

5. BASINS

5.1 CACHE LA POUFRE RIVER BASIN

The Cache la Poudre River drains the major portion of northern Larimer County and northwest portion of Weld County. Municipal discharges in the basin include Ault, Eaton, Ft. Collins, Fox Acres, Greeley, Severance, Wellington, Windsor, and the Boxelder and South Ft. Collins Sanitation Districts. The Cache la Poudre River Basin map following this section highlights the basin and identifies the wastewater treatment facilities (WWTF) located within it.

MAJOR SOURCES

Ault

The Town of Ault's treatment plant is located one-half mile south of Town. In 2007, the Town completed improvements to the treatment plant that increased the hydraulic capacity to 0.25 mgd and the organic capacity to 500 lbs. /day BOD₅. The improvements included construction of a new enclosed headworks facility, deepening the pond and dividing it into three cells, lining the ponds, adding diffused aeration and incorporating a disinfection system.

Boxelder Sanitation District

Since 1965, this special district has served an area located east and north of Ft. Collins, along the east side of LeMay Avenue and northeast of the Cache la Poudre River. The Boxelder Sanitation District (Boxelder) treatment plant is located at the confluence of Boxelder Creek and the Cache la Poudre River and is utilized to serve customers within its service area.

Through formal and informal arrangements, it is expected that in the future there will be consideration given to cooperative planning with possibly both the Town of Windsor and the South Ft. Collins Sanitation District on the south, with the Town of Wellington on the north, and with the Town of Severance on the east to determine the most economical and expeditious manner to serve properties of interest. Boxelder will continue cooperation with other wastewater treatment entities.

In 2007, at the request of NFRWQPA, Boxelder prepared and submitted for NFRWQPA approval a collection system plan for an area of Boxelder's 208 service area, the Drake Interceptor Basin Utility Plan. The plan covers collection system planning for areas east of Interstate 25 (I-25) that could be served by the existing Drake Interceptor gravity sewer line that crosses I-25.

In 2010 District submitted a Utility Plan for review and consideration by NFRWQPA. This Utility Plan received approval in July 2010. It included support information for a new mechanical treatment facility that will meet required effluent limits and provide capacity well into the future. The new facility will include an influent lift station, screening and grit handling facilities, extended aeration using oxidation ditch(s), secondary clarifiers, recycle and waste activated sludge pumping facilities, ultraviolet light disinfection, and aerobic digesters. Construction of this facility is expected to begin in 2011 with start-up in 2013. In addition to the treatment facilities, the Utility Plan also outlined the existing collection system of the District and included a detailed capital improvements plan for the collection system.

Water Quality Monitoring: Since 1996, Boxelder has been carrying out ambient water quality monitoring (physical, chemical, microbiological) of Poudre River segments COSPCP11, COSPCP12 and COSPCP13b. Boxelder intends to continue doing so.

Boxelder has also become party to a multi-party agreement involving the City of Fort Collins, City of Greeley, Boxelder Sanitation District, South Fort Collins Sanitation District, Town of Windsor and the Kodak Colorado Division to carry out coordinated physical, chemical, microbiological and aquatic life monitoring on the main stem of the lower Poudre River (segments 11 and 12).

Eaton

The treatment facility for the Town of Eaton serves the town as well as the East Eaton Water and Sanitation District. The District contains 52 residences. Two large subdivisions have been approved in the southern portion of Eaton, Governors Ranch and Maplewood, and lift stations are now in place for both. The current facility is an extended air activated sludge Aero-Mod plant with a capacity of 0.75 mgd. This plant will provide the town with sufficient treatment capacity well into the future.

Fort Collins

The City of Fort Collins is the designated management agency for the area within its Urban Growth Area (UGA) boundaries. An intergovernmental agreement (IGA) between Larimer County and Fort Collins specifies the responsibilities of each in relation to approval of developments that are in the UGA and not within the city limits. Fort Collins and Larimer County accepted the responsibility of designated management agencies in 1978. The IGA establishing the UGA was adopted on May 1, 1980, and last revised on September 7, 1999. IGAs have also been adopted between the city and special districts in its area of jurisdiction.

Fort Collins has two municipal wastewater treatment plants. The Mulberry Water Reclamation Facility (MWRf) has a permitted capacity of 6 mgd for discharge to the Cache la Poudre River, and influent flows can be diverted to the Drake Water Reclamation Facility (DWRf) via an interceptor. Presently MWRf is being base loaded at a flow of approximately 3 to 5 mgd. Excess flows are diverted to DWRf.

DWRf has a total permitted capacity of 23 mgd. DWRf can discharge effluent to the Cache la Poudre River, Fossil Creek irrigation ditch or to an on-site pump station owned by the Platte River Power Authority for re-use as cooling water at the power plant 20 miles north of Fort Collins.

In 2009 the City completed a Utility Plan which outlines necessary improvements to the treatment facilities through the planning period. Major capital projects recently completed include odor control improvements at the Drake facility and a major renovation at the Mulberry facility. The renovation will include changing the treatment process from the 60-year old trickling filter/activated sludge process to a multi-stage biological nutrient removal activated sludge type process to meet more stringent regulatory requirements. In addition, a new odor control facility was added. At the direction of CDPHE, 3-stage activated sludge process is under design for DWRf's north process trains to provide additional redundancy for MWRf. Construction is anticipated for 2012; in addition, 3-stage improvements are scheduled for DWRf's south process train in 2015 to comply with CDPHE's redundancy requirements. No major capital projects are currently planned for the collection system. Extensive I&I monitoring is currently being conducted.

All process sludges from MWRf are transferred to DWRf via a 42" pipe and mixed with the rest of the DWRf influent. At DWRf, primary sludge and scum are cleaned by the sludge strain press and

then conveyed to the three anaerobic digesters for stabilization. Intermediate sludge and waste activated sludge are thickened in the dissolved air floatation thickener (DAFT) before being sent to the digesters. Digested solids are dewatered via centrifuges and the remaining biosolids are trucked to the Meadow Springs Ranch biosolids facility where they are land applied. Ferric chloride is added to the digesters to reduce hydrogen sulfide levels in the storage tanks and in the dewatering building. It is also possible to add ferric to the centrifuges for struvite control. Assorted polymers are added to the DAFT, belt presses, and centrifuges to enhance the thickening and dewatering processes. A Class B biosolids product is produced from the solids treatment process.

Greeley

The City of Greeley is the designated management agency for the city and some adjacent unincorporated areas within Weld County. There has been no formal agreement adopted between Greeley and Weld County pertaining to the respective responsibilities of each in the unincorporated areas that are within management boundaries of the City. An IGA between Greeley and Cities of Windsor and Evans has been adopted to address areas within each community where a sanitary sewer basin could flow via gravity to a treatment facility not owned or operated by that city.

In 1996 Greeley expanded its Water Pollution Control Facility to a permitted capacity of 14.7. In the fall of 2005, ultra violet (UV) disinfection was added to the facility. In addition, the plant has the capability of nitrification and denitrification. The City of Greeley has completed a comprehensive biosolids management and treatment study and may implement a Class A biosolids management program in the near future.

Greeley has in place an aggressive collection system replacement and rehabilitation program that has greatly reduced infiltration and inflow (I/I) to the system. The program has resulted in reducing the amount of storm and ground water the treatment facility has to treat and thus has delayed any required facility expansion due to hydraulic loading.

In 2009 the City completed and received approval of a Utility Plan. The plan outlined treatment system and collection system improvement for both the short term (5 years) and long term (20 years). The current treatment facility has adequate capacity to handle the projected flows through the 20 year planning period; however potential for changes to effluent limit were evaluated. In addition to the Utility Plan, the City also completed a Sanitary Sewer Master Plan in 2008. The deficiencies identified in this plan for the collection system have been included in the Capital Improvements Plan.

Severance

In 1979, Severance constructed a sewage collection and treatment system. The treatment facility consisted of an aerated stabilization pond and a polishing pond with chlorination prior to discharge. In 1999 the town modified the plant to a three cell system with aeration in the first two cells followed by a settling cell, relined the existing ponds, built a new chlorine contact basin, and installed flow meters. In 2005, the town completed an expansion and improvements of the plant which included covering the first two lagoons and providing additional aerators and mixers. The town has signed an agreement with the Town of Windsor to treat wastewater in the future from the southern end of the planning area. Severance has completed construction of a trunk sewer to Windsor's East Side Trunk Sewer (WESTS) and has purchased 1 mgd of capacity in the WESTS. As the Severance lagoon facility nears capacity, the town will begin diverting flow into the trunk sewer which will be treated at the Windsor wastewater treatment facility. Once the Severance trunk sewer reaches capacity, the town will have the option to begin planning for a future treatment facility to replace the lagoon facility or a new parallel interceptor pipeline.

