reissued for a new term.

h. The filing of a request by the permittee for a permit modification, revocation and reissuance or termination does not stay any permit condition.

i. All permit modifications and reissuances are subject to the antibacksliding provisions set forth in 61.10(e) through (g).

j. If cause does not exist under this section, the Division shall not modify or revoke and reissue the permit.

6. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under Section 311 (Oil and Hazardous Substance Liability) of the Clean Water Act.

7. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority granted by Section 510 of the Clean Water Act. Nothing in this permit shall be construed to prevent or limit application of any emergency power of the division.

8. Permit Violations

Failure to comply with any terms and/or conditions of this permit shall be a violation of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit. Except as provided elsewhere in this permit, nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance (40 CFR 122.41(a)(1)).

9. Severability

The provisions of this permit are severable. If any provisions or the application of any provision of this permit to any circumstances, is held invalid, the application of such provision to other circumstances and the application of the remainder of this permit shall not be affected.

10. Confidentiality

Any information relating to any secret process, method of manufacture or production, or sales or marketing data which has been declared confidential by the permittee, and which may be acquired, ascertained, or discovered, whether in any sampling investigation, emergency investigation, or otherwise, shall not be publicly disclosed by any member, officer, or employee of the Commission or the Division, but shall be kept confidential. Any person seeking to invoke the protection of this Subsection (12) shall bear the burden of proving its applicability. This section shall never be interpreted as preventing full disclosure of effluent data.

11. Fees

The permittee is required to submit payment of an annual fee as set forth in the 2005 amendments to the Water Quality Control Act. Section 25-8-502 (l) (b), and the Colorado Discharge Permit System Regulations 5 CCR l002-61, Section 61.l5 as amended. Failure to submit the required fee when due and payable is a violation of the permit and will result in enforcement action pursuant to Section 25-8-60l et. seq., C.R.S. l973 as amended.

12. Duration of Permit

The duration of a permit shall be for a fixed term and shall not exceed five (5) years. If the permittee desires to continue to discharge, a permit renewal application shall be submitted at least one hundred eighty (180) calendar days before this permit expires. Filing of a timely and complete application shall cause the expired permit to continue in force to the effective date of the new permit. The permit's duration may be extended only through administrative extensions and not through interim modifications.If the permittee anticipates there will be no discharge after the expiration date of this permit, the Division should be promptly notified so that it can terminate the permit in accordance with Part II.B.4.

13. Section 307 Toxics

If a toxic effluent standard or prohibition, including any applicable schedule of compliance specified, is established by regulation pursuant to Section 307 of the Federal Act for a toxic pollutant which is present in the permittee's discharge and such standard or prohibition is more stringent than any limitation upon such pollutant in the discharge permit, the Division shall institute proceedings to modify or revoke and reissue the permit to conform to the toxic effluent standard or prohibition.

14. Effect of Permit Issuance

a. The issuance of a permit does not convey any property or water rights in either real or personal property, or stream flows or any exclusive privilege.

b. The issuance of a permit does not authorize any injury to person or property or any invasion of personal rights, nor does it authorize the infringement of federal, state, or local laws or regulations.

c. Except for any toxic effluent standard or prohibition imposed under Section 307 of the Federal act or any standard for sewage sludge use or disposal under Section 405(d) of the Federal act, compliance with a permit during its term constitutes compliance, for purposes of enforcement, with Sections 301, 302, 306, 318, 403, and 405(a) and (b) of the Federal act. However, a permit may be modified, revoked and reissued, or terminated during its term for cause as set forth in Section 61.8(8) of the Colorado Discharge Permit System Regulations.

d. Compliance with a permit condition which implements a particular standard for biosolid use or disposal shall be an affirmative defense in any enforcement action brought for a violation of that standard for biosolid use or disposal.

PART III

CATEGORICAL INDUSTRIES

Aluminum Forming
Asbestos Manufacturing
Battery Manufacturing
Builders' Paper and Board Mills
Canned & Preserved Fruits and Vegetables Processing
Canned & Preserved Seafood Processing
Carbon Black Manufacturing
Cement Manufacturing
Coal Mining
Coil Coating
Copper Forming
Dairy Products Processing
Electrical and Electronic Components
Electroplating
Explosives Manufacturing
Feedlots
Ferroalloy Manufacturing
Fertilizer Manufacturing
Glass Manufacturing
Grain Mills
Gum and Wood Chemicals Manufacturing
Hospital
Ink Formulation
Inorganic Chemicals Manufacturing
Iron and Steel Manufacturing
Leather Tanning and Finishing
Meat Products
Metal Finishing
Metal Molding and Casting (Foundries)
Mineral Mining and Processing
Nonferrous Metals Manufacturing
Nonferrous Metals Forming and Metal Powders
Oil and Gas Extraction
Organic Chemicals, Plastics, and Synthetic Fibers
Ore Mining and Dressing
Paint Formulation
Paving and Roofing Materials (Tars and Asphalt)
Pesticide Chemicals
Petroleum Refining
Pharmaceutical Manufacturing
Phosphate Manufacturing
Photographic
Plastics Molding and Forming
Porcelain Enameling
Pulp, Paper, and Paperboard Manufacturing
Rubber Manufacturing
Soap and Detergent Manufacturing
Steam Electric Power Generating
Sugar Processing
Textile Mills
Timber Products Processing

PRIORITY POLLUTANTS AND HAZARDOUS SUBSTANCES

ORGANIC TOXIC POLLUTANTS IN EACH OF FOUR FRACTIONS
IN ANALYSIS BY GAS CHROMATOGRAPHY/MASS SPECTROSCOPY (GC/MS)

