PACOG 2012
WATER QUALITY MANAGEMENT PLAN

Pueblo County and Pueblo Area Council of Governments

December 6, 2012

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School District No. 70
Pueblo West Metropolitan District
Colorado City Metropolitan District
Salt Creek Sanitation District

PUEBLO AREA COUNCIL OF GOVERNMENTS

PACOG 2012 WATER QUALITY MANAGEMENT PLAN

This Section 208 Water Quality Management Plan was produced by PACOG in accordance with the federal Clean Water Act (Sections 208 and 303(e)) and is part of the PACOG continuing planning process for Pueblo County. This PACOG 2012 Water Quality Management Plan was approved by PACOG at a public hearing on December 6, 2012. This water quality management plan, as so adopted, supersedes any water quality management plan for Pueblo County previously adopted by PACOG.

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I. Historical PACOG Water Quality Management Plans

Chapter I provides an historical perspective, as such, documents referenced in this chapter are not incorporated into the new Pueblo 208 Water Quality Management Plan. The Pueblo 208 Water Quality Management Plan is a requirement under Section 208 of the Federal Clean Water Act (Public Law 92-500). The Act protects and enhances the Nation's waters. This 2012 Management Plan is an update of Pueblo's Water Quality Management Plan, which was originally adopted in 1977 and updated in 1981, 1984, 1987, and 1993 by the Pueblo Area Council of Governments (PACOG).

The Pueblo Water Quality Management Plan, first adopted in *1977,* included three (3) volumes:

- Volume I: *208 Stream Segment Analysis,* June *1977;*

- Volume II: *208 Point Source, Nonpoint Source, Institution/Management Sub-plans,* June *1977;* and

- Volume III: *208 Final Plan and Implementation Schedule,* July *1977.*

The 1981, 1984, and 1987 Updates added fourth, fifth, and sixth volumes with "short titles" as follows:

- Volume IV: *208 Plan Update,* 1981, December 1981; and

- Volume V: *208 Plan Update,* 1984, December 1984.

- Volume VI: *208 Plan Update,* 1987, December 1987.

The 1993 Update added a seventh volume with a "short title" as follows:

- Volume VII: *208 Plan Update,* 1993, September 1993

- The 1993 Update did not repeal or replace the Plans adopted in *1977,* 1981, and 1984, and 1987. In selected areas (e.g., data, recommendations), the update was inconsistent with the prior Plans, and in such instances the 1993 update was an *amendment* to the prior Plans and was the controlling document.

- The 1993 update was generally a continuation and expansion of the 1977 plan including subsequent updates approved by PACOG between the years 1977-1993. The 1993 update focused on population changes and projections as they pertain to the various districts and service areas. This 1993 plan provided characterizations of the wastewater treatment facilities in the county. There was a lack of good and/or updated wastewater service area maps associated with the 1993 plan. Generally wastewater service areas were assumed to match existing City of Pueblo or district service areas.

The 1993 update was considered as a collective set of seven documents. As such, some information contained in earlier documents was not updated, rather referenced in later

documents. Access to most of the early documents was limited to a limited number of paper copies. Chapter II begins the new Pueblo 208 Water Quality Management Plan, which is referenced as the *PACOG 2012 Water Quality Management Plan.* This new *PACOG 2012 Water Quality Management Plan*, as so adopted, supersedes any water quality management plan for Pueblo County previously adopted by PACOG.

II. Colorado Statewide Water-Quality Management Plan

Colorado has developed a new state wide management plan that sets the framework for all water quality planning throughout Colorado (WQCD 2011[1]):

> *The Statewide Water Quality Management Plan (SWQMP) is intended to be a living document that provides a framework for water quality planning based on federal regulations at section130.6 of title 40 of the Code of Federal Regulations (40 CFR 130.6). Within this watershed framework, comprehensive information about current statewide water quality is presented to assist water policymakers, managers, and others in setting priorities, developing strategies, and evaluating the progress of water quality protection and restoration efforts.*

The SWQMP is a basic information source for water quality planning and sets a foundation for local 208 water quality planning. As such, local 208 water quality management plans should be coordinated sub-sets of the SWQMP that provide a level of detail not contained within the state management plan.

Colorado SWQMP Framework and Relationship to Regional Planning

The Colorado SWQMP establishes a state planning preference for adapting a watershed approach to water quality prevention and restoration as an effective framework for managing water quality. A watershed approach is fundamental to the Colorado SWQMP. However, it is important to note that the Colorado SWQMP is oriented at a statewide scale with generalized components established within the major river-basins. Local water quality management plans within smaller defined watersheds or operational 208 planning areas, including geopolitical boundaries such as counties, are referenced, but not detailed within the Colorado SWQMP.

While the Colorado SWQMP provides a new comprehensive planning framework for 208 planning throughout Colorado, the document does not:

1. Replace existing 208 water quality plans and documents;

2. Provide conclusions, recommendations, or establish policy;

---

1 Statewide Water Quality Management Plan (SWQMP). Colorado Department of Public Health and Environment, Water Quality Control Division. June 1, 2011.

3. Link known water quality impairments to sources or strategies, unless already established; or

4. Specify measures of success for various strategies.

As such, there remains a viable and necessary role for regional 208 water quality planning. The Colorado SWQMP doesn't replace the need for a PACOG Water Quality Management Plan. The Colorado SWQMP does clarify state expectations for the types of essential information that are important within the regional planning context. The Colorado SWQMP defines the federal and state statutory and regulatory authority, water quality standards and classification system, planning aspects of the Federal Clean Water Act, Colorado continuing planning process[2], and expectations of section 208 plans.

The PACOG 2012 Water Quality Management Plan references the Colorado SWQMP (Section 2.2.4.3 CWA Section 208 Plans), for components about regulatory authority, standards, continuing planning process, regional planning and "Areawide Waste Treatment Management" expectations. Pueblo County is defined as *Colorado Water Quality Planning Region 7* (Figure 1). Figure 2 shows the stream and river segments in Pueblo County in relation to the Arkansas Basin.

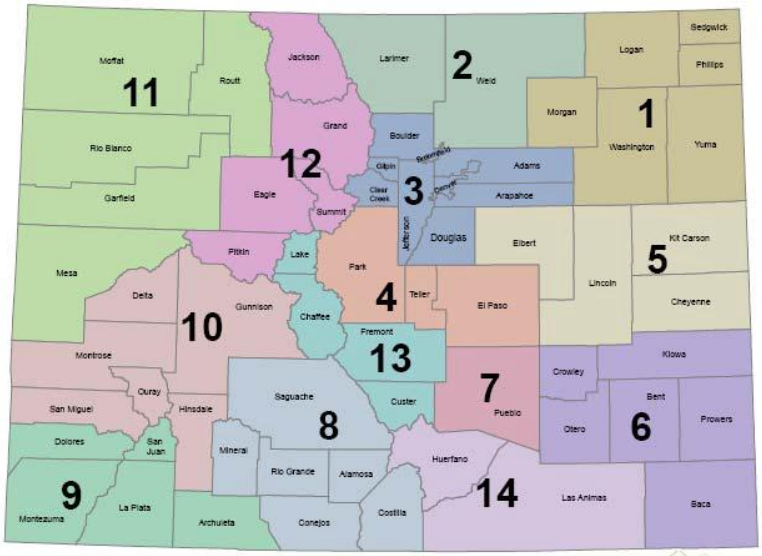

Figure 1 Pueblo County 208 Planning Area #7 (Adapted from Statewide Water Quality Management Plan, 2011)

Summary Colorado SWQMP – Arkansas River Basin Plan

Chapter 6 with associated exhibits of the Colorado SWQMP summarizes the water quality management planning for the Arkansas River Basin with some additional detail provided for

[2] Regulation No. 23: *Regulations for State of Colorado Continuing Planning Process*, 5 CCR 1002-23, sets forth the legal and regulatory objectives and requirements of the program, organizational structure, intergovernmental decision-making process, and time relationships required to accomplish the objectives and requirements.

sub-basins. The basin is divided into the upper, middle and lower Arkansas. Pueblo County is located within the transition zone from the upper Arkansas into the lower Arkansas and includes stream segments from all three sub-basins (Figures 3, 4 and 5). The chapter provides an overview of the Arkansas system (e.g., physical setting, ecology, climate, land cover, ownership, basic demographic[3], socioeconomic development, water rights and transfers, and hydrology). The chapter defines the 2010 water quality classifications and standards information at a basin scale[4]. The chapter lists the known set of surface water quality stressors and sources. This includes both impairments as listed in the 2010 Colorado 303(d) list and the monitoring and evaluation list.

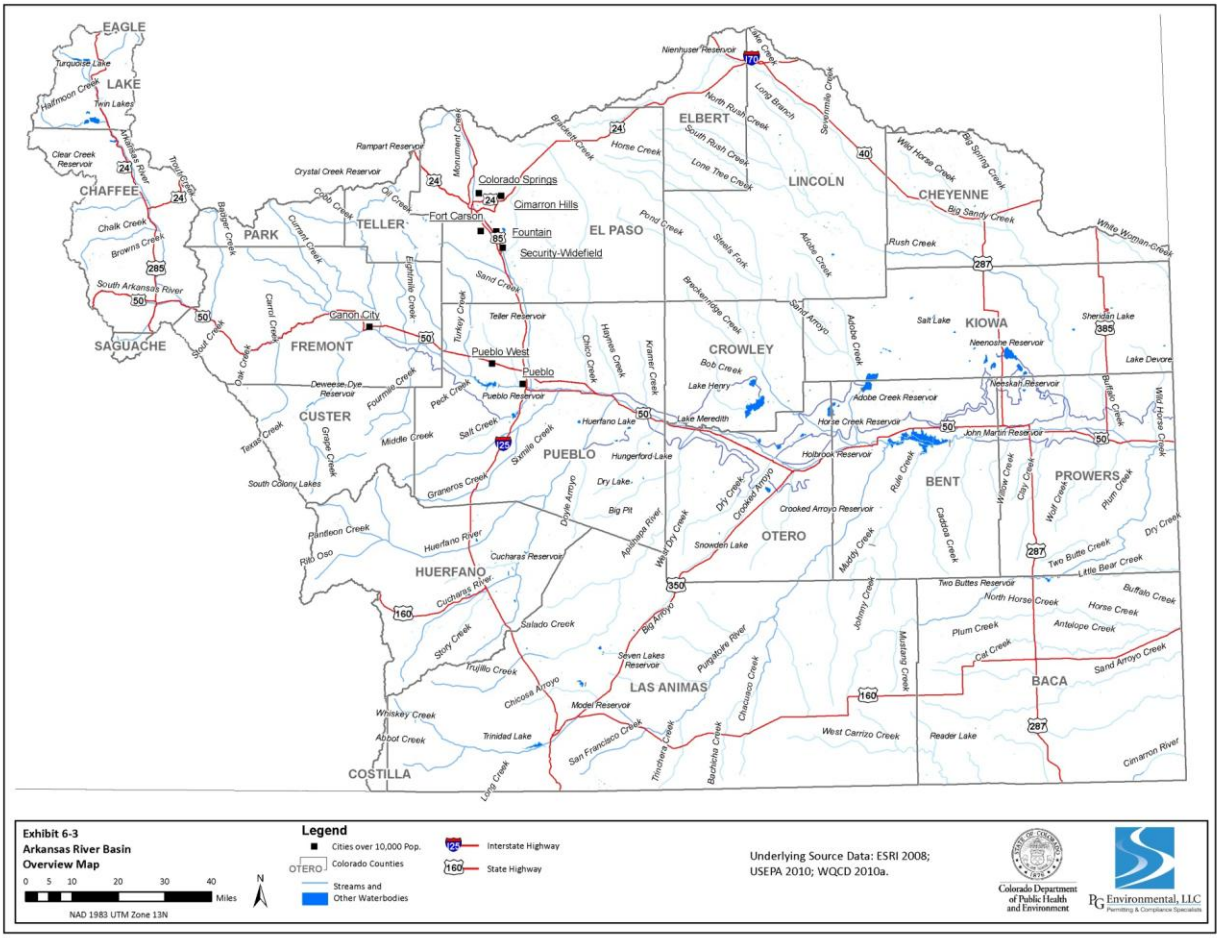

Figure 2 Pueblo County with Streams, Rivers, Pueblo Reservoir (Adapted from Statewide Water Quality Management Plan, 2011; Chapter 6, Exhibits).

[3] CWCB. 2010. *State of Colorado 2050 Municipal and Industrial Water Use Projections*. Colorado Department of Natural Resources, Colorado Water Conservation Board, Denver, Colorado.

[4] WQCC. 2010a. Regulation No. 32: *Classifications and Numeric Standards for the Arkansas River Basin.* 5 CCR 1002-32. Colorado Department of Public Health and Environment, Water Quality Control Commission, Denver, Colorado.

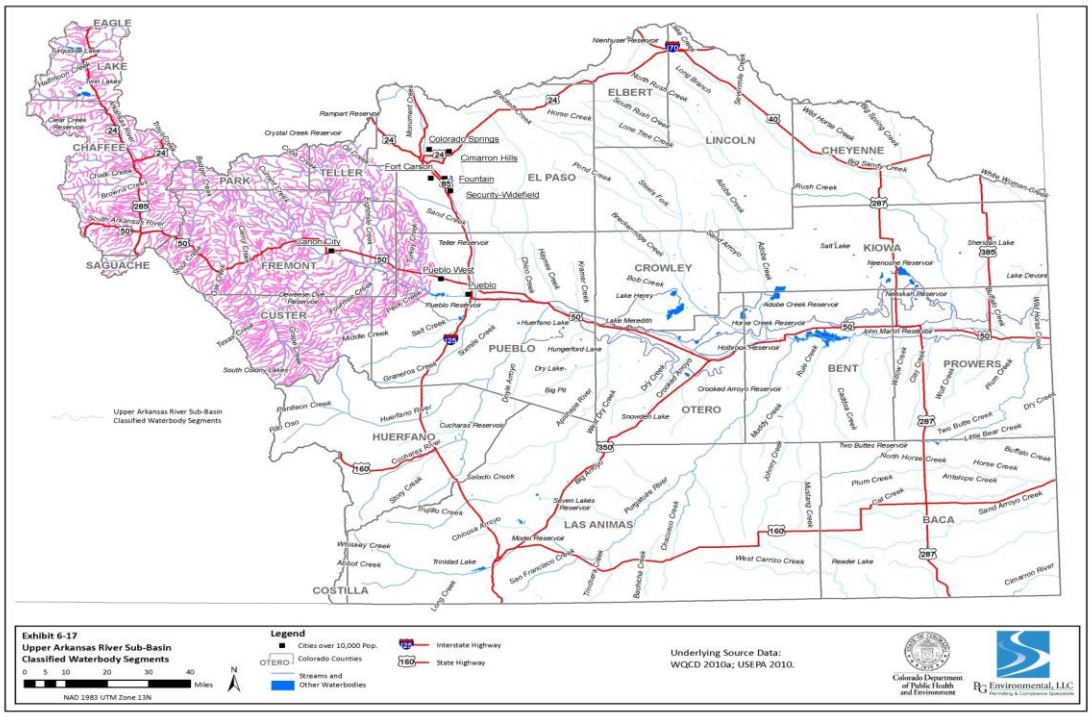

Figure 3 Upper Arkansas River Sub-Basin Classified Segments (Adapted from Statewide Water Quality Management Plan, 2011; Chapter 6, Exhibits)

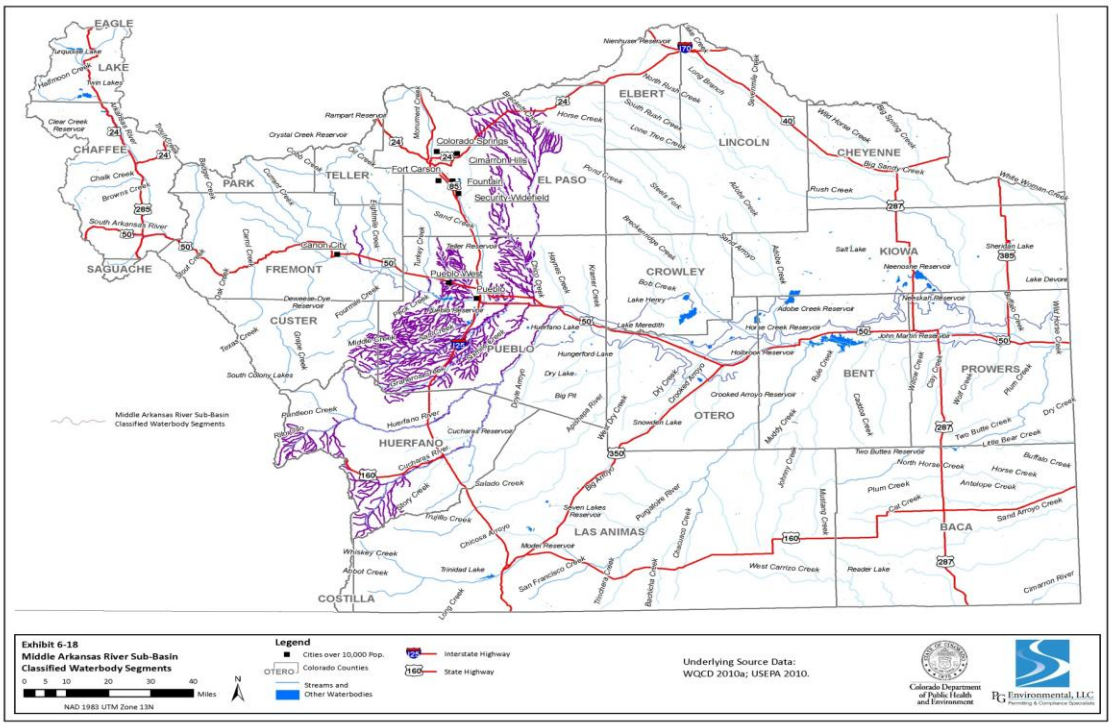

Figure 4 Middle Arkansas River Sub-Basin Classified Segments (Adapted from Statewide Water Quality Management Plan, 2011; Chapter 6, Exhibits)

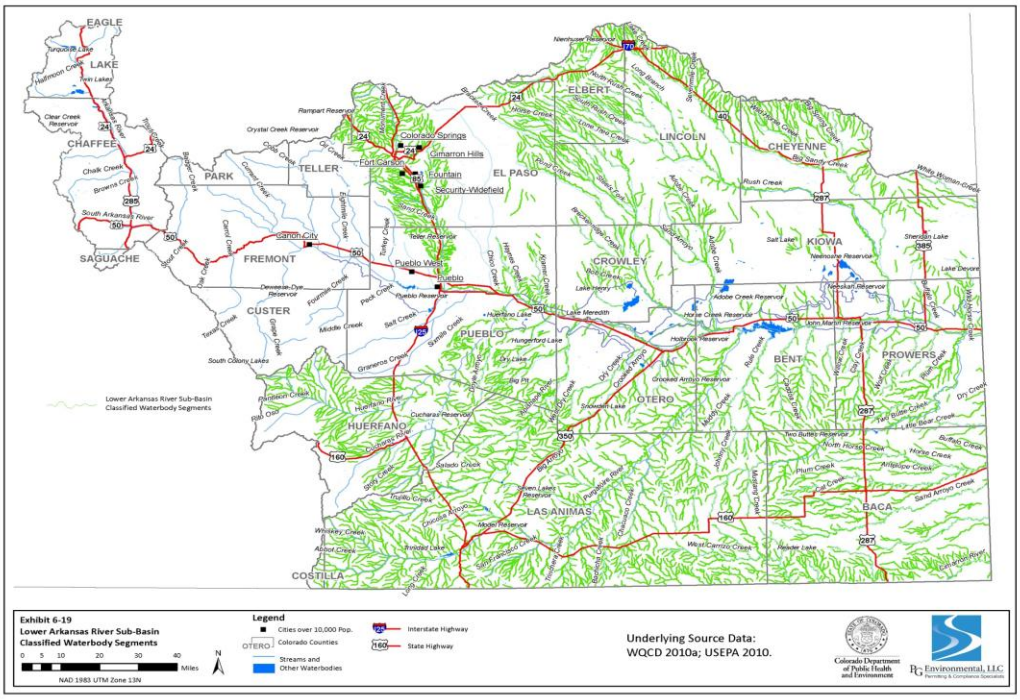

Figure 5 Lower Arkansas River Sub-Basin Classified Segments (Adapted from Statewide Water Quality Management Plan, 2011; Chapter 6, Exhibits)

The SWQMP and Colorado Section 303(d) list of impaired waters identifies 31 impaired stream segments in the Arkansas Basin with 6 impairments in the middle sub-basin associated with Pueblo County[5]. Selenium is the predominant parameter causing water quality impairment. Impairment is also caused by E. coli, sulfate (SO4) and iron (Fe), with a mercury concern in some lake segments. Pueblo Reservoir was evaluated for mercury but was not classified as impaired.