The town has also approved the construction of the Saddler Ridge Metro District treatment facility which will serve the Saddler Ridge PUD west of WCR 19 and north of SH 14. The construction of this facility was completed in 2010 with a Phase I capacity of 0.05 mgd. As the plant reaches capacity the town and the District will evaluate the expansion of the plant to the Phase II capacity of 0.1 mgd.

As development warrants, a sewer collection pipeline will eventually be constructed from the existing lagoon facility northward and ultimately to the Saddler PUD to serve development that occurs north of the existing lagoons. The length and timing of this pipeline will be development driven. Each time the a trigger to increase the SRMD facility is reached, the economics of constructing the length of the pipeline necessary to fully connect the Saddler PUD to the existing lagoon facility (or new treatment facility) will be compared to the expansion of the SRMD facility.

South Fort Collins Sanitation District

The South Fort Collins Sanitation District provides wastewater services to an area of about 30 square miles between the cities of Fort Collins and Loveland. In addition to providing services to the unincorporated areas of Larimer County, portions of each city's urban growth area are served.

The treatment process is an activated sludge nitrification system, final clarifiers, effluent filters, UV disinfection, and a Cannibal solids reduction system. The Cannibal solids reduction system is a process that will reduce the amount of bio-solids produced, thereby reducing disposal requirements. The solids that are produced will then be dewatered and air dried prior to land application and or disposal at the landfill.

The next phase of the reclamation facility will duplicate the initial 4.5 mgd plant, which will result in an ultimate future plant capacity of 9.0 mgd. The process planned will be capable of providing ammonia nitrogen removal as well as phosphorus removal if required in the future.

Timnath

The Town of Timnath has requested that they be designated as a management agency for their corporate limits and their urban growth management area (GMA). Because there is no intergovernmental agreement with Larimer County concerning a GMA in place yet, the management agency designation will pertain to the town boundaries at this time. When an IGA with Larimer County is approved, the designation can be considered for the GMA.

Timnath is currently provided sewer service by both the South Fort Collins Sanitation District (mid and south portions of Town and the GMA) and the Boxelder Sanitation District (north portions of Town and GMA). The intent of the Town it to extend sewer service to existing structures as well as future developments utilizing the appropriate sewer district based on serviceability.

Wellington

The new wastewater treatment facility for the Town of Wellington became operational in 2003. The new system is sized for an ultimate design flow of 1.2 mgd, with the first phase of construction completing a 0.45 mgd system that can be readily expanded to 1.2 mgd. Recent information regarding I/I indicates that the town, through their ongoing efforts, has reduced average I/I by about 30%, bringing per capita flows down to 93 gpd in 2000.

As per terms of an IGA with Boxelder Sanitation District, the town's service area will overlap that of the District in Sections 7, 8, 14, 15, 16, and 17, T8N, R68W, and in section 12, T8N, R69W.

Windsor

The Town of Windsor is a Home Rule municipality located in southwestern Weld County and was incorporated in 1890. Presently, the Town has a population of approximately 19,000. The current wastewater utility service area boundary encompasses roughly 32 square miles. In addition, the Town has a formal IGA with the Town of Severance to provide treatment capacity for up to 1.0 MGD of wastewater in their plant for future flows from the Severance service area.

Windsor provides service for approximately 4,900 domestic and commercial taps. The Windsor system contains several miles of sewer lines varying in size from six inches to thirty-six inches in diameter. The existing wastewater treatment facility incorporates an activated sludge process with a capacity of 2.8 MGD which was constructed in 1995.

MINOR SOURCES

Abbey of St. Walburga

The Abbey of St. Walburga is located in the Virginia Dale area of northern Larimer County just a few miles south of the Wyoming state line. This facility is fairly new with the original site approval (#4385) being done in 1998. This approval included treatment for the main Abbey as well as a guest wing. In 2010, CDPHE approved a Site Application for the expansion of the facility.

Ben Delator Boy Scout Ranch

The Ben Delator Boy Scout Ranch does not currently have a permitted wastewater treatment facility at the ranch. The existing buildings at the ranch have been served by a lagoon and individual septic systems. Due to problems with the lagoon system, the Ranch has mostly abandoned this facility and is currently treating wastewater from the dining hall by capturing and hauling it offsite for treatment. In 2010, the Ranch received Site Application approval for a new treatment facility that would serve the Coral Rick dining hall, Camp Jeffery shower facility, the pit toilets throughout the camp, and 4 septic systems located in the general vicinity of the treatment facility. Construction is planned for fall of 2011.

The ranch is typically fully operational during the months of June and July and some of August (8 to 10 weeks of the year). In addition, the ranch staff arrives several weeks in advance of the scouts and remains for several weeks after the ranch closes for the summer.

Buckhorn United Methodist Camp

The Buckhorn United Methodist Camp is located in the Rist Canyon area of Larimer County. The camp does not currently have a discharge permit for the treatment facility serving the existing structures at the camp; however, a site application for a new treatment facility to serve a new lodge/dining hall was approved in 1998.

Davies Mobile Home Park

Davies Mobile Home Park is located just south of Wellington on the east side of I-25. The wastewater facility serves the mobile home park which consists of 26 spaces. The site application for this facility was approved in 1994. Although this area was located within the service area boundary of Boxelder Sanitation District, it was not feasible at that time to connect.

Fox Acres

Fox Acres is a recreationally-oriented development, primarily for second homes, located in sections 22, 27, and 28, T10N, R73W, just north of the Red Feather Lakes area. It contains lots for home building, condominiums, and a golf course and clubhouse-restaurant. A PVC pressure sewer serves the subdivision, and wastewater collected is treated through the Community Services Corporation's facilities. Those facilities include an aerated lagoon, polishing pond, and chlorination. The aeration lagoon is partitioned into four cells, with six aerators in the first cell and two in the second cell. These are submerged turbine-type aerators. The fourth cell is used for settling. Discharge is to an ephemeral tributary to Columbine Creek and then to North Lone Pine Creek in the SE ¼ of Section 22. These waters are part of Segment 8 of the Cache la Poudre River. There are potentially 259 domestic connections to the sewer system at build out plus the clubhouse. Build out is not expected for more than 20 years. The company is currently in the process of applying for a re-rating of the plant capacity from 0.035 mgd to 0.07 mgd.

Glacier View Meadows

Glacier View Meadows is a rural mountain community located between Livermore and Red Feather Lakes. There are two permitted treatment facilities serving Glacier View Meadows. One system serves the 12th filing of the subdivision and the other system, installed in 2009, serves the 4th, 7th, and upper 8th filings. Other areas of the subdivision were developed prior to permit requirements. The flow to the facilities is 100% domestic.

Harvest Farm – Denver Rescue Mission

Harvest Farm is a seasonal camp operated by the Denver Rescue Mission. The farm has dormitory style housing with a kitchen that is served by the wastewater facility. The facility was designed for average flows from 50 campers, with the ability to expand the facility to accommodate 100 campers in the future.

High Country Estates

High Country Estates is a subdivision located in the Red Feather Lakes area. The wastewater facility serving the subdivision does not currently have a discharge permit; however, the facility has received site application approval (#3696). This facility was designed to serve the 25 residences in the subdivision as well as 4 commercial properties.

Laramie River Guest Ranch

The Laramie River Guest Ranch is located in northern Larimer County close to the Wyoming state line. The wastewater facility serves the lodge, which includes a commercial kitchen and 7 guest rooms. There is also a smaller septic system (permitted through the county) that serves the cabins.

Magic Sky Ranch Girl Scout Camp

The Magic Sky Ranch Girl Scout Camp is located north of Red Feather Lakes Road approximately 6 miles southeast of the Red Feather Lakes community. Separate individual-sewage-disposal systems or privies serve some buildings at the ranch. New development consisting of cabins, dining hall, activity center, welcome center, health care center, manager housing, equestrian facilities, and maintenance garage are served by the central treatment system.

Pine Lake Village

Pine Lake Village is a mobile home park with 34 homes sitting on approximately 36 acres and is located off Highway 14 east of Ft. Collins. Approximately 7 acres of the site are currently being used for the mobile home park with expansion plans on hold. The owners are also exploring the

possibility of donating a portion of the raw land as a conservation easement and/or development of a storage facility.

Pingree Park Campus – Colorado State University

The Pingree Park Campus is part of the Colorado State University. The campus includes a conference center with overnight accommodations. The conference center has a capacity of 300 persons and has a working staff of 20 however the overall capacity is limited by the number of people the dining hall is able to serve. The campus is used seasonally from May through the third week in October. CSU has proposed improvements to the existing treatment system that would improve effluent quality and accommodate the connection of additional buildings to the central treatment system in the future.