Volatiles	**Base/Neutral**	**Acid Compounds**	**Pesticides**
acrolein	acenaphthene	2-chlorophenol	aldrin
acrylonitrile	acenaphthylene	2,4-dichlorophenol	alpha-BHC
benzene	anthracene	2,4,-dimethylphenol	beta-BHC
bromoform	benzidine	4,6-dinitro-o-cresol	gamma-BHC
carbon tetrachloride	benzo(a)anthracene	2,4-dinitrophenol	delta-BHC
chlorobenzene	benzo(a)pyrene	2-nitrophenol	chlordane
chlorodibromomethane	3,4-benzofluoranthene	4-nitrophenol	4,4'-DDT
chloroethane	benzo(ghi)perylene	p-chloro-m-cresol	4,4'-DDE
2-chloroethylvinyl ether	benzo(k)fluoranthene	pentachlorophenol	4,4'-DDD
chloroform	bis(2-chloroethoxy)methane	phenol	dieldrin
dichlorobromomethane	bis(2-chloroethyl)ether	2,4,6-trichlorophenol	alpha-endosulfan
1,1-dichlorethane	bis(2-chloroisopropyl)ether		beta-endosulfan
1,2-dichlorethane	bis(2-ethylhexyl)phthalate		endosulfan sulfate
1,1-dichlorethylene	4-bromophenyl phenyl ether		endrin
1,2-dichlorpropane	butylbenzyl phthalate		endrin aldehyde
1,3-dichlorpropylene	2-chloronaphthalene		heptachlor
ethylbenzene	4-chlorophenyl phenyl ether		heptachlor epoxide
methyl bromide	chrysene		PCB-1242
methyl chloride	dibenzo(a,h)anthracene		PCB-1254
methylene chloride	1,2-dichlorobenzene		PCB-1221

PRIORITY POLLUTANTS AND HAZARDOUS SUBSTANCES

ORGANIC TOXIC POLLUTANTS IN EACH OF FOUR FRACTIONS
IN ANALYSIS BY GAS CHROMATOGRAPHY/MASS SPECTROSCOPY (GC/MS)

Volatiles	Base/Neutral	Acid Compounds	Pesticides
1,1,2,2-tetrachloroethane	1,3-dichlorobenzene		PCB-1232
tetrachloroethylene	1,4-dichlorobenzene		PCB-1248
toluene	3,3-dichlorobenzidine		PCB-1260
1,2-trans-dichloroethylene	diethyl phthalate		PCB-1016
1,1,1-trichloroethane	dimethyl phthalate		toxaphene
1,1,2-trichloroethane	di-n-butyl phthalate		
trichloroethylene	2,4-dinitrotoluene		
vinyl chloride	2,6-dinitrotoluene		
	di-n-octyl phthalate		
	1,2-diphenylhydrazine (as azobenzene)		
	fluorene		
	fluoranthene		
	hexachlorobenzene		
	hexachlorobutadiene		
	hexachlorcyclopentadiene		
	hexachloroethane		
	indeno(1,2,3-cd)pyrene		
	isophorone		
	naphthalene		
	nitrobenzene		
	N-nitrosodimethylamine		
	N-nitrosodi-n-propylamine		
	N-nitrosodiphenylamine		
	phenanthrene		
	pyrene		
	1,2,4-trichlorobenzene		

OTHER TOXIC POLLUTANTS (AMMONIA, METALS AND CYANIDE) AND TOTAL PHENOLS

Antimony, Total
Arsenic, Total
Beryllium, Total
Cadmium, Total
Chromium, Total
Copper, Total
Lead, Total
Mercury, Total
Nickel, Total
Selenium, Total
Silver, Total
Thallium, Total
Zinc, Total
Cyanide, Total
Phenols, Total

TOXIC POLLUTANTS AND HAZARDOUS SUBSTANCES

REQUIRED TO BE IDENTIFIED BY EXISTING DISCHARGERS
IF EXPECTED TO BE PRESENT

Toxic Pollutants

Asbestos

Hazardous Substances

Acetaldehyde
Allyl alcohol
Allyl chloride
Amyl acetate
Aniline
Benzonitrile
Benzyl chloride
Butyl acetate
Butylamine
Captan
Carbaryl
Carbofuran
Carbon disulfide
Chlorpyrifos
Coumaphos
Cresol
Crotonaldehyde
Cyclohexane
2,4-D(2,4-Dichlorophenoxy acetic acid)
Diazinon
Dicamba
Dichlobenil
Dichlone
2,2-Dichloropropionic acid
Dichlorvos
Diethyl amine
Dimethyl amine
Dinitrobenzene
Diquat
Disulfoton
Diuron
Epichlorohydrin
Ethanolamine
Ethion
Ethylene diamine
Ethylene dibromide
Formaldehyde
Furfural
Guthion
Isoprene
Isopropanolamine
Keithane
Kepone
Malathion
Mercaptodimethur
Methoxychlor
Methyl mercaptan
Methyl methacrylate
Methyl parathion
Mexacarbate
Monoethyl amine
Monomethyl amine
Naled
Napthenic acid
Nitrotoluene
Parathion
Phenolsulfanate
Phosgene
Propargite
Propylene oxide
Pyrethrins
Quinoline
Resorcinol
Strontium
Strychnine
Styrene
TDE (Tetrachlorodiphenylethane)
2,4,5-T (2,4,5-Trichlorophenoxy acetic acid)
2,4,5-TP [2-(2,4,5-Trichlorophenoxy) propanoic acid]
Trichlorofan
Triethylamine
Trimethylamine
Uranium
Vandium
Vinyl Acetate
Xylene
Xylenol
Zirconium

APPENDIX F

WATER AND WASTEWATER PROJECT AREA MAPS

LEGEND

WATER MAIN

PROJECT AREA

FIRE HYDRANT

VASQUEZ CT/HORIZON DR LOOP
1400 LF 8" DI WATER MAIN

N 5TH AVE REPLACEMENT
950 LF 8" DI WATER MAIN

LONGS PEAK DR LOOP
800 LF 8" DI WATER MAIN

UPSIZE 4-IN WATER MAINS
825 LF 8" DI WATER MAIN

HIGH STREET REPLACEMENT
500 LF 8" DI WATER MAIN

PRV
153 PSI IN
85 PSI OUT

VASQUEZ CT.
VASQUEZ RD.
STEAMBOAT VALLEY RD.
HORIZON DR.
CEMETERY
REESE
SEWARD
STICKNEY
FIFTH AVENUE
FOURTH AVENUE
THIRD AVENUE
SECOND AVENUE
FIRST AVENUE
ELEM. SCHOOL
REDSTONE MUSEUM
HIGH STREET
MAIN STREET
EAST MAIN STREET
BROADWAY

N
W E
S

2016 CAPITAL IMPROVEMENT PROJECTS – WATER
NORTH OLD TOWN AREA

SCALE 1"=150'

RG AND ASSOCIATES, LLC
4885 Ward Road, Suite 100 • Wheat Ridge, CO • 80033
303-293-8107 • 303-293-8106 (fax) • www.rgengineers.com

HIGH STREET

MAIN STREET

JOHNSON PARK PRV

UPSIZE 4" WATER MAINS
770 LF 8" DI WATER MAIN

BROADWAY

PRV
171 PSI IN
95 PSI OUT

RAILROAD AVE.