The impaired stream segments within Pueblo County are depicted in Figure 6 and listed in Table 1, which was extracted from the SWQMP chapter 6 and 2010 Regulation 93[5]. In 2010, the mainstem of the Arkansas River below the City of Pueblo was listed as impaired for Selenium and SO4. The selenium water quality standard for Lower Arkansas segment 1a has a temporary modification for uncertainty pursuant to section 31.7(3)(a)(i) of the Basic Standards- *"Lower Arkansas segment 1a: Se(ac/ch) = existing quality (type i), SO_4=existing quality (type i) expiration date of 12/31/2013"*.

The City of Pueblo Water Reclamation Facility conducted a significant amount of scientific research for more than a decade regarding selenium and sulfate concentrations and loads, selenium and sulfate sources, and measurable effects of selenium on the aquatic community. These data were used to develop appropriate site-specific criteria for selenium and sulfate at the June 2007 Arkansas River Basin triennial review hearing and a type i temporary modification

[5] WQCC. 2010b. Regulation No. 93: *Colorado's Section 303(d) List of Impaired Waters and Monitoring and Evaluation List.* 5 CCR 1002-93. Colorado Department of Public Health and Environment, Water Quality Control Commission, Denver, Colorado.

was provided by the WQCC to address irrigated agriculture with best management practices as necessary to achieve the necessary load reductions to meet the ambient standards.

> *The Commission adopted site-specific ambient- and attainability-based underlying standards for selenium on several segments in the Middle and Lower Arkansas, and Fountain Creek sub-basins. These included Fountain Creek segment 2b, Middle Arkansas segments 3 and 4a, and Lower Arkansas segment 1a. Ambient-based standards were adopted for Middle Arkansas segments 3 and 4a based upon showings by the City of Pueblo and the Division, respectively, that selenium loading to both segments results from natural sources and is not exacerbated by land use or other reversible, anthropogenic factor.*
>
> *Evidence developed by the City of Pueblo indicates that some degree of selenium and sulfate load reduction is attainable for Fountain Creek segment 2b and Lower Arkansas segment 1a. Reductions of one and six percent respectively are feasible given the current extent of irrigated agriculture within these two sub-basins. The Commission has therefore adopted attainability-based underlying selenium and sulfate standards for these segments, while retaining temporary modifications set at existing levels.*
>
> *The temporary modifications for selenium and sulfate in Lower Arkansas segment 1a are identified as type i temporary modifications. The expectation is that the Division and stakeholders will identify appropriate Best Management Practices as necessary to achieve the necessary load reductions within a twenty-year period.*

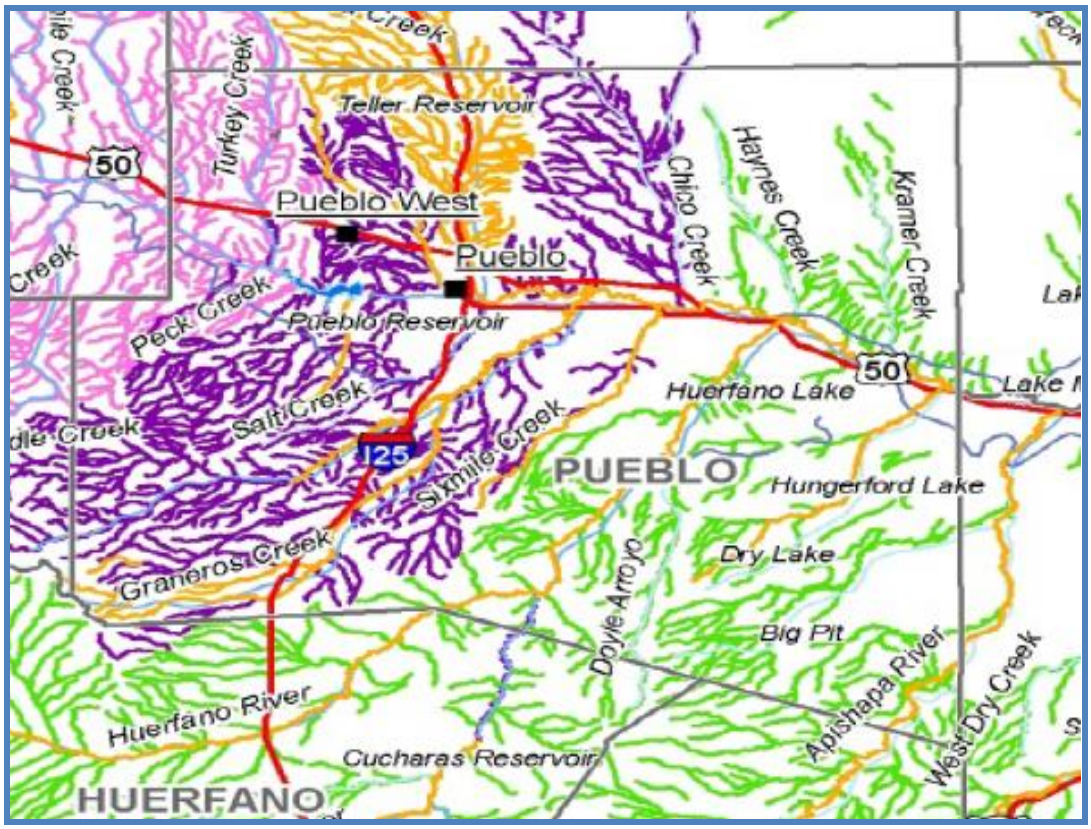

Figure 6 Impaired stream segments in Pueblo County are shown in gold. (Adapted from Statewide Water Quality Management Plan, 2011; Chapter 6, Exhibits)

Impaired stream segments are subject to the development of a total maximum daily load (TMDLs) by the Colorado Water Quality Control Division. The priority TMDLs are listed in the SWQMP by pollutant of concern. The SWQMP also defines a general strategy to target nonpoint source management within the basin.

The PACOG 2012 Water Quality Management Plan references the impairment and TMDL information contained within the SWQMP. Impairment concerns are incorporated into the discharge permits and listed for specific discharge segments. The PACOG 2012 Water Quality Management Plan may provide more detailed TMDL strategy and development recommendations in the future, as appropriate.

Table 1 Monitoring and Impaired Stream Segment in Pueblo County

Arkansas River Basin					
WBID	**Segment Description**	**Portion**	**Colorado's Monitoring & Evaluation Parameter(s)**	**Clean Water Act Section 303(d) Impairment**	**303(d) Priority**
COARFO02a	Fountain Creek, Monument Creek to Hwy 47	In Pueblo County		*E. coli*	H
COARFO02b	Fountain Creek from Hwy 47 to the Arkansas River	all		Se, E. coli (May-October)	L/H
COARLA01a	Arkansas River, Fountain Creek to Colorado Canal headgate	all		Se, SO4	L
COARLA01b	Arkansas River, Colorado Canal headgate to County Boundary	in Pueblo County		Se	L
COARLA04	Apishapa River, Timpas Creek, Lorencito Canyon	Apishapa River Pueblo County		Se	L
COARMA04a	Wildhorse Creek	all	NO2-N	E. coli	H
COARMA06	St. Charles River and tributaries, CF&I diversion to Arkansas River	all	U	Se	L
COARMA07	Greenhorn Creek, including all tributaries, from source to Greenhorn Highline Diversion Dam; Graneros Creek; North Muddy Creek	all	Cu, Zn		
COARMA09	Greenhorn Creek, including tributaries, from Greenhorn Highline Diversion Dam to the St. Charles River	all	Se		
COARMA10	Sixmile Creek	all		Fe(Trec), Se	L
COARMA12	Huerfano River, from Muddy Creek to the Arkansas River	all		Se	L
COARMA18a	Boggs Creek	all		Se, Zn, U	H
COARUA14b	Tributaries to the Arkansas River, from Pueblo Reservoir to Colorado Canal headgate	Teller Reservoir	Aquatic Life Use (Hg FCA)		

III. PACOG 2012 Water Quality Management Plan Structure

208 Planning Document Expectations

Regional water quality management plans prepared under Section 208 of the federal Clean Water Act should be updated regularly to reflect the progress of plan implementation and changes in regulatory programs. The plans are a source of water quality assessment information for the preparation of Colorado 305(b) reports. They also provide data, information and recommendations used for stream classifications, TMDLs and wasteload allocation studies, and permitting requirements necessary for regulatory decisions in the water quality management process. The federal Clean Water Act states that plans must include, but are not limited to, the following:

1. The identification of treatment works necessary to meet the anticipated municipal and industrial waste treatment needs over a twenty-year period, including treatment requirements, necessary wastewater collection and urban stormwater runoff systems, financial arrangements, and relationship to potential land use.

2. The establishment of construction priorities for such treatment works and time schedules for the initiation and completion of all treatment works.

3. The identification of regulatory programs used to manage waste management and discharge facilities.

4. The period of time necessary to carry out the plan, the costs of carrying out the plan within that time, and the economic, social, and environmental impact of carrying out the plan.

5. Processes to identify nonpoint sources of pollution including agriculture, silviculture, mining, construction activity, the control and disposition of residual waste, and the disposal of pollutants on land or in subsurface excavations to protect ground and surface water quality.

6. An identification of management and operating agencies to carry out appropriate portions of a water quality management plan.

General Process for Amending and Updating 208 Plans

The Clean Water Act and the Colorado Water Quality Control Act establish the update and amendment process. The plan amendment process is ongoing. A formal plan update, which incorporates all amendments as well as additional required information, should be done at regular intervals, generally on a three to 5-year schedule. The Division reviews all requests for section 208 plan amendments after they are duly adopted at the local level, determines whether the amendment is major or minor, and makes a recommendation as to whether the amendment warrants an informational hearing by the Colorado Water Quality Control Commission. The Commission has final authority to approve, deny, or conditionally approve a section 208 plan amendment and to recommend that the Governor certify the amendment to EPA.

Occasionally requests are made by regional planning agencies to amend a water quality management plan between plan updates or outside the updating process. Sometimes the need arises for approval of a plan amendment in a relatively short time frame, in order for a wastewater treatment project to proceed. Plan amendments proposed outside of the normal update cycle are a particular problem, as they affect the overall water quality planning process. In order to expedite the review process, when necessary, plan amendments can be classified as either major or minor.

Minor changes that are agreed to by the Division, the planning agency, and/or the management agency are not required to undergo an extensive amendment process. Neither the planning agency nor Division anticipates water quality impacts or major conflicts associated with a minor amendment. Minor changes can include some technical update information used for permitting purposes and water quality or environmental assessments from watershed studies. A periodic update of management plans eliminates the need for minor amendments with any minor change elements incorporated in the plan through a routine update process.

Major amendments warrant review by the Commission and require an informational hearing. These major amendments include, but are not limited to:

1. Changes in planning or management agency designation or membership.

2. Periodic updates to the priority water quality management plan elements previously listed in this section.

3. Changes that impact water quality or have generated public controversies.

4. Changes to stream standards, classifications or regulations approved by the Commission.

5. Changes that affect local, regional, state or commission policies and guidelines.

6. Changes that alter watershed management strategies.

7. Changes to discharge permits or permitting processes.

8. Other changes identified by the Division or Commission can be subjected to an informational hearing process.

Necessary Elements of Pueblo 2012 Wastewater Management Plan

For the plans to remain useful decision-making documents, it is necessary that specific components of the plans be amended periodically. Amendments to plans recommended by planning agencies must be made in accordance with the federal Clean Water Act and Colorado Water Quality Act. The regional water quality management plan elements that need to be kept current through the update and amendment process are as follows:

1) <u>Facility needs</u> – Discharge facility needs are those capital improvements, collection systems, purchases, and construction programs for wastewater treatment, which will

result in a change in degree or method of treatment or an increase in capacity. These needs, covering a minimum period of five years with a 20-year planning horizon, must be identified in the regional plan and be supported by population and/or employment projections, degree of treatment requirements, and facility timing criteria. New facilities must be consistent with the service area, location, and capacity identified in the plan or in other locally adopted plans. The plan identifies regional priorities for facility construction, improvement, or expansion.

2) Facility location - The regional plan locates existing and proposed (20-year planning horizon) municipal and industrial wastewater treatment facilities. The plan lists the stream segment to which a discharge occurs or is expected to occur. Stream segments are consistent with prevailing state stream classifications.

3) Capacity - The capacity of a waste treatment facility is based upon design criteria. The plan should identify the allowable organic and hydraulic throughput of the treatment works for existing conditions as well as projected needs through a 20-year planning horizon. The units of measure for allowable organic and hydraulic throughput must be consistent with discharge permit requirements.

4) Timing of expansion facilities - The Colorado Water Quality Control Act requires that domestic wastewater treatment works permittees "initiate engineering and financial planning for expansion of the sewage treatment works whenever throughput and treatment reach 80 percent of design capacity" and "commence construction of such sewage treatment works expansion whenever throughput and treatment reach 95 percent of design capacity." The regional plan identifies the existing throughput, treatment design capacity and years in which the facility is expected to reach 80/95 % of design capacity.

5) Population and/or employment projections - Population and/or employment projections are to be based on the best available information. Projections as adopted by the planning agencies and supported by the management agencies will determine the 20-year size of the service area and capacity of new or expanded treatment facilities.

6) Service area - The service area for a wastewater treatment facility is that area to which the facility provides wastewater service, is required to provide service, or will provide service when the facility reaches design capacity. It must be consistent with an adopted regional plan. Service areas are governed by an adopted wastewater utility plan.

7) Level of treatment - Prevailing stream standards, classifications and regulations will determine the level of treatment. Treatment levels established by the Division may be listed for existing and proposed facilities, which have gone through the site approval process. Recommended changes to treatment levels based on approved TMDLs may be listed in the plan.

8) Social, environmental and economic impacts of carrying out the plan - The plan should contain information on the costs and benefits of carrying out the plan in sufficient detail

as to be able to identify the costs to management and operating agencies, if appropriate. Other social, environmental and economic information will be provided, as appropriate.

9) Permit conditions - The major factors in permit conditions for a municipality is determined by effluent limitations. These limitations are subject to the prevailing stream classifications, standards and regulations. Water quality management plans can identify appropriate special permit requirements.

10) TMDLs/Wasteload allocations - The results of a TMDL/wasteload allocation, that has been recommended by the Water Quality Control Commission and approved by the Environmental Protection Agency, may be assigned to an individual discharger as an effluent limit contained in a State discharge permit. Water quality management plans may assist in determining the need for and completion of TMDL/wasteload allocation studies by:

   a) evaluating stream flow, water quality, and existing and projected wastewater discharges;

   b) documenting the need for such studies;

   c) recommending priorities for conducting TMDL/wasteload allocation studies;

   d) making recommendations regarding actual conduct of such studies, including institutional and financial arrangements for carrying out the studies; and

   e) Coordinating and recommending the most politically acceptable means for allocating wasteloads among multiple dischargers, where appropriate; and providing planning agency recommendations, where appropriate.

11) Nonpoint Source and Storm Water Information - The plan should update nonpoint source and stormwater information of a regional interest as it becomes available either through wasteload allocation studies, stream sampling projects, municipal control programs, or stormwater permit programs. The plan may identify nonpoint source elements, priority watersheds, best management practices, watershed restoration strategies, stormwater management programs and other watershed-oriented information.

12) Management Agency Review - PACOG is responsible for recommending each designated management agency within its planning area, which are identified in each plan update.

13) Watershed Restoration Plans – The plan should identify information that may be applicable to a specific watershed restoration strategy.

14) Source Water Assessment and Protection (SWAP) - The plan may identify information applicable to source water assessment and protection efforts under the Safe Drinking Water Act.

15) Links to Other Water Quality Related Programs – The plan may provide links, including strategies and recommendations, to other water quality related programs (e.g., Drinking Water, Superfund, Brownfield redevelopment, Endangered Species Act).

16) Partnerships – The plan can identify other water quality partnerships in addition to management agencies. These partnerships may include, but are not limited to, watershed associations, conservancy districts, river and/or lake protection groups and agencies.

17) Water Quality Analysis and Assessment – The plan may include specific water quality and environmental analysis and assessment results from special studies and efforts of management agencies or other appropriate partnerships.

18) Standards and Classifications – The plan may contain recommendations related to potential changes to water quality classifications and standards.

19) Regional Water Quality Policies – The plan may contain regional water quality or environmental policies, implementation guidelines and recommendations adopted by local government officials in the planning region.

Pueblo 2012 Water Quality Management Plan Planning Policy Direction

PACOG 2012 Plan Goal and Consistency Requirements

The quality of the county water bodies and surrounding land uses will be preserved and enhanced through the implementation of strategies and recommendation in the *PACOG 2012 Water Quality Management Plan.*

The role and uses of the approved *PACOG 2012 Plan* as listed in the *Colorado Water Quality Management and Drinking Water Protection Handbook: A Continuing Planning Process* (CPP or CPP Handbook) (WQCC 2006a)[6]include, but are not limited to the following:

1. The plans review the status of water quality within specific areas and report on progress in meeting the local, state, and federal water quality goals as well as watershed management objectives, which are established in approved plans.

2. The plans support and/or recommend revisions to water quality standards, stream classifications, and total maximum daily loads, where appropriate.

3. The plans include priorities, processes and recommended solutions for addressing water quality problems. The plans document results of local and regional TMDLs and special studies.

[6] WQCC 2006a. *Colorado Water Quality Management and Drinking Water Protection Handbook: A Continuing Planning Process* (CPP or CPP Handbook)

4. The plans identify priorities and permitting needs or wastewater utility/facility plans for improving or constructing wastewater facilities, as required by Section 208(d) of the Act.

5. The plans identify the social, economic and environmental costs and benefits of implementing portions of the plans, where appropriate.

6. The plans list existing or anticipated (20-year planning horizon) water quality problems, assessments and solutions.

7. The plans identify data and information to support watershed restoration action strategies, source water, TMDLs, stormwater and nonpoint source decision-making processes.

PACOG Policy Statement, Pueblo Reservoir

PACOG recognizes the differing geography, topography, watersheds/basins, drainages, populations, development, policies and community needs of each member. Nevertheless, as the principal water storage reservoir in the Fryingpan-Arkansas Project, Pueblo Reservoir is a significant resource that supplies water for irrigation, fishery, municipal and industrial use, and recreation. Pueblo Reservoir is a drinking water supply reservoir, playing an integral role in providing high quality water to a number of communities in the area. In addition, Pueblo Reservoir is one of the premier recreational destinations in southern Colorado. Therefore, it is imperative that its waters are protected to the highest degree possible and decisions affecting water quality have the smallest negative impact on this resource. It is PACOG's policy that discharges of domestic or industrial wastewater effluent within the PACOG planning area reaching the Pueblo Reservoir should be avoided unless reasonably justifiable based upon geographic, economic, environmental or other considerations that may be shown relevant. Notwithstanding this policy statement, no member entity is precluded thereby from submitting a site or discharge application for any point or location to the Water Quality Control Division in conformance with the Federal Clean Water Act and Colorado Water Quality Control Act. PACOG acknowledges that authority to deny or approve a site or discharge application is vested in the Water Quality Control Division. The Division will consider recommendations from the PACOG planning agency based on this policy and will assign it such weight as it deems appropriate under existing law.

Planning Agency Expectations

Water quality management is a regulatory program governed by the federal Clean Water Act and state statute. However, PACOG's role, as defined in both state and federal law, is not regulatory but planning. As the designated planning agency, PACOG's approved 2012 Water Quality Management Plan provides the guidance to regulatory agencies in making water quality decisions. Based on federal law, no wastewater discharge facility permit should be issued which is inconsistent with a locally or stated approved regional water quality management plan.

The role of PACOG as an areawide planning agency in water quality management is outlined in the SWQMP (July 2011) and as defined in the federal Clean Water Act, along with the definition of water quality management plans. Water quality management consists of initial plans produced in accordance with the federal Clean Water Act (sections 208 and 303(e)) and certified and approved updates to those plans. Continuing water quality planning is based upon water

quality management plans and water quality problems identified in the state water quality inventory reports (section 305(b))[7].

The relationship between the planning agencies, approved plans and regulatory agencies is defined in the *Continuing Planning Process for Water Quality Management in Colorado* as maintained by the Colorado Water Quality Control Commission. It sets forth objectives and operational requirements of the state's water quality management program, its organizational structure, and intergovernmental decision making process, and timing relationships. This process acknowledges the regulated community's role in making water quality management an effective and efficient process through an iterative program. The PACOG 2012 Water Quality Management Plan reflects the regulated community's preference for a wastewater management system and, as a water quality management plan, it is used to direct implementation.

For the water quality management plans (e.g., *Pueblo 208 Plan*) to remain as useful decision making documents, it is necessary that specific components of these plans must be amended periodically. Amendments to the plans must be made in accordance with the federal Clean Water Act and Colorado Water Quality Act. The principal management plan elements that need to be kept current by designated planning agencies through the update and amendment process are defined in the state continuing planning process.

As part of the State Water Quality Act, site applications are needed for construction or expansion of wastewater treatment works, lift stations, and major interceptor lines. Final action on site applications is a function of the Water Quality Control Division after a review by appropriate local entities and PACOG. The discharge permit represents the basic tool for achieving water quality goals. It is a legally enforceable document, which can subject a violator to significant penalties under state and federal law.

One function of the PACOG 2012 Water Quality Management Plan is to determine where water quality limitations are needed and to recommend appropriate limits. This is especially critical in complex urban watersheds where effluent of many facilities intermingles. In accordance with the site application review process and other regulatory review processes, PACOG reviews all proposed water quality and wastewater management projects within Pueblo County.

Planning Documents and Update Schedule

The state management plan is now the "master document" for water quality planning and all existing 208 plans need to conform to this document and recognize that it provides the basis for all local 208 planning. The state clearly recognizes within established 208 planning areas, such as Pueblo County, that a local planning document can provide more detail and area-specific planning considerations.

A major component of the PACOG 2012 Water Quality Management Plan is the demographic information for all domestic waste treatment facilities. The state also needs the local plan to have detailed information on wastewater service areas and changes to wastewater service areas

[7] WQCD. 2010c. *Integrated Water Quality Monitoring and Assessment Report*. Colorado Department of Public Health and Environment, Water Quality Control Division, Denver, Colorado.

within a minimum 20-year planning horizon. As such, the PACOG 2012 Water Quality Management Plan can be structured to link with the state management plan and avoid redundancy in planning information, while providing essential local input on planning information. These new planning document approaches will in effect greatly stream-line the Pueblo 208 plan (PACOG 2012 Water Quality Management Plan or *PACOG 2012 Plan*).

The new PACOG 2012 Water Quality Management Plan is comprised of multiple documents:

1) PACOG 2012 Guidance Plan (This Document); and

2) Wastewater Utility Plans (one for each permitted domestic wastewater treatment facility). These wastewater utility plans will be completed within 2-years of the approval of this PACOG 2012 Guidance Plan.

This basic planning document (PACOG 2012 Guidance Plan) identifies the planning agency and role, management agencies and expectations, consistency requirements with state and federal regulations, water quality characterization of the county, general planning policy direction, general planning projections for the county and future expectations for the county. The PACOG 2012 Guidance Plan document also provides a summary listing of all wastewater treatment facilities in the county, the domestic wastewater treatment facilities with utility plans, which includes wastewater service areas, and summary sheets. The PACOG 2012 Guidance Plan will also characterize water quality planning information contained in the Statewide Water Quality Management Plan, July 2011; Chapter 6, Exhibits and as periodically updated by the WQCD and the WQCC[8].

This PACOG 2012 Guidance Plan will also develop by the next review cycle (5-years from date of state approval) a process to transition the area into a watershed or water basin (or sub-basin) approach. This sub-basin watershed approach will mirror the preferred process established in the state management plan. Water quality impairment, 303(d) listing and any required wasteload allocations will be linked to the watershed or sub-basin process.

The PACOG 2012 Guidance Plan will be reviewed and approved on a 5-year cycle. The 5-year review will identify any need for a change, updates to growth and development in the county, changes to water quality as reflected in local or state documents, new references to wastewater utility plans as appropriate and other updates consistent with the 208 planning review. The result of the PACOG review may result in no changes to the PACOG 2012 Guidance Plan, however a formal action should be taken that updates the effective date of the document and notes that "no text changes" were made to the PACOG 2012 Guidance Plan. This updated version need not be submitted to the WQCD for review. The new dated version should be posted for electronic review.

[8] Statewide Water Quality Management Plan. Colorado Department of Public Health and Environment, Water Quality Control Division. June 1, 2011.

If the PACOG 2012 Guidance Plan requires an update(s), the approved updated version will be submitted to the WQCD for a determination if the updated document needs to be subjected to a formal review by the Water Quality Control Commission through an informational hearing.

E-Document Management

The PACOG 2012 Water Quality Management Plan and associated documents are available in a PDF format at http://county.pueblo.org/planning-and-development. The county planning and development page (once operational) will provide a link to the following documents:

1. PACOG 2012 Guidance Plan and any support documents/resolutions related to periodic updates.

2. Wastewater Utility Plans and active wastewater discharge permits for Avondale Water and Sanitation District, Colorado City Metropolitan District/Town of Rye, Town of Boone Sanitation District, City of Pueblo, Meadowbrook Mobile Home Park, and Pueblo West Metropolitan District.

3. The portion of the Statewide Water Quality Management Plan for the Arkansas Basin, July 2011; Chapter 6, Exhibits and as periodically updated by the WQCD or WQCC.

4. Special water quality management reports relevant to Pueblo County.

Wastewater Utility Plans

The six permitted publically owned treatment works will have a "wastewater utility plan", which generally mirror the type of information and checklists needed in the Colorado Site Application Process (Guidance Document for the Site Location and Design Approval Regulations, For Domestic Wastewater Treatment Works. Regulation Number 22, November 2007).

Utility plans will be published under separate cover and referenced only within the PACOG 2012 Water Quality Management Plan section - *PACOG 2012 Guidance Plan*. Table 2 lists the six permitted wastewater facilities that require wastewater utility plans.

Table 2 Wastewater Treatment Dischargers Requiring Wastewater Utility Plans

Discharger	2011 Permit	Permit Type
Domestic Wastewater Treatment Dischargers, Pueblo County		
Avondale Water and Sanitation District WWTF	CO-0021075	Domestic - Minor Municipal, Lagoon System
Ft Reynolds Lagoon		Domestic - Minor Municipal, Lagoon System
Colorado City Metropolitan District/Town of Rye	CO-1021121	Domestic - Minor Municipal, Lagoon System
Town of Boone Sanitation District	COG-589116	Domestic - Minor Municipal, Lagoon System
City of Pueblo	CO-0026646	Domestic - Major Municipal, Mechanical Plant
Meadowbrook Mobile Home Park	COG-584022	Domestic - Minor Municipal, Mechanical System
Pueblo West Metropolitan District	CO-0040789	Domestic - Major Municipal, Mechanical Plant

A wastewater utility plan addresses utility service area for one or more existing or proposed wastewater treatment works. A wastewater utility plan is a document (or set of documents) which provide basic information for wastewater treatment works to:

1) Meet the requirements of the Colorado site application regulation (Regulation 22) as adopted by the Colorado Water Quality Control Commission;

2) Provide treatment works information to assist in preparing *site application* amendments or discharge permits;

3) Identify available water quality data and assessments. Generally this information will mirror available water quality assessment reports developed by the Water Quality Control Division and includes, but is not limited to:

   a) Preliminary Effluent Limits (PELs),
   b) Copy of issued permit limits,
   c) Summary of the WQCD Water Quality Assessment (WQA) analysis,
   d) Low flow analysis,
   e) Pollutants of concern,
   f) 305(b) listings,
   g) Monitoring and Evaluation listing,
   h) Temporary modifications,
   i) Recommended or adopted total maximum daily loads (TMDLs),
   j) Local or PACOG studies and water quality analysis, and
   k) Permittee generated technical memorandums and recommendations.

4) List wastewater management strategies for a treatment works, including collection systems;

5) Provide facility information to assist in preparing total maximum daily loads, wasteload allocations and/or other watershed planning efforts, as appropriate or necessary;

6) Assure that adjacent utility plans do not overlap and provide regional consistency.

7) Provide alternate demographic or updated information.

8) Provide service area maps and any expected future expansions of service areas.

9) Provide information on associated collection agencies.

Utility Plans are referenced in this PACOG 2012 Water Quality Management Plan. Utility plans are maintained by the utility for planning and permitting purposes and can be amended at anytime by utility as necessary and appropriate. As such, the PACOG 2012 Plan need not be updated when a utility plan is amended and the most current utility plan remains the controlling

document for site application and permitting purpose as referenced. This process is intended to facilitate a timely processing of utility plans.

A copy of the most recent utility plan must be submitted to PACOG for review and inclusion within a reference library. The preferable storage of the utility plans is as a PDF document that is posted for public review by PACOG. The planning agency review is limited to determine that a utility plan is not in conflict with any adjacent utility plan and is consistent with the intent of a 208 plan document. No formal action may be required by PACOG in this review process, but PACOG is not restrained from taking a formal action.

The expectation is that during the 5-year review cycle of the PACOG 2012 Guidance Plan, all changes or updates to wastewater utility plans will be incorporated by reference.

IV. PACOG 2012 Plan Institutional Framework

Planning Agency

The Pueblo Area Council of Governments (PACOG) is responsible under state and federal statutes for regional planning as the designated water quality planning agency for Pueblo County. In this capacity, the council prepares and updates the PACOG 2012 Water Quality Management Plan, the management plan for achieving water quality standards and classifications pursuant to section 208 of the Federal Clean Water Act. Table 3 lists the membership of PACOG.

Table 3 PACOG Membership in 2012

Members of PACOG
City of Pueblo
County of Pueblo
Board of Water Works
School District No. 60
School District No. 70
Pueblo West Metropolitan District
Colorado City Metropolitan District
Salt Creek Sanitation District

Planning Agency Responsibilities

The role of PACOG is to assure that the necessary information for water quality decisions is adequate and up-to-date and that there is proper follow-through on the part of the management agencies designated in the PACOG 2012 Plan. PACOG reviews annually the status of water quality in the county and reports on progress in meeting the local, state, and federal water quality goals established in approved documents. When regularly updated, the PACOG 2012 Plan can serve as the required water resources management progress report for the WQCD programs. The planning process is continuous and iterative. As solutions are found to many of the more pressing pollution problems, other issues and problems need solutions. The objectives, policies and guidelines used in water quality planning and wastewater management as described in the PACOG 2012 Plan are designed to steer this process.

The PACOG 2012 Plan maintains information on a broad spectrum of topics that are defined as PACOG planning responsibilities. These topics include, but are not limited to: population and land use forecasts, wastewater flows, system of facilities, treatment facility characterization, wasteload allocations, nonpoint source and urban stormwater management and control, residual waste, land disposal, water quality characterization, stream modeling, management plans, construction scheduling, funding priorities, and other appropriate wastewater and water quality planning information.

The general expectations of PACOG as a planning agency include, but are not limited to:

1. Annually review the status of water quality and report on progress in meeting the local, state, and federal water quality goals.

2. Set priorities and identify local needs for improving or constructing wastewater facilities, as required by section 208(d) of the act.

3. Identify the social, economic and environmental costs and benefits of implementing PACOG 2012 Plan.

4. Provide continuous water quality planning consistent with related areawide development planning efforts for a minimum 20-year planning period.

5. Provide guidance to management agencies in implementing recommendations contained in the PACOG 2012 Plan.

6. Document consistency through the PACOG 2012 Plan that permits meet the Water Quality Control Division and the Water Quality Control Commission requirements.

7. Monitor and evaluate water quality and other appropriate environmental resource implementation activities and progress in the county.

8. Encourage corrective action by management agencies to make adjustments as necessary.

9. Be an active water resources advocate.

10. Evaluate and recommend appropriate strategies related to nonpoint source and stormwater management planning, including periodic review of best management practices and other implementation tools.

11. Provide regional policy development and review.

12. Recommend revisions to water quality standards and stream classifications, where appropriate.

13. Assist designated management agencies with the review of site applications to assure consistency with both approved water quality management plans and policies.

14. Review discharge permits to assure that discharges to a stream segment are treated in accordance with the approved PACOG 2012 Plan, as required by section 208(e) of the act.

15. Review, evaluate, and assist designated management and operating agencies in carrying out their responsibilities established in the approved plan.

16. Public hearing process.

Management Agency Designations

1993 Management Agencies

The establishment of water quality policies based upon parameters developed by the State of Colorado rests with water quality management agencies for the region. The City of Pueblo and the County of Pueblo were designated by the 1977 208 Plan as the *Areawide Water Quality Management Agencies for the Pueblo Region*. The management agencies are responsible for the coordination of water quality management projects for both point sources and nonpoint sources within their respective jurisdictions.

In 1993, the City of Pueblo was designated as the water quality management agency for land, systems, and projects within the boundaries of the following five political subdivisions:

1. City of Pueblo;

2. Salt Creek Sanitation District;

3. Blende Sanitation District;

4. Portion of the St. Charles Mesa Sanitation District; and

5. Pueblo Memorial Airport and Pueblo Airport Industrial Park.

The 1993 plan noted that the management jurisdiction would change as the boundaries changed (e.g., annexation). The City of Pueblo was designated as the management agency for Salt Creek and Blende because their sanitary waste is treated by the City of Pueblo's wastewater treatment plant. Also a portion of St. Charles Mesa was served by the City's wastewater treatment plant through the Blende collection system. The Pueblo Airport was under City of Pueblo management because:

1. A portion of the land was annexed by the City;

2. The land was either under City ownership or general control;

3. Potable water for the Airport was available on-site from the Pueblo Board of Water Works; and

4. The Airport's wastewater is treated by the City's treatment plant.

Pueblo County was designated the water quality management agency for all remaining land, systems, and projects within Pueblo County, and that are not otherwise under the City of Pueblo's jurisdiction. These included the following political subdivisions:

1. Pueblo West Metropolitan District;

2. Pueblo Reservoir State Recreation Area (Arkansas Point, Northern Plains, and Rock Canyon;

3. St. Charles Mesa Sanitation District (that portion not under the City of Pueblo's jurisdiction);

4. CF&I Steel L.P.;

5. Avondale Water and Sanitation District;

6. Town of Boone Sanitation District;

7. Colorado City Metropolitan District; and

8. Town of Rye

2012 Management and Operating Agency Update

Table 4 lists four 2012 designated water quality management agencies in Pueblo County. The City of Pueblo and Pueblo County remain as management agencies. The current political subdivisions associated with these management agencies are also listed in Table 4. Table 5 lists the operational and collection agencies in the county.

Table 4 Designated Water Quality Management Agencies

Designated Water Quality Management Agencies
1. City of Pueblo
Salt Creek Sanitation District
Blende Sanitation District
Portion St. Charles Mesa Sanitation District
Pueblo Memorial Airport
Pueblo Airport Industrial Park
2. Pueblo County
Pueblo Reservoir State Recreation Area
Portion St. Charles Mesa Sanitation District
Avondale Water and Sanitation District
Town of Boone - Sanitation
Town of Rye
Unincorporated Pueblo County

Designated Water Quality Management Agencies
For Industrial, Stormwater, Construction, Groundwater Permits
3. Pueblo West Metropolitan District
4. Colorado City Metropolitan District

Table 5 **Designated Operating Agencies and Wastewater Collection Agencies**

Designated Operating Agencies
Avondale Water & Sanitation District
Town of Boone - Sanitation
Colorado City Metropolitan District
Meadowbrook Mobile Home Park
City of Pueblo
Pueblo West Metropolitan District
Pueblo Reservoir State Recreation Area
CF&I Steel L.P. DBA Evraz Rocky Mountain Steel
Comanche Station, Public Service Company
Wastewater Collection Agencies
Blende Sanitation District
Town of Rye
Salt Creek Sanitation District
St. Charles Mesa Sanitation District

Management Agency Roles and Responsibilities

The expectations of management agencies are defined in the SWQMP, July 2011 and the Colorado Continuing Planning Process. Management agencies are encouraged to work closely with PACOG on water quality and water resources issues. Operating, collector and interceptor agencies must work through the designated management agency to which they are tributary.

Management agencies are expected to carry out appropriate portions of the PACOG 2012 Plan, while effectively managing, designing, constructing and operating wastewater treatment works and related facilities for a designated service area. Management agencies can raise revenues, and accept and use grants, loans and funds from other sources for wastewater treatment management purposes. Management agencies are responsible for assuring implementation of an approved wastewater treatment management plan, with each participating community paying its proportionate share of treatment costs.

Pueblo County, the City of Pueblo, Colorado City Metropolitan District, and Pueblo West Metropolitan District as management agencies are designated by the governor to implement the PACOG 2012 Plan. These management agencies have the legal, institutional, managerial and financial capability necessary to carry out their responsibilities. They can, individually or as a group, implement the following six authorities and responsibilities:

1. Implement policies and recommendations and assure implementation of the PACOG 2012 Plan and specific wastewater utility plans.

2. Effectively manage wastewater treatment and oversee operating and collection agencies.

3. Accept and utilize grants, loans, and funds from other sources for water quality management purposes.

4. Raise revenues, including the assessment of appropriate fees and charges, and incur short- and long-term indebtedness.

5. Where applicable, accept industrial wastewater for treatment and manage pretreatment programs.

6. Develop and maintain wastewater utility plans for designated operating agencies.

PACOG as a group and through its management agencies can develop strategies and recommendations for all wastewater dischargers, address nonpoint source pollution problems and potential concerns, provide input into the development of TMDLs for listed impaired waters, assure individual sewage disposal systems (e.g., septic systems) are not a quality problem, and assist permitted stormwater MS4s with stormwater management.

Operating Agency Roles and Responsibilities

The expectations of operating agencies are defined in the SWQMP, July 2011 and the Colorado Continuing Planning Process.

1. Implement federal and state requirements, as appropriate, including discharge limitations, operation and maintenance procedures, user charges, industrial cost recovery, industrial pretreatment, within its service area.

2. Operate and manage wastewater treatment works and related facilities within its defined wastewater service area.

3. Design and construct new wastewater treatment facilities within its service area.

4. Accept and utilize financial assistance for wastewater treatment works within its service area.

5. Raise revenues and incur indebtedness as provided by Colorado statutes.

6. Provide assistance for operation of the management agency, as determined by PACOG.

7. Submit to PACOG information related to projects for which federal or other funds may be solicited.

8. Submit to PACOG information affecting its service area relative to the extension of water and wastewater transmission lines and the addition of new areas within the boundary of the operating agency.

9. Consider the implementation of any water quality plan or proposal agreed upon by the management agency. However, the adoption and enforcement of any regulation needed to comply with any such plan or proposal shall remain within the sole discretion and jurisdiction of each operating agency.

10. Manage associated collection agencies.

Stormwater Permitted Agencies

Stormwater management remains a responsibility of management agencies and is defined as such in the Statewide Water Quality Management Plan[9] On November 16, 1990, EPA issued a final regulation on the control of stormwater from municipal and industrial stormwater discharges. The WQCD administers this regulation and associated program to reduce the amount of pollutants entering streams, lakes and rivers as a result of runoff from residential, commercial and industrial areas. Municipal separate storm sewer system, or MS4, covers a conveyance or system of conveyances (including roads with drainage system, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

1. Owned or operated by a State, city, town, county, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or a designated and approved management agency under section 208 of the Clean Water Act that discharges to state waters;

2. Designed or used for collecting or conveying stormwater;

3. Which is not a combined sewer; and

4. Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2 and 5 CCR 1002-20, Sec. 4.3.7.X(3-91).

The industrial permit requirements include prohibitions against discharges of non-stormwater. Permits require dischargers to control and eliminate the sources of pollutants in stormwater through the development and implementation of a Stormwater Management Plan (SWMP). The plan includes Best Management Practices (BMPs), which may include treatment of stormwater discharges along with source reductions. Permit holders are required to submit semi-annual inspections, annual reports, and appropriate discharge monitoring reports to the WQCD.

[9] Statewide Water Quality Management Plan. Colorado Department of Public Health and Environment, Water Quality Control Division. June 1, 2011.

Table 6 lists the three stormwater MS4 designated permit holders in Pueblo County. In addition other industrial dischargers also have stormwater discharge permits. Colorado recognizes 6 types of general industrial stormwater permits as listed in Table 7.

Table 6 Pueblo County Stormwater MS4s Permit Holders

Pueblo County MS4s Permit Holders
Pueblo County
Pueblo West Metro District
City of Pueblo

Table 7 Types Of Colorado Industrial Stormwater General Permits

Permit Type	General Permit
Light Industry	Permit No. COR-010000
Heavy Industry	Permit No. COR-020000
Construction	Permit No. COR-030000
Metal Mining	Permit No. COR-040000
Sand and Gravel	Permit No. COR-340000
Coal Mining	Permit No. COG-850000
Recycling Industry	Permit No. COR-060000

V. General County Wastewater Management

The PACOG planning process takes a broad perspective related to facility needs, scheduling, treatment levels, and setting priorities for needed facilities. Management agencies and associated operating agencies, in addition to being responsible for implementing aspects of the PACOG 2012 Plan, decide on the need for and specific characteristics of wastewater treatment processes and the details of implementation within specified parameters. The PACOG 2012 Plan contains five factors that are used to determine consistency of permit and site applications: location, sizing, staging, service area and effluent quality. Three of these (sizing, staging and service area) are growth related. PACOG uses state demographic forecasts to calculate sizing and staging needs of treatment facilities and uses locally defined service areas.

In determining the wastewater treatment needs, the primary goal is to provide reasonable, feasible and economical wastewater service to any particular area. Consideration is given to the impact the treatment system will have on receiving waters, the ability to meet water quality standards and the impact a discharge may have on downstream dischargers. The need for a treatment system is based on growth and development consistent with PACOG's and Pueblo County comprehensive plan growth expectations.

System of treatment works

Currently, the PACOG region is served by 6 permitted domestic wastewater treatment facilities, which range in design capacity (size) from the City of Pueblo at 19-million gallon-per-day (MGD) system, Pueblo West at 1.8 MGD, to 4 smaller facilities that are sized less than 0.4 MGD (Table 8).

In 2010, about 28 percent of the population in the region do not receive centralized sewer service and uses individual sewage disposal systems. It is assumed that the number of households in the county that will remain on or begin to use septic systems is 28-29% of the population. In 2010, there were about 14,400 septic systems in use with the number projected to increase to 21,750 by 2035. On a county basis, these individual systems in 2010 generated about 3.2 MGD of discharge into groundwater aquifers. By 2035, the discharge from septic systems will be about 4.9 MGD.

Table 8 Design Capacity of Domestic Wastewater Treatment Dischargers

Domestic Wastewater Treatment Dischargers, Pueblo County				
Discharger	**2011 Permit**	**Permit Issue**	**Permit Expires**	**Design Capacity (MGD)**
Avondale Water and Sanitation District WWTF	CO-0021075	17-Nov-05	31-Dec-10	0.1146
Ft Reynolds Lagoon		17-Nov-05	31-Dec-10	0.016
Colorado City Metropolitan District/Town of Rye	CO-1021121	30-Nov-10	31-Dec-14	0.4
Town of Boone Sanitation District	COG-589116	28-Apr-11	1-Apr-16	0.031
City of Pueblo	CO-0026646	30-Apr-10	31-May-15	19

Domestic Wastewater Treatment Dischargers, Pueblo County				
Discharger	**2011 Permit**	**Permit Issue**	**Permit Expires**	**Design Capacity (MGD)**
Meadowbrook Mobile Home Park	COG-584022	8-Jul-09	31-May-10	0.12
Pueblo West Metropolitan District	CO-0040789	31-Aug-09	30-Sep-14	1.8

All wastewater treatment dischargers in the county treat about 12 million gallons per day of wastewater through centralized systems. The combined design capacity of existing wastewater treatment systems is about 21.5 MGD. Based on 2035 growth expectations, treatment facilities in the county will still need to add at least 1 MGD of additional municipal wastewater treatment capacity. Detailed information about these treatment works will be contained in separate wastewater utility plans expected for completion within 2-years of the approval by the state of this management plan.

Facility sizing

Major wastewater treatment facilities include those permitted systems which are expected to expand within a 20-year planning horizon and require additional planning information be generated on a timely basis. Minor wastewater treatment plants have design capacities of 50,000 gallons per day or less and they are expected to function without any increase in the permitted design capacity within the planning horizon. Wastewater utility service areas for major treatment works are defined as serving over 200 residential equivalents with a permitted wastewater treatment facility design capacity larger than 50,000 gallons per day or the facility does not qualify as a minor treatment facility. The City of Pueblo and Pueblo West are major facilities and the other dischargers are classified as minor facilities (Table 9).

Table 9 Major and Minor Wastewater Treatment Works

Discharger	**2011 Permit**	**Permit Type**
Avondale Water and Sanitation District WWTF	CO-0021075	Domestic - Minor Municipal, Lagoon System
Ft Reynolds Lagoon		Domestic - Minor Municipal, Lagoon System
Colorado City Metropolitan District/Town of Rye	CO-1021121	Domestic - Minor Municipal, Lagoon System
Town of Boone Sanitation District	COG-589116	Domestic - Minor Municipal, Lagoon System
City of Pueblo	CO-0026646	Domestic - Major Municipal, Mechanical Plant
Meadowbrook Mobile Home Park	COG-584022	Domestic - Minor Municipal, Mechanical System
Pueblo West Metropolitan District	CO-0040789	Domestic - Major Municipal, Mechanical Plant

Wastewater Treatment Facility Expansions

Only three treatment facilities are expected to need an expansion prior to 2035 (Table 10). The Colorado City Metropolitan District may need a facility expansion by about 2018, dependent on growth within the district and the associated Town of Rye. The need for this expansion can be better addressed in their wastewater utility plan.

The City of Pueblo may need to begin facility planning for expansion in about 2025. The design of the 1989 and 2003 wastewater treatment facilities components at the plant were based on the projection of serving 147,000 people. Using this expansion need with the 2011 population

growth estimates, the treatment plant would need an expansion by 2028. Since major treatment facilities often require more time for planning and permitting of a major expansion, the planning process should begin by 2018.

The Pueblo West Metropolitan District has designed a build-out of their district, in which case no expansion may be required before 2035. The other factor affecting the district is the number of septic systems built within the district during this time. As such, there is potential need for expansion between 2030 and 2035. Future planning information as noted in the district's recent site application process (August 2009) would suggest no plant expansion may be necessary before 2035:

> *The original planning for wastewater utility service by PWMD provided for wastewater collection within approximately one-sixth of the PWMD jurisdictional area. Wastewater from the remaining five-sixths of the PWMD area was to be treated by individual on-site sewage disposal systems ("ISDS"). The current total population of Pueblo West is about 30,000 people, with about 14,800, or one-half, within the PWMD wastewater service area. Census data has established a ratio of 2.8 persons per residential sewer tap. PWMD currently estimates that the ultimate number of sewer taps that could be connected to the collection system is 8,375, which could make the build out population of the wastewater service area 23,500.*

Table 10 Expected Wastewater Treatment Facility Expansions Through 2035.

Domestic Wastewater Treatment Dischargers, Pueblo County					
Discharger	**2011 Permit**	**Design Capacity (MGD)**	**2010 Flow (MGD)**	**% 0f Capacity**	**Plant Expansion**
Avondale Water and Sanitation District WWTF	CO-0021075	0.1146	0.016	14%	None anticipated through 2035
Ft Reynolds Lagoon		0.016	0.004	25%	None anticipated through 2035
Colorado City Metropolitan District/Town of Rye	CO-1021121	0.4	0.29	73%	2018
Town of Boone Sanitation District	COG-589116	0.031	0.0024	8%	None anticipated through 2035
City of Pueblo	CO-0026646	19	10.565	56%	After 2025
Meadowbrook Mobile Home Park	COG-584022	0.12	0.04	33%	None anticipated through 2035
Pueblo West Metropolitan District	CO-0040789	1.8	1	56%	2030-2035
Total MGD		21.48	11.92		

Wastewater Service Areas

Each wastewater treatment facility has a designated treatment facility site and a defined service area. The service area is that area to which the facility provides wastewater service or will provide service in the future. The service area is usually defined by urbanized areas requiring services by the year 2035 and may be defined by municipal boundaries, legal boundaries of

sanitation districts or hydrologic boundaries. The service area maps for the dischargers in the planning region are shown in Table 11.

Table 11 Wastewater Discharger Service Areas Maps.

Discharger	2011 Permit	Service Area
Avondale Water and Sanitation District WWTF	CO-0021075	Existing District Boundary (See Figure 7); Location of the Avondale and Ft. Reynolds Lagoon Systems (Figure 8)
Ft Reynolds Lagoon		Existing District Boundary (See Figures 7 and 8)
Colorado City Metropolitan District/Town of Rye	CO-1021121	Existing District Boundary plus Town of Rye community limit and service area (See Figure 9); The Colorado City discharge point is shown in Figure 10.
Town of Boone Sanitation District	COG-589116	Existing Town Boundary (See Figure 11)
City of Pueblo	CO-0026646	Existing City Boundary plus special collection agency boundaries and future potential service areas (See Figure 12)
Meadowbrook Mobile Home Park	COG-584022	Mobile Home Park Boundary, fixed (See Figure 13)
Pueblo West Metropolitan District	CO-0040789	Existing District Boundary (See Figure 14);

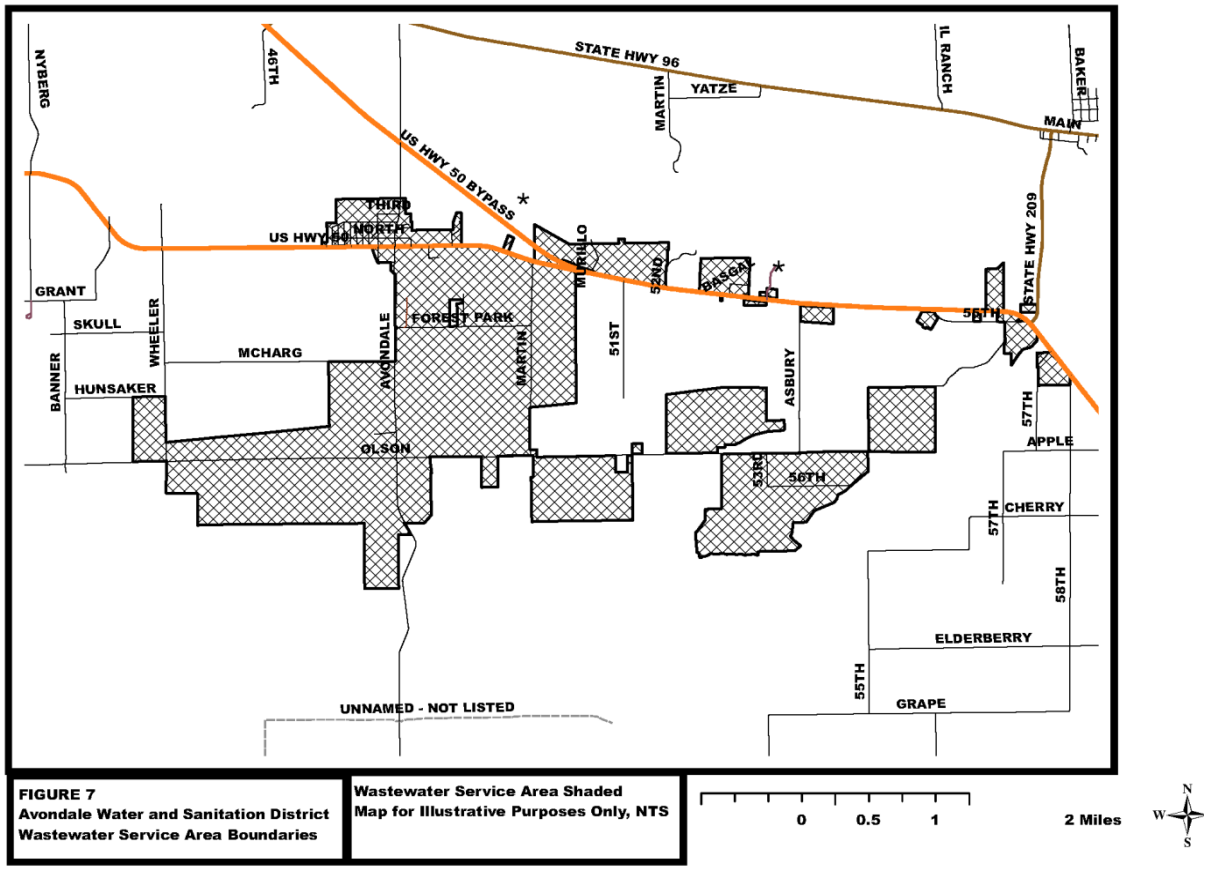

Figure 7 Avondale Water and Sanitation District Service Area

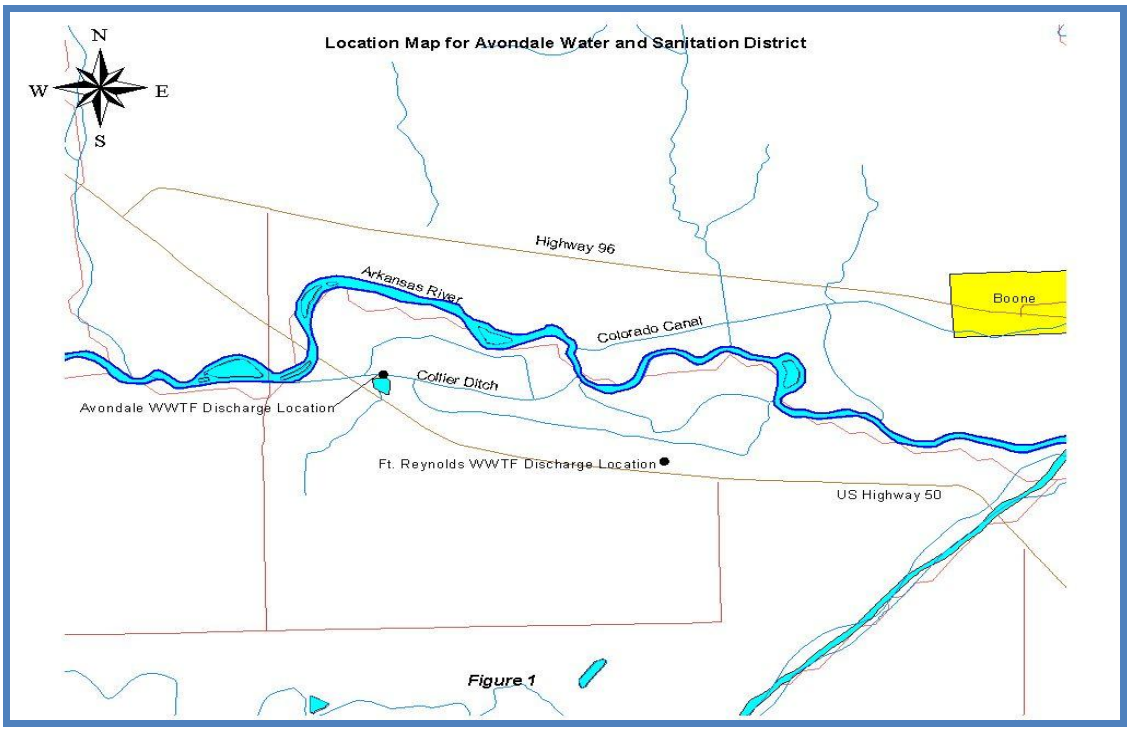

Figure 8 Location of the Avondale and Ft Reynolds Lagoon Systems

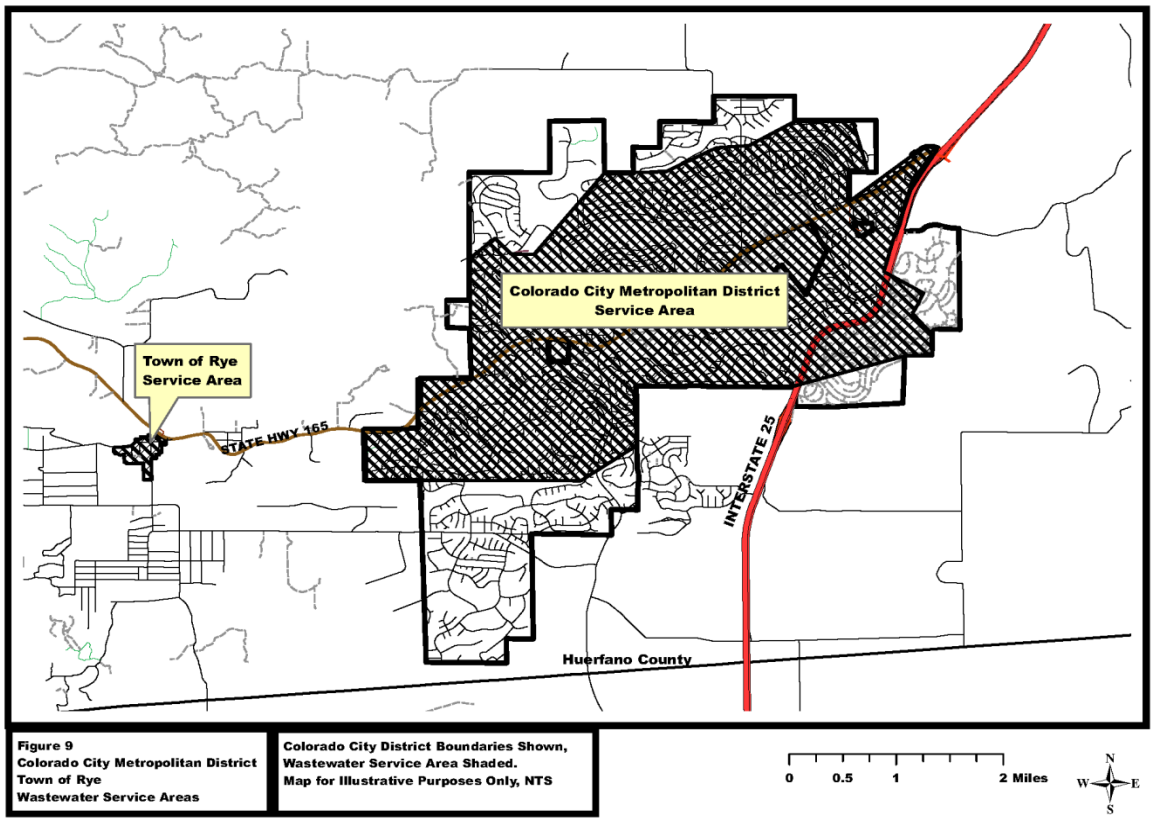

Figure 9 Colorado City Metropolitan District and Town of Rye Service Areas

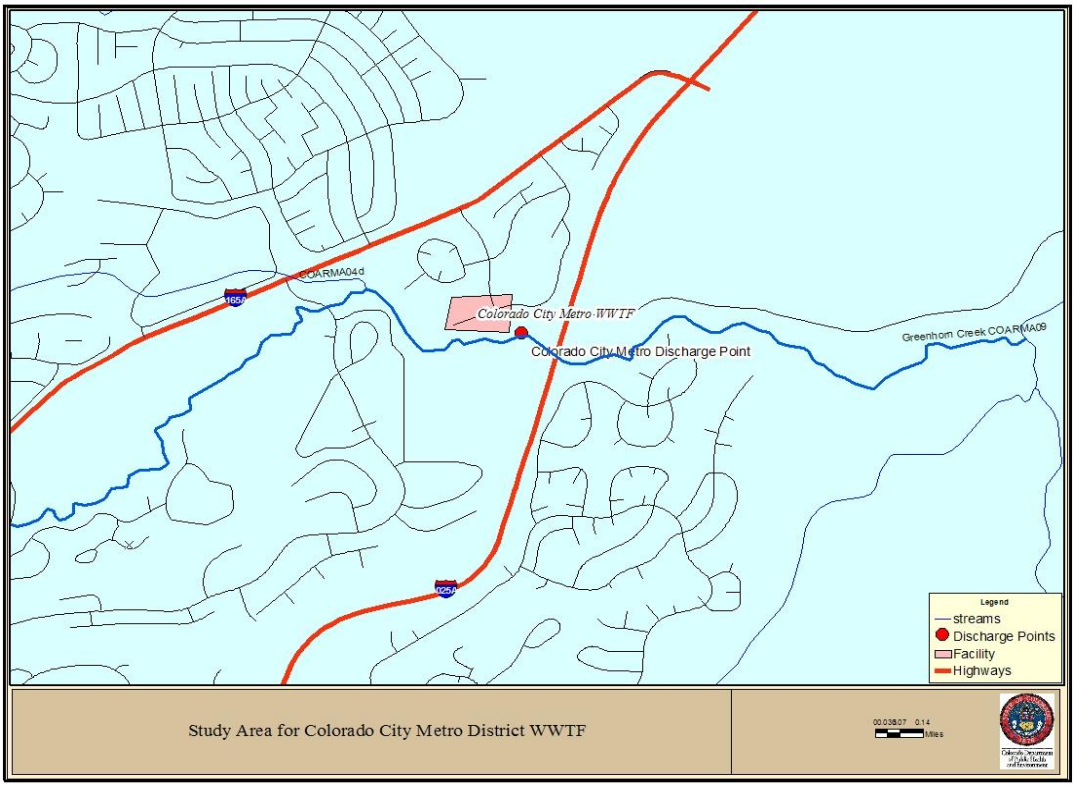

Figure 10 Colorado City Metropolitan District Wastewater Discharge Point

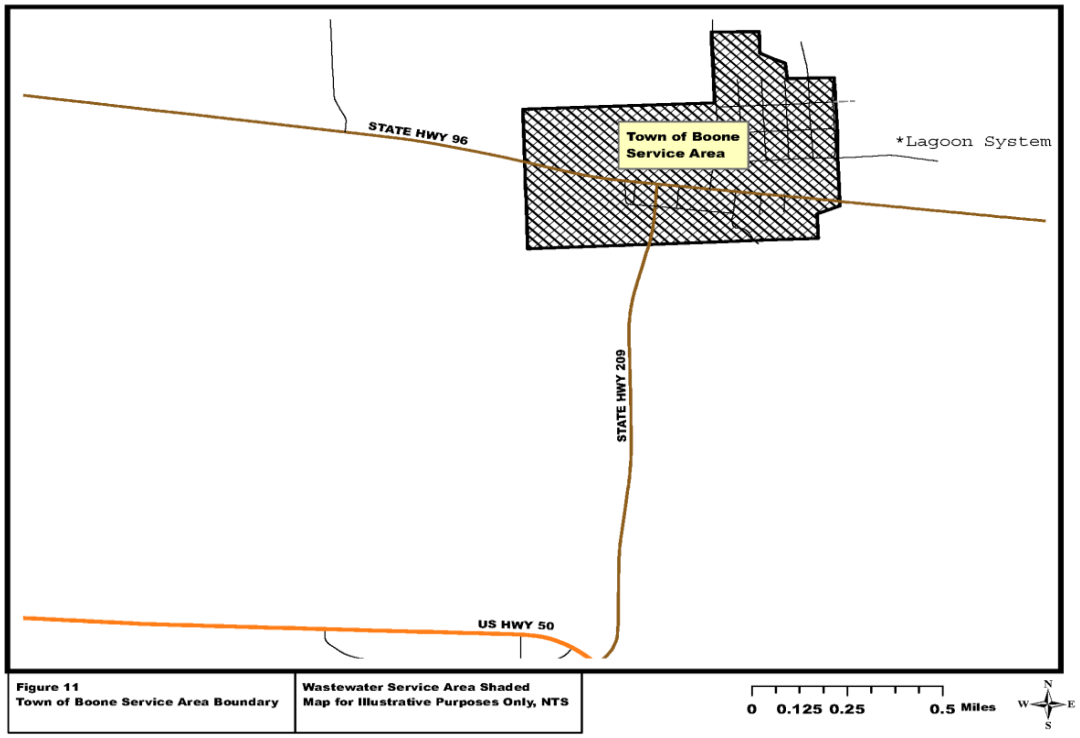

Figure 11 Town of Boone Wastewater Service Area and Lagoon System

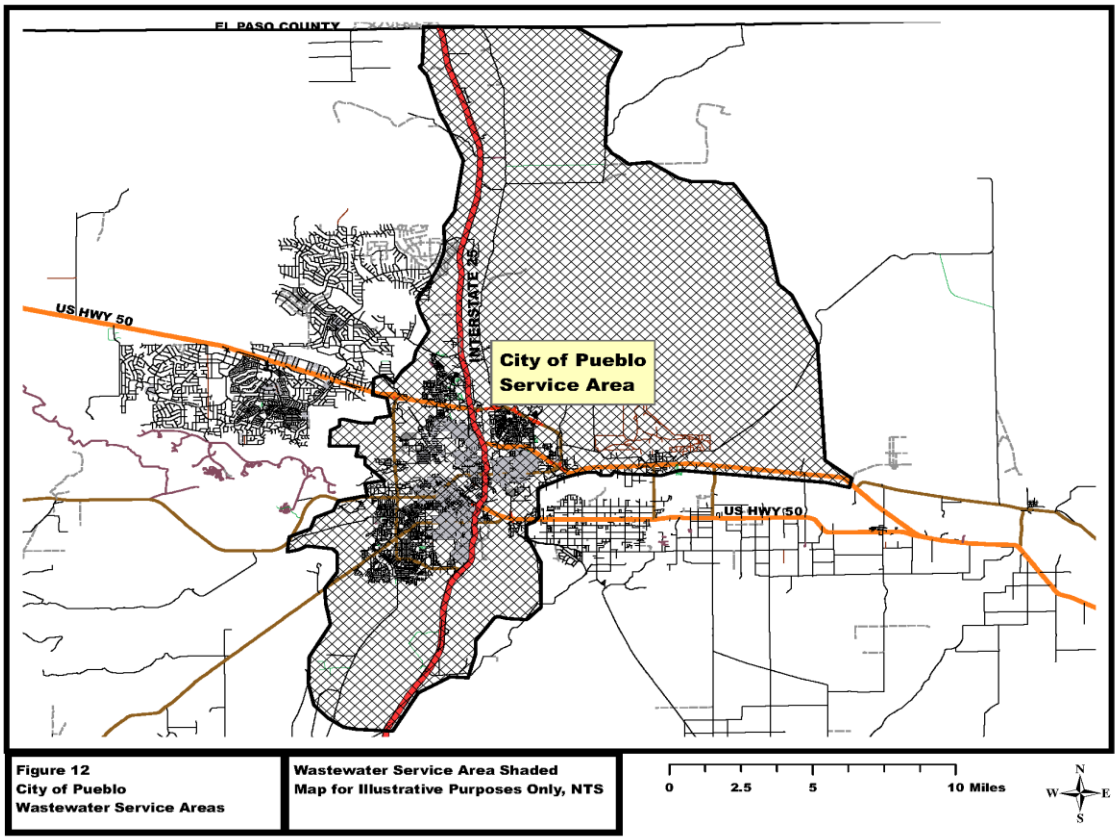

Figure 12 City of Pueblo Wastewater Service Area

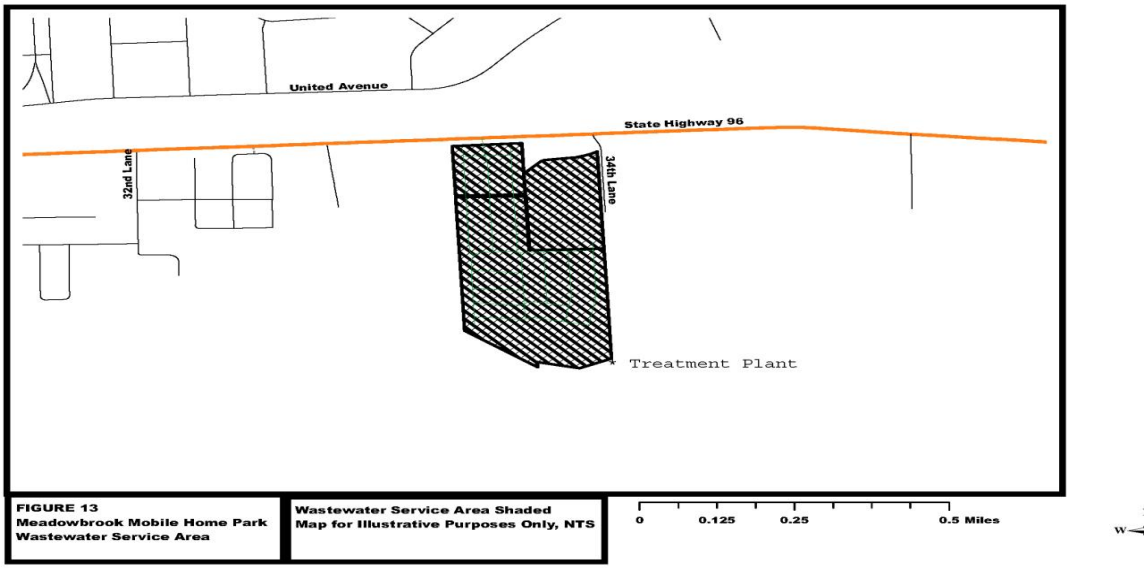

Figure 13 Meadowbrook Mobile Home Park Wastewater Service Area

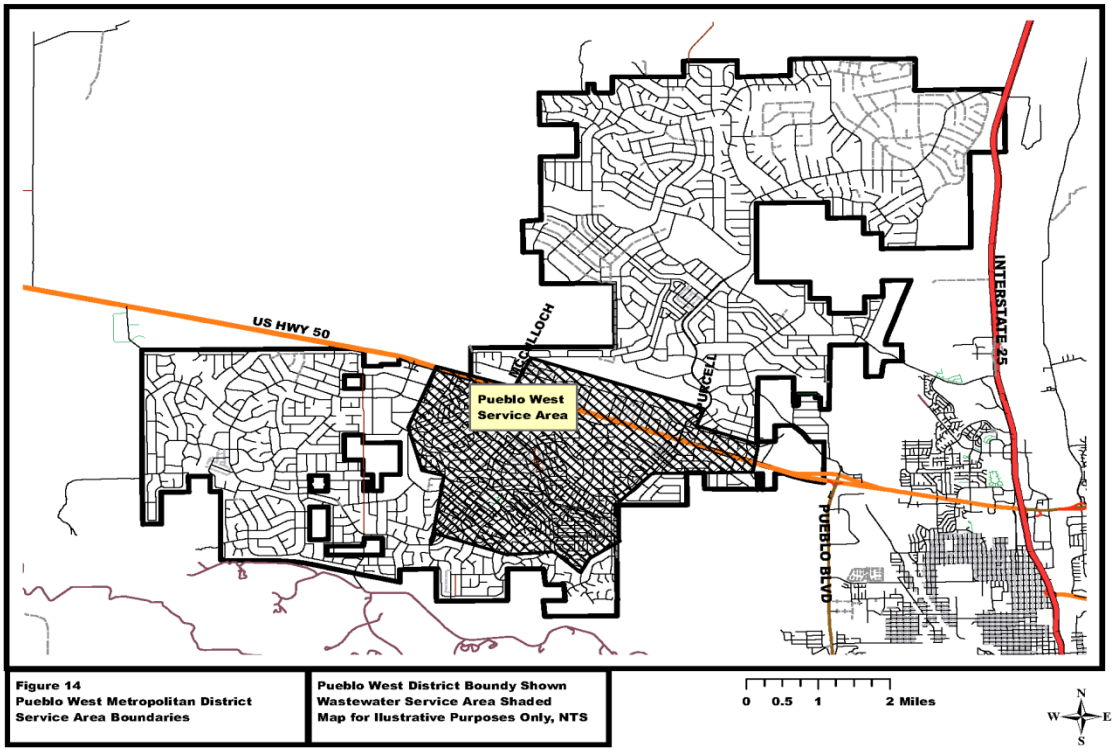

Figure 14 Pueblo West Wastewater Service Area

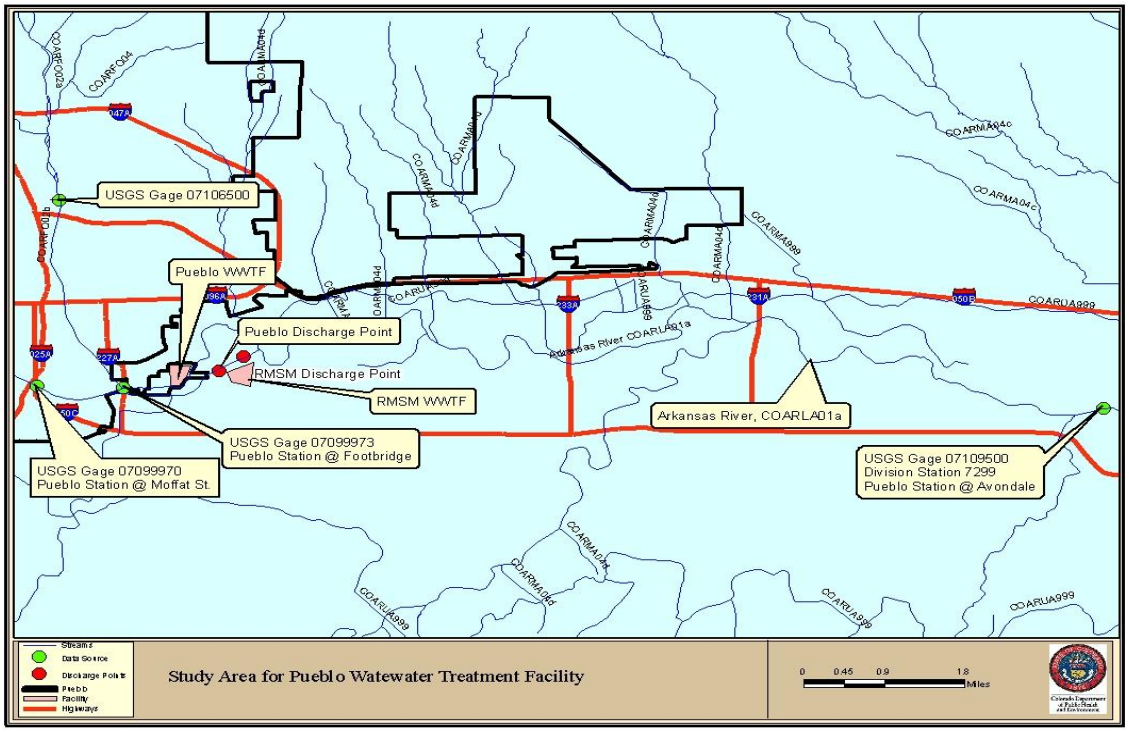

Figure 15 City of Pueblo **Infrastructure Study Area for Wastewater Permit**

Wastewater Utility Plans

Utility plans will document the wastewater management strategy for a wastewater treatment facility (greater than 2000-gallons-per-day capacity) and the associated utility service area and planning area. Utility plans contain specific information on the facility/ plant design and specifications, staging, future expansions expectations, sizing, service area, possible future expansions of service area, collection systems, major interceptors and lift stations, financial considerations, water quality limits, discharge location and characterization of discharge waters.

As wastewater utility plans are completed, they will be referenced in this section. Wastewater Utility Plans are in progress for the six treatment facilities listed in Table 12.

Table 12 Referenced Wastewater Utility Plans

Discharger	2011 Permit
1. Avondale Water and Sanitation District WWTF	CO-0021075
2. Colorado City Metropolitan District/Town of Rye	CO-1021121
3. Town of Boone Sanitation District	COG-589116
4. City of Pueblo	CO-0026646
5. Meadowbrook Mobile Home Park	COG-584022
6. Pueblo West Metropolitan District	CO-0040789

VI. Population Projections for Pueblo County

An essential component of the PACOG 2012 Plan update is a set of population projections that extends out a minimum of 20-years. As such, the planning horizon used in the PACOG 2012 Plan is 2035.

The last set of projections for the listed wastewater treatment facilities in the county was done in September 1994[10]. Since the plan, St. Charles Mesa has become a water district and is completely served by the City of Pueblo. The Blende and Salt Creek Sanitation Districts remain as connected service areas to the city and are collection agencies. There are no active or inactive wastewater discharge permits found by the WQCD for the Meadowcreek Water and Sanitation District as listed in the 1994 208 Plan. The district was incorporated into the Colorado City Metropolitan District service area.

Table 11 lists the active wastewater dischargers in the County. Population projections are needed for these active domestic treatment plant service areas through 2035. Projections are not needed for the Pueblo Reservoir State Recreation Area. Wastewater facility sizing is based on projected population projections.

[10] PACOG. Section 208 Water Quality Management Plan. Pueblo County and Pueblo Area Council of Governments. Volume VII, 1993 Update. September 1994

Pueblo Comprehensive Plan

PACOG developed the Pueblo Regional Development plan in 2002, which details growth expectations and patterns through 2030[11]. Table 13 shows the projections contained in the County comprehensive plan. Figure 16 shows the predicted future land use in the county from the comprehensive plan, which corresponds to the county growth projections[12]. Table 14 predicts the amount of the county population within the city service area based on the US Census data from 2008-2010.

The city has about 67% of the county population within the service area. A comparison with the comprehensive plan projections and the 2011 census data indicates that the projected growth in the county from the census data is greater than predicted by the comprehensive plan (Figure 17). For wastewater projection purposes, the census data will be used for the base future projections.

Table 13 Comprehensive Plan Projection For Pueblo County And City of Pueblo

Pueblo County Comprehensive Plan			
	1970	2000	2030
Pueblo County	118,732	139,923	199,782
City of Pueblo	97,774	103,296	124,246
City %	82%	74%	62%

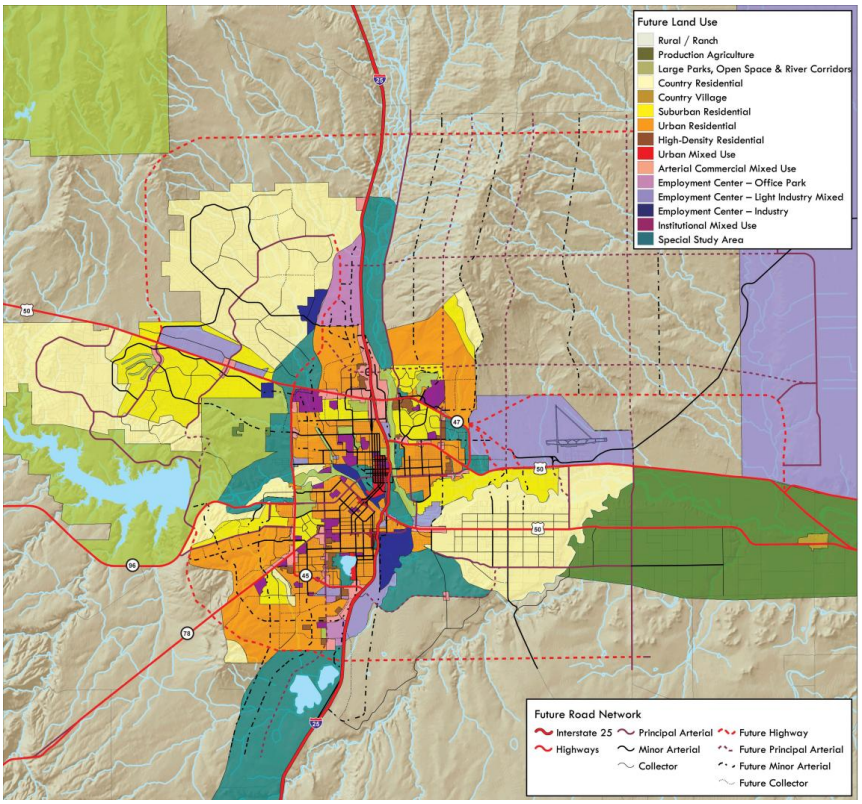

Figure 16 Project Future Land Use Pueblo County

[11] Pueblo Regional Development Plan, PACOG, July 25, 2002.

[12] Pueblo Comprehensive Plan. Future Land Use. Pueblo Area Council of Governments. December 2002.

Table 14 Census Data for Pueblo City and County

www.census.gov. US Census Site			
2010 Census Data	2008	2009	2010
Pueblo County	156,009	157,224	159,063
City of Pueblo	104,348	104,877	106,572
City %	67%	67%	67%

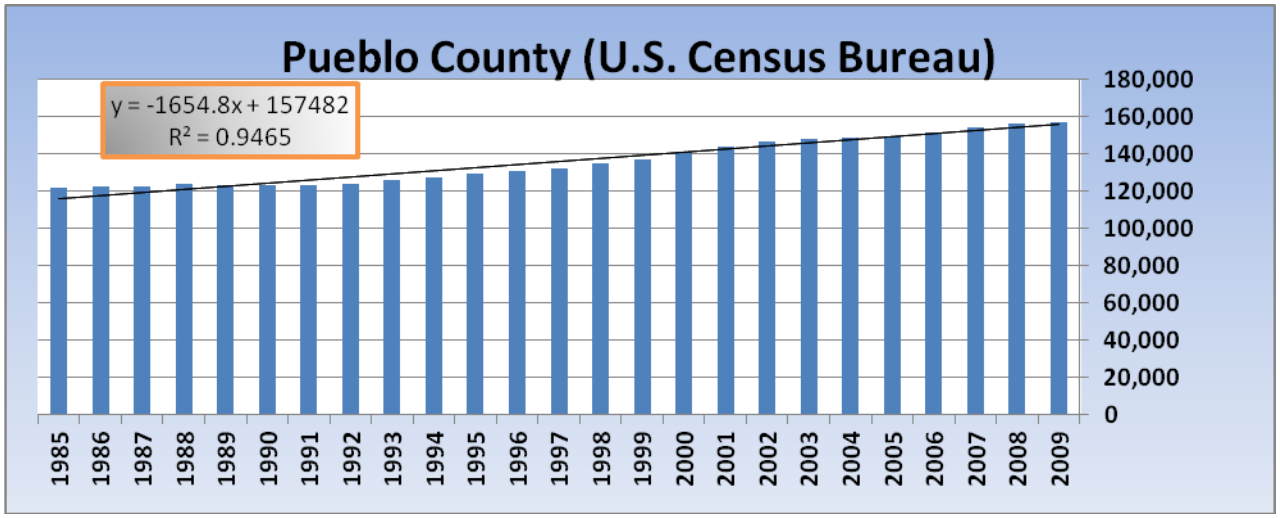

Figure 17 Pueblo County U.S. Census Bureau Projections

County Population Projections

Table 15 shows the US census data from 2000-2009 for the unincorporated portion of the county and city. This data indicates a slight decrease in the percentage served by the city compared to the county totals (Table 16). Based on this trend, projections are based on a 67% (2015- 2020) and 66% (2025-2035) capture rate for the city from the county totals for the 2015-2035 projections. Figure 18 shows the Pueblo County DOLA projections through 2040. These estimates are also incorporated in the states SWQMP[13]. These projections are the control totals for the service area estimates and septic system estimates (Figure 19).

Table 15 2000-2009 Census Estimates City of Pueblo versus Unincorporated

COLORADO POPULATION ESTIMATES BY COUNTY AND MUNICIPALITY, 2000 - 2009										
www.census.gov US Census Site	**Census**	**SDO**	**SDO**	**SDO**	**SDO**	**SDO**	**SDO**	**SDO**	**SDO**	**SDO**
	April 2000	**July 2001**	**July 2002**	**July 2003**	**July 2004**	**July 2005**	**July 2006**	**July 2007**	**July 2008**	**July 2009**
Pueblo	102,121	102,876	103,768	104,125	103,718	103,845	104,403	105,573	106,222	106,895
Unincorporated Area	38,826	40,726	42,421	43,669	44,934	46,172	47,826	49,470	50,433	50,950

[13] Statewide Water Quality Management Plan (SWQMP). Colorado Department of Public Health and Environment, Water Quality Control Division. June 1, 2011.

Table 16 2000-2009 Average Annual Rate of Change

www.census.gov US Census Site	Average Annual Rate Of Change			
	2006-07	2007-08	2008-09	2000-09
Pueblo	1.1%	0.6%	0.6%	0.5%
Unincorporated Area	3.4%	1.9%	1.0%	2.9%

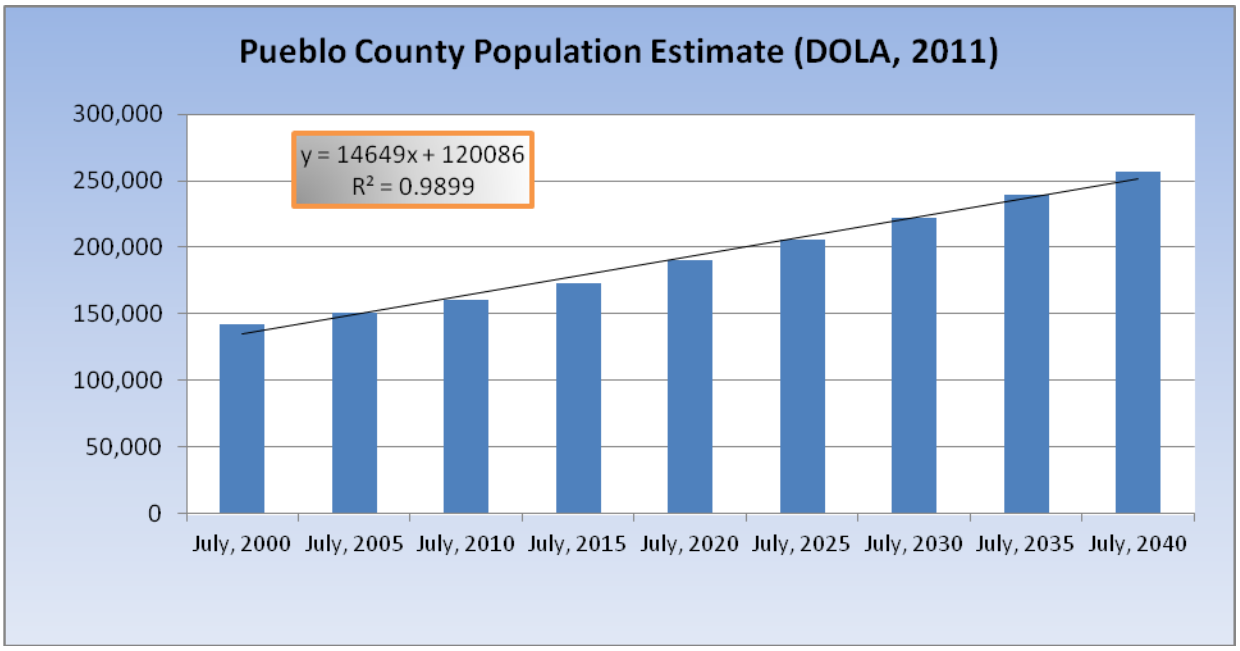

Figure 18 DOLA Estimates for Pueblo County

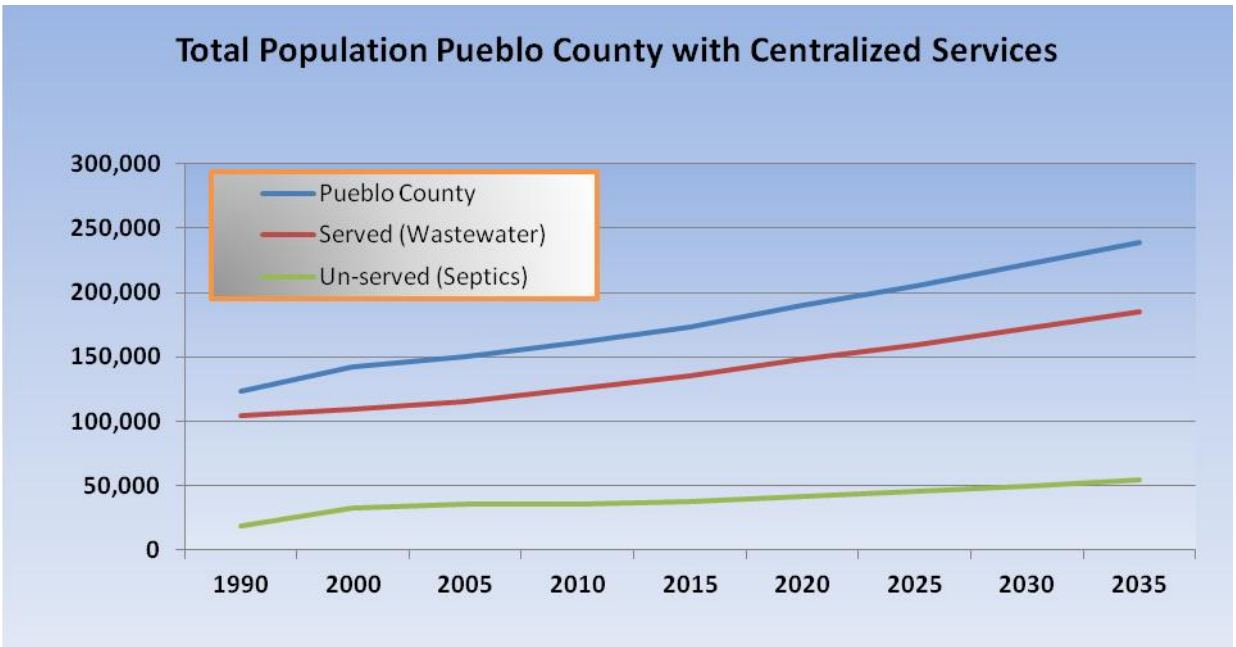

Figure 19 Portion of County Population on Centralized Wastewater Service

Wastewater Facility Projections

Table 17 lists the proposed wastewater service area projections for the wastewater treatment facilities in the county. Table 18 list the population estimates from the Pueblo West Metropolitan District used in the 2009 Site Application process.

Table 17 Population Estimates for Wastewater Treatment Providers

	DOLA/ U.S. Census Estimates				Estimates				
Wastewater Providers	1990	2000	2005	2010	2015	2020	2025	2030	2035
Avondale	1,278	754	715	674	687	701	715	730	744
Boone	341	323	332	340	357	375	394	413	434
Colorado City/Rye Service Area									
Colorado City Metropolitan District	1,149	2,018	2,098	2,193	2,347	2,511	2,687	2,875	3,076
Rye	168	202	193	201	205	209	213	218	222
CCMD Service Area Total	1,317	2,220	2,291	2,394	2,552	2,720	2,900	3,092	3,298
City of Pueblo Wastewater Treatment Plant (WWTP)									
City of Pueblo	98,640	102,121	102,305	106,572	116,183	127,214	137,729	148,840	160,263
Blende	556	605	735	878	960	1,075	1,175	1,300	1,425
Salt Creek	587	648	620	587	600	600	600	600	600
St-Charles Mesa				175	200	200	200	200	200
CPWTP Service Area Total	99,783	103,374	103,660	108,212	117,943	129,089	139,704	150,940	162,488
Pueblo West Metropolitan District									
Pueblo West Served	2,967	3,800	9,400	15,000	15,900	16,854	17,865	18,937	20,073
Septics	1,419	13,099	13,700	14,637	14,626	14,741	14,993	15,400	15,980
PWMD Service Area Total	4,386	16,899	23,100	29,637	30,526	31,595	32,858	34,337	36,054
Pueblo County	123,051	141,839	150,529	160,952	173,407	189,872	205,566	222,149	239,198

	DOLA/ U.S. Census Estimates				Estimates				
Wastewater Providers	1990	2000	2005	2010	2015	2020	2025	2030	2035
Served (Wastewater)	104,543	109,218	115,043	124,980	135,679	147,864	159,603	172,012	184,812
Un-served (Septics)	18,508	32,621	35,486	35,972	37,728	42,008	45,963	50,137	54,386
% septics	18%	30%	31%	29%	28%	28%	29%	29%	29%

Table 18 Pueblo West Metropolitan District Estimates

Table VII-4
EXISTING AND PROJECTED POPULATIONS
PUEBLO WEST METROPOLITAN DISTRICT

DISTRICT POPULATION

1990	2000	2010	2035
4310[1]	8309[1]	30,000[2]	38,400[3]

SERVICE AREA AND USER POPULATION

1990	2000	2010	2035
2967[1]	3800[1]	15,000[2]	24,000[4]

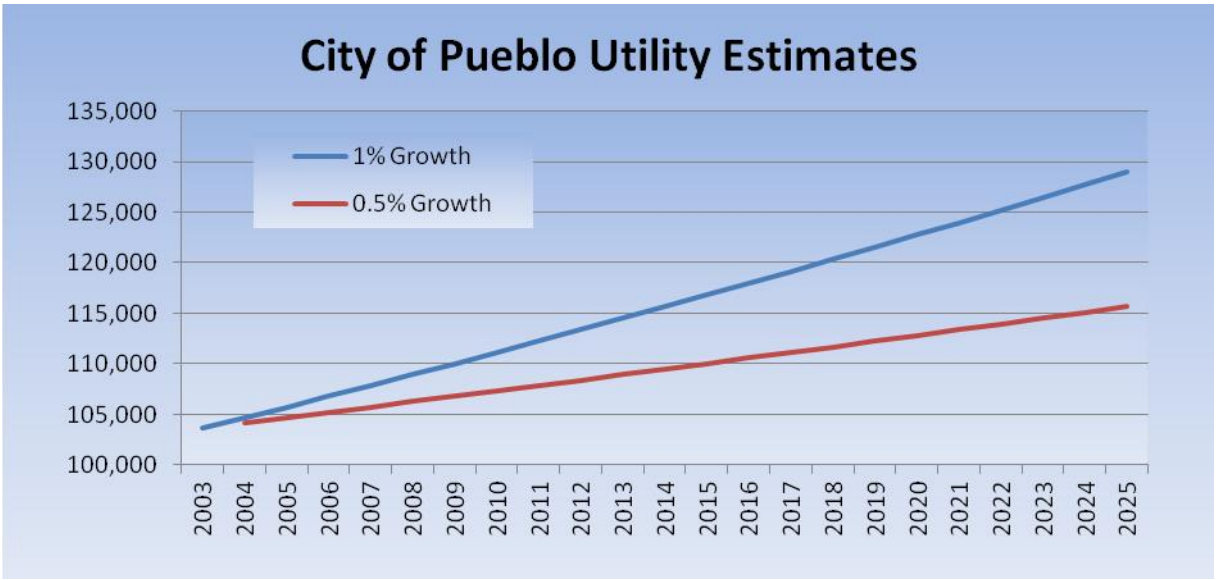

Figure 20 City of Pueblo Wastewater Utility Estimates

VII. System Of Wastewater Works Or Facilities

Wastewater Treatment Facilities with Utility Plans

Table 19 lists the permitted domestic wastewater dischargers and the other major dischargers as identified by the WQCC in the county. Table 20 shows the discharge points for the domestic wastewater facilities. Table 21 identifies the percentage of design capacity status for the domestic facilities. Tables 22 through 27 contain wastewater and water quality summary sheets

for the 6 domestic wastewater treatment facilities. These summary sheets contain information in the issued WQCD wastewater permits and water quality assessment reports.

Table 19 Permitted Treatment Facilities in Pueblo County

Discharger	2011 Permit	Permit Type
Domestic Wastewater Treatment Dischargers, Pueblo County		
Avondale Water and Sanitation District WWTF	CO-0021075	Domestic - Minor Municipal, Lagoon System
Ft Reynolds Lagoon		Domestic - Minor Municipal, Lagoon System
Colorado City Metropolitan District/Town of Rye	CO-1021121	Domestic - Minor Municipal, Lagoon System
Town of Boone Sanitation District	COG-589116	Domestic - Minor Municipal, Lagoon System
City of Pueblo	CO-0026646	Domestic - Major Municipal, Mechanical Plant
Meadowbrook Mobile Home Park	COG-584022	Domestic - Minor Municipal, Mechanical System
Pueblo West Metropolitan District	CO-0040789	Domestic - Major Municipal, Mechanical Plant
Other Major Dischargers, Industrial		
Pueblo Reservoir State Recreation Area		
Arkansas Point Wastewater Treatment Plant	COG-589008	General-Aquatic Animal Production Facility
Pueblo Reservoir Fish Hatchery	COG-130012	General-Aquatic Animal Production Facility
CF&I Steel L.P. DBA Evraz Rocky Mountain Steel	CO-0000621	Industrial Major, Fifth Renewal, Surface Water
Comanche Station, Public Service Company	CO-0000612	General-Power Plants
Goodrich	COG-605014	General-Non-Contact Cooling water
Blackhills Energy	COG-605016	General-Power Plants
Transit Mix of Pueblo	COG-500082	General-Sand and Gravel
Transit Mix of Pueblo	COG-500035	General-Sand and Gravel
Transit Mix of Pueblo	COG-500205	General-Sand and Gravel
RBK Construction	COG-500086	General-Sand and Gravel
Lafarge West, Inc	COG-500092	General-Sand and Gravel
GCC Rio Grande	COG-500377	General-Sand and Gravel
Trans Colorado Concrete	COG-605014	General-Sand and Gravel
Pueblo Board of Waterworks	COG-641025	General-Water Treatment Plant
Pueblo Board of Waterworks A-1	COG-641025	General-Water Treatment Plant
Pueblo West	COG-641089	General-Water Treatment Plant
Town of Rye	COG-641125	General-Water Treatment Plant
Colorado City Metro District	COG-641131	General-Water Treatment Plant
Meadowbrooke Transfer	COG-588022	General-Domestic

Discharger	2011 Permit	Permit Type
Discharge to Groundwater Permits		
Pinyon South Bound Rest Area (CDOT)	COX620039	Groundwater General
KOA Campground	COX632032	Groundwater General
Town Rye	COX633003	Groundwater General
GCC Rio Grande	COX622002	Groundwater General
Transportation Tech Center	COX622008	Groundwater General
Mobile Home Park	COX044954	Groundwater General
North Bound Rest Area CDOT	No Permit	Groundwater General, Meets ET Rate

Table 20 Discharge Points for Domestic Treatment Systems

Domestic Wastewater Treatment Dischargers, Pueblo County		
Discharger	**2011 Permit**	**Discharge Point**
Avondale Water and Sanitation District WWTF	CO-0021075	Green Arroyo/ Collier Ditch
Ft Reynolds Lagoon		Exfiltration Ponds/ Groundwater
Colorado City Metropolitan District/Town of Rye	CO-1021121	Greenhorn Creek
Town of Boone Sanitation District	COG-589116	Haynes Creek/ Evaporative Wetlands
City of Pueblo	CO-0026646	Arkansas River
Meadowbrook Mobile Home Park	COG-584022	Arkansas River
Pueblo West Metropolitan District	CO-0040789	Pesthouse Gulch West

Table 21 Percent Capacity of Domestic Treatment Systems

Domestic Wastewater Treatment Dischargers, Pueblo County					
Discharger	**2011 Permit**	**Design Capacity (MGD)**	**2010 Flow**	**% 0f Capacity**	**Plant Expansion**
Avondale Water and Sanitation District WWTF	CO-0021075	0.1146	0.016	14%	None anticipated through 2035
Ft Reynolds Lagoon		0.016	0.004	25%	None anticipated through 2035
Colorado City Metropolitan District/Town of Rye	CO-1021121	0.4	0.29	73%	2018
Town of Boone Sanitation District	COG-589116	0.031	0.0024	8%	None anticipated through 2035
City of Pueblo	CO-0026646	19	10.565	56%	After 2025
Meadowbrook Mobile Home Park	COG-584022	0.12	0.04	33%	None anticipated through 2035
Pueblo West Metropolitan District	CO-0040789	1.8	1	56%	2030-2035

Avondale Water and Sanitation District

Table 22 Avondale Permit Summary

Avondale Water and Sanitation District	
TYPE OF PERMIT	Domestic - Minor Municipal, Lagoon System
Permit Number:	CO-0021075
Permit Issue Date	17-Nov-05
Permit Expire Date	31-Dec-10
Facility Address:	Avondale Water and Sanitation District, P.O. Box 188, Avondale, CO 81022
SIC Code:	4952 Sewerage Systems
Avondale Facility Classification:	Class D
Facility Hydraulic Capacity:	0.1146 MGD
Facility Organic Capacity:	211 lbs BOD5/day
Treatment Works:	Influent Flow Measuring Device and Recorder; Aerated Lagoons; Wetland Cells; Chlorine Contact Chamber
Lift Stations:	1 (not used)
2010 Average Daily Effluent Treated:	0.09 MGD
Ft. Reynolds Facility Classification:	Class D
Facility Hydraulic Capacity:	0.016 MGD
Facility Organic Capacity:	44.7 lbs BOD5/day
Treatment Works:	Influent Flow Measuring Device and Recorder; non-Aerated Lagoon; two infiltration cells
Lift Stations:	1 @ 4,000 average peak flow gpd
2010 Average Daily Effluent Treated:	0.004 MGD
Service Areas:	Existing district boundaries (no future expansion expected)
Plant Expansion:	Neither plant expected to expand by 2035
2010 Service Area Population Estimate:	674
2035 Service Area Population Estimate:	708
Biosolids Disposal:	none
Avondale Discharge Point:	001A and 001B, Green Arroyo into the Collier Ditch. Green Arroyo is a dry/zero low flow tributary to the Arkansas River.
Waterbody Identification:	COARMA04d (Arkansas River Basin, Middle Arkansas Sub-basin, Stream Segment 04d: All tributaries, including wetlands, to the Arkansas River and Pueblo Reservoir from the inlet to Pueblo Reservoir to the Colorado Canal headgate, except for specific listings in the Fountain Creek Subbasin and in Segments 4a, 4b, 4c, 5 through 18.)
Receiving Water Designation:	Use Protected

Avondale Water and Sanitation District	
Receiving Water Classification:	Aquatic Life Warm 2, Recreation 1a, Agriculture
Ft. Reynolds Discharge Point:	002A, Discharge to "infiltration lagoons" located in the alluvium of unnamed dry/zero low flow tributaries of the Arkansas River.
Waterbody Identification:	COARLA02a (All tributaries to the Arkansas River, including wetlands, all lakes and reservoirs, from the Colorado Canal headgate to the Colorado/Kansas border except for specific listings in segments 2b, 3 through 13, and Middle Arkansas Basin listings.)
Receiving Water Designation:	Use Protected
Receiving Water Classification:	Aquatic Life Warm 2, Recreation N, Agriculture
303(d) Listing Regulation #93	none
Water Quality Pollutants of Concern	Fecal Coliform, Escherichia coli

Town of Boone Sanitation District

Table 23 Town of Boone Permit Summary

Town of Boone Sanitation District	
TYPE OF PERMIT	Domestic - Minor Municipal, lagoon System
Permit Number:	COG-589116 (General Domestic)
Permit Issue Date	April 28, 2011
Permit Expire Date	April 1, 2016
Facility Location:	Gerard Avenue & Railroad Street, Boone, CO 81025
SIC Code:	4952 Sewerage Systems
Facility Classification:	Class C
Facility Hydraulic Capacity:	0.031 MGD
Facility Organic Capacity:	85.6 lbs. BOD_5 per day
Treatment Works:	Two non-aerated cells (4.9 and 2.5 MG); Two lined surface flow wetlands for polishing (35,000 sq. ft.); effluent flow measurement; chemical feed pump with portable generator (as needed).
Lift Stations:	one
Service Areas:	Town of Boone
2010 Service Area Population Estimate:	340
2035 Service Area Population Estimate:	434
2010 Average Daily Effluent Treated:	Estimated 70 gallons/person/day = 0.002 MGD
Plant Expansion:	None anticipated through 2035
Biosolids Process	None
Discharge Point:	001a, following all treatment and prior to Haynes Creek
Waterbody Identification:	COARL02a, Haynes Creek (All tributaries to the Arkansas River, including wetlands, all lakes and reservoirs, from the Colorado Canal headgate to the Colorado/Kansas border except for specific listings in segments 2b, 2c, 3 through 13, and Middle Arkansas Basin listings.)
Receiving Water Designation:	Use Protected
Receiving Water Classification:	Aq Life Warm 2, Recreation N, Agriculture
303(d) Listing Regulation #93	None
Temporary Modifications	None
Water Quality Pollutants of Concern	E. coli

City of Pueblo

Table 24 City of Pueblo Permit Summary

City of Pueblo, DiIorio Water Reclamation Facility	
TYPE OF PERMIT	Domestic - Major Municipal, Mechanical Plant
Permit Number:	CO-0026646
Permit Issue Date	30-Apr-10
Permit Expire Date	31-May-15
Facility Location/ Address:	211 East "D" Street, Pueblo, CO 81003
SIC Code:	4952 Sewerage Systems
Facility Classification:	Class A
Facility Hydraulic Capacity:	19 MGD
Facility Organic Capacity:	34,910 lbs BOD_5/day
Treatment Works:	Twin headworks with mechanical screens and vortex grit removal; primary clarifiers (2); plastic media trickling filter; solids contact aeration tanks (4); secondary clarifier (3); chlorination contact basin with dechlorination. Biosolids gravity thickening, dissolved air flotation thickening, anaerobic digestion, dewatering and drying. Disposal land fill.
Lift Stations:	8
Service Areas:	City of Pueblo, Blende, Salt Creek, St. Charles Mesa
2010 Service Area Population Estimate:	108,200
2035 Service Area Population Estimate:	162,500
2010 Average Daily Effluent Treated:	10.565 MGD
2010 Septage Treated:	5.5 million gallons
Plant Expansion:	After 2025
Dry Tons Biosolids Produced	1,059 (disposed in land fill)
Discharge Point:	Outfall 001A, following the chlorine contact basin and prior to mixing with the Arkansas River.
Waterbody Identification:	COARLA01A, the Arkansas River
Receiving Water Designation:	Use Protected
Receiving Water Classification:	Aquatic Life Warm 2, Recreation Class E, Agriculture, Water Supply
303(d) Listing Regulation #93	Se, SO4
Listing TMDL Priority	Low
Temporary Modifications	Type (i) Se(ac/ch) = existing quality; SO4 = existing quality. Expiration date of 12/31/2013.

City of Pueblo, DiIorio Water Reclamation Facility	
Water Quality Pollutants of Concern	Total Residual Chlorine, E. coli, Ammonia, Temperature, Metals and Cyanide, Sulfate

Colorado City Metropolitan District/ Town of Rye

Table 25 Colorado City Permit Summary

Colorado City Metropolitan District/Town of Rye	
TYPE OF PERMIT	Domestic - Minor Municipal, Lagoon System
Permit Number:	CO-0021121
Permit Issue Date	30-Nov-09
Permit Expire Date	31-Dec-14
Facility Location:	3160 Applewood Dr. in Colorado City, CO
SIC Code:	4952 Sewerage Systems
Facility Classification:	Class D
Facility Hydraulic Capacity:	0.4 MGD
Facility Organic Capacity:	721 lbs. BOD_5 per day
Treatment Works:	Extended aeration and activated sludge sequencing batch reactor (SBR) with UV disinfection.
Lift Stations:	no lift stations
Service Areas:	Colorado City Metropolitan District Boundary and Town of Rye Collection area
2010 Service Area Population Estimate:	2,394
2035 Service Area Population Estimate:	3,460
2010 Average Daily Effluent Treated:	0.31 MGD average
Plant Expansion Needed (Based on 130 gppd)	2018
2010 Septage Treated:	none
Biosolids Processing	The biosolids produced at this facility qualifies as a Class B biosolids. The facility has a covered two-stage aerobic digester to process biosolids. Disposal is conducted by a biosolids land applier. The removal of biosolids is conducted 4 times a month by the contractor. Other solid materials not qualifying for biosolids are landfilled.
Discharge Point:	S1. Greenhorn Creek
Waterbody Identification:	COARMA09 Mainstem of Greenhorn Creek, from a point immediately below the Greenhorn Highline (Hayden Supply Ditch) diversion dam, to the confluence with the Saint Charles River.
Receiving Water Designation:	Use Protected
Receiving Water Classification:	Aquatic Life Warm 2, Recreation Class E, Agriculture, Water Supply
303(d) Listing Regulation #93	Se (Monitoring and Evaluation)

Colorado City Metropolitan District/Town of Rye	
Listing TMDL Priority	none
Temporary Modifications	Temporary modifications: type (iii) Se(ch)=8.6. Expiration date of 12/31/2013.
Water Quality Pollutants of Concern	Ammonia, TRC and E. Coli

Pueblo West Metropolitan District

Table 26 Pueblo West Permit Summary

Pueblo West Metropolitan District	
TYPE OF PERMIT	Domestic - Major Municipal, Mechanical Plant
Permit Number:	CO-0040789
Permit Issue Date	31-Aug-09
Permit Expire Date	30-Sep-14
Facility Location:	1370 East Grouse Dr. in West Pueblo, CO
SIC Code:	4952 Sewerage Systems
Facility Classification:	Class B
Facility Hydraulic Capacity:	1.8 MGD
Facility Organic Capacity:	2,942 lbs BOD_5/day
Treatment Works:	Mechanically cleaned bar screen, cyclone type grit removal, and influent flow measuring device with a capacity of 5 mgd, aeration basin, 2 clarifiers, ultra-violet disinfection system and effluent measuring device with same capacity as influent measuring device.
Lift Stations:	LS1 (832,000 gpd) and LS2 (456,000 gpd)
Service Area:	PWMD encompasses an area of 31,000 acres (48.5 square miles) within its statutory boundaries. There are 18,700 platted residential lots.
2010 Service Area Population Estimate:	29,637 (Population served 15,000)
2010 Septic Systems within District	estimated 5,228
2035 Service Area Population Estimate:	36,050 (population served 20,100)
2035 Septic Systems within District	estimated 5,710
Persons Per Sewer Tap:	2.8
Per Capita Wastewater Flow Estimates:	75 gallons per person per day
2010 Average Daily Effluent Treated:	1.1 MGD
Plant Expansion:	No expansion projected before 2030-2035
Biosolids Process	Biosolids are stabilized in aerated retention ponds, dredged to a belt press and transported to landfill.
Discharge Point:	Outfall 001A, following disinfection and prior to entering Pesthouse Gulch
Waterbody Identification:	COARMA04d, Pesthouse Gulch (All tributaries, including wetlands, to the Arkansas River and Pueblo Reservoir from the inlet to Pueblo Reservoir to the Colorado Canal headgate, except for specific listings in the Fountain Creek Subbasin and in segments 4a, 4b, 4c, 5 through 18.)

Pueblo West Metropolitan District	
Receiving Water Designation:	Use Protected
Receiving Water Classification:	Aquatic Life Warm 2, Recreation Class E, Agriculture
303(d) Listing Regulation #93	None
Temporary Modifications	None
Water Quality Pollutants of Concern	E. coli, total residual chlorine, ammonia, Total Inorganic Nitrogen, and metals and cyanide

Meadowbrook Mobile Home Park

Table 27 Meadowbrook Permit Summary

Meadowbrook Mobile Home Park	
TYPE OF PERMIT	Domestic - Minor Municipal, Mechanical System
Permit Number:	COG-588022 (Domestic General)
Permit Issue Date	8-Jul-09
Permit Expire Date	31-May-10
Facility Location:	33550 East Highway 96
SIC Code:	4952 Sewerage Systems
Facility Classification:	Class C
Facility Hydraulic Capacity:	0.12 MGD
Facility Organic Capacity:	300 lbs. BOD_5/day
Treatment Works:	Pre-aeration basin, an aeration basin, a clarifier, and a chlorine contact basin
Lift Stations:	One lift station, wet well volume 700 gallons, with two 3-hp grinder pumps rated at 300 gpm each, with a peak daily flow of 0.142 MGD
Service Areas:	Mobile Home Park - 225 units; 360 pads available
2010 Service Area Population Estimate:	estimate 2.25 people per mobile Home = 506
2035 Service Area Population Estimate:	Assume Maximum occupancy = 810
2010 Average Daily Effluent Treated:	Assume 300 gallons per space per day = 67,500 gallons per day = 0.0675 MGD
Facility Expansion:	Not Required, Facility designed for maximum occupancy = 0.108 MGD
Biosolids Process	None listed in Permit
Discharge Point:	001A, following the chlorine contact chamber and prior to mixing with the Arkansas River.
Waterbody Identification:	COARLA01a Mainstem of the Arkansas River from a point immediately above the confluence with Fountain Creek to immediately above the Colorado Canal headgate near Avondale.
Receiving Water Designation:	Use Protected
Receiving Water Classification:	Recreation, Class E, Aquatic Life, Class 2 (Warm); Water Supply; and Agriculture

Meadowbrook Mobile Home Park	
303(d) Listing Regulation #93	Se, SO4
Listing TMDL Priority	Low
Temporary Modifications	Temporary modifications: type (i) Se(ac/ch) = existing quality; SO4 = existing quality. Expiration date of 12/31/2013
Water Quality Pollutants of Concern	Total ammonia, Selenium, SO4

Industrial And Commercial Facilities and Permits without Utility Plans

Table 28 Industrial Permit List

Permit	Permittee	Effective Date
Light Industry		
COR010313	Lafarge West Inc	7/1/2005
COR010348	H V H Transportation Inc	7/1/2005
COR010587	Mission Foods Corp	7/1/2005
COR010651	Boral Best Block LLC	7/1/2005
COR010656	Union Pacific Railroad Co	7/1/2005
COR010706	United Parcel Service	7/1/2005
COR010750	Summit Brick & Tile Co	7/1/2005
COR010791	Waste Management of Colorado Inc	7/1/2005
COR010888	Trane Co	7/1/2005
COR010901	Lafarge West Inc	7/1/2005
COR010950	Target Distribution Center T554	7/1/2005
COR010953	Pueblo, City of, Wastewater Dept	7/1/2005
COR010967	Iron Phoenix Corp	7/1/2005
COR010996	Centennial State Paving Inc	7/1/2005
COR011035	Goodrich Corp	7/1/2005
COR011088	Eldorado Stone LLC	7/1/2005
COR011155	Rolling Frito Lay Sales LP	7/1/2005
COR011157	Transit Mix of Pueblo	7/1/2005
COR011169	Davis Wire Pueblo Corp	7/1/2005
COR011179	Tony J. Beltramo & Sons Inc	7/1/2005
COR011253	Mars Petcare US Inc	7/26/2006
COR011279	L B Foster Co	5/1/2007
COR011284	Kurt Manufacturing	6/12/2007
COR011364	El Paso Corp	3/16/2009
COR011389	Vestas Towers America	9/10/2009
Heavy Industry		
COR020033	Pueblo Memorial Airport	1/1/2006
COR020130	BKEP Materials LLC	1/1/2006
COR020142	Black Hills/Colorado Electric Utility Co LP	1/1/2006
COR020310	Waste Connections of Colorado Inc	1/1/2006
COR020358	Safety Kleen Systems Inc	1/1/2006

Permit	Permittee	Effective Date
COR020431	K M G Chemicals Inc	1/1/2006
COR020436	Flexible Foam Products Inc	1/1/2006
COR020489	BroadAcre Landfill Inc	1/3/2008
COR020490	G C C Rio Grande Inc	2/26/2008
COR020496	Public Service Co of Colorado	9/3/2008
Recycling Industry		
COR060006	American Iron & Metal Co Inc	1/1/2006
COR060031	Five Js Auto Parts Inc	1/1/2006
COR060035	All Truck Parts	1/1/2006
COR060036	C & E Affordable Used Parts	1/1/2006
COR060118	McLaughlin Auto Inc	1/1/2006
COR060127	West 29th Auto Inc	1/1/2006
COR060144	Wise Recycling	1/1/2006
COR060172	Dionisio Metal & Iron Inc	2/15/2007
COR060185	American Iron & Metal Co Inc	10/30/2008
MS4		
COR070095	Co Dept of Human Services Division of Facilities Management	3/10/2008
COR090040	Pueblo, City of	3/10/2008
COR090060	Pueblo County, Public Works	3/10/2008
COR090090	Pueblo West Metro District	9/11/2008
Sand & Gravel		
COR340604	Lafarge West Inc	10/1/2007
COR340658	Walter T Pope Inc	10/1/2007
COR340661	Lafarge West Inc	10/1/2007
COR340696	Pueblo County, Public Works	10/1/2007
COR340726	Robinson Brick Co	10/1/2007
COR340894	Lafarge West Inc	10/1/2007
COR340907	Lafarge West Inc	10/1/2007
COR340956	Robinson Brick Co	10/1/2007
COR340964	Beltramo, Tony J & Sons Inc	10/1/2007
COR341021	Beltramo, Tony J & Sons Inc	10/1/2007
COR341024	Summit Brick & Tile Co	10/1/2007
COR341027	Summit Brick & Tile Co	10/1/2007
COR341031	Summit Brick & Tile Co	10/1/2007
COR341032	Summit Brick & Tile Co	10/1/2007
COR341106	Baculite Mesa LLC	10/1/2007
COR341135	Lafarge West Inc	10/1/2007
COR341136	Pueblo County, Public Works	10/1/2007
COR341148	Kirkland Construction RLLP	10/1/2007
COR341165	Beltramo, Tony J & Sons Inc	10/1/2007
COR341377	Lafarge West Inc	10/1/2007
COR341385	R B K Construction Inc	10/1/2007

Permit	Permittee	Effective Date
COR341437	Gaudreault, Daniel J & Barbara J, dba Big "G" Gravel Pit	10/1/2007
COR341468	Fremont Paving & Redi Mix Inc	10/1/2007
COR341471	Centennial State Paving Inc	10/1/2007
COR341489	Koury Real Properties LLC	10/1/2007
COR341505	Siloam Stone Inc	10/1/2007
Groundwater		
NOX000003	Federal Express Corp	2/11/2006
NOX000024	Northern Colorado Paper Inc	2/11/2006
NOX000173	Colorado Rolloff Services Inc	2/11/2006
NOX000182	Pueblo West Metro District	2/11/2006

Stormwater Permits

Table 29 Stormwater Permit List

Stormwater Permits Pueblo County		
Permit	**Permittee**	**Effective Date**
COR032026	Domega Homes LLC	7/1/2007
COR032411	Kirkland Construction RLLP	7/1/2007
COR032453	G C C Rio Grande Inc	7/1/2007
COR033534	Sun Communities Operating LP	7/1/2007
COR033683	Todays Land Co LLC	7/1/2007
COR033965	Premier Homes Inc	7/1/2007
COR034163	Pannunzio Inc	7/1/2007
COR034905	Crestwood Management LLC	7/1/2007
COR035156	Antelope Trail Development LLC	7/1/2007
COR037734	Pannunzio Inc	7/1/2007
COR038031	Rivers Run Development LLC	7/1/2007
COR038069	Public Service Co of Colorado	7/1/2007
COR038766	Sawyer Ridge LLC	7/1/2007
COR039480	Horizon Communities Inc	7/1/2007
COR03A104	A M P & Associates Inc	7/1/2007
COR03A232	Horizon Communities Inc	7/1/2007
COR03A284	Ron Johnson Construction	7/1/2007
COR03B110	T A G G Development LLC	7/1/2007
COR03B940	Colorado Dept of Transportation	7/1/2007
COR03C320	Elk Valley Development	7/24/2007
COR03C948	H W Houston Construction Co	11/6/2007
COR03D177	Yellico Leach Co Inc	1/2/2008
COR03D338	610 RLLLP	2/12/2008
COR03D437	Encore Communities USA Inc	3/11/2008
COR03D893	Dionisio Metal & Iron Inc	6/17/2008
COR03D906	G H Phipps Construction Co	6/17/2008
COR03E054	Premier Homes Inc	7/15/2008
COR03E089	H W Houston Construction Co	7/22/2008

Stormwater Permits Pueblo County		
Permit	**Permittee**	**Effective Date**
COR03E108	Vestas Towers Americas Inc	7/24/2008
COR03E115	L D M Development	7/24/2008
COR03E538	El Paso Corp	11/12/2008
COR03E587	Colorado Dept of Transportation	11/25/2008
COR03E610	Nunn Construction Inc	12/2/2008
COR03E686	Arrowrock LLC	12/30/2008
COR03E848	G H Phipps Construction Co	3/10/2009
COR03E882	Avondale Water & Sanitation District	3/17/2009
COR03F059	Premier Homes Inc	5/5/2009
COR03F083	Pueblo West Metropolitan District	5/12/2009
COR03F121	Colorado Dept of Transportation	5/26/2009
COR03F299	Pueblo, City of	7/14/2009
COR03F372	Colorado Dept of Transportation	7/28/2009
COR03F573	H W Houston Construction Co	9/22/2009
COR03F661	H W Houston Construction Co	10/20/2009
COR03F755	Milender White Construction Co	11/17/2009
COR03F816	Colorado Dept of Transportation	12/15/2009
COR03F824	LVI Environmental Services	12/15/2009
COR03F917	Summit Utilities Inc	1/26/2010
COR03F960	Pueblo City of	2/2/2010
COR03G031	High Country Pipeline Contractors Inc	2/16/2010
COR03G072	Arc Valley Construction Inc	3/2/2010
COR03G104	Black Hills/Colorado Electric Utility	3/16/2010
COR03G142	Colorado Dept of Transportation	3/23/2010
COR03G164	Rice & Rice Inc	3/30/2010
COR03G199	Tony J Beltramo & Sons Inc	4/6/2010
COR03G227	Centennial State Paving Inc	4/13/2010
COR03G286	Blue Spruce Constructors LLC	4/27/2010
COR03G325	Shisler Inc	5/4/2010
COR03G465	Rocky Mtn Materials & Asphalt	6/15/2010
COR03G544	K R Swerdfeger Construction Inc	6/29/2010
COR03G544	K R Swerdfeger Construction Inc	6/29/2010
COR03G609	Colorado Dept of Transportation	7/13/2010
COR03G625	Bassett Construction Co	7/20/2010
COR03G669	Glacier Construction Co Inc	7/27/2010
COR03G741	Top Land Development Inc	8/24/2010
COR03G746	A S I Constructors Inc	8/24/2010
COR03G874	Love's Travel Stops & Country Stores Inc	9/21/2010
COR03G932	Colorado State University Pueblo	10/5/2010
COR03G933	Colorado State University Pueblo	10/5/2010
COR03H044	Tony J Beltramo & Sons Inc	11/9/2010
COR03H120	H C P Construction Inc	12/7/2010
COR03H178	CDOT	12/28/2010

VIII. Nonpoint Source Management

Impaired Stream Segment Strategy

The 1977 Section 208 water quality program for Pueblo addressed several county nonpoint source concerns[14]. This report identified sediment as the "parameter of most concern". Several areas of high erosion potential were identified in the county. These areas were primarily in the western portions of the county above Pueblo Reservoir, along Fountain Creek, and within Graneros and Sixmile Creek drainages. The Soil Conservation Districts within the county were identified as the primary responsible agencies for addressing the sediment erosion problems. No other nonpoint source concerns have been noted in the PACOG section 208 program since 1977. Sediment is not included as a water quality parameter of concern in the Colorado 303(d) list[15].

Chapter 6 of the SWQMP[16] doesn't identify any specific strategies to address nonpoint sources within Pueblo County. However, Table 1 lists 13 segments within Pueblo County on the Monitoring and Evaluation or 303(d) list for water quality parameters of concern (Table 30).

Table 30 Water Quality Parameters of Concern in Pueblo County

Colorado's Monitoring & Evaluation Parameter(s)	Clean Water Act Section 303(d) Impairment
Nitrate-Nitrogen, Uranium, Copper, Zinc, Selenium, Aquatic Life Use (Hg FCA)	E. coli bacteria, Uranium, Copper, Zinc, Selenium, Iron (Total Recoverable), and Sulfate (SO4)

Selenium is the most prevalent parameter of concern with listings in 70% of the impaired or potentially impaired segments. Selenium is a nonpoint source derived parameter of concern. Research by Daniel J. Boorstin and Sadie Black [17] has shown there are two large sources of selenium: Wildhorse Creek – 22% of total mass loading, and Fountain Creek – 21% of total mass loading. Natural dissolution from Pierre Shale is the principle source of selenium. They noted that agricultural irrigation practices were not significantly increasing selenium concentrations in the study area. They also noted that sulfate was associated with the Pierre Shale formation. Colorado State University-Pueblo (Ft. Collins) is conducting ongoing research and developing strategies to address the Selenium issue in the lower Arkansas drainage[18].

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[14] PACOG Section 208 Water Quality Program Pueblo, Volume II: Point source, Nonpoint Source, Institutional/Management Subplans. PACOG and Pueblo Planning Commission. June 1977.

[15] WQCC. 2010b. Regulation No. 93: *Colorado's Section 303(d) List of Impaired Waters and Monitoring and Evaluation List.* 5 CCR 1002-93. Colorado Department of Public Health and Environment, Water Quality Control Commission, Denver, Colorado.

[16]Statewide Water Quality Management Plan (SWQMP). Colorado Department of Public Health and Environment, Water Quality Control Division. June 1, 2011.

[17] Daniel J. Boorstin and Sadie Black. .PowerPoint Selenium Sources, Arkansas River and Tributaries Near Pueblo, Colorado 2005-2006.

[18] Timothy K. Gates, Ryan T. Bailey and Keith H. Morse. 2009. Progress Report. Data & Models for Planning of Nonpoint Source Selenium Management in the Lower Arkansas River Basin, Colorado

The Fountain Creek Watershed District formed the Vision Task Force in 2006. This district takes a holistic approach to nonpoint source and will address the Selenium problem in Fountain Creek drainage (http://www.fountain-crk.org). The district has developed a strategic watershed plan. Pueblo County and the City of Pueblo are members of the district.

Uranium, Copper, Zinc, and Iron (Total Recoverable) are listed as parameters of concern and they are also predicted to be primarily derived from nonpoint sources. The 10.8 miles of Boggs Creek, which drains into Pueblo Reservoir (Table 1), has a high priority for the development of a total maximum daily load (TMDL) for selenium, zinc and uranium. The source(s) of the impairment are unknown. Additional water quality monitoring is necessary along this drainage to better characterize the magnitude and temporal extent of the impairment problem before a reasonable TMDL can be proposed.

Wildhorse Creek and the portion of Fountain Creek from highway 47 to the Arkansas River have a high TMDL listing priority for E. coli. The source(s) of the E. coli impairment on both Wildhorse Creek and lower Fountain Creek are unknown. The E. coli bacteria are probably a mixture of stormwater and non-specific nonpoint sources. No strategy has been proposed by either the WQCD or Pueblo County to address this water quality impairment. Additional water quality monitoring is necessary along these drainages to better characterize the magnitude and temporal extent of the E. coli impairment problem before a reasonable TMDL can be proposed.

Watershed Approach for Pueblo County

The preferred water quality management geography as noted in the Colorado SWQMP is a river basin or watershed approach. The only designated watershed in Pueblo County is the Fountain Creek Watershed District, which includes the lower portion of Fountain Creek as part of the overall Fountain Creek Watershed. Pueblo West has recognized the need to have a more watershed orientation at and above Pueblo Reservoir. However, there are no current plans to establish a watershed unit associated with Pueblo West and Pueblo Reservoir.

PACOG will investigate the potential to establish watershed units and cooperative programs that extent beyond the county boundary. A PACOG recommendation should be available by 2015 on a potential watershed approach that more closely matches the intent of the Colorado SWQMP.

Individual Sewage Disposal System Management

Pueblo County has a individual sewage disposal system (septic system) regulation that administers, enforces, provides design criteria, and manages septic systems in the county[19]. The regulation is designed to control the construction, location, and operation of sewage disposal systems, the transportation and final disposal of sewage materials, and control of installers of such systems.

About 28-29% of the population in Pueblo County will utilize individual sewage disposal systems or septic systems for wastewater treatment. This trend is expected to continue in Pueblo County through 2035 (Figure 21). In 2010, septic systems produced about 3.2 million gallons of

[19] Individual Sewage Disposal Systems Regulation No. VIII. Pueblo City-County Board of Health. October 7, 2009.

wastewater. By 2035, these systems will contribute about 4.9 million gallons of wastewater to groundwater systems.

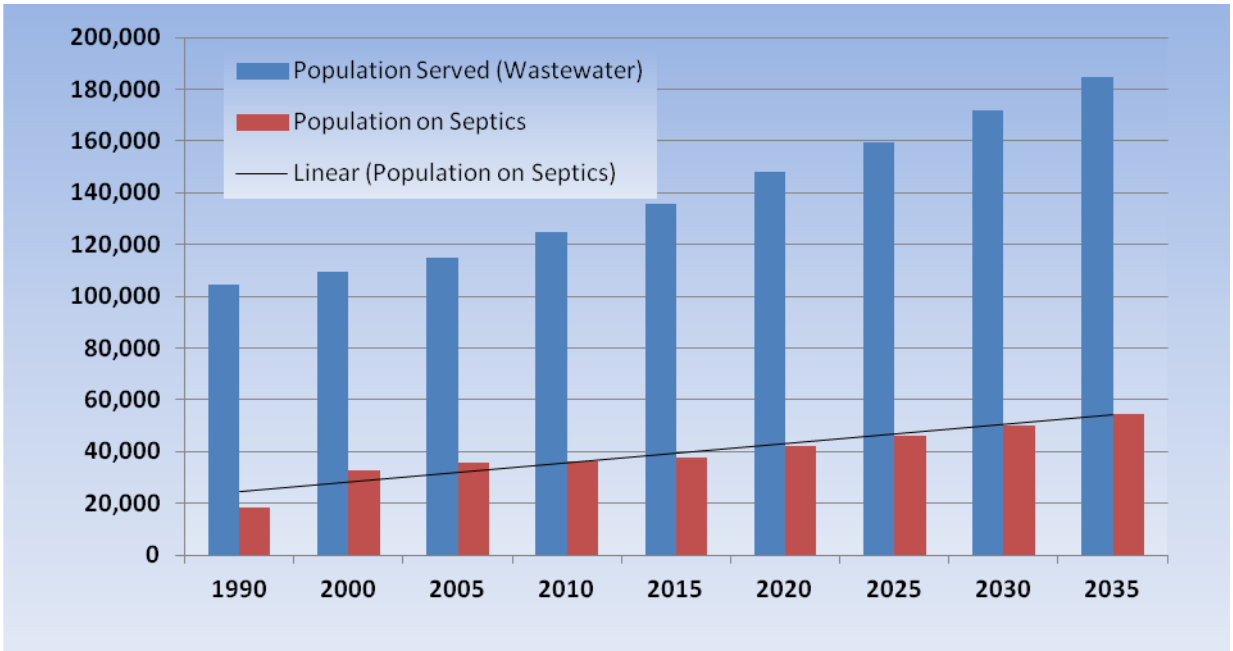

Figure 21 Septic Systems Used For Wastewater Treatment in Pueblo County

Septic system or individual sewage disposal system failures have been documented by Colorado counties, local health departments, regional planning commissions, planning organizations and the Colorado Department of Public Health and Environment since 1971. Numerous reports have shown groundwater contamination and potential health risks from *failed systems* (a broadly defined and used term), particularly at the subdivision level of development.

In many Colorado counties, groundwater and surface water contamination associated with septic systems has been traced to system age or improper past maintenance. However, even properly functioning conventional on-site systems can pose environmental and health risks under certain hydrologic and soil conditions. Improperly treated effluent from septic systems failures and poorly functioning systems is a potential threat to local water quality in parts of Pueblo County. System failures can produce locally high concentrations of phosphorus, nitrates and bacteria in shallow groundwater and may be responsible for elevated nitrate concentration at some wells.

Situations such as sub-standard systems, inadequate capacity, lack of maintenance, age of the system, and site factors such as poor soils or high water tables all contribute to septic system failures. If for example, soil is excessively permeable, effluent can move through the soil so rapidly without being adequately treated, this leads to water quality risk degradation from excessively permeable soils. Also, the highest risk of septic system failure can result from high water table soils.

Individual sewage disposal systems have been documented as a source of water pollution within some Colorado watersheds where these systems are sited at or near urban densities or where multiple systems have failed. The primary issue is not the effectiveness of individual septic

systems, which can remove up to 95% of the phosphorous and up to 50% of the nitrogen from wastewater flows, but the accumulative amount of nutrients and other chemicals reaching surface or groundwater. Moreover, only a small percentage of failed systems can significantly increase nutrient, bacteria or other chemical loading within a watershed or drainage area.

Septic system management planning may become a necessity in portions of Pueblo County where development densities exceeds one dwelling unit per acre. Several other counties in Colorado have already adopted land use regulations to limit septic system development to one dwelling unit per 5-acres. Currently, there is insufficient field data to show a septic system contamination problem in Pueblo County. Additional, data collection is necessary to document if septic systems are an important source of nitrogen and phosphorus.

County Water Quality Monitoring Strategy

There is no county-wide water quality monitoring program administered by PACOG. While there is a variety of water quality monitoring programs by individual agencies, these monitoring efforts have not been centralized. PACOG is aware of the value of having a more centralized and focused water quality monitoring program for the county. However, staffing and fiscal restraints have prevented PACOG from undertaking this type of effort.

PACOG is committed to water quality management through-out Pueblo County. A county-wide surface monitoring program and limited groundwater monitoring will enhance the PACOG ability to better manage water quality. As such, the PACOG will develop a county monitoring strategy by 2015 that includes, but not limited to:

1. Evaluating a watershed approach that potentially extends beyond the county boundary through cooperative agreement;

2. Water quality parameters of concern;

3. Strategies to address those parameters on the Monitoring and Evaluation List and 303(d) that compliment activities of the WQCD;

4. Potential monitoring points and frequency;

5. Monitoring and analyses methodologies;

6. Monitoring costs;

7. Funding mechanisms;

8. Data management and storage;

9. Data analyses and interpretation.

This strategy will be incorporated into a future update to the PACOG Water Quality Management Plan.

IX. Works Cited

CWCB. 2010. *State of Colorado 2050 Municipal and Industrial Water Use Projections*. Colorado Department of Natural Resources, Colorado Water Conservation Board, Denver, Colorado.

Daniel J. Boorstin and Sadie Black. PowerPoint Selenium Sources, Arkansas River and Tributaries Near Pueblo, Colorado 2005-2006..

Individual Sewage Disposal Systems Regulation No. VIII. Pueblo City-County Board of Health. October 7, 2000.

PACOG Section 208 Water Quality Program Pueblo, Volume II: Point source, Nonpoint Source, Institutional/Management Subplans. PACOG and Pueblo Planning Commission. June 1977.

PACOG. Section 208 Water Quality Management Plan. Pueblo County and Pueblo Area Council of Governments. Volume VII, 1993 Update. September 1994

Pueblo Regional Development Plan, PACOG, July 25, 2002.

Pueblo Comprehensive Plan. Future Land Use. Pueblo Area Council of Governments. December 2002.

Statewide Water Quality Management Plan (SWQMP). Colorado Department of Public Health and Environment, Water Quality Control Division. June 1, 2011.
Timothy K. Gates, Ryan T. Bailey and Keith H. Morse. 2009. Progress Report. Data & Models for Planning of Nonpoint Source Selenium Management in the Lower Arkansas River Basin, Colorado

WQCC. Regulation No. 23: *Regulations for State of Colorado Continuing Planning Process,* 5 CCR 1002-23.

WQCC 2006a. *Colorado Water Quality Management and Drinking Water Protection Handbook: A Continuing Planning Process* (CPP or CPP Handbook)

WQCC. 2010a. Regulation No. 32: *Classifications and Numeric Standards for the Arkansas River Basin.* 5 CCR 1002-32. Colorado Department of Public Health and Environment, Water Quality Control Commission, Denver, Colorado.

WQCC. 2010b. Regulation No. 93: *Colorado's Section 303(d) List of Impaired Waters and Monitoring and Evaluation List.* 5 CCR 1002-93. Colorado Department of Public Health and Environment, Water Quality Control Commission, Denver, Colorado.

WQCD. 2010c. *Integrated Water Quality Monitoring and Assessment Report*. Colorado Department of Public Health and Environment, Water Quality Control Division, Denver, Colorado.