Shambhala Mountain Center

The Shambhala Mountain Center (formerly the Rocky Mountain Dharma Center) is a mountain retreat center located in the Red Feather Lakes area of Larimer County. The SMC offers programs on Buddhist meditation, yoga, and other disciplines. SMC is limited to 450 visitors and staff on the main campus, plus an additional 80 people on the Red Feather Campus during peak months (June to September). In 2011 the Center received Site Application approval for the expansion of the treatment facility to a design flow capacity of 0.033 mgd and 117 lbs. BOD₅/day. This capacity of the new facility will also allow for the connection of additional existing building to the central treatment system.

Sky Ranch Lutheran Camp

The Sky Ranch Lutheran Camp is a 117 acre camp located in the Pingree Park area of Larimer County. Youth occupy the camp mainly during the summer season; however weekend retreats and day events are scheduled in the spring and fall. The facility does not currently have a discharge permit, however the facility has received site application approval from the CDPHE (approval #4719).

INDUSTRIAL

Anheuser-Busch

The Anheuser-Busch Incorporated brewery in Ft. Collins produces wastewater which is disposed of in one of two ways. It is either pumped to Nutri-Turf, a subsidiary of Anheuser-Busch Companies, for irrigation or pumped to the City of Ft. Collins Drake Water Reclamation Facility for treatment under a pretreatment contract. All of the effluent goes to Nutri-Turf during the summer, while in the winter about one-half of the effluent is treated by the City and the remainder goes to Nutri-Turf.

Carestream

Carestream Health Inc. purchased the treatment facility previously own and operated by Eastman Kodak. Carestream is an industrial complex that manufactures photographic products generating industrial wastewater, which includes film support production, film and paper sensitizing, and silver recovery. There are several individual pretreatment units that are used on processes prior to discharge to the main treatment plant. Those include acid regeneration, silver recovery, air stripping, and elementary neutralization.

The main treatment plant consists of two parallel-aerated lagoons, two polishing lagoons, and three multi-media rapid sand filters. The first two lagoons add oxygen and provide mixing to ensure

adequate BOD removal; the second lagoons are used primarily for solids settling. When necessary, aerators are used to maintain minimum dissolved oxygen levels for odor control. The filters, with polymer added to improve efficiency, are used to remove particulates. The effluent from the sand filters is discharged to the west storm drainage ditch which flows to Segment 12 of the Cache la Poudre River.

Colorado Division of Wildlife

The Division of Wildlife operates 3 fish hatcheries under permit in the region. They are the Bellevue, Watson, and Poudre Hatcheries. Specific information about each of the hatcheries can be found on the specific data pages.

Front Range Energy

Front Range Energy is an ethanol plant located east of the Town of Windsor.

Leprino Foods

Leprino Foods is constructing a new cheese and whey plant on the east side of the City of Greeley. The plant will be served by an onsite wastewater treatment facility which is also currently under construction. The company anticipates that facility will begin start up in November 2011. Tier 1 of the treatment plant will accommodate the facility during the first two phases of operation at the facility. A second tier will be added to the treatment facility in 2012-2013 to accommodate the final phase of operations.

Swift Beef – Lone Tree Facility

The Swift Beef – Lone Tree WWTF treats wastes from Swift Beef's beef and lamb packing plants in Greeley. The permit for the facility has stringent ammonia and nitrate limitations and has resulted in large capital and operating expenditures by the company. Residual chlorine limits have also been lowered significantly, and bio-monitoring is required. Over \$10 million in capital costs have been spent for improvements.

5.2 BIG THOMPSON RIVER BASIN

The headwaters of the Big Thompson River are in Rocky Mountain National Park between the Town of Estes Park and the Continental Divide. After leaving the Big Thompson Canyon, the river flows by Loveland, Johnstown, and Milliken before joining into the South Platte River near La Salle. The Little Thompson River, a major tributary, converges with the Big Thompson at Milliken. Municipal discharges in the basin include the Estes Park and Upper Thompson Sanitation Districts, Loveland, Johnstown and Milliken to the Big Thompson River as well as Berthoud and Johnstown to the Little Thompson River. The Big and Little Thompson River Basin map following this section highlights the basins and identifies the wastewater treatment facilities located within them.

MAJOR SOURCES

Berthoud

Berthoud's current sewer service area includes the town as well as some adjoining areas, including an area east of town to I-25 and the area north of town that was formerly the South Loveland Sanitation District. That district was disbanded, and Berthoud assumed the responsibility of the service in 1986.

Infiltration from high ground water during the irrigation season has been a problem in the past. Slip-lining the worst sections has been successful in reducing excessive infiltration. Additional line replacement and manhole reconstruction occurs on an ongoing basis.

In 2004, a new wastewater plant serving the main areas of Berthoud was brought on line. This plant was also added onto an existing biosolids digester and digested sludge is hauled by a contract hauler. The new plant is able to treat 2 mgd.

In addition to the new facility serving the main area of Berthoud, a conditional plant serving the Serenity Ridge subdivision was brought on line in 2005. This facility was recommended for approval with the condition that it be abandoned when the Berthoud Regional WWTF is built near I-25. The Town of Berthoud received a recommendation for approval from NFRWQPA in January 2005 for the Regional WWTF which is proposed to be built in the SE ¼, SW ¼, Section 14, T4N, R68W. The town is proposing an activated sludge facility with a hydraulic capacity of 0.5 mgd. As part of the recommendation for approval, the Towns of Berthoud and Johnstown developed an IGA to ensure the regional intent of that facility. Because the rate of development has slowed dramatically in the last few years, construction of this facility has not yet begun.

Berthoud Estates

The treatment plant at Berthoud Estates originally consisted of two aerated lagoons, a polishing pond, and chlorination. In 1993, it was modified to make the center lagoon an intermittent sand filter. In the summer, wastewater is treated through the first aerated lagoon and then discharged through the sand filter in the second lagoon; while in the winter, wastewater is treated through the first and third aerated lagoons before discharge. The plant now serves 183 taps in both the Berthoud Estates and Foothills Estates subdivisions. Both subdivisions are completely built out.

The discharge began in June 1982 and has had some problems in meeting effluent limits for TSS. The plant has been granted a waiver of the 30/45 mg/l TSS limits to 75/110 mg/l because it is a small lagoon system discharging to an intermittent stream. In 2004 a new influent flow meter was installed and a new aerator was purchased as a standby unit in the event of a failure. New lab equipment, including a pH meter and D.O. meter, was also purchased and installed in 2004.

Estes Park Sanitation District

The Estes Park Sanitation District (EPSD) was formed in 1940 and currently serves 1,278 single family dwellings or full size condominiums, 452 smaller multi-family units, and 310 commercial taps. Since EPSD does not fall within a defined census boundary, a residential count of 3,564 residents is based on a formula provided by the Town of Estes Park. Annualized commercial flow contributes an additional equivalent of 3,600 residents. A significant portion of the commercial flow occurs during the summer tourism season. Peak facility flows associated with tourism occur in July or August. During 2010, June represented the greatest 30-day average at 0.766 mgd. The District annually anticipates peak flow of approximately 60% of capacity. While the District has experienced growth, the lack of available land has kept the growth rate very manageable. The biggest potential for growth going forward will be in-fill housing and redevelopment of existing parcels. This process has already begun, but so far has not significantly increased flows to the facility. An ongoing I/I program analyzes troublesome or aging collection lines and approximately 2,000 to 2,500 feet of these lines are replaced annually. This program continues to offset increased development demand with decreased infiltration levels. In addition, the program has significantly reduced backups or plugs in service mains.

The original treatment facility was built in 1964 and includes plant processes of flow equalization, activated sludge secondary treatment, clarification, chlorination / dechlorination and aerobic sludge digestion. Discharge is to Segment 2 of the Big Thompson River just west of Lake Estes. In 2001 and 2002, improvements were made to the facility to allow for increased efficiency and flexibility. The net result was a system that removes more suspended solids and metals; lowered effluent ammonia, phosphorus, and BOD; and increased pH. Chief concerns for the District are copper and zinc restrictions, possible nutrient limits and effluent temperature requirements in future discharge permits. Since 2005 the District has increased SCADA automation to better monitor and control operations. More work is necessary in this area. This trend will continue. The current discharge permit was issued on 10/31/2009.

The District utilizes aerobic sludge digestion. Biosolids are de-watered to 18 – 20% prior to land application by contractors in Larimer and Weld Counties. Annual production is approximately 100 dry tons.

Johnstown

The Town of Johnstown currently has two wastewater treatment plants serving their 208 area. Johnstown expanded the Central Plant in 2004 to a phase I design capacity of 0.75 mgd, with a second phase to 1.50 mgd and 3,200 lbs./day BOD₅ when needed. Minimal work is required for this expansion.