EAST MAIN STREET

FIRST AVENUE

KELLING DR.

3RD AVE REPLACEMENT
220 LF 8" DI WATER MAIN

PRV
180 PSI IN
97 PSI OUT

PARK DRIVE

EVANS STREET

UPSIZED TO 8" IN 2015

UPSIZE 4" WATER MAINS
335 LF 8" DI WATER MAIN

PARK AVENUE

FOURTH AVENUE

UPSIZE 4" WATER MAINS
950 LF 8" DI WATER MAIN

PROSPECT

BOHN PARK

SECOND AVENUE

SEWER PLANT

EWALD AVENUE

FIFTH AVENUE

MEILY STREET

UPSIZE 4" WATER MAINS
730 LF 8" DI WATER MAIN

COLORADO 7

SECOND AVENUE

2ND CT.

WELCH DRIVE

WELCH CT.

LYONS VALLEY PARK

LYONS HIGH SCHOOL

LVP FLG 7

LIBRARY

RTD

TOWN HALL & SHERIFF'S SUBSTATION

BULK PLANT

N
W E
S

LEGEND

- WATER MAIN
- PROJECT AREA
- FIRE HYDRANT

2016 CAPITAL IMPROVEMENT PROJECTS – WATER
SOUTH OLD TOWN AREA

SCALE 1"=150'

RG AND ASSOCIATES, LLC
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LEGEND

WATER MAIN

PROJECT AREA

FIRE HYDRANT

N

W E

S

OUTLOT E

EAGLE NEST LANE

8 in

CIRCLE

EAGLE CANYON

8 in

8 in

EAGLE CANYON DR

8 in

8 in

8 in

10 in

10 in

10 in

12 in

12 in

12 in

12 in

12 in

12 in

U.S. HIGHWAY 36/STATE HIGHWAY 66

N. ST. VRAIN CREEK

APPLE VALLEY ROAD

ST. VRAIN CREEK REPLACEMENT

REPLACE 12" WATER MAIN TRANSMISSION UNDER CREEK
AND RE-ROUTE PERPENDICULAR TO CREEK
180 FT 12" DI WATER MAIN. 60 FT CASING. IN EASEMENT.

2016 CAPITAL IMPROVEMENT PROJECTS – WATER
APPLE VALLEY AREA

SCALE 1"=150'

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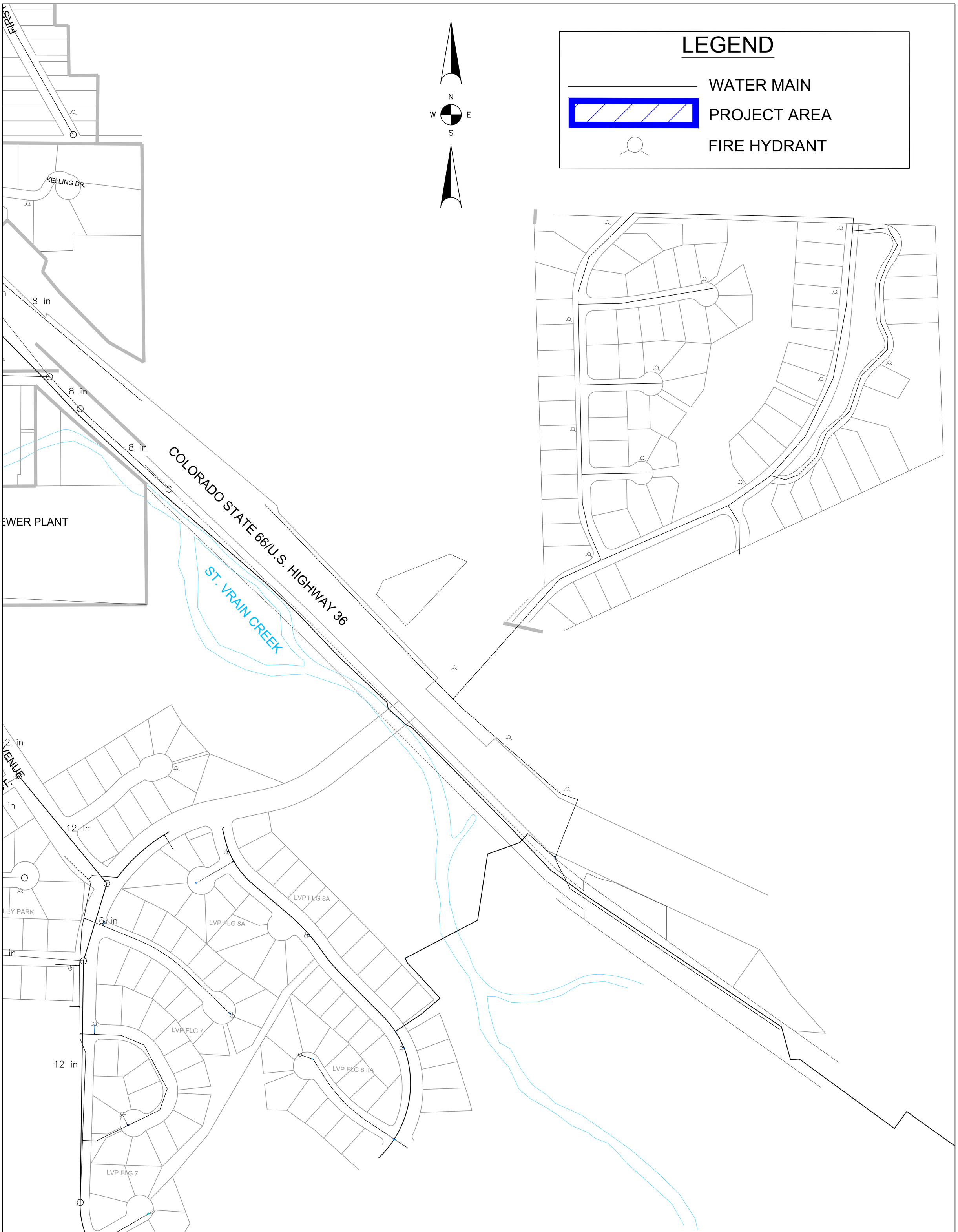

2016 CAPITAL IMPROVEMENT PROJECTS – WATER
STONE CANYON AREA

SCALE 1"=150'

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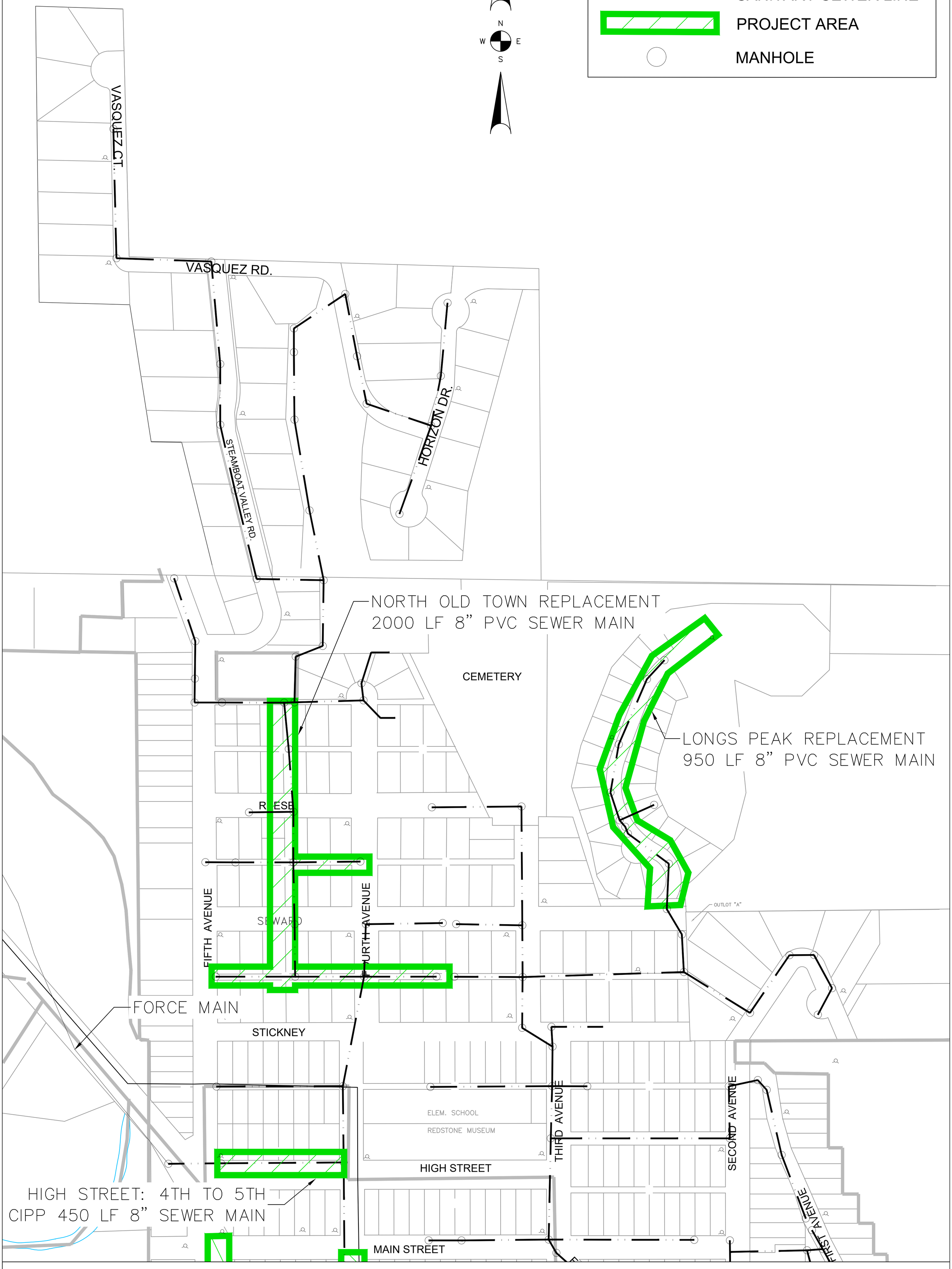

2016 CAPITAL IMPROVEMENT PROJECTS – SEWER
NORTH OLD TOWN AREA

SCALE 1"=150'

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303-293-8107 • 303-293-8106 (fax) • www.rgengineers.com

HIGH STREET

MAIN STREET

EAST MAIN STREET

FIRST AVENUE

BROADWAY

LIBRARY

RTD

SANDSTONE PARK

BROADWAY: 3RD TO 5TH
CIPP 1100 LF 8" SEWER MAIN

RAILROAD AVE.

TOWN HALL &

BULK PLAN

KELLING DR.

PARK DRIVE

PARK DRIVE REPLACEMENT
500 LF 8" PVC SEWER MAIN

EVANS STREET

FOURTH AVENUE
CIPP 750 LF 8" SEWER MAIN

PARK AVENUE

FOURTH AVENUE

BROADWAY: PARK AVE TO 2ND AVE
CIPP 700 LF 8" SEWER MAIN

PROSPECT

BOHN PARK

SECOND AVENUE

SEWER PLANT

EWALD AVENUE

FOURTH AVENUE

MEILY STREET

MEILY STREET REPLACEMENT
425 LF 8" PVC SEWER MAIN

COLORADO 7

SECOND AVENUE

2ND CT.

WELCH DRIVE

WELCH CT.