The Low Point Plant became operational in August 2005 and discharges to the Big Thompson River. In addition to these two facilities, the Town had also planned a third facility, the Cross Point Plant, to serve the southwest portion of the 208 area. The Cross Point Plant is now planned for construction and operation by the Town of Berthoud and will be called the Berthoud Regional WWTF. In 2005 NFRWQPA recommended for the approval of this facility however, given the significant decline in development this plant has not been constructed yet.

In 2009, the Town completed a Utility Plan which outlines facility needs through the planning period. In addition, collection system improvements for the entire 208 WUSA through the planning period are also included in the plan.

Loveland

The City of Loveland is the designated management agency for the area within its UGA boundaries. An IGA exists between Loveland and Larimer County. This IGA sets forth responsibilities of both the city and county concerning development in the UGA. Loveland accepted the designation as management agency in 1978 when this plan was originally adopted.

In 1998 CH2M Hill completed an Incremental Expansion Study of the wastewater treatment plant. This study identified 12 capital projects needed for the plant to achieve a rated capacity of 12.0 mgd. As a result, from 2002 to 2007, the City completed a series of capital improvement projects to increase the treatment capacity and improve water quality. In 2004, the City completed an \$8.5 million project which included a major upgrade to the aeration basins and converted the chlorine disinfection system to ultra-violet radiation. This project increased the hydraulic capacity from 8.0 mgd to 10.0 mgd and organic capacity from 12,500 lbs. BOD₅ / day to 20,236 lbs. BOD₅ / day. In 2007, the City completed a \$3.5 million improvement which included the addition of a third secondary clarifier, RAS / WAS / Scum pumping systems, aeration lift pump station expansion, and anaerobic digester improvements. A detailed list of capital improvement projects has been included in the City's Utility Plan which was completed and approved in 2010.

Loveland was issued its current CDPS permit in December 2010. The city also implemented a complete industrial pretreatment program during 1988. Approximately 2% of the flow volume comes from industrial dischargers. Additionally, the City has had a bio-monitoring program underway since 1986.

Milliken

The new plant, which came online in 2005, was designed to meet the effluent limits set by the Colorado Department of Public Health and Environment.

Upper Thompson Sanitation District

The Upper Thompson Sanitation District serves approximately 4,938 service connection in an area of about 9 square miles around the Town of Estes Park. The five major contributors of wastewater flow to the UTSD's facility are the residential population, the YMCA of the Rockies, Rocky Mountain National Park, the Town of Estes Park Water Treatment Plant, and the American Honda Corporation. The District plans to increase the capacity of their plant to 3.0 mgd in phases. The treatment plant had an original design capacity of 1.5 mgd. The Phase 2A expansion included the installation of a new clarifier and a centrifuge to replace a belt press, which brought the capacity to 2.0 mgd. In August of 2006 the District completed the construction of two additional aeration basins at a total cost of over \$1.5 million. A Utility Plan for the District, which outlines future infrastructure needs, was approved in 2010.

MINOR SOURCES

Best Western Coach House Resort

The Best Western Coach House Resort (formerly the Coach House Inn) is located at the intersection of Highway 34 and I-25. The wastewater facility for this hotel is not currently permitted. This resort has considered the possibility of connecting to the City of Loveland's collection system at some point in the future, however no definite plans have been established.

Bonnell West Home Owners Association

The Bonnell West HOA wastewater facility serves the Bonnell West subdivision located southwest of Loveland. The subdivision was developed in the mid to late 1970s. In 1998, the HOA amended the existing site application for the facility to increase the flow from 97 to 120 taps. This facility receives only domestic waste and is non-discharging.

Hidden View Estates

In February 2009, the Association considered and approved a Site Application for a new treatment facility which would serve the Hidden View Estates subdivision. This subdivision is located approximately four miles west of Loveland and currently includes 23 homes with a possibility for two additional homes to be built. The subdivision was platted in the late sixties and originally included a combination of individual septic tanks and community leach fields which had begun to experience problems. In order to meet current standards, the subdivision plans to install a sequencing batch reactor (SPR) system to treat all current and future flows from the subdivision.

Johnson's Corner

The former Johnson's Corner treatment facility served the truck stop, motel, trailer park, and several small businesses in the area. This plant has now been decommissioned and a sewer constructed to flow to the Town of Johnstown's Low Point facility.

Riverglenn Homeowners Association

The Riverglenn treatment facility provides service for the Riverglenn subdivision south of Berthoud. The subdivision is close to build out with 64 of the 65 lots developed. A new subdivision to the north called Riverside has been tied to the Riverglenn facility and consists of an additional 45 lots. At this time there are no taps contributing flow into the system. The plant is currently operating at approximately 50% of capacity. A new chlorine contact basin has been installed and is functioning well. In 2010 the facility received a recommendation for approval from NFRWQPA for the installation of a dechlorination system. The plans and specifications for this system were approved by CDPHE in 2011.

Sunshine Ranch – Emissaries of Devine Light

The Sunshine Ranch facility is a privately owned religious complex located east of Loveland in the Green Ridge Glade area. It receives wastewater from the Sunrise Ranch complex which consists of 33 taps. Of the 33 taps, 27 are residential, 1 is for a community dining hall and kitchen, 3 are for the church, 1 is for a community laundry facility, and 1 for the administration building. The facility discharges to groundwater. There are also 3 houses on individual septic systems in the area.

Western Mini Ranches / Vaquero Estates

The Western Mini Ranches / Vaquero Estates wastewater treatment facility provides service to both subdivisions. These two subdivisions numbering 84 homes southwest of Berthoud have an estimated population of 268 people. Both subdivisions are completely built out. Due to subdivision / zoning restrictions, the population of the subdivisions is expected to remain approximately the same through the planning period.

Yogi Bear's Jellystone Park

Yogi Bear's Jellystone Park is a camping site which was formerly called Park Place Camping Resort. The park is located approximately 5 miles from Estes Park on Highway 36. The resort consists of 112 total sites including some full hook-up sites, cabins, a heated pool, restrooms, showers and laundry facilities. There is also a game room, playground, and convenience store. The discharge is to groundwater.

INDUSTRIAL

Colorado Sweet Gold (formerly GTC Nutrition, Coors BioTech, Zeagen, and Golden Technologies Company)

Colorado Sweet Gold previously operated the manufacturing plant in Johnstown in which they use a wet corn milling process to produce such things as animal feed, regular and modified starches, corn oil, corn syrup and dextrose. This facility is no longer operational.

5.3 ST. VRAIN RIVER BASIN

The portion of the St. Vrain Creek Basin which lies within Weld Count is in the NFRWQPA planning area. This is a relatively small portion of the basin at the lower end. The entities in this basin have service area boundaries that are in close proximity to each other. Consolidation or regionalization of services should be considered when expanded services or treatment is planned. The St. Vrain River Basin map following this section highlights the basin and identifies the wastewater treatment facilities located within it.

MAJOR SOURCES

Dacono Sanitation District

The Dacono Sanitation District (DSD) previously existed to provide wastewater collection service to the City of Dacono. In 2008 the District consolidated with St. Vrain Sanitation District.

East I-25 Sanitation District

The East I-25 Sanitation District provides only a sewer interceptor system and will contract with St. Vrain Sanitation District (SVSD) for treatment and disposal of the wastewater through a gravity-fed sewer interceptor system.

Weld County is the Land Use Management Agency for the District. The service area includes only those lands currently within the boundaries of the District and owned by the initial District incorporators. Wastewater service will be provided to this area in up to three phases. The majority of the original 3,300 acres of the District can be served by the Phase 1 improvements. A total of 13,000 acres could be included in the District, after the completion of Phase III, but would require typical petitions for inclusion and a request for service.

Erie

The Town of Erie provides wastewater collection and treatment services within the town's wastewater utility service area. The town completed an expansion of the South Water Reclamation Facility (SWRF) in the summer of 2004 which increased the design capacity from 0.8 mgd to 1.2 mgd. In 2006 the plant was re-rated to a capacity of 1.6 mgd. The North Water Reclamation Facility (NWRf) was completed in 2010 with a design capacity of 1.5 mgd. In addition, the NWRf was designed to treat all the solids (waste activated sludge) generated at both facilities.

The SWRF will also be modified to produce re-use water for irrigation of parks and other open space areas in and around Erie.

Longmont

The City of Longmont includes a 140-acre parcel in Weld County designated as Basin G and served by an interceptor.

The last plant expansion occurred from 2001-2004, expanding the plant to a capacity of 17 mgd. The city is currently planning and designing improvements to the headworks facilities and biosolids handling and dewatering.

The existing permit for the facility contains ammonia limits that were developed as part of the total maximum daily load (TMDL) analysis for the St. Vrain Creek basin. The original TMDL was based on a WWTF size of 14 mgd and was revised in January 2005 to reflect the actual plant capacity of 17 mgd. The discharge permit has not been modified to include the revised ammonia limits, but the WWTF is able to meet those limits.

Mead

The Town of Mead assumed complete ownership and control of the wastewater treatment facilities serving the town upon the dissolution of the Mead Sanitation District on January 1, 1993.

In 2001, the town acquired the Lake Thomas Wastewater Treatment Plant. This aerated lagoon facility, constructed in 1989, was used to serve the Country View Day Care Center. The property has since been remodeled to become condominiums marketed to seniors (age restricted housing). A total of 28 dwelling units exist and it is now known as the Lake Ridge Development. Currently the facility is not discharging flows to Lake Thomas and serves approximately 5 families. A new inlet and outlet structure, a new hypo-chloride contact chamber and lagoon cleaning were completed in December 2001. The lagoon has not had a discharge since being acquired by the town.

The new permit for the Lake Thomas facility also contains an ammonia limit. The town will need to address this limit should there be a discharge in the future and should the effluent ammonia exceed the permit limits, which vary for each month of the year. The permit allows discharge for 12 months prior to enforcement of the ammonia limit, and during this time a study of the treatment process will be completed. The town is also considering abandoning this treatment facility with the waste being pumped to the new WWTF.

In January 2009, the town completed construction of a new sequencing batch reactor (SBR) facility with aerobic digestion for biosolids treatment. The new SBR facility replaced the previous aerated lagoon facility serving the town. The completion of the SBR facility allowed the town to meet more stringent ammonia limits required by the permit, as well as provide needed capacity for the service area.

St. Vrain Sanitation District

The St. Vrain Sanitation District was created in 1986 to serve the area near the intersection of I-25 and State Highway 119, commonly referred to as Del Camino, and the surrounding areas. Currently there are 120 square miles included within the District boundaries. The District now includes the former Dacono Sanitation District and the Tri-Area Sanitation District. Consolidation with these two districts was effective in January 2008. The District has also developed an IGA with the East I-25 Sanitation District for service. In addition, the City of Longmont projects that it may need to construct additional treatment capacity after 2020, either at their existing plant or a new plant down gradient of the existing Longmont plant and within the St. Vrain Sanitation District service area. The District presently serves a small portion of Longmont located in Weld County.

The St. Vrain Sanitation District has a sewage treatment plant that was constructed in 1987, along with a collection system throughout the 208 boundary where development has occurred. The District continues to build line extensions as development occurs. The District currently serves over 9,000 connections. The District's wastewater treatment plant has been converted from a 0.5 mgd aerated lagoon system to a mechanical plant with two 1.5 mgd extended aeration lagoon and clarifier modules, to provide a 3.0 mgd plant capacity. This plant became operational in April 2002.

In early 2011, the District received Site Application approval for the expansion of the existing plant to 6.0 mgd facility. Construction on this expansion began in 2011 and is scheduled to be completed in 2012.

Weld County Tri-Area Sanitation District

The Weld County Tri-Area Sanitation District previously served the Towns of Firestone and Frederick, the unincorporated area of Evanston, and the Town of Dacono through a contract with the Dacono Sanitation District. In 2007 the District completed a Sanitary Sewer Master Plan / Utility Plan to determine the best approach for providing treatment. This Plan recommended that the

District seek to consolidate its treatment facility with the neighboring St. Vrain Sanitation District (SVSD). This Plan was given conditional approval by NFRWQPA in June 2007.

During the November 2007 election, members of the District voted in favor of dissolving the District and joining the SVSD. In 2008 this consolidation was finalized. Since that time, the treatment facility has been decommissioned and all flows are now going to the St. Vrain Sanitation District facility

MINOR SOURCES

Aspen Lodge

Aspen Lodge is located off Highway 7 south of Estes Park and includes the lodge as well as guest cabins. The lodge is open year round and has a full kitchen.

B & B Mobile & RV Park

This treatment facility serves the mobile home and RV park located at the northeast corner of Highway 52 and Weld County Road (WCR) 1. The park currently has a total of 55 homes. Due to zoning restrictions, it is not anticipated that any additional homes will be added. Therefore, the current capacities are expected to remain consistent.

High Peak Camp (Salvation Army)

The Salvation Army, High Peak Camp is located south of Estes Park on Highway 7. The facility is operated through a contract with Estes Park Sanitation District.

Wind River Guest Ranch

The Wind River Guest Ranch is located south of Estes Park on Highway 7. The ranch is a typical guest ranch for the area and includes a lodge, cabins, kitchen and stables. In 2010, the Ranch received approval from CDPHE to decommission the existing sequencing batch reactor facility that had a hydraulic and organic capacity of 0.0045 mgd and 15 lbs. BOD5/day. In place of the SBR facility, the Ranch will install three decentralized wastewater treatment systems, each will a capacity less than 2,000 gpd. These systems will not require site location and design approval, nor will they require a state discharge permit.

5.4 SOUTH PLATTE RIVER BASIN

The South Platte River is the major drainage through Weld County, entering from the south and flowing into Morgan County on the east. In addition to the Cache la Poudre River, Big Thompson River, and St. Vrain Creek, its other significant tributaries are Big Dry Creek, Crow Creek and Lone Tree Creek. Municipal dischargers in this lowest basin of the region include Ft. Lupton, Gilcrest, Hudson, Lochbuie, Platteville, La Salle, Evans, Pierce, Kersey, Keenesburg and Grover. The South Platte River / Big Dry Creek Basin map following this section highlights both basins and identifies the wastewater treatment facilities located within each.

MAJOR SOURCES

Brighton

Only a portion of the Brighton service area is located within the NFRWQPA planning area. This area has experienced growth over the last several years resulting in the need for Brighton to install a lift station to serve the general area including the Vestas manufacturing facility and associated area. The existing treatment facility for Brighton is located just to the south of the NFRWQPA planning area in Adams County. This facility is approaching capacity and over the last several years Brighton has worked with several entities in the metro area to evaluate the possibility of a regional facility to address their long term capacity needs. After previous attempts to develop a regional facility failed, the Metro Wastewater Reclamation District (Metro District) proposed the Northern Treatment Plant (NTP), which will provide regional service, and will be located at Weld County Road 2 and Highway 85. In 2009 the Metro District voted to include Brighton as a Member Municipality. This will allow Brighton to utilize the NTP to meet its long term capacity needs. Brighton will transition flows to the NTP starting in 2015 and decommission its existing treatment facility by 2035.

Evans

Since 1985, the City of Evans has operated its WWTF (prior to this it was operated by the Evans Sanitation District). In 1997, the plant capacity was re-rated from 0.9 to 1.2 mgd. The Hill-N-Park Sanitation District served a residential development area in the western growth area of Evans as well as Country Estates Mobile Home Park. In 2005, the Hill-N-Park Sanitation District was officially dissolved and all assets of the District were assigned to the City of Evans. The city is now fully responsible for all operations and maintenance at the Hill-N-Park WWTF.

Both facilities are experiencing capacity limitations at this time. In addition, the facilities are not capable of meeting ammonia limits. A number of short and long term alternatives were evaluated by the city in order to meet anticipated permit and capacity requirements. Interim improvements for the Hill-N-Park facility include a capacity increase to 0.99 mgd. Long term improvements for this facility include converting the existing aeration lagoon system into an aerated and complete mix bioreactor and converting the disinfection system to UV. This would also include a capacity increase to 3 mgd. To meet short and long term needs at the Evans facility, the City will convert the polishing pond to an aerated complete mix reactor, and add clarification and return flows. The disinfection system will also be converted to UV. These improvements will provide the City with sufficient capacity through the planning period.

Ft. Lupton

The City of Ft. Lupton has one of the largest discharges directly to the main stem of the South Platte River, with the city's treatment facility adjacent to the river. The city has replaced its old plant with a new oxidation ditch secondary treatment plant. The new plant was brought on line in October 1993 and began discharging in November 1993. The annual average design hydraulic capacity of the plant is 2.75 mgd for domestic sewage plus cooling water from a major industrial contributor which began operations in mid-1994. Approximately 40% of the city's flow originates from commercial and industrial sources. In 2007, an update to the City's Master Plan was completed which included long range wastewater planning information.

Gilcrest

The Town of Gilcrest provides sewer service to approximately 1,100 residents. Discharge from the facility is pumped through an 18,000 foot 6 inch outfall that is partially by force main and the remainder flows by gravity to the South Platte River. The outfall and other plant improvements were constructed in 1987 at a cost of \$169,000. In 2005, the Town completed improvements to the facility which included the installation of liners in the aeration lagoons and polishing pond. In 2009, the

Town made significant improvements to the collection system by replacing a sewer main and manholes following a collapse. These improvements reduced the amount of I/I to the plant, thus reducing the average flows. The capacity of the plant should be adequate to address the demands of the town for the foreseeable future.

Hudson

The Hudson wastewater lagoon facility was acquired by the Town of Hudson from the Hudson Sanitation District in 1997. The town has assumed the role of the operating agency for the facility and currently maintains the facility through town staff. The lagoon facility includes a combination of two aerated lagoons, a settling pond and chlorination prior to discharge into the Beebe Seep Canal.

In 2007, the Town submitted a Utility Plan for consideration to NFRWQPA, which recommends the construction of a new mechanical facility, which was approved by NFRWQPA in July 2008. In 2010, the Town completed construction of the new facility located north of the Town. The existing lagoon facility remains in service with plans for the flows from that facility to be routed to the new facility at some point in the future.

Keenesburg

The Town of Keenesburg's WWTF was originally constructed in 1955 as a two-cell, non-aerated pond facility which discharged to an unnamed, intermittent tributary of Lost Creek. In 1959, a neighboring farmer, Mr. Donald Sloan constructed a jurisdictional dam to store water for irrigation of his crops and rangeland. The resulting reservoir is called Sloan's Reservoir #1. An agreement was drawn in 1960 between the Town and Mr. Sloan that gave Mr. Sloan a water right for the use of the Keenesburg wastewater effluent. This was the beginning of one of the State's first land application systems for wastewater in an area of the State where water is much needed for irrigation of crops.

A second reservoir, Sloan's Reservoir #2, was constructed in 1974 and the town and Mr. Sloan entered into a second agreement which requires Mr. Sloan to accept the town's entire discharge overflow or outflow from the town's wastewater treatment facilities. This agreement, dated December 11, 1974 expires on January 1, 2015. As allowed in the original agreement, the Town requested that the agreement be extended and this extension is referenced in a letter to Donald L. Slone, dated November 19, 2009. This letter describes the extension to be for another 40 years, with the end date being identified as January 2055.

The town commissioned modifications to the lagoon system in 1978 to place a dividing dike in the original cell #1 and remove cell #2 from service as a treatment lagoon however, it is currently used for storage when Sloan's Reservoirs are full. Cell #1 became 1A and 1B. Additionally, submerged pump/aspirator aerators were placed in cell 1A. A chlorine system was constructed including a contact chamber and a chlorine solution feed system.

The shallow depth of the ponds and lengthy detention times were resulting in substantial algae growth and elevated TSS levels. The aeration system was modified in 1982 to address these issues; however, algae growth continued to be a problem.

In 1990, the influent was split so that flows from the west (80%) were diverted directly to cell 1B and flows from the north (20%) continued to flow to cell 1A. Aeration in cell 1B was modified and cell 1B was deepened 3 feet.

Modifications to the treatment plant were made again in 2004, including a reconfiguration of the lagoon system to consolidate influent flows into a new headwork structure, installation of baffle curtains to prevent short circuiting, incorporation of a fermentation cell and construction of new chlorine contact chambers. The results of these upgrades were twofold. The algae growth and resulting elevated TSS levels were addressed, as well as the anticipated future increase in population and influent flows.

Generally, effluent is stored in the original cell #2 from October through March, and is discharged to Sloan Reservoir #1 for use as irrigation water during the growing season from April through September. Sloan's reservoirs may also be used for storage from October through March. Discharge to the Lost Creek tributary occurs only when the storage cell #2 and Sloan Reservoirs are full, or due to a large precipitation event. A precipitation event that fills the Sloan Reservoirs occurs very infrequently and has not occurred for over 5 years.

When the town's NPDES Discharge Permit # CO-0041254 was scheduled for renewal in 2003, new water quality standards, including ammonia limits, were to be included. The town requested, from the Water Quality Control Commission, and was granted a "three-by" stream standard (pH, fecal coliform and dissolved oxygen) for the pending new permit. The receiving waters were reclassified as not supporting aquatic life and the effluent parameters were modified as such. The new permit was issued in September 2006 with typical secondary effluent limits for an aerated lagoon and there were no ammonia limits included.

The new permit also contained a compliance order as follows:

- Submit final engineering report by December 31, 2007
- Submit completed plans by December 31, 2008
- Complete construction on the existing plan by December 31, 2009

In 2010 the Town completed a Utility Plan. The plan outlined recommended improvements to the current lagoon system to provide additional capacity for the Town's growing population. These improvements were completed in April, 2011.

The new improvements included increasing the size of the Fermentation cell, a new intermediate lift station, two new aeration cells having a ten foot depth and a new polishing pond with a ten foot depth. Piping at the lift station was designed to allow use of a new flow equalization basin. Incorporating flow equalization eliminated the need for a standby power source and the need to add chlorination facilities for peak flows.

Kersey

In 2006 the Town completed construction of a new Sequencing Batch Reactor activated sludge facility. This new facility will provide adequate capacity for the Town well into the future.

La Salle

Wastewater treatment facilities for the Town of La Salle includes an aerated lagoon system with an effluent rock filter and chlorination before discharge to the South Platte River. The facility has upgraded the aeration system by replacing the old splash units with an energy efficient directional unit. Additional units have been placed in the secondary cell.

Lochbuie

The Town of Lochbuie is located in the Beebe Draw drainage basin just north of the Weld-Adams County line. The treatment facility currently serves the town and portions of Bromley Park in Adams County.

The Lochbuie wastewater treatment facility has been planned for construction in several phases, with an ultimate capacity of 10.0 mgd. The town is in the design and construction phase to expand the existing plant to 2.0 mgd. This expansion will complete the originally designed Phase 1 plant: adding an enclosed headworks building that will include, in addition to the existing mechanical screen and Partial flume, grit removal and permanent influent pumping station; additional aeration basin and aerobic digester capacity; a sludge dewatering and solids handling facility; and small lab / office building. Future Phase 2 expansion will increase the plant capacity to 5.0 mgd with plant components to include primary clarification, additional aeration basins and anaerobic sludge digestion.

The DRCOG “Metro Vision 2020 Clean Water Plan” provides additional wastewater management planning information for this overlapping service area. The two areawide plans will be kept consistent for planning purposes, and any planning information differences will be addressed through the memorandum of understanding between the agencies on a case by case basis.

Metro Wastewater Reclamation District

A regional wastewater treatment facility serving the northeastern portion of the Denver metropolitan area has been acknowledged as part of the areawide water quality management plans for a number of years. The Metro District has sited and begun the process of constructing a new wastewater treatment facility, the Northern Treatment Plant (NTP), to serve as this regional facility. The NTP will be located northwest of the intersection of Weld County Road 2 and Highway 85 and will be capable of providing service to portions of the Cities of Brighton, Thornton, and Aurora; South Adams County Water and Sanitation District (South Adams County), and the City and County of Denver. Under the terms of its Service Contract with Brighton, the Metro District will work with the city to have the site annexed.

The NTP is expected to reduce flows at the Metro District’s existing Robert W. Hite Treatment Facility (RWHTF) by approximately 8 mgd in 2015. Based on Service Contracts between the Metro District and Brighton and South Adams County, the NTP will reduce flows to the existing South Adams County Williams-Monaco Wastewater Treatment Plant (WWTP) and the Brighton WWTP, and ultimately replace the Brighton WWTP. The NTP will also allow the potential decommissioning of up to seven wastewater lift stations. Construction on the facility is expected to begin in 2012 with startup of the facility in 2015.

In 2010, NFRWQPA approved a utility plan submitted by the Metro District supporting the NTP and associated Effluent Pump-Back (EPB) System. The EPB System will mitigate the impact of moving the effluent discharge point for a portion of the City of Thornton’s (Thornton) effluent. An alternative that would eliminate the need for the EPB System, is an effluent trade between the City of Aurora (Aurora) and Thornton. The two cities have determined there is sufficient Aurora effluent available at the RWHTF to exchange for Thornton effluent discharged at the NTP. This alternative requires an Intergovernmental Agreement between the two cities, and a Water Court ruling that the contractual exchange is consistent with existing water rights decrees and stipulations and does not cause injury to other water rights. A Water Court application was filed in April 2011, and the anticipated timing for potential resolution is mid 2012, prior to any construction on the EPB System. NFRWQPA also

recommended approval of a Site Application for these facilities. This application is currently under review by the Colorado Department of Public Health and Environment.

In addition, an interceptor (South Platte Interceptor) is necessary to convey wastewater to the NTP. The Site Application for the South Platte Interceptor will be submitted late 2011 or in 2012.

Pierce

Pierce is a town of approximately 920 residents, located in northeastern Colorado. The town previously owned and operated a lagoon facility. This facility had trouble consistently meeting the compliance limits established by their discharge permit. As a result, in 2007, the NFRWQPA recommended for approval of site application for a new sequencing batch reactor facility. The new facility, completed in 2009, has a design flow capacity of 0.18 mgd and an organic capacity of 495 lbs/day BOD₅.