LYONS VALLEY PARK

LYONS
HIGH
SCHOOL

LVP FLG 7

N
W E
S

LEGEND

- SANITARY SEWER LINE
- PROJECT AREA
- MANHOLE

2016 CAPITAL IMPROVEMENT PROJECTS – SEWER
SOUTH OLD TOWN AREA

SCALE 1"=150'

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303-293-8107 • 303-293-8106 (fax) • www.rgengineers.com

LEGEND

SANITARY SEWER LINE

PROJECT AREA

MANHOLE

N

W E

S

OUTLOT E

EAGLE NEST LANE

EAGLE CANYON CIRCLE

EAGLE CANYON

EAGLE CANYON DR.

U.S. HIGHWAY 36/STATE HIGHWAY 66

EAGLE CANYON LIFT STATION

FORCE MAIN

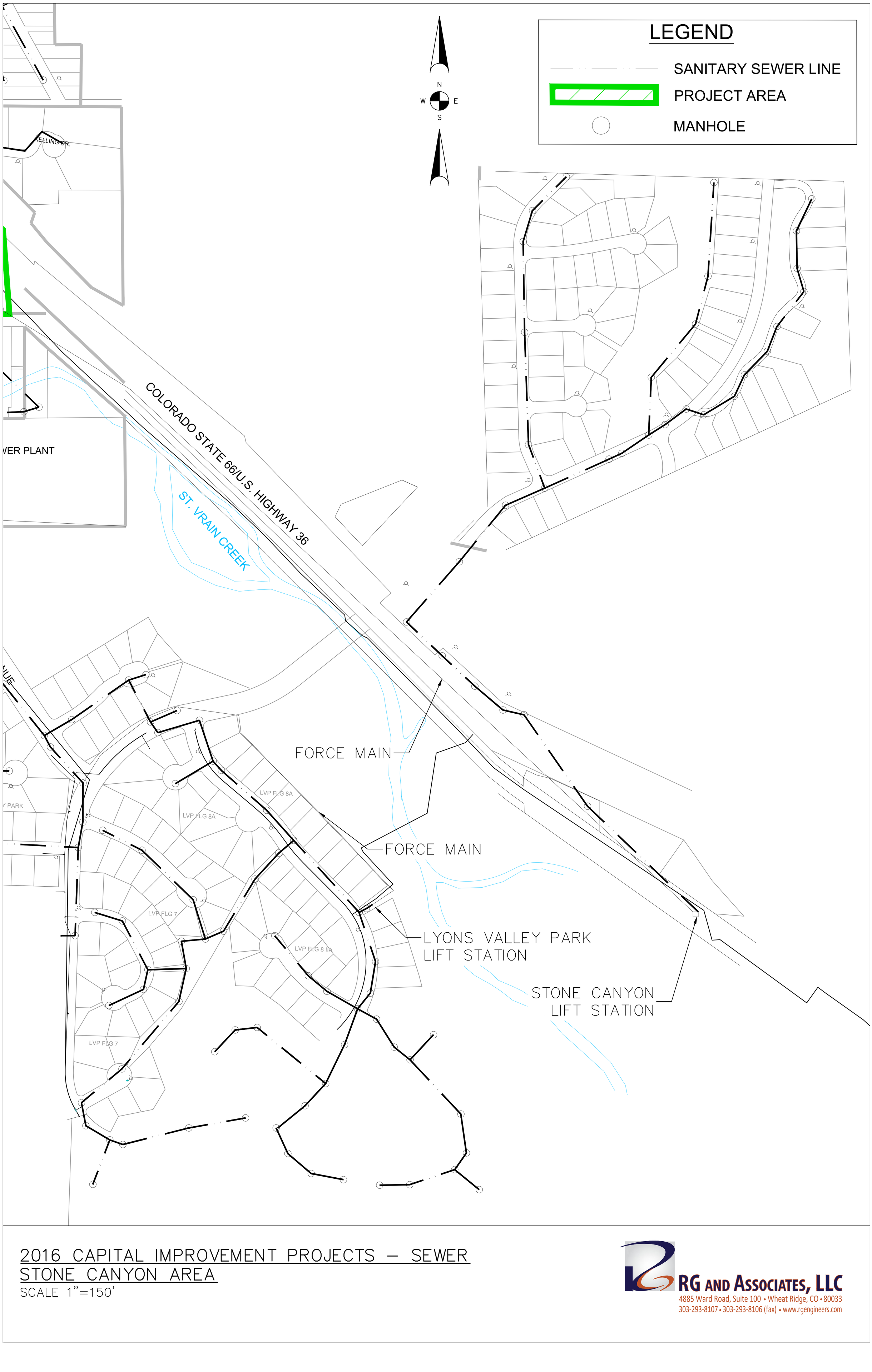
N. ST. VRAIN CREEK

APPLE VALLEY ROAD

2016 CAPITAL IMPROVEMENT PROJECTS – SEWER
APPLE VALLEY AREA

SCALE 1"=150'

RG AND ASSOCIATES, LLC
4885 Ward Road, Suite 100 • Wheat Ridge, CO • 80033
303-293-8107 • 303-293-8106 (fax) • www.rgengineers.com



2016 CAPITAL IMPROVEMENT PROJECTS – SEWER
STONE CANYON AREA

SCALE 1"=150'

RG AND ASSOCIATES, LLC
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APPENDIX G

CDPHE DISINFECTION REQUIREMENTS

(iii) If, in each month, for two consecutive months, the individual filter effluent turbidity monitoring results at the same filter are greater than (>) 2.0 NTU in two consecutive recordings collected 15 minutes apart, an exceedance occurs.

(A) No later than 60 days after the exceedance occurs, the supplier must arrange for a CPE to be conducted by the Department or by a Department-approved third party.

(B) No later than 120 days after the exceedance occurs, the supplier must submit the completed CPE report.

(C) The supplier is not required to arrange for a CPE and submit a CPE report if:

(I) A CPE has been completed by the Department or by a Department-approved third party within the last 12 months; or

(II) The supplier and Department are participating in an ongoing CTAP at the system.

(D) In addition to the reporting requirements specified in 11.8(2)(j)(i), if a CPE is required, the supplier must submit all of the following no later than the 10th of the month following the exceedance:

(I) That a CPE is required.

(II) The date the CPE was triggered.

(E) If the CPE indicates the potential for improved water system performance, the supplier must complete a CTAP.

(I) During the CTAP, the supplier must identify and systematically address plant-specific factors as outlined in the CPE and include them in a report submitted no later than 90 days after the completion of the CPE.