Platteville

The town discharged to the South Platte River via a 4,700 foot outfall line. Flows discharged to the river are reduced due to evaporation, but algae in the lagoons in the summer cause the BOD₅ and TSS limitations to be exceeded at times. The town modified the plant in 1992-93 by constructing a wetland treatment system in a portion of lagoon #3 to reduce algae growth and improve treatment efficiency. The remainder of lagoon #3 was abandoned.

A change in classification of the receiving water to Class 1a Recreation limited bacteria discharge. Total ammonia limits were also added. The Town has hired a consultant to prepare a facility plan to evaluate what approach the Town will take in the future to address future needs.

Resource Colorado Water & Sanitation Metropolitan District

The Resource Colorado Water & Sanitation Metropolitan District (RCWSMD) was formed in Weld County in 2004 to provide water, wastewater, and reuse service to the Pioneer Community Development in southern Weld County. The NFRWQPA conditionally approved the designation of the District as a wastewater management / operating agency and the service area for the District in September of 2005. Conditions of the approval include:

- The submittal of a Utility Plan for review to the Association prior to the consideration of any site applications. This plan should include such information as the District's financing ability, densities, loading projections, and ability to serve.
- The approval of the Weld County Comprehensive Plan amendment for the proposed development in the area.
- The ability of the Association to reconsider the approval should Weld County choose not to approve a Comprehensive Plan amendment.

The second condition was satisfied in 2006 when the Weld County Board of County Commissioners (BOCC) approved the Comprehensive Plan. The first condition was met when RCWSMD submitted its utility plan for review by NFRWQPA. NFRWQPA approved the utility plan in April 2007 with four conditions:

- 1) Zoning approval of the plant site and development by the Weld County BOCC
- 2) The submission of a ten-year summary table of expenses and income
- 3) The submission of a term sheet delineating the agreements between RCWSMD, Pioneer Regional and Pioneer Nos. 1 thru 6 Districts with regard to reuse treatment, storage, distribution, operations, maintenance, rates and fees

- 4) A final submission of the utility plan with the above mentioned documents

RCWSMD's site application was jointly approved with the same four conditions.

In 2008 the RCWSMD submitted a revised Utility Plan and Site Application to NFRWQPA for consideration. These revisions were due to a slow-down in the housing market. RCWSMD proposed the use of an SBR plant (in place of the MBR plant) for the first phase of constructions and adjusted the timing of their projections. NFRWQPA recommended for approval of this Site Application. However, because the housing market remains slow, no construction has taken place.

MINOR SOURCES

Galeton Water and Sanitation District

The Galeton Water and Sanitation District was created in 1990 to provide sewer service to the Town of Galeton, which was served by septic-leach field systems. The population served initially was 120 with a facility capacity of 185-person equivalents. The sewer system and treatment plant construction were completed in 1992. This facility however, has not been in compliance with the issues permit. A new permit was issued for the facility in 2007 which includes a compliance schedule that specifies timetables for the completion of planning and construction of either an upgrade to the current facility or the building of a new facility. In 2009 the District received Site Application approval for a new sequencing batch reactor facility. The District has not been able to secure funding for the treatment plant improvements and therefore no construction has taken place.

Grover

The Town of Grover installed a wastewater system in 1974, which predates the Colorado Water Quality Control Act (Act) and related regulations and therefore has no existing discharge permit. The Town was notified by the CDPHE that they must submit plans of their wastewater treatment facility to obtain a discharge permit and comply with Act. The Town submitted plans of their existing system, however CDPHE notified them that the plans could not be approved without going through the Site Application process. The Town must upgrade or replace their existing system to comply with the regulations. As a result, the Town submitted and Site Application for a new treatment facility which received CDPHE approval in 2010. The Town is currently pursuing funding through USDA to construct a 25,000 gpd mechanical wastewater treatment facility to meet permit limits.

Hemingway Lodge at Eagles Nest

The Hemingway Lodge at Eagles Nest is a corporate conference center owned and operated by Equus Farms, Inc. in eastern Weld County. The facility was first constructed in 1993 and included a main lodge with 13 bedrooms, plus a three-bedroom caretaker's house. A six-bedroom addition was constructed in 1997. A septic system consisting of two septic tanks and a lift station plus a 1,395 square foot leach field was installed with the original construction in 1993. A 1,116 square foot leach field plus a third septic tank (1,500 gallons) and a 500 gallon lift station were installed at the time of the six-bedroom addition in 1997.

Rocky Mountain Vista Mobile Home Park

In 2007 the Water Quality Control Division (WQCD) of the Colorado Department of Public Health and Environment determined that Rocky Mountain Vista MHP was operating a domestic wastewater treatment works without site and design approval or a discharge permit. It was also determined that the existing septic tank / absorption field system would not be sufficient to comply with current

standards. The Division issued a compliance advisory which would require the MHP to install a system capable of meeting current groundwater standards. After negotiations with the City of Brighton failed to result in an agreement for service from the city, NFRWQPA recommended for approval if a site application to install a new treatment facility on site in June of 2010. This application has not yet received approval from the WQCD.

Sylmar Manor Mobile Home Park

Sylmar Manor Mobile Home Park was located in southern Weld County just off Highway 85 and Weld County Road 2. The property was purchased by Metro Wastewater Reclamation District as part of the site for the Northern Treatment facility and the treatment plant previously serving the mobile home park has now been decommissioned.

Weld County School District RE-3JThe Weld County School District RE-3J treatment facility provides service to the Weld Central High School. The school is located just south of Keenesburg off Highway 52.

INDUSTRIAL

Boulder Valley Poultry (formerly Moark Hatcheries)

Boulder Valley Poultry, also known as Moark Hatcheries, LLC, is defined as a shell egg processing plant. The facility is located in south east Weld County near the Town of Roggen.

5.5 BIG DRY CREEK RIVER BASIN

Big Dry Creek flows north from the Broomfield area into Weld County and into the South Platte River just south of Ft. Lupton. The only municipal treatment plant in the Weld County portion of this basin is that of Northglenn. The South Platte River / Big Dry Creek Basin map following this section highlights both basins and identifies the wastewater treatment facilities located within each.

MAJOR SOURCES

City and County of Broomfield

The City and County of Broomfield is the designated wastewater management and operating agency for the City and County of Broomfield's urban growth area (UGA) and jurisdiction. Broomfield's environmental vision is to be a leader in implementing environmental stewardship policies that help to create a desirable and sustainable community now and for future generations.

The role of government is to protect the public health, safety and welfare. Increasingly, the realization that we have finite natural resources has deepened the discussion about how we live now and how what we do impacts future generations. While debate about global and national environmental issues brings much attention, on a regional and local scale people express concern over the loss of open space, the loss of habitat for a variety of plant and animal species and the impacts of air and water pollution. Residents of Broomfield, like many other Coloradans, value the natural environment as a primary factor that contributes to their quality of life. Members of our community believe that it is "very important" that Broomfield "encourage(s) development that enhances air and water quality" and "regulates the use of environmentally sensitive lands." The

inclusion of this new environmental stewardship element within the 2005 Comprehensive Plan is to help guide Broomfield's stewardship of its environmental resources.

Historically, Broomfield had developed a strong record of environmental compliance with national, state and regional environmental laws and policies. Broomfield prides itself in its compliance efforts. Broomfield is active in national and state pollution prevention programs, stormwater and air quality programs, watershed protection efforts and the monitoring of Rocky Flats remediation efforts. Broomfield has developed local recycling and environmental education programs to promote environmental stewardship among its citizens. Since Broomfield became a County in 2001, additional resources have been allocated to County functions, thus allowing the community to become more proactive in environmental health efforts aimed at pollution prevention, pollution monitoring and hazardous chemical clean-up. Efforts also are under way to create a "wellness collaboration" promoting "healthy community initiatives" and an overall active community life for Broomfield residents and employees.

Broomfield is a suburban community located along US 36 Denver-Boulder Turnpike and consists of 33.6 square miles. The City and County's jurisdiction traverses the north Denver metropolitan area from the southwest boundary of Indiana Street and approximately 106th avenue moving northeast across I-25 and to the northeast boundary of Weld County roads 8 and 11.

The area now known as Broomfield was founded in the 1880's shortly after the railroad came through the area. By the early 1920's a small downtown had evolved, but until the 1950's only 100 people lived in the area. In 1955, construction began on the first filing of Broomfield Heights; the first modern planned new community in the state. In 1961, the Broomfield Heights community voted to incorporate into a city and to begin providing municipal services.

In 1961, the City was located wholly within Boulder County; but in 1971 the corporate limits were expanded to include portions of Jefferson and Adams Counties, and in 1990 areas lying within Weld County were added to the City. At the November 3, 1998 statewide election, Colorado voters approved an amendment to the state constitution creating the City & County of Broomfield. On November 15, 2001, all areas within the City of Broomfield were detached from the other four counties – Adams, Boulder, Jefferson and Weld – and the newly created entity became the City & County of Broomfield.

Broomfield's census population as of December 31, 2010 was 55,889 people. Historically, Broomfield's population growth has fluctuated with the up and down cycles of the larger regional economy, but in more recent years has seen higher growth rates as compared with the region as a whole. Denver Regional Council of Governments (DRCOG) has estimated that the 2030 population of Broomfield will be 83,000 people, translating into an annual growth rate of approximately 2.5 percent. It is worth noting that Broomfield's growth rate since the early 1990s has exceeded DRCOG's projection of 2.5 percent. Instead, Broomfield's rate has been more comparable to 3 percent, roughly twice the rate of regional growth.

The 2005 population was just over half of the projected population of approximately 83,300 persons at build out (when all property available for development has been developed). The estimated build out population number is based on a combination of existing, approved (platted) and planned (approved PUD plans) number of dwelling units, plus projections for the number of dwelling units likely to be developed within any remaining undeveloped future growth areas based upon the 2005 Comprehensive Plan's Land Use Map. It is important to note that the estimated population projection

of approximately 83,300 people is simply that, a projection. It is not intended to identify or establish a population cap or policy for Broomfield. Instead, the build out population projection number provides an analytical basis for other critical planning efforts that include the City and County of Broomfield's Long-Range Financial Plan and numerous other service provision plans.

The City & County of Broomfield provides wastewater treatment and management services through its municipal wastewater reclamation facility located at 2985 West 124th Avenue. As outlined in the City and County of Broomfield's 1999 updated Utility Plan, approved by DRCOG and NFRWQPA, Broomfield has moved forward with the completion of two of the three-phase expansion of the Broomfield Wastewater Reclamation Facility to include biological nutrient removal, solids handling and wastewater reuse. The CDPHE has approved and issued the site application for phases one (1) and two (2).

The construction of the first phase of the expansion and upgrade was completed in January 2005. Phase 2 construction was completed in November 2010. The current design capacity identified in Broomfield's CPDES discharge permit (effective April 1, 2010) as Outfall 001B is 12.0mgd for hydraulic flow (30 day average) and 23,018 lbs. BOD₅ per day for organic loading (30 day average).

The first phase of the project expanded the wastewater treatment capacity to 8.0 mgd and added nitrification, de-nitrification, and phosphorus treatment, solids dewatering processes and 6 mgd wastewater reuse treatment and pumping processes. The second phase increased capacity to 12.0 mgd and added a new screening building, new grit removal, additional nitrification, de-nitrification, phosphorus treatment, secondary clarification and UV disinfection capacity. The City and County of Broomfield has developed a 3,200 acre-feet per year reuses system utilizing Broomfield's western slope water in the effluent from the wastewater reclamation treatment plant.

Phase three (3) would ultimately expand the facility to a projected 16 mgd for hydraulic flow (30 day average) and 30,691 lbs. / day BOD₅ for organic loading (30 day average). The current site location has the available land area to meet the space requirements necessary for the completion of all 3 phases.

The City and County of Broomfield's biosolids management program consists of beneficial recycling methods. The current process consists of anaerobic digestion, on-site storage, solids dewatering and subsurface application of the dried digested biosolids on agricultural property. To ensure proper usage of the biosolids, the volume of each application is based on agronomic rates and crop rotations. In 2010, the City and County of Broomfield beneficially reused 1,607 dry tons of biosolids.

In 1996, to ensure current and future land availability for the beneficial reuse of this nutrient-rich organic by-product of the wastewater treatment process, the City and County of Broomfield purchased a 1400-acre working farm northeast of Gilcrest, Colorado. The farm consists of six parcels located between WCR 44 and 42 (north to south) and WCR 45 and 53 (west to east). The farm serves two purposes. First, it continues to be an active crop producing site where it is jointly managed by Broomfield and the local area farmer who leases out the cropland. Secondly, it provides a secure location for the beneficial reuse of the biosolids produced by Broomfield. The beneficial reuse of biosolids provides an environmental and economic benefit to both the citizens of Broomfield and the agriculture community, which includes the reduction of commercial fertilizer, improved physical properties of the soils, which in turn help produce healthier crops and enhanced soil conservation measures.

In February of 2010, the City and County of Broomfield was issued the sixth renewal of the CDPES permit. The renewed permit became effective on April 1, 2010 and will expire on March 31, 2015. As a result of the Water Quality Control Commission proceedings to adopt the Classification and Numeric Standards for the South Platte Basin, the renewed permit resulted in several new water quality stream standards being added to the discharge limitations. Those parameters added included: effluent temperature, more restrictive total ammonia, seasonal selenium limitations and boron.

The City and County of Broomfield planned and projected the additional discharge limitations and designed the expansion and upgrade of the wastewater reclamation facility to meet the listed parameters. The phase 1 construction costs associated with the new effluent limitations have been identified as \$9.808 million in 2001 dollars and the phase 2 construction costs associated with the new effluent limitations have been identified as \$4.919 million in 2006 dollars. The total cost of meeting unfunded effluent mandates for the combined phase 1 and phase 2 expansions is \$14.727 million.

In late 2005, the City and County of Broomfield's governing council adopted the 2005 Comprehensive Plan. This updated master plan was prepared to meet the challenges of today and tomorrow. The updated master plan looks toward the ultimate build-out of the City and County and updated the established goals and policies to guide decision making along the way. A variety of efforts are required to make the vision of Broomfield a reality. Some of these efforts fall within the confines of the City and County government, while other involve the private sector. Many actions may require joint efforts between the public and private sectors and intergovernmental cooperation.

Northglenn

The Northglenn WWTF is located at the intersection WCR 2 and 11. The existing facility consists of an aerated lagoon system and activated sludge treatment facility with discharge through Bull Reservoir to Bull Canal, Thompson Ditch or Big Dry Creek. The 4,200 acre foot Bull Reservoir facilitates Northglenn's water management exchange program with Farmers Reservoir and Irrigation Company (FRICO).

The rated capacity of the existing facility is 6.5 mgd. Northglenn will require a capacity of 4.94 mgd to provide service within their corporate boundaries at ultimate projected flows. This will result in unused capacity available above their need at build out. This capacity is available to the Cities of Broomfield and Thornton, unincorporated Weld County and others within the vicinity of the treatment plant who may need wastewater treatment service.

The City of Northglenn is the responsible operating and management agency for the areas within its corporate boundaries as identified in the DRCOG "Metro Vision 2020 Clean Water Plan". Northglenn also provides wastewater service to three enclaves of the City of Thornton that are adjacent to Northglenn corporate boundaries. All wastewater in these areas is collected and transported to the treatment plant via a pressure interceptor. Northglenn was also designated as the responsible management and operating agency for their WWTF area and as operating agency for the areas adjacent to the treatment facility by NFRWQPA in 1989. There is a joint management agency agreement between Weld County and Northglenn that defines management and operating agency roles for the unincorporated areas.

In the Lower South Platte Study prepared by the DRCOG, the Northglenn WWTF was recommended as the most cost effective solution for providing wastewater treatment service for much of the Big Dry Creek Basin north of 136th Avenue in Adams County. Additionally, areas in Weld County and

the City and County of Broomfield adjacent to the WWTF can be reasonably served by the Northglenn plant.

The City of Northglenn has entered into an IGA with the City of Thornton and Metro Wastewater Reclamation District, defining roles for the service area if the City of Thornton annexes into Weld County. This IGA defines management and operating status of this area.

The excess rated capacity in Northglenn's WWTF beyond what they will require to serve their own development by 2020, will be adequate to serve development until 2010 in the areas of Broomfield County and Thornton in Weld County.

Westminster and Broomfield both operate WWTFs that discharge to Big Dry Creek upstream of the Northglenn facility. Water quality in Big Dry Creek generally meets the standards for dissolved oxygen and pH, while the fecal coliform standard is exceeded at times. Data indicates this is not from permitted treatment plants. Additional effluent discharged to the creek from the Northglenn plant should not have an adverse effect on the stream's quality as long as discharge permit effluent limits are met.

Monitoring is performed by Northglenn, Broomfield and Westminster. DRCOG has modeled the creek for D.O and no impacts have been identified with full utilization of the Northglenn facility at 6.5 mgd. Additional modeling for un-ionized ammonia has also been conducted. This modeling has been incorporated into Broomfield's, Westminster's and Northglenn's permits. Northglenn's NPDES permit was reissued in January 2002, which included a compliance schedule to meet effluent limits for ammonia. To adhere to the compliance schedule, Northglenn prepared a Utility Plan in 2003 and completed construction of an activated sludge treatment facility that went online in January 2006. No impacts to water rights are expected if Northglenn discharges treated wastewater to Big Dry Creek.