(iv) For systems using lime softening, the supplier may apply to the Department for higher individual filter effluent turbidity limits than the limits specified in this section, 11.8(2)(j), if the supplier can demonstrate that higher individual filter effluent turbidity limits are due only to lime carryover and not due to degraded filter performance.

11.8(3) Disinfection Treatment Technique Requirements

(a) Applicability for Disinfection Treatment Technique Requirements

(i) For all surface water systems, the supplier must comply with the disinfection treatment technique requirements specified in this section, 11.8(3).

(ii) When the Department determines that a groundwater source is under the direct influence of surface water, and therefore the system is reclassified as a surface water system, the supplier must comply with all of the following:

(A) Either Department-determined interim disinfection requirements or disinfection treatment technique requirements specified in 11.8(3)(b), no later than 60 days after written notification from the Department of the decision to change the source's classification; and

(B) All requirements specified in this section, 11.8(3), no later 18 months after written notification from the Department of the decision to change the source's classification or no later than when the filtration is installed, whichever is sooner.

(b) Treatment Technique Requirements for Disinfection

(i) The disinfection treatment technique requirements are as follows:

(A) The supplier must maintain disinfection treatment sufficient to ensure that the total treatment processes, including filtration and disinfection, achieve 99.9 percent (3-log) treatment of *Giardia lamblia* cysts and 99.99 percent (4-log) treatment of viruses, as determined by the Department.

(B) The supplier must maintain a residual disinfectant concentration at each entry point and throughout the distribution system.

(I) At each entry point, the residual disinfectant concentration cannot be less than (<) 0.2 mg/L for more than four hours.

(II) In the distribution system, until March 31, 2016, the residual disinfectant concentration cannot be undetectable in more than 5 percent of the samples collected in each month, for two consecutive months during which the system supplies water to the public.

(III) In the distribution system, beginning April 1, 2016, the residual disinfectant concentration must be greater than or equal to (≥) 0.2 mg/L.

(ii) No later than December 31, 2015, the supplier may apply to the Department for an extension for complying with the treatment technique requirements specified in 11.8(3)(b)(i)(B)(III).

(A) In the application, the supplier must include all of the following information:

(I) An explanation of why the supplier is unable to comply with the treatment technique requirements specified in 11.8(3)(b)(i)(B)(III).

(II) A distribution system disinfectant residual data analysis demonstrating the inability to comply with the treatment technique requirements specified in 11.8(3)(b)(i)(B)(III).

(III) An engineering report prepared by a professional engineer registered in the state of Colorado demonstrating that capital improvements are necessary to comply with the treatment technique requirements specified in 11.8(3)(b)(i)(B)(III).

(IV) A proposed schedule for completing the system modifications.

(B) The Department shall consider the following criteria when determining if an extension will be granted:

(I) The supplier submitted a complete application that included the information specified above;

(II) The supplier has complied with the monitoring requirements specified in 11.17 in the last 36 months; and

(III) The supplier has not incurred an MCL violation specified in 11.17(9) in the last 36 months.

(iii) The Department will only grant an extension for up to four years.

(iv) If the supplier receives written Department-approval for an extension, the supplier must:

(A) Continue to comply with the treatment technique requirements specified in 11.8(3)(b)(i)(B)(II) and is subject to the violation specified in 11.8(3)(d)(i)(B) until the capital improvements are completed or the extension expires, whichever comes first; and

(B) Comply with any Department-specified requirements.

(c) Monitoring Requirements for Disinfection Treatment Technique Requirements

(i) To determine compliance with the disinfection treatment technique requirements, the supplier must monitor the residual disinfectant concentration.

(A) At each entry point, the supplier must continuously monitor the residual disinfectant concentration.

(I) The supplier must record the lowest monitoring result each day.

(II) If there is a failure of the continuous monitoring equipment, the supplier must monitor the residual disinfectant concentration by collecting a grab sample no later than four hours after the equipment failure and continue collecting grab samples every four hours until the continuous monitoring equipment is returned to service.

(a) The supplier must resume continuous residual disinfectant concentration monitoring no later than five working days after the equipment failure.

(III) For systems supplying less than or equal to (≤) 3,300 people, the supplier is not required to monitor continuously if the supplier collects grab samples at the frequency specified in Table 11.8-II.

(a) If more than one sample per day is required, the supplier must collect the samples throughout the day. The sampling intervals are subject to Department approval.

(b) If any grab sample result is less than (<) 0.2 mg/L, the supplier must increase the monitoring frequency of the residual disinfectant concentration at that entry point to at least every four hours until the residual disinfectant concentration is greater than or equal to (≥) 0.2 mg/L.

TABLE 11.8-II MINIMUM GRAB SAMPLES

Population supplied by the system	Samples per day
≤ 500	1
501 – 1,000	2

1,001 – 2,500	3
2,501 – 3,300	4

(B) In the distribution system, the supplier must monitor the residual disinfectant concentration at the same time and at the same sampling locations that total coliform samples are collected under 11.17(3) until March 31, 2016, and collected under 11.16(6-7) beginning April 1, 2016.

(I) The supplier must measure the residual disinfectant concentration as free chlorine unless the supplier uses a disinfection process that results in a monochloramine residual disinfectant, then the supplier must measure the residual disinfectant concentration as total chlorine. If the supplier uses a different type of chemical disinfectant (e.g., ozone or chlorine dioxide), the supplier must measure the appropriate residual disinfectant concentration.

(II) For systems using both surface water and groundwater sources, the Department may allow the supplier to collect residual disinfectant concentration samples at locations other than the total coliform sampling locations if the Department determines that other locations are more representative of finished water quality in the distribution system.

(d) Treatment Technique Violations for Disinfection

(i) The following constitute disinfection treatment technique violations:

(A) At any entry point, the residual disinfectant concentration is less than (<) 0.2 mg/L for more than four hours.

(B) In the distribution system, until March 31, 2016, the residual disinfectant concentration is not detectable in more than 5 percent of the samples collected in each month, for two consecutive months that the system supplies water to the public.

(I) If the Department grants an extension under 11.8(3)(b)(ii), the supplier is subject to this violation after March 31, 2016 and until capital improvements are completed or the extension expires, whichever comes first.

(C) In the distribution system, beginning April 1, 2016:

(I) If the supplier collects greater than or equal to (≥) 40 residual disinfectant concentration samples per month, the residual disinfectant concentration is less than (<) 0.2 mg/L in more than 5 percent of the samples collected.

(II) If the supplier collects greater than (>) one but less than (<) 40 residual disinfectant concentration samples per month, the residual disinfectant concentration is less than (<) 0.2 mg/L in more than one sample collected.

(III) If the supplier collects greater than (>) one but less than (<) 40 residual disinfectant concentration samples per month, the residual disinfectant concentration is less than (<) 0.2 mg/L in more than 5 percent of the

samples collected in each month for two consecutive months that the system supplies water to the public.

(IV) If the supplier collects only one residual disinfectant concentration sample per monitoring period, the residual disinfectant concentration is less than (<) 0.2 mg/L.

(D) Any time the supplier fails to comply with the treatment technique requirements specified in 11.8(3)(b)(i)(A).

(e) Response to Disinfection Treatment Technique Violations

(i) In the event of an entry point disinfection treatment technique violation as specified in 11.8(3)(d)(i)(A), the supplier must:

(A) Notify the Department no later than the end of the next business day.

(B) Distribute Tier 2 public notice as specified in 11.33.

(ii) In the event of a disinfection treatment technique violation as specified in 11.8(3)(d)(i)(B-D), the supplier must:

(A) Notify the Department no later than 48 hours after the violation occurs.

(B) Distribute Tier 2 public notice as specified in 11.33.

(f) Reporting Requirements for Disinfection Monitoring

(i) If at any time the entry point residual disinfectant concentration is less than (<) 0.2 mg/L, the supplier must notify the Department as soon as possible but no later than the end of the next business day.

(A) The supplier must also report, no later than the end of the next business day, whether the entry point residual disinfectant concentration was restored to at least 0.2 mg/L within four hours.

(ii) For residual disinfectant concentration samples collected under 11.8(3)(c), the supplier must submit all of the following information no later than the 10th of the following month:

(A) For each entry point, the lowest daily residual disinfectant concentration result in mg/L.

(B) The date and duration of each period when the entry point residual disinfectant concentration fell below 0.2 mg/L and when the Department was notified of the occurrence.

(C) For distribution system residual disinfectant concentration samples until March 31, 2016:

(I) The number of sample results that were undetectable.

(II) The percentage of sample results that were undetectable for each of the last two months.

(D) For distribution system residual disinfectant concentration samples beginning April 1, 2016:

(I) The number of sample results that were less than (<) 0.2 mg/L.

(II) The percentage of sample results that were less than (<) 0.2 mg/L for each of the last two months.

(iii) If the Department determines that the supplier has submitted all the residual disinfectant concentration information as specified in 11.8(3)(f)(ii)(A-C) for at least 12 months and the supplier keeps records of the information, the supplier is not required to submit the lowest daily entry point residual disinfectant concentration results as specified in 11.8(3)(f)(ii)(A).

(g) Monitoring Requirements for Alternative Disinfection- Heterotrophic Bacteria

(i) In the distribution system, the supplier may monitor for heterotrophic bacteria, measured as Heterotrophic Plate Count (HPC), instead of residual disinfectant concentration.

(A) If the supplier is monitoring for heterotrophic bacteria instead of residual disinfectant concentration, heterotrophic bacteria concentrations less than or equal to (≤) 500 CFU/ml are considered to have a detectable residual disinfectant concentration for purposes of determining compliance with the treatment technique requirement specified in 11.8(3)(b)(i)(B)(II) and must be included with the reporting requirements specified in 11.8(3)(f)(ii)(C).

(B) If the supplier is monitoring for heterotrophic bacteria, the supplier is not required to comply with the requirements for the distribution system residual disinfectant concentration specified in this section, 11.8(3) if the Department determines that the supplier meets all of the following criteria:

(I) Providing adequate disinfection in the distribution system.

(II) Not capable of having a sample transported and analyzed for HPC by a certified laboratory within the required time and temperature conditions specified by approved analytical methods.

11.8(4) Disinfection Profiling

The purpose of disinfection profiling and benchmarking is to allow the supplier and the Department to assess whether a change in disinfection practices creates a microbial risk. The supplier must develop a disinfection profile, calculate a benchmark (lowest monthly inactivation) based on the profile, and consult with the Department before making a significant change to disinfection.

(a) Applicability and Definitions for Disinfection Profiling

(i) For new surface water systems or reclassified systems that now meet the applicability of this rule, applicability for this section, 11.8(4), is determined by evaluating TTHM and HAA5 sample results. Applicability must be determined no later than 12 months after the system is classified as a surface water system.

(A) The supplier must collect TTHM and HAA5 samples that meet the routine sampling requirements specified in 11.25(1)(c) and submit the results to the Department. Alternatively, the supplier may:

APPENDIX H

CDPHE STORAGE TANK RULE

(a) To composite gross alpha particle activity, combined radium-226 and radium-228, and uranium samples collected under 11.22, the supplier must comply with the requirements specified in this section 11.27(3).

(b) The supplier may composite samples from up to four consecutive quarters from a single entry point.

(c) The composite sample must be analyzed no later than one year after the first sample was collected.

(d) The Department shall consider the composite sample result as an average of the individual samples included in the composite sample to determine compliance with the MCLs and to determine the future sampling frequency.

(e) If the composite sample result is greater than (>) one-half (1/2) the MCL, the Department may require the supplier to collect additional quarterly samples before allowing the supplier to sample at a reduced frequency.

11.27(4) Compositing Samples for Lead and Copper Entry Point Samples

(a) To composite lead and copper entry point samples collected under 11.26, the supplier must comply with the requirements specified in this section 11.27(4).

(b) The supplier may composite samples from no more than five entry points.

(c) Compositing of samples must be performed by certified laboratory personnel.

(d) If the lead concentration in the composite sample is greater than or equal to (≥) 0.001 mg/L or the copper concentration in the composite sample is greater than or equal to (≥) 0.160 mg/L, the supplier must collect confirmation samples no later than 14 days after receiving notification of the composite result.

(i) Instead of collecting confirmation samples, the supplier may use one of the following:

(A) Duplicates of each original sample used in the composite sample.

(B) The original samples used in the composite sample, if a sufficient volume is available.

11.28 STORAGE TANK RULE

11.28(1) Applicability and Definitions

(a) For all public water systems that use finished water storage tanks, the supplier must comply with the requirements specified in this rule beginning April 1, 2016.

(b) “COMPREHENSIVE INSPECTION” means an internal and external storage tank inspection to identify sanitary defects that covers all aspects of the condition of the storage tank including but not limited to sanitary, structural, and coating systems conditions, as well as security and safety concerns.

(c) “FINISHED WATER STORAGE TANK” means a tank or vessel owned by the supplier that is located downstream of the entry point and is not pressurized at the air water interface. Pressurized storage tanks are not included in the definition of finished water storage tanks.

(d) "PERIODIC INSPECTION" means a visual external storage tank inspection that is typically performed by the supplier to identify evident sanitary defects (e.g., lack of screens on vents).

11.28(2) Written Plan for Finished Water Storage Tank Inspections Requirements

(a) The supplier must develop and maintain a written plan for finished water storage tank inspections which must include all of the following:

(i) An inventory of finished water storage tank(s) including all of the following information for each finished water storage tank:

(A) Tank type and construction materials (e.g., elevated, buried, etc.).

(B) Volume in gallons.

(C) Approximate dimensions.

(D) Location.

(E) Number of inlets, outlets, overflows, hatches, and vents.

(F) Coating systems.

(G) Date put in service.

(H) Rehabilitation and major maintenance history.

(ii) The methods for performing and documenting periodic and comprehensive inspections for each finished water storage tank including identification of qualified personnel to perform periodic and comprehensive inspections.

(iii) The schedule for performing periodic and comprehensive inspections for each finished water storage tank.

(A) Periodic inspections of each finished water storage tank must be scheduled at least quarterly or on an alternative schedule.

(B) Comprehensive inspections of each finished water storage tank must be scheduled at least every five years or on an alternative schedule.

(C) If the supplier schedules periodic or comprehensive inspections on an alternative schedule, the supplier must provide justification for the alternative schedule in the written plan for finished water storage tank inspections.

(iv) The timelines for correcting typical storage tank sanitary defects that the supplier will use to develop corrective action schedules. The supplier must at least address timelines for the following typical sanitary defects: improper screening or protection on vents and overflows, inadequate hatches, and unprotected openings.

(b) The written plan for finished water storage tank inspections is subject to Department review and revision.

11.28(3) Treatment Technique Requirements for Storage Tanks

(a) The supplier is prohibited from using uncovered finished water storage tanks.

(i) "UNCOVERED FINISHED WATER STORAGE TANK" means a tank, reservoir, or other facility used to store water that will undergo no further treatment except residual disinfection and that is open to the atmosphere.

(b) The supplier must operate and maintain finished water storage tanks so that they are free of sanitary defects.

(c) The supplier must perform periodic and comprehensive inspections of each finished water storage tank.

(d) The supplier must implement the written plan for finished water storage tank inspections.

(e) If any sanitary defects are identified during a periodic or comprehensive inspection, the supplier must develop and implement a corrective action schedule for correcting each sanitary defect.

(f) The supplier must develop an inspection summary no later than 60 days after each completed inspection that includes all of the following information:

(i) The date and type of inspection performed.

(ii) Inspection findings and tank conditions.

(iii) Any sanitary defects identified during the inspection.

(iv) If sanitary defects are identified, the corrective action schedule for correcting sanitary defects.

(v) If sanitary defects are identified, the corrective actions completed and the associated completion dates.

11.28(4) Violations of the Storage Tank Rule

(a) If the supplier fails to develop or maintain an acceptable written plan for finished water storage tank inspections, a storage tank rule violation occurs.

(b) The following constitute treatment technique violations:

(i) The supplier uses an uncovered finished water storage tank.

(ii) The supplier fails to perform or document a periodic or comprehensive inspection.

(iii) The supplier fails to implement the written plan for finished water storage tank inspections.

(iv) The supplier fails to complete or document corrective action or follow a corrective action schedule for any sanitary defects identified during a periodic or comprehensive inspection.

11.28(5) Response to Violations of the Storage Tank Rule

(a) In the event of a storage tank rule violation, the supplier must:

(i) Notify the department no later than 48 hours after the violation occurs.

(ii) Distribute Tier 3 public notice as specified in 11.33.

(b) In the event of a treatment technique violation, the supplier must:

(i) Notify the Department no later than 48 hours after the violation occurs.

(ii) Distribute Tier 2 public notice as specified in 11.33.

11.29 RESERVED

11.30 RESERVED

11.31 RESERVED

11.32 RESERVED

11.33 PUBLIC NOTIFICATION RULE

11.33(1) Applicability and Definitions

(a) For all public water systems, the supplier must comply with the public notice requirements specified in this rule for the violations or situations specified in Table 11.33-I.

TABLE 11.33-I VIOLATION CATEGORIES AND OTHER SITUATIONS REQUIRING A PUBLIC NOTICE	
CPDWR violations	Failure to comply with an MCL or MRDL
	Failure to comply with a treatment technique requirement
	Failure to perform required water quality monitoring
	Failure to comply with required testing procedures
Variance or exemption under 11.43	Operation under a variance or an exemption
	Failure to comply with the terms and schedule of any variance or exemption
Other situations requiring public notice	Occurrence of a waterborne disease outbreak or other waterborne emergency
	Exceedance of the elevated nitrate MCL by non-community water systems, when granted Department approval as specified in 11.18(2)(d)
	Exceedance of the secondary maximum contaminant level for fluoride
	Availability of unregulated contaminant monitoring data
	Repeated failure to sample the source water for *Cryptosporidium*
	Failure to determine bin classification
	Groundwater systems with a waiver from disinfection requirements under 11.13
	Significant deficiencies identified at non-community groundwater systems
	Other violations and situations determined by the Department to require a public notice

(b) Public notice requirements are divided into three tiers based on the seriousness of the violation or situation and any potential public health effects. Each tier has different requirements. The tiers are as follows: