COALVILLE CITY

ENVIRONMENTAL ASSESSMENT

for a

WASTEWATER FACILITIES PROJECT

per USDA-Rural Development Requirements

March 2012

J·U·B ENGINEERS, INC.

Prepared by

J-U-B ENGINEERS, Inc.
466 North 900 West
Kaysville, UT 84037

Project No. 55-11-048

COALVILLE CITY

ENVIRONMENTAL ASSESSMENT
for a
WASTEWATER FACILITIES PROJECT

per USDA-Rural Development Requirements

March 2012

J-U-B ENGINEERS, INC.

Prepared by

J-U-B ENGINEERS, Inc.
466 North 900 West
Kaysville, UT 84037

Project No. 55-11-048

COALVILLE CITY
ENVIRONMENTAL ASSESSMENT
FOR A WASTEWATER FACILITIES PROJECT

TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

1.1 PURPOSE AND NEED OF PROJECT

Coalville City is a community of approximately 1,600 residents located on the south end of Echo Reservoir just east of U.S. Interstate 80 in Summit County, UT (Figure 1-1). As the name implies, Coalville City has nearly always been known for the coal mined from the surrounding area. Second to coal, the area has also been known for farming. Local histories indicate the town was established by pioneer settlers and miners in the 1850s.

Coalville City operates a mechanical wastewater treatment plant (WWTP) designed to treat 350,000 gallons of wastewater per day (annual average flowrate). The facility discharges treated effluent to Chalk Creek which is tributary to Echo reservoir. Much of the equipment and facilities at the plant have been in operation since 1986 with some of the components in operation since the 1960s.

The City's existing wastewater treatment facility is located on 2.3 acres of land owned by the Bureau of Reclamation and leased to the City. The lease expires in 2014 and the Bureau of Reclamation is not willing to renew the lease or sell the land thus forcing the relocation of the City's wastewater facilities. Additionally DWQ continually reviews water quality of the state's lakes and river, Echo Reservoir has been listed as an 'impaired water' by the Utah DWQ and as such discharges to Echo, including Coalville's, may be subject to stricter discharge limits in the future for things such as phosphorus and nitrogen. To address concerns with the Bureau of Reclamation lease expiration and potentially more restrictive discharge limits, Coalville City has decided to begin the process of identifying the best possible wastewater treatment alternative and to identify impacts and cost to the community.

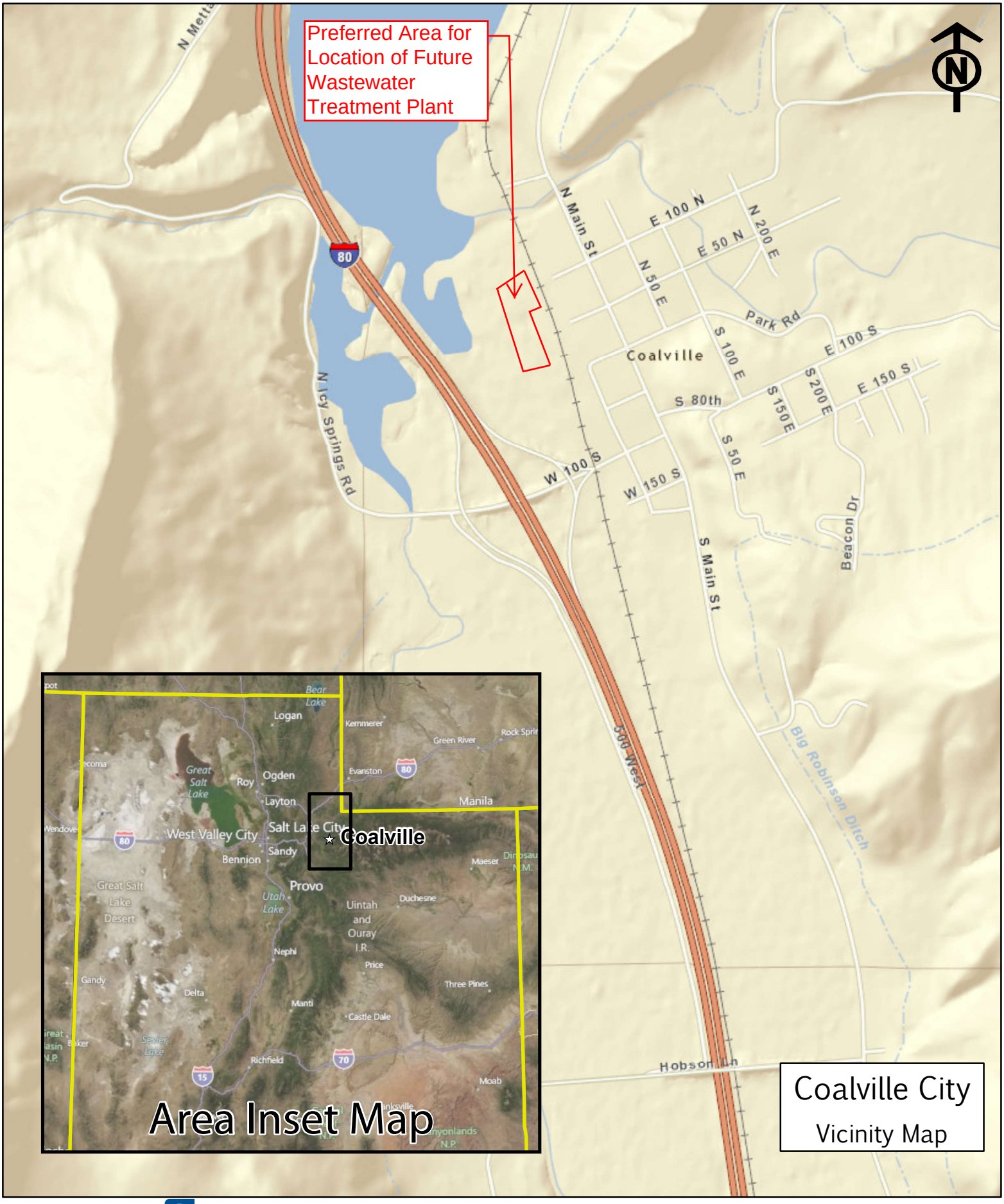
At this point the City has decided the option that is in the best interest of the City is to relocate its wastewater treatment facilities to non-Federal lands, and has aggressively begun the process of trying to fund and construct a new facility within a very short and strict timeline. On April 6, 2011 the Utah Water Quality Board approved funding for a new Coalville City wastewater treatment plant in the form of grants and loans. Coalville City is still seeking funding partners for this project.

The following paragraphs detail the need for the project.

1.1.1 Land Ownership

The Coalville WWTP is constructed on 2.3 acres of land owned by the United States Bureau of Reclamation (BOR) through a lease agreement between BOR and Coalville City as part of the Echo Reservoir project. Appendix D shows a copy of the original lease agreement. The 50-year lease has a start date in October 9, 1964 with an end date of October 9, 2014.

As part of the Facility Planning effort in 2006 and 2007, J-U-B coordinated with the BOR regarding the lease. Communication with the BOR continued beyond the Facility Planning effort. A number of emails and letters were exchanged and meetings occurred to gauge BOR opinion on the possibility of extending the lease, purchasing the 2.3 acres, or purchasing additional land. These letters and meeting minutes are included in Appendix D.



J-U-B ENGINEERS, INC.

GATEWAY MAPPING INC.
a J-U-B Company

Date: 9/9/2011

Feet
0 1,200 2,400

Figure 1.1

The feeling at the completion of the 2007 Facility Plan was the BOR may be interested in selling but a thorough process including National Environmental Policy Act (NEPA) review and land value appraisal would be required.

Realizing the lease expires in 2014 and the need to acquire additional land, the Facilities Plan recommended that the City immediately engage the BOR relative to extending the lease, acquiring the land, and consider acquiring additional land.

From July 2008 until February 2011 the City and BOR staff held a number of meetings to discuss the property transfer. As these discussions continued there were an increasing number of requirements placed upon the City by the BOR. The BOR required the City to develop an Emergency Response Plan to address any spills. The City did see a need to modify the site grading and add some modest berming to contain something such as a tank failure. However, the BOR became adamant that an extensive berm surrounding the treatment facility would be required as part of any sale or renewal of a lease. Design criteria described by the BOR required the following: that the top of the berm match the crest of the dam; the berm have a keyway trench in the bottom extending approximately 5 feet below the native ground with an impervious material to block potential contamination; the berm be reinforced on the reservoir side in order to prevent erosion; and the berm have a crest width of approximately 10 feet with sides slopes of 1:1. This would result in a berm surrounding the treatment plant approximately 7 feet higher than the treatment plant floor and 10 or more feet above the nearby floor of the reservoir (immediately outside the lease area limits of the treatment plant). This is nearly five times greater than that necessary to contain emergency wastewater overflows. The BOR felt this could be accomplished for $75,000. However, the estimate that the City had prepared by an engineering firm indicated costs would likely be $550,000. Through these discussions and requirements BOR was clear that leaving the Coalville WWTP at the existing site was a significant concession of current BOR policy; BOR could not see any "…*legal way to allow the current wastewater treatment plant to remain at its present location*" (copy of February 2011 letter in Appendix D).

The City and DWQ attended a meeting with Brad Shafer, Senior Advisor in Senator Bennett's office, to discuss these problems with BOR and the situation it was putting the City into. Mr. Shafer called the BOR to intervene on the City's behalf and expressed his concerns, to no avail. The criticality of the schedule was discussed and the possibility of receiving 595 appropriations funding was broached. The City received a letter from BOR dated May 10, 2010 stating that if the City found the BOR response to the City's request not to construct a berm unacceptable then relocating the facility onto non-federal property would be the best option to pursue (copy of letter in Appendix D).

As the negotiations with BOR through 2009 and 2010 became less favorable for the City, Coalville had the following factors to consider:

- A BOR landowner that was unwilling to renew the lease or sell additional land needed for future expansion (February 2011 letter). Additionally, if BOR were willing to sell the land the terms appeared to be very onerous and costly and would severely limit any ability to expand or meet future more stringent discharge regulations (May 2010 letter).

- An aging facility with many components beyond their useful life; maintenance costs that are accelerating.

- Likely future discharge regulations that would require improved treatment capabilities; the existing facility could be configured to meet future regulations but **only with additional land** adjacent to the existing facility; all of the land adjacent to the existing facility is BOR property and the BOR is unwilling to sell the nearby land.

As the negotiations with BOR through the latter half of 2010 began to look less favorable, the City began to investigate other options including locating a new treatment facility on non-federal lands. The December 2010 Facility Plan Update was developed for DWQ as an update to address the outcome of BOR coordination since completion of the Facilities Plan in May of 2007. Whereas the 2007 Facility Plan focused on use of the existing plant and expansion on land right near the existing facility, the update considered constructing a new facility on a new site.

In conjunction with the Facility Plan Update for a new facility on a new non-Federal site, the City pursued Army Corp of Engineers 595 funding. The City was awarded the 595 funding in the form of a grant in the amount of $5,000,000 (copy of Signed Agreement in Appendix E). However, the 595 grant was withdrawn in December (copy of Program Manager letter in Appendix E).

At this point the City has decided the option that is in the best interest of the City is to relocate its wastewater treatment facilities, and has aggressively begun the process of trying to fund and construct a new facility within a very short and strict timeline.

1.1.2 Echo Reservoir TMDL, State Nutrient Study and Future Nutrient Limits

In 2006, the Utah DEQ submitted an Echo Reservoir Total Maximum Daily Load (TMDL) report to the USEPA for approval. Echo Reservoir is currently on the State's 303d list of impaired waters. The TMDL for Echo Reservoir has not been approved by the USEPA, and instead DWQ has indicated they are embarking on a new watershed wide effort to include Echo Reservoir as well as other waterways in the area in a new TMDL. It is expected that the pollutants of concern and load allocations of the new TMDL will be similar to those proposed in the 2006 TMDL. Table 4-1 summarizes the 2006 Echo Reservoir TMDL.

Through a series of meetings with DWQ and watershed stakeholders the point and non-point phosphorus loads were allocated for the 2006 TMDL. The annual point source load allocated to the Coalville WWTP was 823 kg/year of total phosphorus. This load represents 4 percent of the total target load to the reservoir. As mentioned, it is expected that future load allocations in the revised TMDL will be similar or stricter to those proposed in the 2006 TMDL.

In 2009 the State of Utah's Division of Water Quality embarked on a study to evaluate the economic impacts of potential new nutrient removal requirements for the State's public owned treatment works. The study estimated for Coalville City the economic, financial, and environmental impacts associated with a range of potential nutrient discharge standards. The nutrient discharge standards that were evaluated were as follows:

- Total Phosphorus of 0.1 mg/L and Total Nitrogen of 10 mg/L

- Total Phosphorus of 0.1 mg/L and no limit on Total Nitrogen
- Total Phosphorus of 1.0 mg/L and Total Nitrogen of 20 mg/L
- Total Phosphorus of 1.0 mg/L and no limit on Total Nitrogen

This study was conducted by Utah DWQ aware of pending litigation against the United States Environmental Protection Agency where stakeholders are seeking stricter nutrient limits written directly into discharge permits. DWQ has stated in verbal presentations that lower nutrient limits are inevitable. In a recent letter to Coalville regarding the Facility Plan update; DWQ states: "*DWQ reiterates our previous recommendation that the treatment plant be designed to meet total nitrogen limits of <10 mg/l and total phosphorus limits of < 1.0 mg/l. Ideally [a new Coalville facility] would be designed so that further reductions are possible if the TMDL requires further reductions. As you may know, USEPA is strongly pushing states to develop numeric criteria for TN and TP, and other nutrient reduction programs. It is the opinion of DWQ that future nutrient regulations are inevitable"* (copy of June 2011 letter in Appendix C). The same DWQ letter goes on to say that DWQ will not fund treatment upgrades that do not address future nutrient limits. This single observation, in conjunction with the BOR stance on the existing facility, effectively eliminates the existing site from any further consideration as an expansion option since meeting nutrient limits without more land will be difficult.

1.1.3 Age of Existing Infrastructure

The primary components of the existing system that are near capacity include the influent lift station, oxidation ditch, 8-inch gravity line from the oxidation ditch to the clarifiers, UV disinfection, clarifiers, RAS pump station, aerobic sludge holding and the compost operation.

Additionally, the existing treatment facility has a number of elements that are 40+ years old with much of the infrastructure being 25+ years old. The maintenance burden on the City's annual budget is of concern to the Council and operations staff.

The City council has expressed concern about the age of the facility. The Council feels they routinely are faced with fairly expensive upgrades at the plant or equipment purchases related to aging equipment. The Council has recently enacted a modest incremental rate increase to move the rates up (from $28/month/unit) to $32/month/unit and then incrementally higher to $40/month/unit over the coming years to try to address some of the aging facilities. The aging infrastructure analysis is based on industry standard life expectancy, which is typically 20 years for rotating or moving machinery and 40 years for concrete. The aging analysis is an estimate based on these guidelines. Machinery currently operating that is past the 20 year life could continue to run without incident for many years to come or the City could experience numerous failures on some of these devices at any time.

Table 1-1 compares the age of the existing facilities with respect to their remaining useful life.

Table 1-1. Age of Existing Plant Process Elements

Number of Unique Plant Process Facilities (i.e., influent pumps, clarifier drives, aeration system, electrical gear, etc.)	16
Number of Facilities At or Past Useful Life in 2010 (out of the 16 total that were identified)	7
Number of Facilities At or Past Useful Life by 2020 (out of the 16 total that were identified)	12

The above table shows that nearly half of the existing plant processes are currently at or past their design life and in ten years this number will grow to 75 percent. As a result, the costs to maintain service for this aging facility will be significant due to increasing maintenance and replacement costs. The estimated replacement costs and other costs to maintain service at the existing site over the next ten years is approximately $4.9M (Table 4-3). This cost would provide no new capacity and would not reliably address nutrient removal. Additionally staying at the site does not appear to be viable based on BORs most recent stance (February 2011 letter).

1.1.4 Odor Concerns

Although Coalville City is generally rural, there have been an increasing number of odor complaints from residences near the plant. The City council would like to keep the odor production to a minimum and try not to increase odors from their current levels.

1.1.5 Biosolids Handling

Related to the site ownership and the odor concern is handling of biosolid residuals generated at the plant. The current solids storage and composting approach utilizes approximately one half of the plant site. If onsite composting is to continue additional land will be required. Onsite composting of increasing amounts of solids will only add to the odor issue.

1.1.6 Operations Staffing and Maintenance

With the exception of the current lead operator, the City has acknowledged challenges to hiring and maintaining good operations staff. Selection of any treatment processes should address this concern and any operations cost needs to account for operational labor. Unscheduled maintenance issues are relatively common with the older equipment items at the wastewater facility.

1.1.7 Regional Treatment Facility

Looking further into the future and realizing Coalville is “downhill” from communities such as Wanship and Hoytsville, Coalville could potentially become a regional treatment location. Towards the completion of the Facility Plan in May of 2007 there was a discussion about the concept of ‘regionalization’ and whether or not Coalville’s WWTP could serve as a regional facility. Although not driven at the present time by DWQ or by the cities themselves, Coalville City staff has reported at times there have been informal discussions about the potential of providing sewer service to nearby areas which are in unincorporated Summit County.

The existing WWTP would need to be expanded to accommodate the additional flow from the additional service population. However, the existing site will not allow for expansion of the WWTP. Thus, relocating the treatment facility and acquiring sufficient land to serve as a regional treatment facility could be a long term benefit for the region.

1.2 DESCRIPTION OF EXISTING FACILITIES

Currently, Coalville City treats its wastewater in an oxidation ditch and discharges treated effluent to Chalk Creek. Appendix B includes the existing UPDES discharge permit for this outfall. Figure 1-2 shows the location of the existing treatment facilities and lift stations in relation to the rest of the community, Figure 1-3 shows the existing collection system and lift stations and Figure 1-4 is a detailed layout of the existing treatment facilities.

1.2.1 Wastewater Collection System

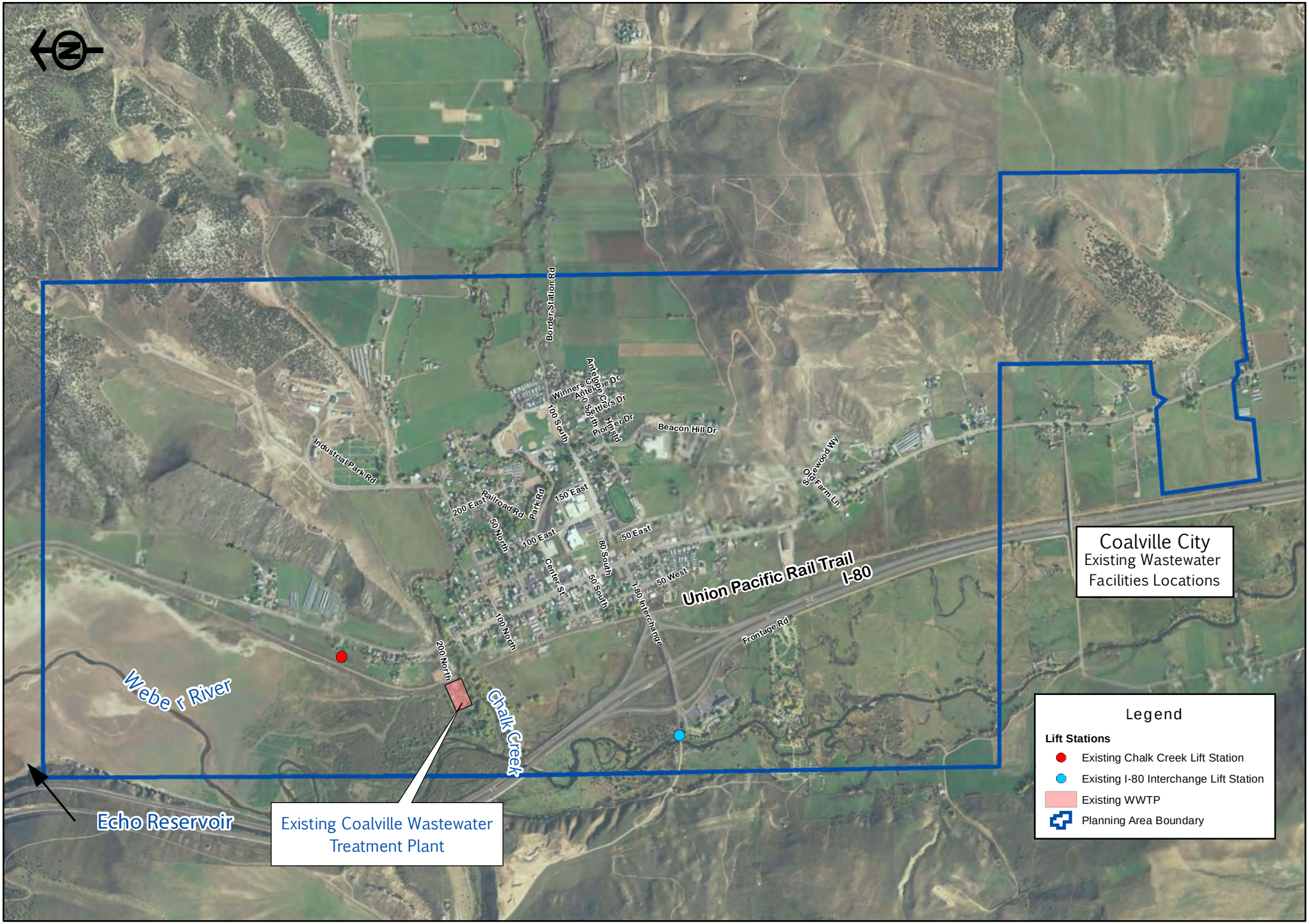
The 2005 Sanitary Sewer Model and Capital Facilities Plan (J-U-B, 2005) investigated the capacity of the existing sewer collection system and the size of the system needed for build-out conditions (from the City's future land use map and development code). Investigations into the capacity of the existing collection system were done using models verified by flow monitoring data collected at several locations throughout the community. The master plan also included the modifications needed in order to have sufficient capacity for future needs. The master plan also suggests that inflow and infiltration is an issue in older pipelines and that the City should continue to consider replacing these older pipelines.

As shown in Figure 1-3, the City's existing wastewater collection system consists of mainly 8-inch, but also some 10-inch and 12-inch gravity sewer lines that were likely originally installed in the mid-1960s. A 4-inch force main is located to the north and west of the City. Additional lines have been installed as the system expanded with new residential developments through the 1980's and 1990's. The City reports that the newer collection system lines are in relatively good condition with no significant cracks and breaks, erosion and/or corrosion of the pipe surface, solids build-up, roots, and sags or bellies in the lines. Newer lines are those along 50th North, which were pipe burst in 2002, and the 4-inch force main to the north and west of the City. In older pipelines infiltration and inflow is a concern. The City also reports that the existing manholes are in relatively good condition without any cracks or corrosion on the surface.

The majority of the City's wastewater gravity flows to the wastewater treatment facility. Small portions of flow are pumped to the facility, including an area to the north and west of the City, which is served by the Chalk Creek Lift Station, and another area west of the I-80 interchange, which is served by the I-80 Interchange Lift Station.

The Chalk Creek Lift Station was installed in the mid-1960s. It serves approximately 28 houses on the north end of Coalville. The lift station includes a Smith & Loveless Mon-o-ject ejector pump and control panel in a steel lift station. The city has recently had issues with the pumps and replacement parts have been difficult to acquire due to the age of the system. A 2008 analysis of the lift station suggested that portions of the steel lift station may be corroded. Further, the analysis noted that due to the size of the wet well (5 feet and then narrowing to 4 feet just below the top plate), retrofitting the lift station with new submersible pumps would be difficult.

The I-80 Interchange Lift Station was installed in 1965 and is located near the I-80 interchange. The lift station is situated on the north side of 100 South approximately 100 feet west of the southbound off-ramp. It serves the sewer connections west of I-80 including Camperworld, Holiday Hills (motel and RV), and the gas station.

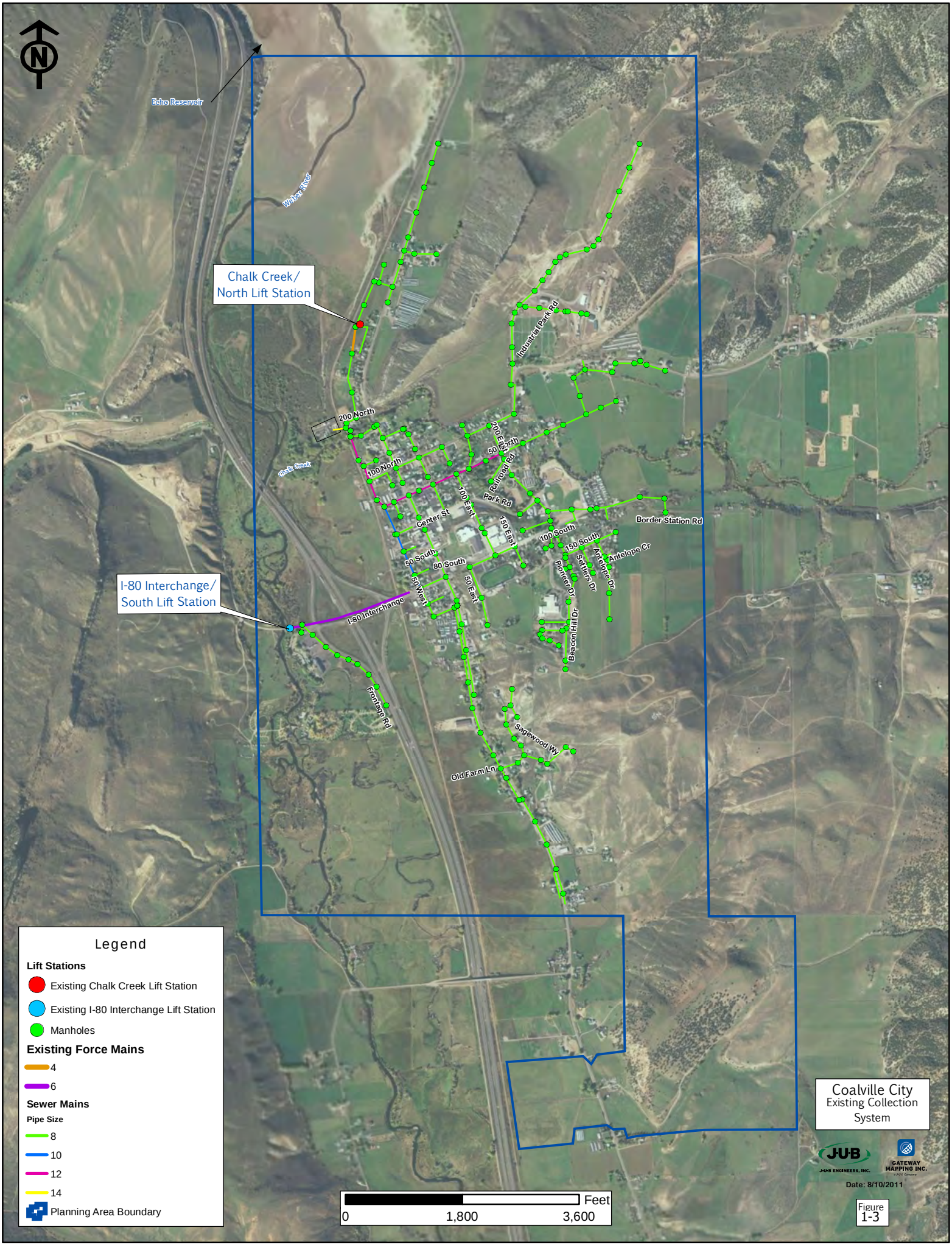


J-U-B ENGINEERS, INC.

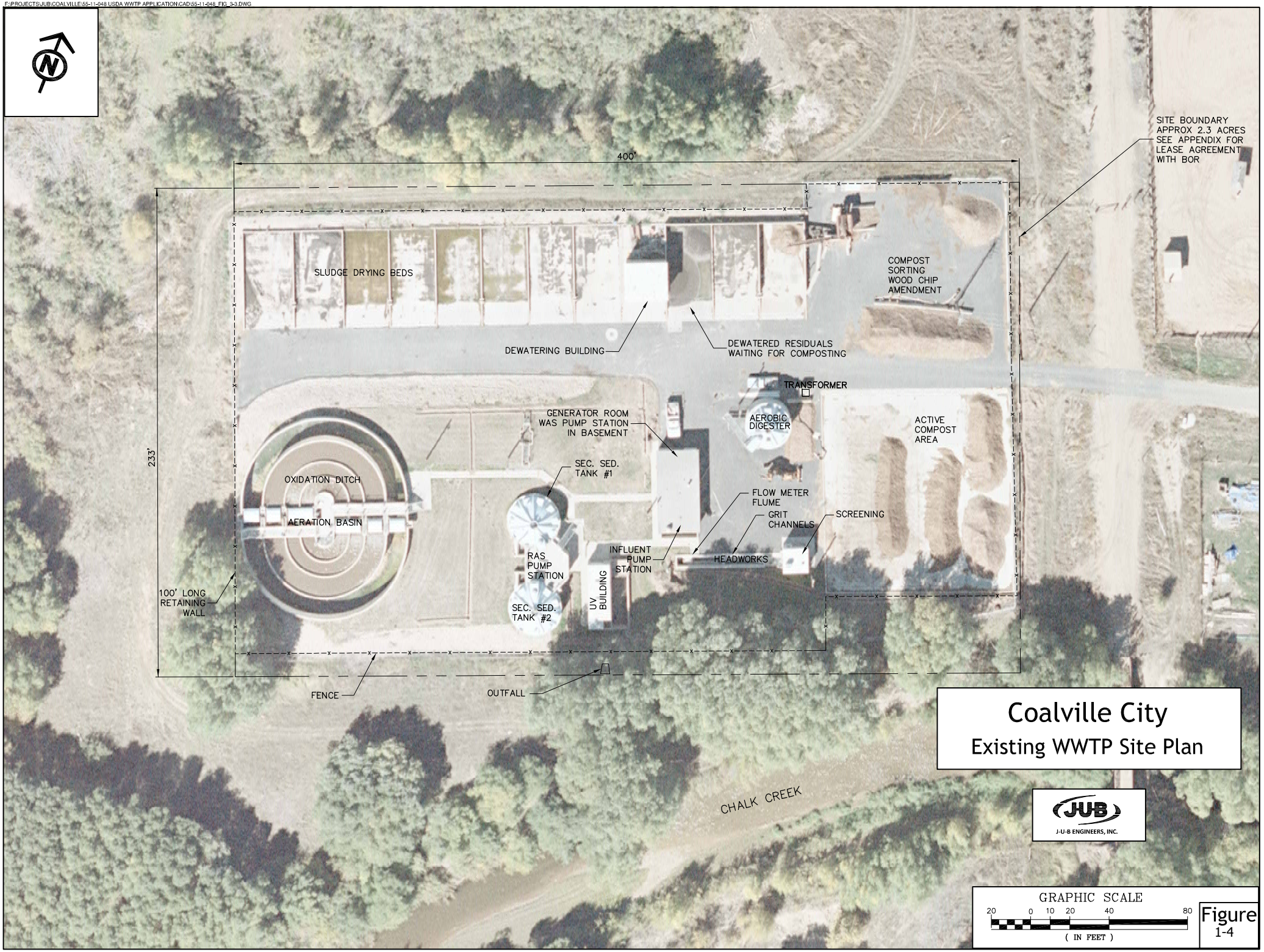
GATEWAY MAPPING INC.
a J-U-B Company

Date: 8/15/2011

Figure 1-2


Echo Reservoir
Weber River
Chalk Creek/
North Lift Station
I-80 Interchange/
South Lift Station
Chalk Creek
200 North
100 North
50 East
200 East
Railroad Rd
Park Rd
100 East
150 East
Center St
50 South
80 South
50 West
50 East
I-80 Interchange
Industrial Park Rd
Border Station Rd
100 South
150 South
Antelope Dr
Antelope Cr
Settlers Dr
Pioneer Dr
Beacon Hill Dr
Frontage Rd
Sagewood Wy
Old Farm Ln
Legend
Lift Stations
Existing Chalk Creek Lift Station
Existing I-80 Interchange Lift Station
Manholes
Existing Force Mains
4
6
Sewer Mains
Pipe Size
8
10
12
14
Planning Area Boundary
Feet
0
1,800
3,600
Coalville City
Existing Collection
System
JUB ENGINEERS, INC.
GATEWAY MAPPING INC.
Date: 8/10/2011
Figure
1-3

F:\PROJECTS\JUB\COALVILLE\55-11-048 USDA WWTP APPLICATION\CAD\55-11-048_FIG_3-3.DWG



Coalville City

Existing WWTP Site Plan

J-U-B ENGINEERS, INC.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

Figure 1-4

The City maintains the lift station as well as the 8-inch gravity collection line upstream of the lift station. The current operator has replaced the control panel, pumps, and valves at the lift station at least once in the last 10 years. The lift station is a simple, 5 horse power, dual pump system set in a manhole sump with a control panel situated about 10 to 20 feet away. The force main from the lift station is a 6-inch pipe buried along the north side of the I-80 interchange bridge.

1.2.2 Wastewater Treatment Overview

Wastewater flows by gravity from the collection system through the screen, grit channels, and flume. Once metered, the wastewater enters an influent pump station wet well. The wastewater is lifted by dry pit influent pumps to the oxidation ditch. The wastewater then flows by gravity from the oxidation ditch into the clarifiers and to UV disinfection. Return activated sludge (RAS) from the clarifiers is pumped to the oxidation ditch, influent pump station, waste activated sludge (WAS) pump station, or the aerobic digester. Thickened WAS in the digester is conveyed by gravity or pumping to the screw press for dewatering. Decant water from the top of the aerobic digester can be drained by gravity to the influent pump station. Decant from the screw press also drains by gravity to the influent pump station. Figure 1-4 shows the existing wastewater treatment system.

1.2.3 Oxidation Ditch

Wastewater and return flows that end up in the influent pump station wet well are pumped to the oxidation ditch. The oxidation ditch utilizes anoxic and aerobic treatment zones to reduce organics (measured as BOD), ammonia nitrogen, and phosphorus in the wastewater. Normal ditch operations include:

- 100 percent of raw wastewater being sent to the outermost ring at the end of the anoxic pass (i.e., third ring with fourth outer ring out of service);
- RAS being returned to the outermost ring at approximately 100 percent of the influent flow rate;
- Dissolved Oxygen (DO) is adjusted by periodic manual DO measurements and changing the effluent weir setting when needed. Raising the effluent weir brings more of the aerator disk surface area in contact with the mixed liquor and increases oxygen transfer;
- Wasting is conducted to maintain a solids retention time of approximately 30 days. Plant staff waste in batch mode typically once per week with a typical batch being 5,000 to 15,000 gallons at 1 percent to 2 percent solids.

The existing aerobic treatment system is designed and operated in an “extended air” type operation mode. Extended air treatment systems are variations of conventional activated sludge systems that tend to utilize longer solids retention times and are often loaded less heavily (relative to BOD) than a “conventional” activated sludge facility. The extended air facilities are suitable for small communities where primary clarification is not utilized and the operations staff needs a good deal of flexibility. The extended air type system tends to be more resistant to shock loads and plant upsets.

1.2.4 Biosolids Residuals Handling Facilities

RAS pumped from the RAS pump station is periodically wasted to the aerobic digester. The aerobic digester serves as a holding tank and thickener prior to dewatering (although thickening is minimal). Some digestion/solids reduction occurs in the digester but plant staff feels this is minimal due to short sludge age and relatively low temperatures. Wasting to the digester is typically done once per week with a common batch being 5,000 to 15,000 gallons at a concentration of 1 percent to 2 percent. Wasting is conducted as needed to target a SRT of 30 days in the oxidation ditch.

The residuals in the digester are subject to coarse bubble diffusion for mixing and to ensure anaerobic conditions do not develop within the digester. The solids in the digester are periodically sent to the screw press for dewatering. Typically, plant staff waste 5,000 to 15,000 gallons to the screw press to empty a full digester and then waste to the digester bring the digester back to a full condition. A WAS pump in the basement of the operations building (near the influent pumps) conveys residuals from the digester to the screw press. The WAS pump is set by the operator from a remote control at the screw press. The remote control is for a VFD that controls the WAS pump motor. The press typically receives 1 percent to 2 percent solids at 30 gpm and produces a dewatered residual with 8-10 percent solids. Decant water from the top of the digester and the screw press is returned to the influent pump station wet well.

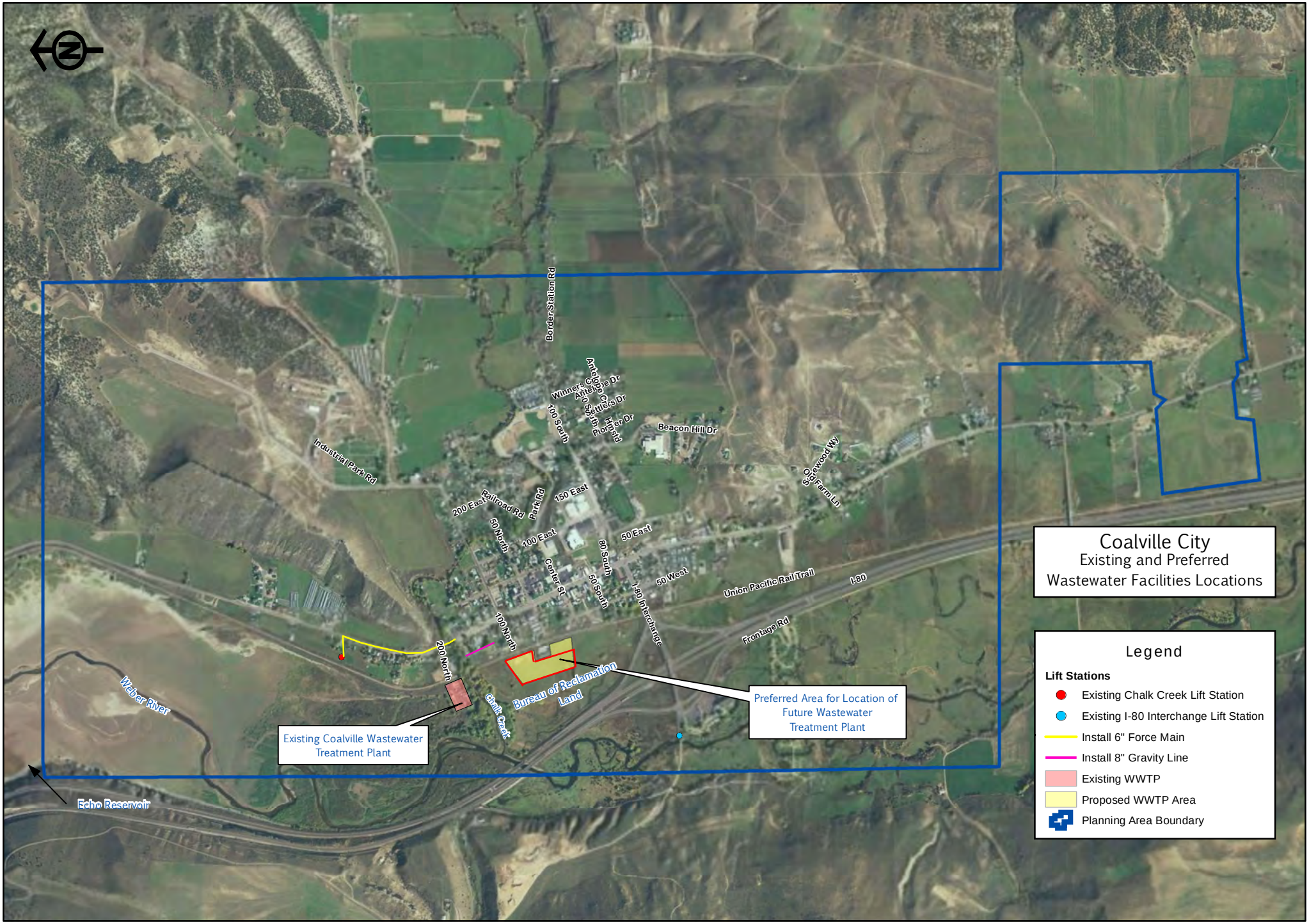
The drying beds are utilized as needed to stage residuals prior to working it into compost windrows. The drying beds are also utilized for screenings dewatering. The drying beds are used the most in the winter time for sludge storage. Plant staff report that if a wet or cold early fall is followed by a wet and cool spring the drying beds are nearly full prior to getting the composting operation going. Composting is done most extensively in the warmer and drier months from approximately April to October. The screw press and composting operation were added in 1995.

1.2.5 UV Disinfection

Treated water that goes over the weir of the secondary clarifies is conveyed by gravity to the ultraviolet (UV) disinfection system. Plant operations staff notes the UV system has functioned well. The operators would like to continue with UV in the future and minimize need for chemicals, such as chlorine, for disinfection.

1.3 PROPOSED PROJECT DESCRIPTION

With the BOR firmly stating that the treatment facilities must move to a new location, all project alternatives (not including the no action alternative) will involve construction of a new facility on a new site and abandoning the existing facility. Figure 1-5 shows the location of the existing wastewater treatment plant as well as the preferred location for a new treatment facility. This area is generally located along the western edge of the City just west of the Union Pacific Rail Trail and to the east of I-80. The northern and southern boundaries of the area are Bureau of Reclamation owned land and the I-80 interchange, respectively. The primary reason this area has been selected is that it generally lies downhill from the City, which will facilitate conveyance of sewage to the treatment facility via gravity, rather than pumping. Also, this location will minimize the changes to the existing collection system in order to convey wastewater to the new location. Thus, much of the existing collection system as it currently exists will be utilized without making any large scale changes.



J-U-B ENGINEERS, INC.

GATEWAY MAPPING INC.
a J-U-B Company

Date: 8/15/2011

Feet
0 1,700 3,400

Figure 1-5

For the alternatives 2 and 3 a new facility located somewhere within this preferred area was considered.

The Alternatives considered include:

- Alternative 1: No action
- Alternative 2: Construct a new treatment facility using conventional activated sludge with nutrient removal technology at a new location.
- Alternative 3: Construct a new treatment facility using membrane bioreactor (MBR) technology at a new location.

To address concerns with the Bureau of Reclamation lease expiration, potentially more restrictive discharge limits, aging infrastructure, odor concerns, biosolids handling and operations staffing and maintenance, Coalville City has decided its only option is to relocate its wastewater treatment facilities. The alternative selected by the City is Conventional Activated Sludge with Nutrient Removal. The selected alternative will address water quality concerns raised by the DWQ and will allow future expansion, if needed, to comply with future regulations, population growth or serving as a regional treatment facility. Figure 1-5 shows the proposed wastewater and collection system improvements.

2.0 ALTERNATIVES TO THE PROPOSED ACTION

2.1 WASTEWATER TREATMENT FACILITY PROPOSED PROJECT ALTERNATIVES

Prior to looking at feasible expansion alternatives, challenges and concerns associated with the future of wastewater treatment in the community were identified. These challenges were identified in conjunction with City staff. The primary challenges include:

- Land Ownership and BOR stance
- Echo Reservoir TMDL, the State Nutrient Study and Future Nutrient Limits
- Capacity and Age of Existing Infrastructure
- Odor Concerns
- Biosolids Handling
- Operations Staffing and Maintenance

With the BOR firmly stating that the treatment facilities must move to a new location, all project alternatives (not including the no action alternative) will involve construction of a new facility on a new site and abandoning the existing facility. Figure 1-5 shows the location of the existing wastewater treatment plant as well as the preferred location for a new treatment facility. This area is generally located along the western edge of the City just west of the Union Pacific Rail Trail and to the east of I-80. The northern and southern boundaries of the area are Bureau of Reclamation owned land and the I-80 interchange, respectively. The primary reason this area has been selected is that it generally lies downhill from the City, which will facilitate conveyance of sewage to the treatment facility via gravity, rather than pumping. Also, this location will minimize the changes to the existing collection system in order to convey wastewater to the new location. Thus, much of the existing collection system as it currently exists will be utilized without making any large scale changes. For the alternatives 2 and 3 a new facility located somewhere within this preferred area was considered.

The detailed basis for the sizing and the flow rates for new facilities is presented in Tables 2-1 and 2-2. Alternatives 2 and 3 include facilities to meet the 2030 flows and loads shown in Tables 2-1 and 2-2, and the effluent quality design criteria of Table 2-3.

Table 2-1. Coalville City Design Population and Flowrate Estimates

Year	Residential			Non-Res. EDUs[2]	Average Wastewater Generation Rates per EDU[3]	Flowrates		
	Population[1]	EDUs[2]	Persons per EDU[2,3]			Annual Average (mgd)[4]	Max. Month (mgd)[5]	Peak Hour (mgd)[6]
2010	1,587	519	3.06	159	310	0.210	0.412	1.05
2020	1,865	602	3.10	172	310	0.240	0.470	1.20
2030	2,319	748	3.10	189	310	0.291	0.569	1.45

1. Population closely matches Governor's Office of Planning and Budget (GOPB) and Mountainland Association of Governments (MAG) estimates in 2010, 2020, 2030. From 2010 to 2030 annual population growth rate is 2.2% (to match GOPB and MAG).
2. 2010 residential and non-residential equivalent dwelling units (EDUs) were estimated from City staff discussions and analysis of water billing data.
3. A value of 3.10 persons per residential ERU results from estimates from 2007 of 3.02 based on the 2007 population estimate and the 2007 residential ERU estimate and from 2010 based on the 2010 population estimate and the 2010 residential ERU estimate.
4. Annual average flows based on daily flow totals captured by the influent flow meter and reported on the monthly DMRs to DWQ (simple average over the period of record).
5. Maximum month is the highest observed 30 day running average flow in the reporting period. The Maximum month peaking factor is estimated as 1.96.
6. The influent flow recorder logs the maximum daily reading in gpm. DWQ defines peak instantaneous flow as a 99.9% occurrence. The peak value shown is the 99.9% value of the daily maximum recordings. The peak was corrected for the screen cleaning events which was estimated to be 50 gpm (maximum daily recordings were reduced by 50 gpm after discussions with plant staff). Peak hour/ instantaneous factor is estimated as 4.99.

Table 2-2. Coalville City Design Influent Concentrations[1]

Parameter	Average Annual Concentration (mg/L)	Maximum Month Concentration (mg/L)[2]
BOD	170	268
TSS	165	237
TP	5.02	7.58
TKN	39.5	59.8

1. Average annual and maximum month concentrations are from water quality data reported on the monthly DMRs to DWQ from 2006 to 2011. Samples were taken two times per month.
2. Maximum month concentration is calculated as the 92nd-percentile of data per DWQ definitions.

Table 2-3. Effluent Quality Design Criteria

Parameter	Existing Facility Effluent Design	Proposed Facility Effluent Design1	Comparison of Existing Facility to Proposed Facility
5-Day Biochemical Oxygen Demand (BOD5)	Permit Limit: 25 mg/l Typical Performance: < 10 mg/l	Permit Limit: 25 mg/l Typical Performance: < 10 mg/l	Existing and proposed are similar.
Total Suspended Solids (TSS)	Permit Limit: 25 mg/l Typical Performance: < 10 mg/l	Permit Limit: 25 mg/l Typical Performance: < 10 mg/l	Existing and proposed are similar.
Ammonia	Permit Limit: No limit Typical Performance: < 5 mg/l	Permit Limit: 6.4 mg/l Typical Performance: < 1 mg/l	Proposed process is designed for nitrogen removal and will provide nearly complete nitrification (i.e., no ammonia). Existing process was not designed to meet an ammonia or TN limit.
Total Nitrogen (TN)2	Permit Limit: No Limit Typical Performance: 5-15 mg/l	Permit Limit: < 10 mg/l Typical Performance: 5-8 mg/l	Proposed process is designed for nitrogen removal and will intentionally reduce total nitrogen to very low levels.
Total Phosphorus (TP)	Permit Limit: No Limit Typical Performance: 0.5 to 2 mg/l	Permit Limit: < 1 mg/l Typical Performance: < 1 mg/l	Proposed facility will include chemical phosphorus removal system. Existing facility does not include dedicated means for phosphorus removal.
pH	Permit Limit: 6-9 Typical Performance: 6-9	Permit Limit: 6-9 Typical Performance: 6-9	Proposed facility will include an anoxic zone that will recover alkalinity, thus providing improved buffering against pH changes.
Dissolved Oxygen (DO)	Permit Limit: > 5 mg/l Typical Performance: 6-8 mg/l	Permit Limit: > 5 mg/l Typical Performance: 6-8 mg/l	Existing and proposed are similar.
Total Residual Chlorine	No limit. Existing facility uses UV light for disinfection; there is no use of chlorine	No limit. Proposed facility will use UV light for disinfection; there is no use of chlorine	Existing and proposed are similar; no chlorine impacts.
E-coli	<126 org./100ml	<126 org./100ml	Existing and proposed are similar.

1. The Proposed permit limits, which are being used for the design criteria, are based on typical new permits being issued by DWQ, information developed through the WLA, and discussions with DWQ during the planning period (Appendix C). Final values will be proposed by DWQ in the actual newly issued permit.
2. The existing facility is not designed specifically to remove nitrogen and phosphorus. Over years of operation the operator has become adept at minor operational adjustments that have resulted in exceptional effluent quality for nitrogen and phosphorus. As the existing facility moves closer to its design capacity, it is anticipated the effluent quality relative to Total Nitrogen and Total Phosphorus would increase.

The Alternatives considered include:

- Alternative 1: No action
- Alternative 2: Construct a new treatment facility using conventional activated sludge with nutrient removal technology at a new location.

- Alternative 3: Construct a new treatment facility using membrane bioreactor (MBR) technology at a new location.

To address concerns with the Bureau of Reclamation lease expiration, potentially more restrictive discharge limits, aging infrastructure, odor concerns, biosolids handling and operations staffing and maintenance, Coalville City has decided its only option is to relocate its wastewater treatment facilities. The alternative selected by the City is Conventional Activated Sludge with Nutrient Removal. The selected alternative will address water quality concerns raised by the DWQ and will allow future expansion, if needed, to comply with future regulations, population growth or serving as a regional treatment facility. Figure 1-5 shows the proposed wastewater and collection system improvements.

The subsequent sections detail the project alternatives.

2.1.1 Alternative 1: No Action Alternative

A. Description
Under the no action alternative no additions to the collection system, lift station, force main, treatment system or composting system will be made and the system will be maintained in its current state.

B. Design Criteria
For this alternative, the City will not implement any improvements to the wastewater treatment facilities. The existing system design values presented in Chapter 3 will be maintained as the design criteria.

C. Map
A map of the current facility to be maintained was presented in Figures 1-2, 1-3 and 1-4.

D. Environmental Impacts
Since no changes are proposed there will not be any environmental impacts.

E. Land requirements
It has already been noted in Chapter 4 that the existing wastewater treatment facilities are operating on 2.3 acres of land owned by the BOR and leased by Coalville City. The lease expires in 2014. The BOR is unwilling to extend the lease or sell the land as reiterated in their February 2011 letter (copy of letter in Appendix D).

F. Construction Problems
No construction will occur under this alternative.

G. Cost Estimates
There will be no additional capital costs for this alternative. Annual operating costs for labor and utilities would increase incrementally with inflation. However, the replacement costs could increase significantly with the aging facilities.

H. Advantages/Disadvantages
The BOR has indicated that they expect "Coalville City to have constructed, or be in the process of constructing, a new treatment plant off United States property and located on

property that will not pose a risk to our projects or to the water supply" (copy of February 2011 letter in Appendix D). BOR has indicated that they are "willing to issue, if necessary, a short-term license agreement or permit for 1 to 3 years while Coalville City finishes relocating the plant" (copy of February 2011 letter in Appendix D).

Based on the issues described above, this alternative is not feasible and was not considered any further in this report.

2.1.2 Alternative 2: Conventional Activated Sludge with Nutrient Removal at New Site

A. Description

Alternative 2 will utilize a liquid-side activated sludge process based on a nitrogen removal approach called the Modified Ludzack-Ettinger (MLE) process. This type of process is well proven for nitrogen removal. Phosphorus removal will be accomplished through chemical means. The MLE process was chosen considering wastewater quality, site footprint, reliability of the process, and ability to meet even future lower nitrogen and phosphorus limits. Figure 1-5 shows the preferred area for a new treatment facility, which was previously described. The site is master planned to accommodate flows of 1.0 to 1.2 mgd.

B. Design Criteria

For Alternative 2 a new facility using conventional activated sludge treatment with nutrient removal is planned. The design elements for this facility will include:

- Collection System Upgrades
- Replacing the Chalk Creek Lift Station
- Headworks, including fine screening
- Conventional Activated Sludge (MLE) process including two 0.3 mgd process trains (based on a maximum month design flow condition), anoxic basins for nitrogen control and alkalinity recovery, and aeration basins
- Clarifiers
- Return Activated Sludge (RAS) Pump Station
- Ultraviolet Light disinfection
- Sludge holding and dewatering; disposal of residuals at landfill or offsite composting/land application
- Odor control
- Chemical addition for phosphorus control (space for future system will be provided)
- Space for filters for future limits
- Decommissioning of the existing treatment facility

A summary of the current and future design criteria for the primary design elements is included in Appendix A.

C. Map

Figure 1-5 shows the preferred area for a new treatment facility, which was previously described. A concept process schematic/flow diagram is included in Appendix A.

D. Environmental Impacts

For this alternative there is a need for additional land for the new treatment facility and any offsite residuals handling. The lowest capital cost is landfilling of residuals. However long

term sustainability will be enhanced by the City having land for residuals disposal through either creating compost (Class A biosolid) or land applying (Class B biosolid). Figure 1-5 shows the preferred location of the new treatment facility. Chapter 3 identifies the environmental impacts of siting the new treatment facility at this location. There are no other environmental impacts specific to this project alternative that were not addressed in Chapter 3.

E. Land Requirements

With the BOR firmly stating that the treatment facilities must move to a new location, all project alternatives (not including the no action alternative) will involve construction of a new facility on a new site and abandoning the existing facility. Figure 1-5 shows the location of the existing wastewater treatment plant as well as the preferred location for a new treatment facility. The preferred area shown in Figure 1-5 is approximately 5-6 acres, which is adequate for the proposed facilities. This area is generally located along the western edge of the City just west of the Union Pacific Rail Trail and to the east of I-80. The northern and southern boundaries of the area are Bureau of Reclamation owned land and the I-80 interchange, respectively. The primary reason this area has been selected is that it generally lies downhill from the City, which will facilitate conveyance of sewage to the treatment facility via gravity, rather than pumping. Also, this location will minimize the changes to the existing collection system in order to convey wastewater to the new location. Thus, much of the existing collection system as it currently exists will be utilized without making any large scale changes. For the alternatives 2 and 3 a new facility located somewhere within this preferred area was considered.

An easement has been granted by the State of Utah Division of Parks and Recreation to cross the Rail Trail at both 100 North Street and 200 North Street (Appendix F). Only limited easements will be required for the collection system improvements, as most improvements involve upgrades to existing lines and can be done within the existing easement.

F. Construction Problems

The planned site for the new facility is essentially a 'greenfield.' Moderate construction issues are expected due to shallow groundwater in the area and potentially challenging ingress and egress to the site. Geotechnical exploration will be required to document soil conditions and groundwater elevations. The site is relatively flat and level. To access the site the Rail Trail must be crossed, an easement has been granted by the State of Utah Division of Parks and Recreation to cross the Rail Trail at two locations, 100 North Street and 200 North Street (Appendix F).

To the east of the proposed site is an area that has some existing storage units and an auto repair shop. This area is not planned to be impacted in any way and is not within the proposed project area.

G. Cost Estimates

Included in Appendix A is a summary of the facility elements and the costs for a conventional activated sludge system with nutrient removal, which is estimated at $9.484 Million. Annual operations and maintenance costs are estimated as $239,000. The annual costs are detailed in Appendix A.

H. Advantages/Disadvantages

For Alternative 2, the conventional activated sludge process with nutrient removal, the advantages and disadvantages of such a system are listed below.

Advantages

- Similar type of liquid treatment (activated sludge) to the current system (oxidation ditch).
- Similar type of solids treatment (aerobic digestion, dewatering & disposal) to the current system (aerobic digestion, screw press dewatering & on-site composting).
- Similar type of discharge to a water body with a UPDES permit.
- Similar type of UV disinfection system.
- Activated Sludge system includes biological nutrient removal, primarily focused on nitrification and de-nitrification but with some phosphorus removal capabilities.
- Filters and anaerobic selectors can be added for phosphorus removal (in the future).
- Highly flexible process.
- High mixed liquor concentration capable of handling variations in loadings.
- Capable of handling higher flows, such as from infiltration and inflow during rain events, without an equalization tank. An equalization tank is required for membrane bioreactor technology.
- Expandable in phases.
- Moderate energy requirements as compared to membrane bioreactor technology.
- Initial capital costs are moderate as compared to membrane bioreactor technology.
- Moderate level of maintenance associated with equipment and controls as compared to membrane bioreactor technology.

Disadvantages

- Larger footprint as compared to membrane bioreactor technology.
- While the clarifiers will be covered eliminating odor and freezing issues, they will be slightly more difficult to maintain due to access.
- There is the possibility of solids separation issues and performance as compared to membrane bioreactor technology.

2.1.3 Alternative 3: Membrane Bioreactor at a New Site

A. Description

Alternative 3 involves the construction of a new treatment facility using membrane bioreactor (MBR) technology. This facility will be located at a new site. Figure 5-1 shows the preferred area for a new treatment facility, which was previously described.

The site is master planned to accommodate flows of 1.2 mgd (annual average).

B. Design Criteria

For Alternative 3 a new treatment facility using MBR treatment technology is planned. The design elements for this facility will include:

- Collection System Upgrades
- Replacing the Chalk Creek Lift Station
- Headworks, including fine screening

- Equalization Tank
- Membrane separation (MBR) process including two 0.3 mgd process trains (based on a maximum month design flow condition), anoxic zones for nitrogen control and alkalinity recovery, aeration and permeate pumping
- Ultraviolet Light disinfection
- Sludge holding and dewatering; disposal of residuals at landfill or offsite composting/land application
- Odor control
- Space for chemical addition if phosphorus removal is needed
- Decommissioning of the existing treatment facility

A summary of the current and future design criteria for the primary design elements is included in Appendix A.

C. Map

Figure 1-5 shows the preferred area for a new treatment facility, which was previously described. A concept process schematic/flow diagram is included in Appendix A.

D. Environmental Impacts

For this alternative there is a need for additional land for the new treatment facility and any offsite residuals handling. The lowest capital cost is landfilling of residuals. However long term sustainability will be enhanced by the City having land for residuals disposal through either creating compost (Class A biosolid) or land applying (Class B biosolid). Figure 1-5 shows the preferred location of the new treatment facility. Chapter 3 identifies the environmental impacts of siting the new treatment facility at this location. There are no other environmental impacts specific to this project alternative that were not addressed in Chapter 3.

E. Land Requirements

With the BOR firmly stating that the treatment facilities must move to a new location, all project alternatives (not including the no action alternative) will involve construction of a new facility on a new site and abandoning the existing facility. Figure 5-1 shows the location of the existing wastewater treatment plant as well as the preferred location for a new treatment facility. The preferred area shown in Figure 5-1 is approximately 5-6 acres, which is adequate for the proposed facilities. This area is generally located along the western edge of the City just west of the Union Pacific Rail Trail and to the east of I-80. The northern and southern boundaries of the area are Bureau of Reclamation owned land and the I-80 interchange, respectively. The primary reason this area has been selected is that it generally lies downhill from the City, which will facilitate conveyance of sewage to the treatment facility via gravity, rather than pumping. Also, this location will minimize the changes to the existing collection system in order to convey wastewater to the new location. Thus, much of the existing collection system as it currently exists will be utilized without making any large scale changes. For the alternatives 2 and 3 a new facility located somewhere within this preferred area was considered.

An easement has been granted by the State of Utah Division of Parks and Recreation to cross the Rail Trail at both 100 North Street and 200 North Street (Appendix F). Only limited easements will be required for the collection system improvements, as most improvements involve upgrades to existing lines and can be done within the existing easement.

F. Construction Problems

The planned site for the new facility is essentially a 'greenfield.' Moderate construction issues are expected due to shallow groundwater in the area and potentially challenging ingress and egress to the site. Geotechnical exploration will be required to document soil conditions and groundwater elevations. The site is relatively flat and level. To access the site the Rail Trail must be crossed, an easement has been granted by the State of Utah Division of Parks and Recreation to cross the Rail Trail at two locations, 100 North Street and 200 North Street (Appendix F).

To the east of the proposed site is an area that has some existing storage units and an auto repair shop. This area is not planned to be impacted in any way and is not within the proposed project area.

G. Cost Estimates

Included in Appendix A is a summary of the facility elements and the costs for a membrane bioreactor treatment system, which is estimated at $11.418 Million. Annual operations and maintenance costs are estimated as $290,000. The annual costs are detailed in Appendix A.

H. Advantages/Disadvantages

For Alternative 3, the membrane bioreactor, the advantages and disadvantages of such a system are listed below.

<u>Advantages</u>

- Relatively small footprint compared to other activated-sludge technologies (smaller tanks and no clarifiers).
- Easier to enclose facilities for effective control of odors due to smaller footprint.
- Phased expansion may be simpler than other technologies.
- High mixed liquor concentration capable of handling variations in loadings.
- MBRs are generally designed with a high level of automation that allows operators to focus on mechanical devices versus having to be well versed in biological processes typical of other activated-sludge treatment plants.
- Easier process control since the clarifiers are eliminated and settling does not control process efficiency.
- Sludge settling issues (i.e., bulking, rising, etc.) are eliminated.
- Disinfection requirements are typically less due to capture on the membrane.
- Small nominal pore size reduces passage of impurities, resulting in high quality effluent and general acceptance by the regulatory community.
- Higher quality effluent as compared to conventional activated sludge.
- Reliably produces effluent quality suitable for Type 1 reuse.
- MBR process provides a buffer against future regulatory changes.
- Avoids issues with Echo Reservoir TMDL (dissolved oxygen and total phosphorus).

<u>Disadvantages</u>

- Initial capital costs are high as compared to other activated-sludge technologies.
- Membranes require substantial pretreatment (fine screening), to decrease membrane fouling.
- Membranes require an equalization tank in order to handle high infiltration and inflow during rain events.

- Higher level of maintenance associated with more equipment and sophisticated controls.
- Membrane fouling and decline in permeability over time will occur.
- Membranes are typically proprietary or sole source items (married to vendor for life).
- Membrane configurations are typically not interchangeable.
- Relatively high energy requirements compared to other technologies.
- Membrane life is estimated to be 10 years after which the units can be landfilled. Membrane replacement costs are accounted for in the cost summary tables.

2.1.4 Other Siting Alternatives

As discussed in Chapter 2, and above, the preferred site has many advantages primarily related to minimal pumping of wastewater and relative location close to the existing facility (resulting in minimal collection system changes). However, one possible disadvantage is the possible presence of a Zone A floodplain as shown on the current FEMA FIRM maps. Other sources of water surface data, such as the BOR spillway water surfaces, suggest the proposed site is not in impacted by flood levels (see maps in the Appendix H). USDA discourages development in documented flood plains and requires applicants to investigate other alternatives that do not impact flood plains. Table 2-4 summarizes a brief analysis of other possible locations for a new facility. These alternatives attempt to avoid known environmentally sensitive areas, such as within a floodplain or wetland. A figure in Appendix A shows the concept locations of the four other alternatives that are not in the FEMA floodplain. Specific parcels or landowners were not identified as part of the concept investigation into the other locations. It is also noted that Coaville had preliminary discussions with a landowner directly adjacent to and south of the proposed location (directly north of the interstate on-ramp and west of the rail trail); those discussions resulted in the City offering to purchase that parcel but the City and landowner could not come to terms.

Based on the issues described in Table 2-4, none of the other sites are deemed feasible and none were considered any further in this report. In summary, the concerns with the other potential sites were mainly location and cost driven. These concerns included the following:

- Location in potential wetlands or drinking water source protection zones.
- Location adjacent to residential properties.
- Location far from the community requiring a long forcemain to convey the wastewater, and the associated additional capital and annual costs.
- Location above the community requiring pumping of wastewater to the facility, and the associated additional capital and annual costs.
- Location outside of the City limits, requiring a coordination with the County and need for conditional use permits.
- Increases the capital and annual costs.
- Requires large amounts of land, likely involving many property owners.
- Decreases quality of effluent and changes the operations strategy from the existing WWTP.

Table 2-4. Other Siting Alternatives

	Design/Cost Item	East Up Chalk Creek1	North Along Echo	West Across Weber River	South Along I-84	Recommended Alternative 2
A.	Description of Alternative	No surface discharge allowed by the Division of Water Quality as Chalk Creek East of Main street is a Category 1 water. Treatment required to be zero discharge land application.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.	Conventional Activated Sludge with Nutrient Removal Facility.
B.	Design Criteria	Aerated lagoons (30 day HRT at 0.3 mgd = 9 mgal), winter storage (211 days at 0.3 mgd = 62 mgal), land application (332 AF/yr @ 2.3 AF/acre = 143 acres purchased). 2 miles of 12" pipe, 1.5 mgd peak lift station.	Treatment is the same as Alternative 2, plus 2 miles of 12" pipe and 1.5 mgd peak lift station.	Treatment is the same as Alternative 2, plus 1 mile of 12" pipe, 1.5 mgd peak lift station, and a freeway crossing.	Treatment is the same as Alternative 2, plus 1 mile of 12" pipe and 1.5 mgd peak lift station.	0.3 mgd average annual flow facility, conventional activated sludge meeting secondary standards plus effluent TN<10 and effluent TP<1.
C.	Map	Figure 5-4	Figure 5-4	Figure 5-4	Figure 5-4, two possible sites are shown	Figure 5-4
D.	Preliminary Estimate of Environmental Impacts	Potential floodplains, wetlands, drinking water source protection zone, prime farmland and residential properties. No surface discharge allowed as Chalk Creek East of Main Street is a Category 1 Water.	Possible concern from nearby established recreational interests.	Potential drinking water source protection zone.	Potential wetlands and residential properties.	FEMA referenced floodplain and wetlands to be aware of (avoid). See Environmental Report.
E.	Land Requirements	143 acres	6 acres	6 acres	6 acres	6 acres
F.	Construction Problems	-	-	-	Shallow groundwater and rail trail easement.	Shallow groundwater and rail trail easement.
G.	Collection System Capital Cost $M[2]	$0.90	$0.36	$0.90	$0.90	$0.90
	Wastewater Lift Station Capital Cost $M[2]	$0.60	$0.60	$0.60	$0.60	$0.00
	Wastewater Forcemain Capital Cost $M[2]	$0.90	$1.00	$0.80	$0.40	$0.00
	Treatment Capital Cost $M[2]	$11.70	$8.60	$8.60	$8.60	$8.60
	Total Capital Cost $M[2]	$14.10	$10.56	$10.90	$10.50	$9.50
	Total Annual Cost $[3]	$150,000	$239,000	$239,000	$239,000	$239,000
	Additional Annual O&M Cost Compared to Alternative 2 (associated with pumping) $[3]	$30,000	$23,000	$27,000	$8,000	$0
	Life Cycle Cost $M	$17.70	$15.80	$16.22	$15.44	$14.28
H.	Advantages	Likely the least costly on an annual basis to operate and maintain.	Proposed treatment is low odor potential. If there were odors this site is further from city center.	Proposed treatment is low odor potential. If there were odors this site is further from city center.	Proposed treatment is low odor potential. If there were odors this site is further from city center.	Property is adjacent to existing WWTP, requiring minimal modifications to the collection system. Least capital cost.
	Disadvantages	Multiple parcels impacted. Change in operations strategy to produce a lower quality effluent. Wastewater will need to be pumped to site and other modifications to the collection system. Capital cost intensive. Potential floodplains, wetlands, drinking water source protection zone, prime farmland and residential properties. Outside of City limits requiring a County special use permit. Public opposition to open lagoons is likely.	Wastewater will need to be pumped to site and other modifications to the collection system. City does not own the land. Outside of City limits requiring a County special use permit. Potential siting challenges near high use area.	Wastewater will need to be pumped to site and other modifications to the collection system. City does not own the land. Potential drinking water source protection zone. Outside of City limits requiring a County special use permit.	Wastewater will need to be pumped to site and other modifications to the collection system. City does not own the land. Potential wetlands and residential properties. Siting challenges due to public concern.	Closest to community center; proposed treatment is low odor potential; if odors are generated it could be a concern/nuisance.

1. The "East Up Chalk Creek" option is a lagoon treatment and land application disposal system. According to the Utah Administrative Code (R-317-2-12), Chalk Creek East of Main Street is a Category 1 water. The Division of Water Quality has indicated that as a result of the Category 1 designation no surface water discharges will be allowed East of Main Street.
2. Assumptions for the capital costs: The collection system and treatment costs are the same as for Alternative 2, except for the "East Up Chalk Creek" option. The "East Up Chalk Creek" option includes land for the lagoons, storage ponds and land application site as well as the lagoon and storage ponds themselves. The four "other" sites will also include a lift station and forcemain, both sized based on the peak hour flow rate. Treatment Capital Cost includes the land acquisition. Each cost category includes a percentage for contingency and engineering.
3. Assumptions for the annual costs: The annual costs are the same as for Alternative 2, except for the "East Up Chalk Creek" option. The "East Up Chalk Creek" option includes annual costs based on operating a lagoon and land application wastewater treatment facility. In addition, the four "other" sites will also include annual costs for pumping.

Based on the issues described in Table 2-4, none of the Other Non-Flood Plain Alternatives are deemed feasible and none were considered any further in this report. In summary the concerns with the Other Non-Flood Plain Alternatives were mainly location and cost driven. These concerns included the following:

- Location in potential floodplains, wetlands or drinking water source protection zones.
- Location adjacent to residential properties.
- Location far from the community requiring a long forcemain to convey the wastewater, and the associated additional capital and annual costs.
- Location above the community requiring pumping of wastewater to the facility, and the associated additional capital and annual costs.
- Location outside of the City limits, requiring a County special use permit.
- Increases the capital and annual costs.
- Requires large amounts of land, likely involving many property owners.
- Decreases quality of effluent and changes the operations strategy from the existing WWTP.

2.2 WASTEWATER TREATMENT FACILITY SELECTED ALTERNATIVE

A series of criteria were used to evaluate and then rank each of the alternatives. In addition to capital and annual costs, the criteria included factors related to siting the facility and land ownership, community impacts, compliant with existing regulations, operations, future considerations and implementation timeline. All costs were converted to present worth for the comparison. A decision matrix was implemented to quantitatively compare these criteria among each of the alternatives. Overall rankings resulting from the decision matrix were used to select the preferred alternative.

The differences in present worth values for the alternatives are considered to be relatively small considering the scale of this project and the significant number of other considerations. Therefore, non-monetary factors have been considered for alternative ranking and selection. A decision matrix has been compiled that accounts for all of the relevant monetary and non-monetary decision factors.

The matrix evaluation criteria were developed through interactions between J-U-B Engineers and City Staff as part of the 2010 Facility Plan Update. A summary of the meetings held that help formulate the alternatives and evaluation criteria include:

- Meetings with the City Council June 2008, July 2008, January 2009, February 2009, February 2010, July 2010 and September 2010
- Tours of representative treatment facilities with City Council October 2006 and September 2010
- Meetings with equipment manufacturers January 2007
- Meetings with Utah Division of Water Quality regarding project alternatives and potential funding November 2006, February 2010, March 2010, February 2011 (Water Quality Board), March 2011 and April 2011 (Water Quality Board)
- Meetings with the Bureau of Reclamation regarding project alternatives November 2009 and March 2011
- Meetings with the Army Corps of Engineers regarding potential funding March 2010
- Public Open House May 23, 2011

From the Decision Matrix (available in Appendix A) the alternative that has scored the highest is Alternative 2. Alternative 2 is the recommended alternative. Alternative 2 meets many of the objectives of the community. These include:

- The treatment plant is located on non-Federal lands;
- Complies with current UPDES discharge permit regulations and has the flexibility to comply with future regulations;
- The treatment plant is new, so avoids concerns related to the capacity and age of the existing infrastructure as well as the increasing maintenance requirements of the infrastructure;
- Covering the basins and clarifiers, not handling residuals onsite and covering the headworks building will all help reduce odor concerns from the new site;
- The new treatment plant will use a treatment approach similar to the existing facility and aims to simplify the maintenance as much as possible;
- The new treatment plant is able to treat existing flows and loads as well as future loads and has the flexibility to expand should interest in a regional treatment facility increase;
- Implementation within the timeline allowed by the Bureau of Reclamation.

The City feels Alternative 2 is the alternative that meets the majority of the objectives and has a 20-year net present worth cost that is very comparable to other alternatives.

2.2.1 Wastewater Collection System Proposed Project

One of the primary advantages of the location selected as part of the recommended alternative is that it allows minimal modification to the collection system. As part of Alternative 2 the Chalk Creek lift station is planned to be replaced, and will then pump wastewater to the new site. The existing I-80 Interchange lift station will remain and no modifications will be necessary.

The City developed a Sanitary Sewer Model and Capital Facilities Plan for their collection system in 2005 that identified modifications needed in the collection system in order to meet build-out conditions or decrease the amount of infiltration and inflow into the system. Some

of the collection system upgrades that are part of this alternative address potential deficiencies mentioned in that Plan. Figure 1-5 shows the collection system modifications to convey wastewater to the new site as described in Alternative 2. Any crossings of Chalk Creek will be done with either forcemain crossings above the channel or jack and bore techniques under the channel.

2.2.2 Wastewater Treatment System Proposed Project

The selected alternative proposes the construction of a nominal 0.6 mgd (based on a maximum month design flow condition), activated sludge treatment facility with nutrient removal using the MLE process. The wastewater treatment will occur in two 0.3 mgd trains. The site will be master planned to allow an additional two trains for a total treatment capacity of 1.2 mgd. The site master plan will also include space for tertiary filters and anaerobic selector zones, should either be necessary in the future due to decreasing discharge limits. A site plan and process flow diagram are shown in Figure 2-1. The Figure 2-1 site plan does not address environmental considerations. To address environmental considerations such as flooding either a berm or dike or raising the finished floor will likely be necessary. The site plan will be modified as the environmental considerations dictate.

During the treatment process, organic material in the wastewater is converted to biological mass, or biosolids. This biological mass increases in the system with time and needs to be periodically "wasted" or removed from the activated sludge system. This wasting process is a key process control parameter used by plant operators to maintain adequate treatment levels. The City's preferred biosolids management strategy is to waste the biosolids to an aerated holding tank (aerobic digester) and then mechanically dewater them with a belt filter press. The holding tank mainly serves to provide flexibility for the operator between dewatering events. The belt filter press reduces the volume of biosolids for easier handling and disposal. The dewatered biosolids would then be hauled to an off-site residuals handling operation for either composting or land applying or possibly land filling. Odor generation from biosolids handling should be minimal as the dewatering occurs indoors and the City plans on disposing of the dewatered biosolids off-site.

Coalville City will discharging to an unnamed tributary and then to Chalk Creek using a UPDES discharge permit.

COALVILLE CITY
ALTERNATIVE 2
SITE PLAN

LEGEND

- (N1) ADMINISTRATION BUILDING (3500 S.F.)
- (N2) HEADWORKS BUILDING
- (N3) MLE PROCESS TRAINS
- (N4) FUTURE PROCESS TRAINS
- (N5) SPLITTER BOX
- (N6) SECONDARY CLARIFIERS
- (N7) FUTURE CLARIFIERS
- (N8) FILTERS AND UV DISINFECTION
- (N9) AEROBIC DIGESTERS
- (N10) FUTURE AEROBIC DIGESTERS
- (N11) DEWATERING BUILDING
- (N12) EMERGENCY GENERATOR
- (N13) OUTFALL
- (N14) BLOWER/RAS PUMP BUILDING

- SS EXISTING SANITARY SEWER
- SS PROPOSED SANITARY SEWER
- PROCESS FLOW PATH

N

0 50 100
SCALE IN FEET

J-U-B
Engineers • Surveyors • Planners

J-U-B ENGINEERS, INC.
466 North 900 West
Kaysville, Utah 84037
Phone: 801.547.0393
Fax: 801.547.0397
www.jub.com

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

NO.	REVISION	BY	APP'D	DATE

PROPOSED WASTEWATER TREATMENT FACILITY
COALVILLE CITY CORPORATION

FACILITY PLAN UPDATE
CONVENTIONAL ACTIVATED SLUDGE AT NEW SITE
CONCEPTUAL SITE PLAN

FILE: 55-11-048_FIG_2-1
JUB PROJ. #:
DRAWN BY: JDM
DESIGN BY: JJG
CHECKED BY:
ONE INCH
AT FULL SIZE. IF NOT ONE INCH, SCALE ACCORDINGLY
LAST UPDATED: 10/11/2011

SHEET NUMBER:
2-1

Plot Date:10/11/2011 12:09 PM Plotted By: Jason Miller
Data Created:10/11/2011 F:\PROJECTS\JUB\COALVILLE\55-11-048 USDA WWTP APPLICATION\CAD\55-11-048_FIG_2-1.DWG

3.0 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, MITIGATION AND BEST MANAGEMENT PRACTICES

Chapter 3 discusses the affected environment, if the proposed improvements will impact the affected environment, and mitigation measures and best management practices for these potential impacts. Appendix I includes letters to and contact information for those local, state, and federal agencies with an interest in the potentially affected environment, whom were contacted. Appendix I provides the communication from agencies responding to the letters requesting comments for the Wastewater Facilities Project.

3.1 PLANNING AREA AND PROJECT AREA

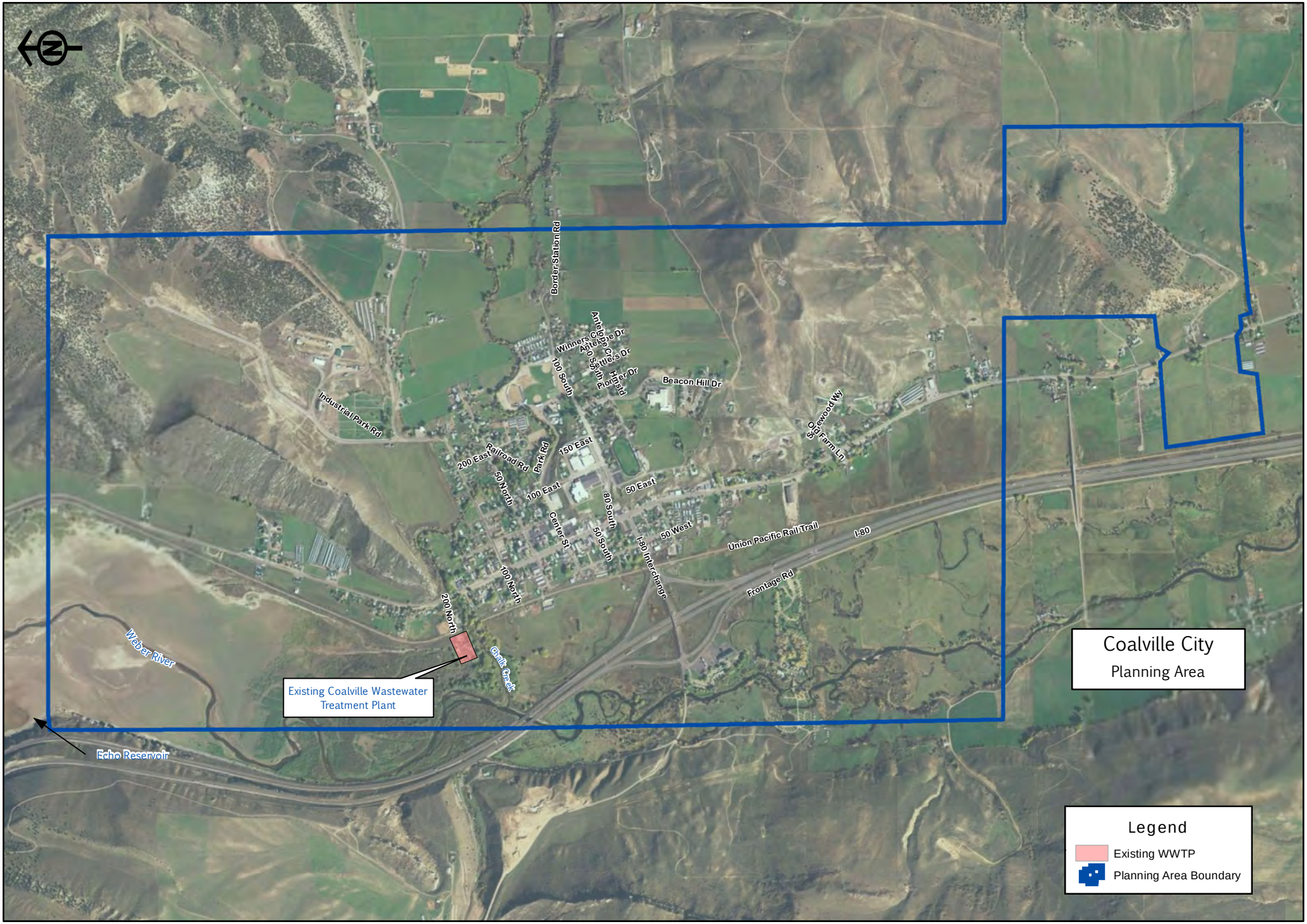
3.1.1 Planning Area

The planning area for this study includes all of the properties inside the current incorporated city boundary of Coalville City. The current city boundary includes a large tract of land (approximately 250 acres) that was recently annexed into the city located on the south end of the city, historically known as Cedar Hollow. Coalville City's current boundary includes an area of 2,343 acres or 3.66 square miles. This area includes all land within the boundary including areas to the north that are periodically inundated by Echo Reservoir and areas that may not be suitable for development. Figure 3-1 shows the Coalville City Boundary and planning area.

Coalville City is situated in the northern part of Utah at approximately 40°55'04" North Latitude and 111°23'40" West Longitude. The existing treatment facilities are located at 40°55'13.66" North latitude and 111°24'14.19" West longitude. In the Salt Lake Base and Meridian Survey, Coalville City is located in parts of Sections 4, 5, 8, 9, 16, 17, and 21 in Township 2 North, Range 5 East. Coalville City is located upstream and at the south end of the Echo Reservoir where the confluence of the Weber River and Chalk Creek is located. The Wasatch Range and the Uinta Range of the Rocky Mountains intercept near Coalville City, which creates a natural transportation junction. The junction of Interstates 80 and 84 is located approximately 4 miles north of Coalville City. There is an interchange for U.S. Interstate 80 to the west of Coalville City as well as the Union Pacific Rail Trail.

3.1.2 Project Area

Figure 1-5 shows the location of the existing wastewater treatment plant as well as the preferred location for a new treatment facility. The preferred area shown in Figure 1-5 is approximately 5-6 acres, which is adequate for the proposed facilities. This area is generally located along the western edge of the City just west of the Union Pacific Rail Trail and to the east of I-80. The northern and southern boundaries of the area are Bureau of Reclamation owned land and the I-80 interchange, respectively. The primary reason this area has been selected is that it generally lies downhill from the City, which will facilitate conveyance of sewage to the treatment facility via gravity, rather than pumping. Also, this location will minimize the changes to the existing collection system in order to convey wastewater to the new location. Thus, much of the existing collection system as it currently exists will be utilized without making any large scale changes.



J-U-B ENGINEERS, INC.

GATEWAY MAPPING INC.

Date: 8/9/2011

Figure 3-1

For the alternatives 2 and 3 a new facility located somewhere within this preferred area was considered. The project will be constructed on land and right-of-ways acquired by Coalville City.

3.1.3 Physical aspects: topography and geology

Coalville is primarily a mountainous topography being situated at the interception of the Wasatch Range and the Uinta Range of the Rocky Mountains. The geology in this area provides a wide range of soil and rock types. On the steeper slopes of the mountains, soil depth is shallow and the erosion rate is more rapid. The soil is a course textured cobblestone loam derived from conglomerate parent material with a shallow effective rooting depth. The shallow soil depth provides for drought-tolerant grasses and occasional forbes requiring short root systems. On the more gentle slopes, soil depth is moderate. The soil is clay loam in texture with a moderately alkaline soil reaction.

Potential geologic hazards in Coalville are largely associated with natural voids and crevices created by large boulders and rock as well as several abandoned man-made mines.

The topography of Coalville City is mountainous. The established benchmark of the city is set at 5570 feet above Mean Sea Level. The low elevations vary at the floor of the Echo Reservoir at approximately 5520 feet near the northwest corner of the city. The high elevations reach approximately 6120 feet in the mountain tops of Allen Hollow near the northeast corner of the city.

Appendix H includes a U.S. Geological Survey map showing the preferred site location. The preferred site location is relatively flat and level.

3.1.4 Climate

The region is considered a semi-arid desert climate. High temperatures in the summer reach the high 90's while the overnight temperatures in the winter can get as low as several degrees below zero. Normal winters have a few days where the lows dip into the single digits or low teens. The average annual high temperature is approximately 87 degrees Fahrenheit, while the average annual low temperature is approximately 11 degrees Fahrenheit. The average annual precipitation is approximately 17 inches.

3.1.5 Population growth

Population projections are a vital tool for anticipating the need for future land uses within a community, and planning accordingly. It is noted at the present time that Coalville has a relatively high proportion of non-residential EDUs due to businesses, RV/seasonal facilities, and school facilities. An EDU is an 'equivalent dwelling unit' or a unit that generates a typical amount of wastewater plus an allotment for infiltration and inflow (I&I).

Summit County, notably the greater Park City area experienced strong development and growth from 2000 to 2005, 17.7 percent, relative to the Utah average growth rate of 10.6 percent during the same period (MAG, 2005). In the 2005-2007 timeframe the City had added a number of new connections and approved some significant developments (over 100 new units had been approved). These developments were never constructed and from 2008 to 2010 there have been only a few new units added.

Table 3-1 presents the population estimates that will be used for 20-year wastewater treatment facility planning. The population projections closely match those developed by the

Governor's Office of Budget and Planning and the Mountainland Association of Governments (MAG) in 2010, 2020 and 2030. From 2010 to 2015 the growth rate is reduced based on observations from the 2008-2010 time period where the City was adding approximately 5 connections per year.

Table 3-1. Coalville City Design Population Estimates – (Planning Period Highlighted)

Year	Annual Rate of Population Change Between Reporting Periods	Residential			Non-Residential Equivalent Dwelling Units	Total Equivalent Dwelling Units	Annual Rate of Total EDU Change Between Reporting Periods
		Popu-lation	Residential Dwelling Units	Persons Per Residential Dwelling Unit			
1970	-0.48%	864	-	-	-	-	-
1980	1.78%	1,031	-	-	-	-	-
1990	0.32%	1,065	-	-	-	-	-
2000	2.64%	1,382	-	-	-	-	-
2005	1.17%	1,465	-	-	-	-	-
2010	1.61%	1,587	519	3.06	159	678	-
2015	1.06%	1,673	540	3.10	162	702	0.71%
2020	2.20%	1,865	602	3.10	172	773	1.95%
2025	2.20%	2,080	671	3.10	181	852	1.96%
2030	2.20%	2,319	748	3.10	191	939	1.97%

1. Historic population information is from the Governor's Office of Planning and Budget (GOPB) and the Mountainlands Association of Governments (MAG). Population closely matches GOPB and MAG estimates in 2010, 2020, 2030. Percent change shown is for residential population growth.
2. 2010 residential and non-residential equivalent dwelling units (EDUs) were estimated from discussing the number of non-residential facilities including laundromats, commercial accounts, schools, RV parks and analysis of water billing data. For example a business estimated to generate wastewater equal to two typical residences would be assigned 2 EDUs. The growth in non-residential dwelling units is approximately 50% of the residential growth. The non-residential EDUs include the following: Laundromat (10), motels (11), hotel (17), commercial connections such as stores, banks, dental offices, county buildings, restaurants, other businesses (50), North Summit School district (elementary, middle school, high school, and pool) (31), RV parks (40).

3.2 FARMLAND RESOURCES: LAND USE/ IMPORTANT FARMLAND/ FORMALLY CLASSIFIED LAND

3.2.1 Affected Environment

The land use within the Planning Area is predominantly residential, with smaller areas of commercial and light industrial development, agriculture, federally owned and non-developable lands. Residential and agricultural areas surround the core community commercial area. Commercially zoned areas are located along Main Street of the city. The area surrounding the City and Planning Area is predominantly used for agricultural and rural residential purposes or is non-developable or federally owned. Figure 3-1 shows the Planning Area and Appendix H includes the latest draft General Land Use map for the City (2011).

The preferred project site is in an area zoned agricultural. The land is currently being used to graze cattle and raise pasture hay for harvest. Title 10, Chapter 9 and Section 20 of the Coalville City Development Code includes public uses as permitted uses within areas zoned

agricultural. Wastewater treatment facilities are NOT noted as a conditional use in areas zoned agricultural in Title 10, Chapter 9 and Section 30. Tile 10, Chapter 2 defines a Public Use as "A use operated exclusively by a public body or quasi-public body, such use having the purpose of serving the public health, safety, or general welfare, and including uses such as public schools, parks, playgrounds, recreational facilities, administrative offices, service facilities, and public utilities." Therefore, the proposed project alternatives are in accordance with the land use plans for Coalville City and no conditional use permit is required.

According to the Natural Resources Conservation Service (NRCS) online program *Web Soil Survey*, the soil in the area is predominantly composed of Wanship-Kovich loams with 0 to 3 percent slopes. The NRCS's *Web Soil Survey* indicates that this area is listed as a "Farmland of Statewide Importance." As defined by the 1978 EPA Policy to Protect Environmentally Significant Agricultural Lands, prime farmland has the "best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops and is available for these uses." Appendix H includes a map produced by the NRCS's *Web Soil Survey* indicating the soil type. In addition to researching the soil type and farmland classification through the NRCS's *Web Soil Survey,* the local NRCS office was also sent a letter requesting their comments on the project. This letter is available in Appendix I.

There are no formally classified lands within the project area. This was confirmed by evaluating the USGS map for the area.

3.2.2 Environmental Consequences

The proposed project alternatives are in accordance with the land use plans for Coalville City. As mentioned this area is currently zoned agricultural.

According to communication from the State Soil Scientist with the NRCS, this project will require the conversion of approximately "4 acres of important farmland resources." The State Soil Scientist put together a Farmland Conversion Impact Rating (AD-1006) for the proposed project alternatives. This conversion impact rating is included along with the correspondence with the NRCS in Appendix I.

3.2.3 Best Management Practices

None proposed.

3.2.4 Mitigation

No mitigation measures for the conversion of important farmland are proposed due to the relatively small area that this project will affect.

3.3 FLOODPLAINS

3.3.1 Affected Environment

To investigate the presence of high water conditions, floodplains, or floodways at the proposed project location, the following sources of information or agencies were consulted:

- The most current Flood Insurance Rate Map (FIRM), published by the Federal Emergency Management Agency (FEMA) and available online (Map No. 49043C0275C with an effective date of March 16, 2006). The FIRM map is included in Appendix H.

- The current FEMA Flood Insurance Rate Study (FIS) for Summit County (including Coalville) dated March 16, 2006.
- FEMA's Utah Community Status Book.
- The United States Bureau of Reclamation. See Appendix D for correspondence.
- An emergency spillway discharge diagram provided by the BOR. See Appendix D for the spillway diagram.
- The State of Utah Floodplain Manager.
- Coalville City ordinances.

Additionally, surveyors from J-U-B Engineers surveyed the proposed site area and the Echo Dam spill gate (high water level) elevation on June 27, 2011. These were surveyed using the same equipment and the same datum that is being used currently for work in Coalville City. The survey results are shown on a map in Appendix H. The investigation into these sources of information yielded the following observations:

1. The FEMA/FIRM, published with the March 16, 2006 FIS, suggests that portions of Coalville City including residential areas, the existing wastewater treatment facility, and the proposed project site are identified as being within Zone A which are "special flood hazard areas subject to inundation by the 1 percent annual chance flood event." This special flood hazard area is also known as the base flood or the 100-year flood. Within Zone A, base flood elevations have not been determined. The extents of Zone A on the Coalville FIRM do not provide any base flood elevations. Zone A extents are typically estimated by a FEMA hydrologist, have been developed without a site specific topographic survey or survey cross sections, have no delineated floodway and are typically considered to be approximate without further investigation (State Floodplain Manager, Personal Communication, 2012). FEMA has not published any 500 year flood data for the Coalville area.
2. The FIS references Coalville City as a "non-floodprone" community. The FIS also notes that through a series of meetings held within Summit County through the 1980s and into 2005, stakeholders identified floodprone areas for further detailed study as part of the FIS. Most of the detailed study areas are in the Snyderville Basin area around Park City area. Coalville was deemed to be a non-floodprone community and therefore "approximate methods" were used in the Coalville area to develop the FIRM.
3. Any property within the floodplain is required to purchase flood insurance. USDA requires any funded facilities in the floodplain to participate in the National Flood Insurance Program (NFIP). FEMA's Community Status Book lists Coalville City as participating in the NFIP.
4. The BOR estimates the peak inflow into Echo Reservoir, (and the resulting flow over the spillway) for a 500-year return period to be 6,260 cfs. This value compares with a spillway capacity of over 16,000 cfs. Due to the design of the spillway, including the spillway's gated operation, any flow rate up to 16,500 cfs is estimated to increase the water surface no more than 2 feet above normal full (gross) pool. The normal full gross pool and maximum induced spillway water surface elevations are shown on the Flood Plain With Survey Data map in Appendix H.
5. The BOR is raising the dam crest by three feet as a seismic upgrade. This modification will have no bearing on the spillway or maximum water surface elevations.
6. The Coalville City Flood Damage Prevention Ordinance (No. 2006-1) designates the City Planning Director as the local Floodplain Administrator. The Ordinance provides a review and permitting procedure for development in a floodplain. The Ordinance notes that if base flood elevations have not been established (as is the case of the Coalville FIRM) then Floodplain Administrator shall obtain, review, and reasonably

utilize any base flood elevation data and floodway data available from a Federal, State or other source, in order to administer provisions of the ordinance.

7. The field survey conducted on June 27, 2011 and resulting review of datum at Echo Reservoir indicates the datum difference between BOR datum and site specific elevations being used at the proposed project site is 3.2 feet (where subtracting 3.2 feet from site specific datum will result in matching the BOR datum). Table 3-2 shows some relevant elevations in both datums.

Table 3-2. Elevations Near Proposed Project Site

Location	BOR Datum	Site Specific/Coalville Datum (as shown on Flood Plain with Survey Data Map)
Normal Gross Pool Water Surface Elevation	5560	5563.2
Maximum Induced Spillway Surcharge Elevation Water Surface for Any Spillway Discharge between 0 and 16,500 cfs	5562	5565.2
Typical Site Elevation of Existing WWTP	5562.8	5566
Typical Site Elevation of Proposed Site (with no modifications)	5566.8	5570

These resulting elevations are also shown on the survey figure in Appendix H. This investigation suggests:

1. The 500-year inflow event into Echo Reservoir of 6,260 cfs will be able to pass the spillway with a maximum backwater effect at the proposed site not to exceed 5565.2 feet. The proposed site even without any modifications 4.8 feet higher than this maximum water surface and 6.8 feet higher than normal full pool.
2. The proposed site based on the information from the BOR is not impacted by reservoir water surface elevations in a 100 year or 500 year inflow condition.
3. The approximate nature of the FIRM map in the Coalville area has resulted in the State Flood Administrator asking FEMA to consider detailed studies in the area. A flood plain consultant (URS) is currently under contract to perform detailed studies for Chalk Creek upstream from the confluence and the Weber River upstream from Chalk Creek confluence. Backwater effects are not explicitly part of the study.

The Bureau of Reclamation (BOR) (managers of the Echo Reservoir dam), Coalville City's Floodplain Administrator, the Utah State Floodplain Manager and the FEMA Floodplain Manager were all contacted requesting comments on the proposed project alternatives. This communication is included in Appendix I. Additional communication with the BOR is included in Appendix D.

3.3.2 Environmental Consequences

The response letter from the BOR indicated that "they support the construction of the proposed wastewater treatment facility." They also noted that they are looking "forward to working with the city of Coalville in the decommissioning process of the old wastewater treatment facility currently located on Reclamation land." The Utah State Floodplain Coordinator had no specific comments about the project and suggested contacting the local Floodplain Administrator. Coalville City's Floodplain Administrator reviewed the project site as well as the data from the June 27, 2011 survey and made the following comments "I have no negative comments on the project and feel the proposed location relieves concerns associated with the existing treatment plant location." The response email from the FEMA

Floodplain Manager (Denver) noted that the "community will need to issue a floodplain development permit for the project" and that FEMA would contact the community to discuss the possibility of requiring a Conditional Letter of Map Revision (CLOMR) to change the FIRM (flood insurance rate map) as a result of the June 27, 2011 survey data. Responses are included in Appendix I.

In accordance with the Utah Administrative Code R317-3-4.1 care should be taken to protect the facility from physical damage in a 100-year flood and the facility needs to remain fully operational and accessible during the 25-year flood. While the FIRM indicates that the proposed project area is within FEMA Flood Zone A (base elevations not determined), the survey and BOR spillway data indicate that the preferred project area, is higher in elevation than any backwater condition from a full Echo reservoir. Based on the BOR information, no inundation at the proposed location is anticipated from the 25-year, 100-year, or 500-year events. Considerations should be made for the outfall invert to be located a minimum of two feet above the maximum water surface of 5565.20.

3.3.3 Best Management Practices

Considerations will be made for a modest berm or dike on the west side of the proposed site or constructing the site with a finished grade a minimum of three to four feet above the maximum induced water surface elevation of 5565.20 or as directed by the local floodplain administrator. The project will obtain a floodplain development permit from Coalville City's local floodplain administrator.

3.3.4 Mitigation

None proposed.

3.4 WETLANDS

3.4.1 Affected Environment

The U.S. Fish and Wildlife Service (USFWS) provides wetlands mapping as part of their National Wetlands Inventory Program. Appendix H shows the wetland map for the project area. As shown on the wetlands figure the existing wastewater treatment facility is on the very edge of wetlands described as Palustrine aquatic bed, emergent, semi-permanently flooded and diked/impounded. There is a portion of the proposed project alternatives area that is in a smallish area identified as emergent freshwater wetlands or Palustrine, emergent and seasonally flooded.

Letters requesting comment on the proposed project alternatives were sent to the U.S. Fish and Wildlife Service (USFWS) and the U.S. Army Corps of Engineers (USACOE); correspondence is included in Appendix I. Additionally, the USACOE did a site visit on September 29, 2010 related to their interest in funding the project and produced a report of their findings, which is included in Appendix E. (After a funding agreement was signed the USACOE had to withdraw their commitment to provide funds after an Omnibus bill, which included the funding for the project, was not passed in December 2010). The report did not indicate that the preferred site is in wetlands. Communication with the USACOE continued and they were sent a revised project site plan in July 2011. In responding to that revised site plan they noted a "possible wetland area" on the southwest corner of the property.

3.4.2 Environmental Consequences

While Federal agencies (USACOE and USFWS) have not indicated the presence of wetlands, except as noted, the NRCS soils map indicated the presence of hydric soils which are often an indication of the possibility of wetlands and the National Wetlands Inventory map indicated the presence of wetlands, as noted above.

A wetlands specialist did a delineation of the wetlands in the preferred project area on September 26, 2011. An additional site visit was done on November 3, 2011 with the wetlands specialist and the USACOE. During the later visit the USACOE verified the wetlands delineated by the wetlands specialist. Appendix J includes a report of the findings from the delineation as well as a figure showing the wetlands that were identified. The wetland delineation report and figure were provided to the USACOE for further comment (Appendix J). The USACOE provided a letter confirming the wetland delineation; this is included in Appendix J. The wetland delineation report notes that the area identified on the NWI map as wetland (described above) is actually upland. The report does note "small areas of wetlands exist in the southeast and southwest corner of the study area. The former appears to be associated with a blocked drain originating in the City of Coalville and drainage from adjacent land to the south. The latter is most likely a component of the historic Weber River floodplain and is topographically lower than the rest of the study area." The report also mentions the presence of wetlands in the area just outside the northwest edge of the property boundary adjacent to the rail trail and the access point into the proposed location.

3.4.3 Best Management Practices

Avoidance of all wetlands identified during the wetland delineation (see Figure in Appendix J). The site plan (Figure 2-1) shows that efforts have been made to construct the wastewater facilities in non-wetland areas, where possible. USDA as a potential funding partner prohibits using any loan funds to adversely affect wetlands. This is outlined in Section 363 of the Consolidated Farm and Rural Development Act (CONACT).

3.4.4 Mitigation

None proposed.

3.5 CULTURAL RESOURCES: HISTORICAL AND ARCHEOLOGICAL RESOURCES

3.5.1 Affected Environment

An online search using Utah and National registries was conducted. The search of the "Utah Century Register of Historic Houses" indicated no properties over 100 years old in Summit County. "Utah State Register of Historic Sites," which lists properties on the now-inactive state register, listed three sites in Coalville but none in the project area. These include the Alma Eldridge House (97 North Main Street), Summit County Courthouse and Jail (Main Street), and Summit Stake Tabernacle. All of these sites were also included in the State Register; the Summit County Courthouse and Jail are also included in the National Register and the Summit Stake Tabernacle has been demolished. The National Register of Historic Places lists the following historic places on the registry in Coalville City:

- Thomas L. Allen House, 98 North Main Street
- Thomas and Jane Beech House, 47 West and 50 South
- Boyden Block, 2 South Main Street

- John Boyden House, 47 West Center Street
- Summit County Courthouse and Jail, Main Street

There are no buildings, other than barns or sheds, within the project area.

A USDA staff archeologist conducted a records review of the Utah State Historic Preservation Office database in September 2011 and no records were found for the preferred project area.

East of the preferred project site is the historic rail trail. The Echo and Park City Branch of the Union Pacific Railroad (UPRR), which operated in the area from 1880 to 1986, is adjacent to the project area. The rail bed was converted for pedestrian and horse use as the Utah Historic Rail Trail Park in 1992. In general, the rail trail measures approximately 20 feet wide, with portions of the trail at ground level with other portions below ground level. Impacts will be crossing the trail at the existing crossing. An easement has been granted by the State of Utah Division of Parks and Recreation to cross the Rail Trail at both 100 North Street and 200 North Street (copy of easement is in Appendix F).

The Native American Consultation Database (NACD) was searched to determine the necessary tribes to contact for this project. As per the NACD database, the Shoshone Tribe of the Wind River Reservation, Wyoming, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho and the Ute Indian Tribe of the Uintah and Ouray Reservation, Utah were the tribes listed and consulted regarding tribal resources (communication included in Appendix I). Additionally, USDA-Rural Development consulted with the tribes.

The Utah State History Office was consulted regarding cultural resources in the project area of Coalville City (communication included in Appendix I). The State History Office requires a letter of determination from the lead State or Federal Agency, and will provide comments to that determination, so USDA-Rural Development also consulted with the Utah State Historic Preservation Office regarding this project.

The preferred project site is not within a visually sensitive area and the project is not expected to negatively affect the visual quality of the area. Further, every effort will be made for new construction to match the rural, farm aesthetic of the surrounding area.

3.5.2 Environmental Consequences

There were no cultural resources identified within the project area during database searches for historical structures and archeological sites. The USDA Rural Development requested comment from the Tribes and the Utah State Historic Preservation Office (SHPO) on the project alternatives and project site on September 26, 2011. In addition to the USDA Rural Development request for comments the SHPO, Uintah and Ouray Ute Indian Tribe, Shoshone Tribe of the Wind River Reservation or the Shoshone-Bannock Tribe were all sent letters directly requesting comment on the project alternatives and project site. No comments were received from the tribes. Comments from the Utah SHPO are included in Appendix I.

The Utah SHPO noted in their letter commenting on the proposed project that they "recommend that a robust monitoring program be developed for this undertaking. The location of buried human remains discovered during the middle school project in Coalville indicates a series of buried archaeological sites in town. USHPO office would concur with a determination of No Historic Properties Affected,…if a monitoring plan is developed."

3.5.3 Best Management Practices

Care will be taken during construction to cross the Rail Trail only at the crossings granted in the easement with the Utah Division of Parks and Recreation. Further, traffic control may be needed to ensure the safety of the Rail Trail users.

3.5.4 Mitigation

While there is no known current evidence of cultural or historical resources at the proposed site, to comply with the stipulation of the Utah SHPO, a monitoring plan will be developed in conjunction with an archeologist for excavations into previously undisturbed ground within the proposed site to ensure no impacts to Cultural Resources. The monitoring plan will be developed and agreed upon prior to construction.

Further, the construction documents will note that any person who knows or has reason to know that he/she has inadvertently discovered cultural artifacts, must provide immediate telephone notification of the discovery to the State of Utah's archaeologist. Work will stop in the particular area until the proper authorities are able to assess the situation onsite. This action will promptly be followed by written confirmation to the responsible agency official, with jurisdiction over the land. The USHPO and interested Native American tribal representatives would be promptly notified. Consultation would begin immediately. This requirement is prescribed under the Native American Graves Protection and Repatriation Act (43 CFR Part 10) and the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470).

3.6 BIOLOGICAL RESOURCES: THREATENED, ENDANGERED AND CRITICAL SPECIES AND HABITATS

3.6.1 Affected Environment

The proposed project alternatives area is currently under private ownership and is used either as pasture grazing land or is harvested typically two times per year as meadow hay and grass. The Owner routinely grazes cattle on the parcel under consideration for the preferred project area. There is no standing vegetation such as sagebrush or trees on the parcel as it is heavily impacted by cattle grazing and related agricultural practices as this is its current primary use. The area is made up of grass vegetative communities to conform with its current use for cattle grazing.

An online search using Utah Division of Wildlife Resources (UDWR) and U.S. Fish and Wildlife Service (USFWS) National registries was conducted. The UDWR sources indicated federally listed threatened, endangered and candidate species as well as sensitive species for Summit County, and the USFWS also listed endangered species by county. In addition, the Utah Division of Wildlife Resources (UDWR), the Utah Division of Water Quality and the U.S. Fish and Wildlife Service (USFWS) were consulted regarding water resources and biological resources in the project area of Coalville City (communication included in Appendix I). During that consultation the USFWS noted that there are conservation agreements in place for the Bluehead Sucker and the Bonneville cutthroat trout. They also asked that "…the applicant analyze, disclose, and minimize project effects to these two species." They also said in the response that they could not offer specific mitigation measures because the extent and nature of the potential impacts was not understood. In further communication with the USFWS they noted they are concerned about the following related to the discharge from the wastewater treatment facility: the quantity and quality as well as the location of the discharge. USFWS also requested that they be notified when the Environmental Report goes out for public comment, as they may wish to provide additional comments.

Communication with DWQ indicates the nutrient removal strategy, outlined in Section 3.7, will support DWQ's efforts at improving water quality in the Weber River/Echo reservoir watershed. The UDWR noted that they "have general concerns with water quality in the Chalk Creek/Weber River area near Coalville, mostly revolving around excessive nutrient-loading in the waterways which can negatively impact fish and other aquatic organisms…A new and improved effluent treatment plant likely would help the water quality, and so we tend to view the proposed project as positive." Further, they noted that they "do not have any local siting concerns with the proposed area your development plan described" and "are happy to rely on the…[Utah Division of Water Quality] to ensure that the UPDES permit captures the necessary water-quality goals." The correspondence from UDWR is included in Appendix I.

In order to address the comments and concerns from the USFWS an initial draft Biological Evaluation was produced and sent to the USFWS. Their comments to the Biological Evaluation are included in Appendix I. In addition, a Biological Assessment was developed which clearly summarizes previous efforts and makes effect determinations. Table 3-3 is a summary of the effect determinations from the Biological Assessment. The Biological Assessment is available in Appendix L.

Table 3-3. Summary of Effect Determinations

Species	Status	Effect Determination
Black-footed ferret	Endangered	No effect
Bonytail	Endangered	No effect
Canada lynx	Threatened	No effect
Colorado pikeminnow	Endangered	No effect
Greater sage-grouse	Candidate	No effect
Humpback chub	Endangered	No effect
Least chub	Candidate	No effect
Razorback sucker	Endangered	No effect
Yellow-billed cuckoo	Candidate	No effect
Bald eagle	Utah Sensitive Species	No effect
Bluehead sucker	Conservation Agreement	May affect, but are not likely to adversely affect
Bonneville cutthroat trout	Conservation Agreement	May affect, but are not likely to adversely affect

In response to the Biological Assessment the USFWS indicated that "[w]e agree with your determination of "no effect" for listed species under the Endangered Species Act (ESA), including black-footed ferret, bonytail, Canada lynx, Colorado pikeminnow, humpback chub, and razorback sucker." The response continues,

> [p]lease be aware that although bald eagle is not listed under the ESA, it is protected under the Bald and Golden Eagle Protection Act. Based on the information disclosed in your Biological Assessment, we understand that project construction, maintenance, or operation will not disturb riparian areas where eagles may nest or roost. Eagles, however, can be disturbed by construction adjacent to, but outside of riparian areas. In the absence of nest or roost surveys, we cannot conur that the project will not affect nesting or roosting bald eagles. We therefore recommend that Coalville City

either 1) avoid construction during the nesting and roosting period for bald eales (November – August) OR 2) conduct pre-construction surveys in the adjacent riparian corridor.

The USFWS included the Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances (2002) for reference with their response. Both the response and the reference are included in Appendix I. Recommendation "2)," pre-construction surveys, is included in the list of planned Best Management Practices (BMPs). The BMPs are detailed in Section 3.6.3.

3.6.2 Environmental Consequences

Species and species habitat should not be adversely affected by the proposed project alternatives. There are no threatened or endangered species within the project area. As noted this area has historically been used for grazing or is harvested as meadow hay and grass.

3.6.3 Best Management Practices

The project has completed a Level 2 Anti-degradation review and will also receive a UPDES permit, both under review and/or administered by the DWQ. The construction documents will reference compliance with local, state, and federal regulations including the Endangered Species Act, and will include provisions for best management practices (BMPs). BMPs will be in place to minimize direct, short-term construction impacts. Planned BMPs are intended to restore vegetative structure and minimize erosion. It is recommended that these measures include: replanting barren locations (post-construction) with native vegetation, and performing regular project reviews to ensure that all BMPs are implemented as designed.
The following is a list of planned Best Management Practices (BMPs):

1. Use a trenchless technique (jack and bore) to construct the gravity collection line across Chalk Creek (see Project Action Area Map).
2. Temporary Erosion and Sediment Control (TESC) structures will be in place during construction. Implementation of the TESC structures will be consistent with the developed Construction Stormwater Pollution Prevention Plan (SWPPP) and the Spill Prevention Control and Counter Measures Plan (SPCC).
3. Excavation activities, staging areas, stock piling areas and embankment placement will occur only within staked limits of the project action area.
4. Temporary construction equipment noise will be minimized by regular inspection and replacement of defective mufflers and parts that do not meet the manufacturer's specifications.
5. Fueling of excavation equipment (e.g. an excavator/backhoe) will be completed within the project action area only after ground surface protection to facilitate spill remediation is implemented. The fueling truck must utilize drip pans and absorbent cloths during fueling activities. Additionally, the Contractor must have emergency spill equipment onsite at all times and must have a Spill Prevention Plan approved and in place prior to any construction activities. Dump trucks, pickups and other general construction equipment will be fueled offsite at a commercial facility.
6. All disturbed upland areas will be hydro-seeded upon project completion with a dry land native seed mix.
7. Noxious weed management shall be implemented in the area of the proposed effluent discharge path. Noxious weeds onsite will be identified and eliminated using the

recommended herbicide protocol outlined in AquamasterTM herbicide. AquamasterTM herbicide (by Monsanto) is the herbicide selected for this specific application. AquamasterTM is a non-selective, glyphosate [N-(phosphonomethyl) glycine], aquatic herbicide that controls emerged vegetation in environments where water is present. AquaMasterTM is highly effective on more than 190 species of emerged weeds including a wide range of annual and perennial grasses, broadleaf weeds and sedges. It works in most aquatic settings better than other weed control options, because it offers application flexibility and has favorable environmental characteristics. Further, when AquamasterTM is applied according to label directions, water use restrictions are limited to applications within ½ mile of potable surface water sources. AquamasterTM must be purchased and applied by a Utah State Licensed Applicator. Treatment applications must be in accordance to the labeled directions, established by Monsanto. Areas where noxious weeds are eliminated in high densities (i.e. > 1,000 square feet) will be re-seeded with native grass seed [i.e. salt grass (*Distichlis spicata*)] towards the end of the growing season.

8. The installation of hydrophytic woody shrubs [namely willows (*Salix spp*.)] along the effluent discharge path is recommended to help stabilize the new effluent discharge pathway/channel as needed.
9. The project action area will be monitored on a regular basis by a designated Construction Site Erosion and Sediment Control Lead (CESCL). The monitoring will consist of observing the TESC structures so that sediment does not reach the Weber River and Echo Reservoir. If any structure fails, it must be replaced immediately. If sediment deposits are observed beyond the control structures following a failure, the sediment must be removed immediately.
10. Conduct pre-construction bald eagle surveys in the adjacent riparian corridor. The bald eagle nesting survey study area will extend a ½-mile in radius outward from the anticipated construction footprint; and, exclude the following three (3) areas: (1) any area east of Main Street; (2) any area south of the Interstate 80 (I-80) Interchange; and, (3) any area west of I-80.

3.6.4 Mitigation

None proposed.

3.7 WATER RESOURCES: SURFACE WATER AND GROUNDWATER

3.7.1 Affected Environment

Surface Water

Surface water in Coalville is conveyed partially through a storm drain collection system primarily established in the highly-developed parts of the city. A large portion of storm water is collected and conveyed through open ditches and channels that were developed to also convey irrigation water to large open fields. All excess drainage water is routed to one of two major drainage-ways in Coalville: Weber River and Chalk Creek, which both drain directly into the Echo Reservoir. The Echo Reservoir drainage is controlled and sent downstream to the Weber River delivering water for power and irrigation purposes before entering the Great Salt Lake several miles downstream.

The existing wastewater treatment facility discharges treated effluent to Chalk Creek, which eventually flows into Echo Reservoir, as the sole means of disposal of treated effluent. The discharge is done under Utah Pollutant Discharge Elimination System (UPDES) permit

#UT0021288. The existing system was designed as a "secondary treatment system" meaning the existing system primarily targets removal of oxygen demanding material (BOD), and fine particulate matter known as total suspended solids (TSS). The existing facility does remove some nutrients such as nitrogen and phosphorus but it was not specifically design for nutrient removal.

Echo Reservoir is listed on the state's 303d list for impaired waters. The impairment has been identified as one of dissolved oxygen attributed to excessive nutrient loading. To address this concern DWQ developed a Total Maximum Daily Load (TMDL) report to address the concern. This document was submitted to US EPA in 2006 and has since been rejected by EPA. DWQ is now in the process of revising the document on a watershed basis to include Echo Reservoir, Rockport Reservoir, and the Weber River and associated tributaries between the water bodies.

In 2009 the State of Utah's Division of Water Quality embarked a study to evaluate the economic impacts of potential new nutrient removal requirements for the State's public owned treatment works. This study was conducted by Utah DWQ aware of pending litigation against the United States Environmental Protection Agency where stakeholders are seeking stricter nutrient limits written directly into discharge permits.

DWQ has stated in verbal presentations that lower nutrient limits are inevitable. The TMDL process and significant DWQ research into nutrient removal and potential pending nutrient limits in future permits has led DWQ to indicate that Coalville should design for an effluent Total Nitrogen of less than 10 mg/l and an effluent Total Phosphorus of less than 1 mg/l. In a recent letter to Coalville regarding the Facility Plan update; DWQ states: "*DWQ reiterates our previous recommendation that the treatment plant be designed to meet total nitrogen limits of <10 mg/l and total phosphorus limits of < 1.0 mg/l. Ideally [a new Coalville facility] would be designed so that further reductions are possible if the TMDL requires further reductions. As you may know, USEPA is strongly pushing states to develop numeric criteria for TN and TP, and other nutrient reduction programs. It is the opinion of DWQ that future nutrient regulations are inevitable"* (copy of June 2011 letter in Appendix C). The letter goes on to say that "*…state funds will not be used to construct WWTPs that do not consider TN and TP reductions…"* Nutrient discharge at these levels represents an approximately 50 percent reduction in nutrient loading compared to conventional wastewater treatment facilities. These kinds of nutrient limits for both nitrogen and phosphorus are in few permits right now in the state of Utah and would represent something of a precedent for nutrient removal requirements. With these proposed limits and the need for flexibility to potentially meet even lower limits in the future, the proposed facility is a treatment facility with deliberate provisions to remove nitrogen and phosphorus. These deliberate provisions for nutrient removal are not included in the existing facility. The process recommended for the proposed action is a targeted nitrogen removal process that is proven to meet effluent limits of Total Nitrogen < 10 mg/l. Additionally, addition of a metal salt such as aluminum sulfate (alum) will be included to reduce the phosphorus.

Groundwater

Appendix H includes a map of the drinking water source protection zones for public groundwater (well) and spring water supplies within Coalville as well as a map of the surface water protection zones. The source protection zone map (Appendix H) indicates that there are no municipal drinking water supplies within the proposed project alternatives area. Therefore, groundwater impacts are not expected.

The groundwater table in the lower elevations of the City, notably closer to Chalk Creek and Echo reservoir, has been observed to be only a few feet below grade. Excavations around the treatment plant, typically on the order of four to five feet deep, often experience seepage into the excavation. City staff has reported that on occasion in the summer when flows to Chalk Creek are almost entirely diverted for irrigation, the creek channel continues to gain water as it makes its way through town towards Echo Reservoir. This observation suggests the surrounding water table is at or above the elevation of the stream bed.

The Utah Division of Water Quality was consulted regarding water resources in the project area of Coalville City (communication included in Appendix I).

3.7.2 Environmental Consequences

Surface Water

The proposed project alternatives will discharge effluent to an unnamed creek that is a tributary of Chalk Creek and the Weber River under a UPDES permit. The effluent from the new treatment plant is expected to be at least as good as the current treatment plant's effluent. The City is working with the Utah Division of Water Quality (DWQ) on expected UPDES permit limits, including future limits should the TMDL in development be approved. The proposed project alternatives will meet the DWQ established UPDES permit limits and will be designed to also meet expected future discharge limits including those for nutrients as noted in the DWQ's June 2011 letter.

In accordance with Utah's Anti-degradation policy (Utah Administrative Code R317-2-3), Coalville is required to complete a Level 2 Anti-degradation review (ADR) for any new or increased discharge including the newly proposed Coalville WWTP. This will be required for an outfall at either Chalk Creek or to nearby tributaries (e.g., un-named ditches) near Chalk Creek and the Weber River. The Anti-degradation has been completed. The ADR was done in conjunction with DWQ and is summarized in Appendix G.

The most critical element of protecting receiving water quality is adherence to the UPDES permit. The UPDES permit is issued by DWQ under the auspices of the federal National Pollutant Discharge Elimination System (NPDES) program. One method for establishing permit limits is a process called the wasteload analysis (WLA). As part of the permitting process and ADR, DWQ performed a WLA for the receiving stream. This WLA is a modeling effort that considers the beneficial use designations of the receiving water and then models how point loads may affect the receiving water and downstream beneficial uses. The model considers mixing zones, receiving water flowrates, discharge flowrates, and bio-chemical processes in the stream. The entire results of the modeling effort are found in Appendix G as part of the ADR.

The receiving water was identified as an unnamed tributary to Chalk Creek, which is a tributary of the Weber River. With respect to designated uses, the receiving water is classified as: 1C (protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water), 2B (protected for infrequent primary contact recreation), 3A (protected for cold water species of game fish and other cold water aquatic life) and 4 (agricultural irrigation).

Groundwater
The high groundwater at the existing facility results in infiltration into buried infrastructure, including tankage, at the existing treatment plant and the wastewater collection system. Wastewater flow estimates must account for infiltration into the collection system. Construction at the proposed treatment site must also assume high groundwater exists at levels that can result in unwanted infiltration and potentially hazardous uplift buoyancy forces.

3.7.3 Best Management Practices

Surface Water
Construction related runoff will be controlled by the contractor under best management practices including a stormwater pollution prevention plan (SWPPP). The site will be graded to control post development stormwater runoff equal to or less than pre-development levels.

The WWTP will be designed to meet the expected future permit limits as determined by the Utah Division of Water Quality (DWQ). These proposed limits are included in Table 2-3. The descriptions of the project alternatives in Chapter 2 include details on nutrient treatment particular to each alternative. Ample space has been allocated that will allow for the described nutrient treatment methods. In addition to issuing the future UPDES permit limits, the Utah DWQ will also need to approve the Anti-degradation Review to discharge to Chalk Creek.

Groundwater
Geotechnical exploration during any design upgrades will be required to document soil conditions and groundwater elevations. Further, construction will be with concrete tanks with specifications for low leak rates. All tanks will be inspected, so no leakage from the tanks is expected.

3.7.4 Mitigation

None proposed.

3.8 SOCIO-ECONOMICS AND ENVIRONMENTAL JUSTICE

3.8.1 Affected Environment

Coalville City is a community of approximately 1,600 residents located between U.S. Interstate 80 and Echo Reservoir. As the name implies, Coalville City has nearly always been known for the coal mined from the surrounding area. Second to coal, the area has also been known for farming. Local histories indicate the town was established by pioneer settlers and miners in the 1850s.

The area's economy is based primarily on the agricultural and service industries as well as being a bedroom community for the larger city of Park City.

Table 3-4 summarizes a social profile of Coalville City.

Table 3-4. Social Profile[a]

Parameter		Number	Percentage
Total Population		4,834	-
Sex	Male	707	51.2%
	Female	675	48.8%
Age	Under 5 years	131	9.5%
	18 years and over	915	66.2%
	65 years and over	151	10.9%
	Median Age	28.3	-
Race	Caucasian	1291	93.4%
	African-American	9	0.7%
	American Indian and Alaska Native	14	1.0%
	Asian	4	0.3%
	Native Hawaiian and Other Pacific Islander	1	0.1%
	Other	73	5.3%
Housing	Total Housing Units	495	-
	Occupied Housing Units	465	93.9%
	Vacant Housing Units	30	6.1%

a. Data from 2000 U.S. Census.

According to the 2000 U.S. Census Bureau (USCB) data, 5.9% of families in Coalville were at or below the Health and Human Services (HHS) poverty level of $16,700 for a family of four in 1999. The median household income level of Coalville for 2000 was $39,342 (USCB 2000).

According to EPA's online environmental justice geographic assessment and mapping tool, *EJ View,* the community has uniform per capita income, education, English speakers, females, and rental units. A map of minorities, generated from *EJ View,* is included in Appendix H. Ethnic minority population data from the 2000 USCB was reviewed, and approximately 6.9% of the population qualifies for this status. Table 3-4 indicates that there are few minorities residing in Coalville City. USDA-Rural Development will also provide an environmental justice map that will be included in this document.

3.8.2 Environmental Consequences

It appears that no disadvantaged group will be adversely affected by the proposed project alternatives. In addition, it is not expected that any specific population segment will benefit from the proposed project alternatives. However, the community in general will reap some benefits by improvements to the wastewater facilities.

3.8.3 Best Management Practices

None proposed.

3.8.4 Mitigation
None proposed.

3.9 AIR QUALITY AND NOISE

3.9.1 Affected Environment
Air Quality
Air Quality in Utah County, which includes Coalville City, is managed by the Utah Division of Air Quality (UDAQ). Coalville City is in an attainment area as defined by the Utah Division of Air Quality. See Appendix H for the State of Utah National Ambien Air Quality Standards areas of non-attainment and maintenance. The air quality of the area is expected to be of good quality and typical of an agricultural or rural area. Coalville City and Summit County receive occasional air quality complaints due to agricultural odors and odors from the WWTP. The WWTP odors are most noticeable in the spring as plant residuals stored throughout the winter begin to warm up. Odors are also generated during composting activities at the WWTP. The primary source of constituents potentially affecting air quality would be traffic along the U.S. Interstate 80 corridor (that cuts through the community), construction activity, and agricultural activity. Consultation with the Utah Division of Air Quality (UDAQ) indicated that the project will be subject to Utah Administrative Code R307-205, which recommends that a Fugitive Dust Control Plan be submitted to the Executive Secretary of the Air Quality Board for review. UDAQ also referenced Utah Administrative Code R307-401-9, which notes the exemptions for obtaining an approval order for small stationary sources, in reference to the facility back-up generators. See Appendix I for communication with UDAQ.

Noise
Noise in Coalville City is generally limited to normal traffic and commercial activities in the area. Noise from U.S. Interstate 80 may result in slightly higher noise levels during certain periods.

3.9.2 Environmental Consequences
Air Quality
The project alternatives will not create exceedances of any federal or state emission standard in the potential Project Areas, and does not violate any National Ambient Air Quality Standards (NAAQS). Dust control will be minimized, when possible, by dampening roads with water or by other Utah Division of Air Quality recommendations. The impacts of construction dust can be mitigated by ceasing activity during exceptionally windy conditions and using watering equipment. Debris created by construction should not be burned, but transported to a disposal area to avoid further air pollution. While the project will include a back-up generator its use will be limited.

Noise
During implementation of any of the project alternatives slightly higher noise levels may occur due to construction equipment and vehicle traffic. Noise will be limited to the extent possible by limiting vehicle trips. Once the project is completed noise from a slight increase in traffic to the area (employees and trucks hauling biosolids to the landfill) may occur occasionally. Noise will be limited to the extent possible by limiting vehicle trips.

3.9.3 Best Management Practices

Air Quality

The contractor will complete the Fugitive Dust Control Plan and submit it to the Executive Secretary of the Air Quality Board.

The project will not create exceedances of any federal or state emission standard in the project area, and does not violate any National Ambient Air Quality Standards (NAAQS). Dust control and minimization techniques will be put in place, when possible, by dampening roads with water or by other Utah Division of Air Quality recommendations. The impacts of construction dust can be mitigated by ceasing activity during exceptionally windy conditions and using watering equipment. Debris created by construction should not be burned, but transported to a disposal area to avoid further air pollution.

Noise

Noise will be limited to the extent possible by limiting vehicle trips.

3.9.4 Mitigation

None proposed.

3.10 TRANSPORTATION AND UTILITIES

3.10.1 Affected Environment

Transportation

There is no public transportation in Coalville City. There is no airport, and there are no airport clearance or accident zones.

Utilities

There are a number of utilities within Coalville City including water, sewer, phone, electricity and gas.

3.10.2 Environmental Consequences

Transportation

Traffic patterns could be impacted by any of the wastewater treatment project alternatives.

Utilities

Trenching will occur to install site piping at the new site. Care must be taken to avoid damage to existing utility lines, sewer lines, or other underground utilities during implementation of the improvement project.

3.10.3 Best Management Practices

Transportation

Impacts to traffic patterns will be minimized as much as possible. Traffic control may also result in a safety hazard, as traffic patterns are altered for improvement purposes.

Utilities

Coordination with utility companies will be required.

3.10.4 Mitigation

None proposed.

3.11 DESIGNATED LANDS: WILD AND SCENIC RIVERS AND RECREATION AND OPEN SPACES

3.11.1 Affected Environment

The Wild and Scenic Rivers Act, as promulgated by Congress on October 2, 1968, states that "…certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geological, fish and wildlife, historical, cultural, or other similar values, shall be protected for the benefit and enjoyment of present and future generations." The National list of Wild and Scenic Rivers was consulted, and there are no rivers, including either Chalk Creek or the Weber River, in Coalville designated as wild and/or scenic.

There is no recreational open space, parks, or areas of recognized scenic or recreational value within the preferred project site.

3.11.2 Environmental Consequences

None.

3.11.3 Best Management Practices

None proposed.

3.11.4 Mitigation

None proposed.

3.12 ENERGY AND ENERGY EFFICIENT DESIGNS

3.12.1 Affected Environment

A majority of the population in the planning area consumes energy in the form of electricity, natural gas, propane and/or fuel oil. A few residents may also use wood or pellet stoves for heating purposes. There are no known energy producing facilities within the project area. The existing wastewater treatment system is an oxidation ditch.

3.12.2 Environmental Consequences

The proposed project alternatives will use either the same amount of energy or more. Alternative 2, the selected/recommended project, will have energy demands similar to the existing facility. Alternative 3 will have greater energy demands. The primary energy-consuming component of Alternative 3 is the extensive aeration demands and pumps required by the membrane filters. There are no energy recovery elements included in the recommended alternative.

3.12.3 Best Management Practices

To minimize operation and maintenance, variable frequency drives (VFDs) will be used in as many locations as feasible. VFDs use only the power demand required. Premium efficiency motors (90%) will be specified, as required, for all project alternatives as well. In addition, power providers will be consulted on incorporating energy efficient equipment into the design of the treatment plant.

3.12.4 Mitigation

None proposed.

3.13 PUBLIC HEALTH

3.13.1 Affected Environment

An important aspect of maintaining the public's health is having sufficient capacity to treat the wastewater produced within a community. Other concerns include safety elements, such as the presence of fences, and the potential for producing odors and being a vector attractant.

3.13.2 Environmental Consequences

Municipal wastewater treatment processes, as expected, tend to generate odors. These odors can at times be offensive. Hydrogen sulfide is the primary odor producing agent in domestic wastewater. Coalville City has expressed concern over this odor as a public nuisance and the potential for odors from the project alternatives. During the Facility Planning effort Coalville City staff have regularly mentioned the odors coming from the WWTP composting operation.

3.13.3 Best Management Practices

The proposed project alternatives will produce an effluent quality similar to the existing effluent. The most common approaches to odor control are separation of the public from the source of odors and odor treatment or odor scrubbing. The odor control method that will be employed at the proposed project site will be to buffer and separate the public, naturally and artificially, from any potential odors. The proposed project site is naturally buffered by Bureau of Reclamation (BOR) owned land on the north and west sides as well as highway I-84 to the far west and south. The artificial separation for the proposed project alternatives will include housing within a building process equipment and the headworks and covering clarifiers and aeration basins, so that there are no open tanks in order to limit odor and exposure. There will be no on-site composting of biosolids. Finally, the facility will be designed for future air scrubbing, although no equipment will be installed as part of any of the project alternatives.

The new wastewater treatment facility will be fenced to ensure that people do not interfere with the processes involved with wastewater treatment.

Additionally, open trenches, electrical utilities and heavy equipment may present health and safety hazards during construction. These hazards may be mitigated by educating project personnel about the applicable health and safety regulations, and establishing safe operating procedures.

3.13.4 Mitigation

None proposed.

3.14 SOLID WASTE AND HAZARDOUS MATERIALS

3.14.1 Affected Environment

The proposed project alternatives intend to serve residential, institutional, commercial and industrial customers within Coalville City. There will be no explosives, flammable fuels or chemical containers within one mile of the proposed project site.

Biological mass, also known as biosolids, produced in the aerobic treatment process will periodically be wasted to maintain a viable level of biological growth for treatment. This

wasting process is a key process control parameter used by plant operators to maintain adequate treatment levels. The operator wastes to a 7-day hydraulic retention time (HRT) biosolids holding tank or directly from the treatment train. The waste stream is then dewatered and either composted, land applied or land filled.

3.14.2 Environmental Consequences

There may be minimal use of small quantities of chemicals at the treatment facility. These chemicals will be used within the treatment and disposal processes.

3.14.3 Best Management Practices

Chemicals will be used at the site in a consumptive manner, and in small quantities, such that they should not generate any hazardous waste. Care will be taken to properly secure, use, and dispose of any chemicals that are used at the treatment facility and dispose of biosolids as dictated in State and Federal regulations.

3.14.4 Mitigation

None proposed.

3.15 HOUSING AND INDUSTRIAL AND COMMERCIAL DEVELOPMENT

3.15.1 Affected Environment

As a rural community adjacent to the larger community of Park City, residential development is planned. Appendix H contains the City's latest general land use map.

The Mountainland Association of Governments (AOG), the Association of Government for Utah, Summit and Wasatch counties, operating within the Coalville area was consulted for this project (Appendix I). The Mountainland AOG is tasked with, among other things, community planning and economic development.

3.15.2 Environmental Consequences

There will be no environmental consequences. The construction of the treatment facility will allow the City to continue to meet sewerage needs within the community and to encourage growth in the community, while still maintaining the feel of the rural, mountain community.

The construction of the new facility does not substantially increase the ability to treat wastewater as compared with the existing plant, so the new plant will not encourage more sprawl. Additionally, the City's adopted General Plan (2000), calls for maintaining the feel of the rural, farming community by zoning agricultural and residential agricultural areas on the City's boundaries with density increasing towards the commercial core in the City's center. The general land use plan includes a number of residential housing density options.

In their response, the Mountainland AOG concurred with Coalville City's assertion that the proposed location is the "best option." However, they are concerned about the safety of those using the adjacent Union Pacific Rail Trail during the construction process. They are supportive of Coalville City in "solving its wastewater treatment issues while preparing for future growth and development." This communication is included in Appendix I.

3.15.3 Best Management Practices

Care will be taken during construction to cross the Rail Trail only at the crossings granted in the easement with the Utah Division of Parks and Recreation. Further, traffic control may be needed to ensure the safety of the Rail Trail users.

3.15.4 Mitigation

None proposed.

3.16 COASTAL RESOURCES

3.16.1 Affected Environment

There are no coastal resources within the State of Utah.

3.16.2 Environmental Consequences

None.

3.16.3 Best Management Practices

None proposed.

3.16.4 Mitigation

None proposed.

4.0 SUMMARY OF MITIGATION AND BEST MANAGEMENT PRACTICES

After careful review of all items listed in the environmental review (Chapter 3) it is our determination that there will be no negative effects to environmental resources and/or the people within Coalville City. Those potential impacts that need to be mitigated are generally construction related and will be controlled through requirements in the project construction documents. The recommended mitigation and best management practices (BMPs) are summarized in Table 4-1.

Table 4-1. Mitigation and/or Best Management Practices

Section Number	Affected Environment	Best Management Practices	Mitigation
3.2	**Farmland Resources**	None proposed.	None proposed.
3.3	**Floodplains**	Considerations will be made for a modest berm or dike on the west side of the proposed site or constructing the site with a finished grade a minimum of three to four feet above the maximum induced water surface elevation of 5565.20 or as directed by the local floodplain administrator. The project will obtain a floodplain development permit from Coalville City's local floodplain administrator.	None proposed.
3.4	**Wetlands**	Avoidance of all wetlands identified during the wetland delineation (see Figure in Appendix J). The site plan (Figure 2-1) shows that efforts have been made to construct the wastewater facilities in non-wetland areas, where possible. USDA as a potential funding partner prohibits using any loan funds to adversely affect wetlands. This is outlined in Section 363 of the Consolidated Farm and Rural Development Act (CONACT).	None proposed.
3.5	**Cultural Resources**	Care will be taken during construction to cross the Rail Trail only at the crossings granted in the easement with the Utah Division of Parks and Recreation. Further, traffic control may be needed to ensure the safety of the Rail Trail users.	While there is no known current evidence of cultural or historical resources at the proposed site, to comply with the stipulation of the Utah SHPO, a monitoring plan will be developed in conjunction with an archeologist for excavations into previously undisturbed ground within the proposed site to ensure no impacts to Cultural Resources. The monitoring plan will be developed and agreed upon prior to construction. Further, the construction documents will note that any person who knows or has reason to know that he/she has

Section Number	Affected Environment	Best Management Practices	Mitigation
			inadvertently discovered cultural artifacts, must provide immediate telephone notification of the discovery to the State of Utah's archaeologist. Work will stop in the particular area until the proper authorities are able to assess the situation onsite. This action will promptly be followed by written confirmation to the responsible agency official, with jurisdiction over the land. The USHPO and interested Native American tribal representatives would be promptly notified. Consultation would begin immediately. This requirement is prescribed under the Native American Graves Protection and Repatriation Act (43 CFR Part 10) and the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470).
3.6	**Biological Resources**	The project has completed a Level 2 Anti-degradation review and will also receive a UPDES permit, both under review and/or administered by the DWQ. The construction documents will reference compliance with local, state, and federal regulations including the Endangered Species Act, and will include provisions for best management practices (BMPs). BMPs will be in place to minimize direct, short-term construction impacts. Planned BMPs are intended to restore vegetative structure and minimize erosion. It is recommended that these measures include: replanting barren locations (post-construction) with native vegetation, and performing regular project reviews to ensure that all BMPs are implemented as designed. The following is a list of planned Best Management Practices (BMPs):	None proposed.

Section Number	Affected Environment	Best Management Practices	Mitigation
		1. Use a trenchless technique (jack and bore) to construct the gravity collection line across Chalk Creek (see Project Action Area Map). 2. Temporary Erosion and Sediment Control (TESC) structures will be in place during construction. Implementation of the TESC structures will be consistent with the developed Construction Stormwater Pollution Prevention Plan (SWPPP) and the Spill Prevention Control and Counter Measures Plan (SPCC). 3. Excavation activities, staging areas, stock piling areas and embankment placement will occur only within staked limits of the project action area. 4. Temporary construction equipment noise will be minimized by regular inspection and replacement of defective mufflers and parts that do not meet the manufacturer's specifications. 5. Fueling of excavation equipment (e.g. an excavator/backhoe) will be completed within the project action area only after ground surface protection to facilitate spill remediation is implemented. The fueling truck must utilize drip pans and absorbent cloths during fueling activities. Additionally, the Contractor must have emergency spill equipment onsite at all times and must have a Spill Prevention Plan approved and in place prior to any construction activities. Dump trucks, pickups and other general construction equipment will be fueled offsite at a commercial facility. 6. All disturbed upland areas will be hydro-seeded upon project completion with a dry land native seed mix. 7. Noxious weed management shall be implemented in the area of the proposed effluent discharge path. Noxious weeds onsite will be identified and	

Section Number	Affected Environment	Best Management Practices	Mitigation
		eliminated using the recommended herbicide protocol outlined in AquamasterTM herbicide. AquamasterTM herbicide (by Monsanto) is the herbicide selected for this specific application. AquamasterTM is a non-selective, glyphosate [N-(phosphonomethyl) glycine], aquatic herbicide that controls emerged vegetation in environments where water is present. AquaMasterTM is highly effective on more than 190 species of emerged weeds including a wide range of annual and perennial grasses, broadleaf weeds and sedges. It works in most aquatic settings better than other weed control options, because it offers application flexibility and has favorable environmental characteristics. Further, when AquamasterTM is applied according to label directions, water use restrictions are limited to applications within ½ mile of potable surface water sources. AquamasterTM must be purchased and applied by a Utah State Licensed Applicator. Treatment applications must be in accordance to the labeled directions, established by Monsanto. Areas where noxious weeds are eliminated in high densities (i.e. > 1,000 square feet) will be re-seeded with native grass seed [i.e. salt grass (Distichlis spicata)] towards the end of the growing season. 8. The installation of hydrophytic woody shrubs [namely willows (Salix spp.)] along the effluent discharge path is recommended to help stabilize the new effluent discharge pathway/channel as needed. 9. The project action area will be monitored on a regular basis by a designated Construction Site Erosion and Sediment Control Lead (CESCL). The monitoring will consist of observing the TESC structures so that sediment does not reach the Weber River and Echo	

Section Number	Affected Environment	Best Management Practices	Mitigation
		Reservoir. If any structure fails, it must be replaced immediately. If sediment deposits are observed beyond the control structures following a failure, the sediment must be removed immediately. 10. Conduct pre-construction bald eagle surveys in the adjacent riparian corridor. The bald eagle nesting survey study area will extend a ½-mile in radius outward from the anticipated construction footprint; and, exclude the following three (3) areas: (1) any area east of Main Street; (2) any area south of the Interstate 80 (I-80) Interchange; and, (3) any area west of I-80.	
3.7	**Water Resources**	**Surface Water** Construction related runoff will be controlled by the contractor under best management practices including a stormwater pollution prevention plan (SWPPP). The site will be graded to control post development stormwater runoff equal to or less than pre-development levels. The WWTP will be designed to meet the expected future permit limits as determined by the Utah Division of Water Quality (DWQ). These proposed limits are included in Table 2-3. The descriptions of the project alternatives in Chapter 2 include details on nutrient treatment particular to each alternative. Ample space has been allocated that will allow for the described nutrient treatment methods. In addition to issuing the future UPDES permit limits, the Utah DWQ will also need to approve the Anti-degradation Review to discharge to Chalk Creek. **Groundwater** Geotechnical exploration during any design upgrades will be required to document soil conditions and groundwater elevations. Further, construction will be with concrete	None proposed.

Section Number	Affected Environment	Best Management Practices	Mitigation
		tanks with specifications for low leak rates. All tanks will be inspected, so no leakage from the tanks is expected.	
3.8	**Socio-economics and Environmental Justice**	None proposed.	None proposed.
3.9	**Air Quality and Noise**	The project will not create exceedances of any federal or state emission standard in the project area, and does not violate any National Ambient Air Quality Standards (NAAQS). Dust control and minimization techniques will be put in place, when possible, by dampening roads with water or by other Utah Division of Air Quality recommendations. The impacts of construction dust can be mitigated by ceasing activity during exceptionally windy conditions and using watering equipment. Debris created by construction should not be burned, but transported to a disposal area to avoid further air pollution. Noise will be limited to the extent possible by limiting vehicle trips.	None proposed.
3.10	**Transportation and Utilities**	Impacts to traffic patterns will be minimized as much as possible. Traffic control may also result in a safety hazard, as traffic patterns are altered for improvement purposes. Coordination with utility companies will be required.	None proposed.
3.11	**Designated Lands**	None proposed.	None proposed.
3.12	**Energy and Energy Efficient Designs**	To minimize operation and maintenance, variable frequency drives (VFDs) will be used in as many locations as feasible. VFDs use only the power demand required. Premium efficiency motors (90%) will be specified, as required, for all project alternatives as well. In addition, power providers will be consulted on incorporating energy efficient equipment into the design of the treatment plant.	None proposed.

Section Number	Affected Environment	Best Management Practices	Mitigation
3.13	**Public Health**	The proposed project alternatives will produce an effluent quality similar to the existing effluent. The most common approaches to odor control are separation of the public from the source of odors and odor treatment or odor scrubbing. The odor control method that will be employed at the proposed project site will be to buffer and separate the public, naturally and artificially, from any potential odors. The proposed project site is naturally buffered by Bureau of Reclamation (BOR) owned land on the north and west sides as well as highway I-84 to the far west and south. The artificial separation for the proposed project alternatives will include housing within a building process equipment and the headworks and covering clarifiers and aeration basins, so that there are no open tanks in order to limit odor and exposure. There will be no on-site composting of biosolids. Finally, the facility will be designed for future air scrubbing, although no equipment will be installed as part of any of the project alternatives. The new wastewater treatment facility will be fenced to ensure that people do not interfere with the processes involved with wastewater treatment. Additionally, open trenches, electrical utilities and heavy equipment may present health and safety hazards during construction. These hazards may be mitigated by educating project personnel about the applicable health and safety regulations, and establishing safe operating procedures.	None proposed.
3.14	**Solid Waste and Hazardous Materials**	Chemicals will be used at the site in a consumptive manner, and in small quantities, such that they should not generate any hazardous waste. Care will be taken to properly secure, use, and dispose of any chemicals that are used at the treatment facility and dispose of biosolids as dictated in State and Federal regulations.	None proposed.

Section Number	Affected Environment	Best Management Practices	Mitigation
3.15	**Housing and Industrial and Commercial Development**	Care will be taken during construction to cross the Rail Trail only at the crossings granted in the easement with the Utah Division of Parks and Recreation. Further, traffic control may be needed to ensure the safety of the Rail Trail users.	None proposed.
3.16	**Coastal Resources**	None proposed.	None proposed.

5.0 CORRESPONDANCE AND COORDINATION

5.1 PUBLIC

A number of opportunities were provided to the public and city staff during the facilities planning process to receive information and to provide input about the proposed wastewater system improvements. To address concerns J-U-B met with city staff (city professional staff such as the public works director, city manager, and planner) and elected staff (i.e., council and mayor) to investigate possible project alternatives. The public involvement effort included one open house/public hearing to refine alternatives, seek input on alternatives and develop a recommended plan. Appendix K includes additional materials related to the public involvement effort and how the public involvement has led to a recommended alternative. Another public open house/public hearing is planned for when the recommended alternative has gone through the Environmental Review process.

1. **City Council Meetings and Biweekly Updates:**
    - June 2008
    - July 2008
    - January 2009
    - February 2009
    - February 2010
    - July 2010 (presentation included in Appendix K)
    - September 2010 (minutes and presentation included in Appendix K)
    - November 2011 (notice included in Appendix K)
    - December 1, 2011 (email and attachments included in Appendix K)
    - December 12, 2011 (notice included in Appendix K)
    - December 22, 2011 (email and attachment included in Appendix K)
    - January 23, 2012 (presentation included in Appendix K)

2. **City Council Tours of representative treatment facilities:**
    - October 2006
    - September 2010

3. **City Staff Meetings with equipment manufacturers:**
    - January 2007

4. **Public Education Efforts:**

A summary of all of the comments submitted by the public and the responses is provided in Appendix K as the responsiveness summary. In addition, Appendix K includes the following for the public education efforts:

- Mayor's Newsletter to the Coalville City community – May 10, 2010
- Mayor's Newsletter to the Coalville City community - April 11, 2011
- Open House/Public Hearing – May 23, 2011
    - Boards/Handouts used during the Open House
    - Notice for the newspaper of the Open House/Public Hearing
    - Proof of Publication of the newspaper advertisement
    - Minutes, including comments from the Open House/Public Hearing

    - Notes from Open House review with Ed Macauley (DWQ)
    - Written comment form from the Open House/Public Hearing
- Notice of the Application for Federal Financial Assistance – September 16 and 23, 2011

5. Letters to Organizations:

Letters requesting comment on the proposed project alternatives and project site were sent on August 16, 2011 to the following organizations:

- Weber River Water Users Association
- Weber Basin Water Conservancy District

The Weber River Water Users Association did provide comment to the project in a letter dated August 5, 2008 and again through a phone call on December 20, 2011. This correspondance is included in Appendix K.

5.2 Agencies

Table 5-1 is a list of the Public Agencies that were sent a letter regarding the proposed project, including a project description and a map of the wastewater facility project, on August 8, 2011 or as noted.

Table 5-1. Agency Contact List, Dates and Comments

Agency	Date and Method[1]	Comments
U.S. Army Corps of Engineers	9/9/11, phone call	Hollis verified the wetlands during a November 3, 2011 with the wetlands specialist. Hollis Jenks confirmed the findings in the wetland delineation report with a confirmation letter. The wetland report and confirmation letter are available in Appendix J.
U.S. Bureau of Reclamation	9/15/11, letter	"Reclamation understands that with the construction of the new facility Coalville City would achieve an efficient treatment of wastewater which would comply with current and projected [UPDES] permitting requirements. The proposed plant would enhance the quality of the Weber River by reducing phosphorus and nitrogen in the river. Reclamation supports the construction of the proposed wastewater treatment facility. Reclamation also looks forward to working with the city of Coalville in the decommissioning process of the old wastewater treatment facility currently located on Reclamation land."
U.S. Fish & Wildlife Service	9/14/11, email	Weber River and lower Chalk Creek are habitat for Bluehead sucker and Bonneville cutthroat trout (BCT) in the Weber River and lower Chalk Creek. A conservation agreement was signed with the State of Utah Division of Wildlife Resources (as well as a number of other state agencies) for both species. A USFWS 12-month finding (2008) on the BCT was also included. The 12-month finding determined the species was not warranted for listing at the time. USFWS continues to work for conservation of BCT under the Conservation Agreement. In their response they also noted that they could not offer specific mitigation measures

Agency	Date and Method[1]	Comments
		because the extent and nature of the potential impacts was not understood. In further communication with the USFWS they noted they are concerned about the quantity and quality and location of the discharge from the wastewater treatment facility. A draft Biological Evaluation letter was sent to USFWS. They reviewed the letter and confirmed that the two fish species were not ESA listed species but noted their interest in protecting them. Further, their letter noted "there is no requirement for a Section 7 effects determination including a Biological Assessment." A Biological Assessment (BA) was sent to the USFWS on February 16, 2012. In their response to the BA, USFWS indicated that "[w]e agree with your determination of "no effect" for listed species under the Endangered Species Act (ESA), including black-footed ferret, bonytail, Canada lynx, Colorado pikeminnow, humpback chub, and razorback sucker." USFWS also requested that bald eagle surveys be conducted prior to construction in the adjacent riparian corridor. Chapters 2 and 3 of the Environmental Report address these questions. USFWS requested that they be notified when the Environmental Report goes out for public comment, as they may wish to provide additional comments.
U.S. USDA, Natural Resources Conservation Service	8/11/11, letter	Project will impact 4 acres of Farmland of Statewide Importance. NRCS filed a "Farmland Conversion Impact Rating" form.
Utah Department of Environmental Quality, Division of Air Quality	8/10/11, email	Check back-up generator emissions factors. Recommended submitting a fugitive dust control plan to the Division of Air Quality.
Utah Department of Natural Resources, Division of Wildlife Resources	9/15/11, email	"We have general concerns with water quality in the Chalk Creek/Weber River area near Coalville, mostly revolving around excessive nutrient-loading in the waterways which can negatively impact fish and other aquatic organisms. A new & improved effluent treatment plant likely would help the water quality, and so we tend to view the proposed project as positive. We do not have any local siting concerns with the proposed area your development plan described. We are happy to rely on the Utah Department of Environmental Quality / Division of Water Quality to ensure that the UPDES permit captures the necessary water-quality goals."
Utah Department of Public Safety, Division of Emergency	9/16/11, phone call	No specific comments. Suggested contacting local floodplain coordinator. There was a follow-up meeting where the FEMA FIRM was discussed.

Agency	Date and Method[1]	Comments
Services & Homeland Security		
Coalville City Floodplain Coordinator[2]	9/19/11, letter	Coalville City's Floodplain Administrator reviewed the project site as well as the data from the June 27, 2011 survey and made the following comments "I have no negative comments on the project and feel the proposed location relieves concerns associated with the existing treatment plant location."
U.S. Federal Emergency Management Agency	9/22/11, email	The response email from the FEMA Floodplain Manager (Denver) stressed getting input from the local Floodplain Administrator, and noted that the "community will need to issue a floodplain development permit for the project" and may want to submit a Conditional Letter of Map Revision to change the FIRM (flood insurance rate map) as a result of the June 27, 2011 survey data.
Mountainland Association of Governments	9/15/11, letter	The Mountainland AOG concurred with Coalville City's assertion that the proposed location is the "best option." However, they are concerned about the safety of those using the adjacent Union Pacific Rail Trail during the construction process. They are supportive of Coalville City in "solving its wastewater treatment issues while preparing for future growth and development."
Utah State Historical Society/State Historic Preservation Officer[3]	10/12/11, letter	The Utah SHPO "recommends that a robust monitoring program be developed for this undertaking."
Uintah and Ouray Ute Indian Tribe[3]	10/6/11, letter	No response received. USDA-Rural Development sent a letter requesting comments on October 6, 2011.
Shoshone Tribe of the Wind Rivers[3]	10/6/11, letter	No response received. USDA-Rural Development sent a letter requesting comments on October 6, 2011.
Shoshone Bannock Tribe[3]	10/6/11, letter	No response received. USDA-Rural Development sent a letter requesting comments on October 6, 2011.

1. See Appendix I for the original letter sent and for those letters, emails and/or phone calls received from each agency in response.
2. The Coalville City Floodplain Coordinator was not sent a letter requesting comments on the project but was involved with the project throughout the entire project planning process.
3. While these agencies were sent letters on August 8, 2011, USDA-RD also sent letters to the tribes on October 6, 2011 and to the Utah State Historic Preservation Office on on September 29, 2011 for direct communication with the agencies.

Both USDA-Rural Development and the Utah Division of Water Quality (the Engineering reviewer and NEPA coordinator) were sent letters on August 8, 2011 similar to those sent to the other agencies alerting them that comments were being requested for the project from the relevant agencies. Others receiving the letter included the Weber River Water Users Association and Weber Basin Water Conservancy District, which were sent letters on August

16, 2011. The Weber River Water Users Association had submitted comments on the project back in August 2008, and again through a phone call on December 20, 2011. These comments are included in Appendix I.

Communication via letters, emails, phone calls or meetings occurred with the following agencies regarding project concurrence and/or funding:

1. **Division of Water Quality:**
    - November 2006 (Appendix C)
    - April 2009 (Appendix C)
    - February 2010 (Appendix C)
    - February 2011 (Water Quality Board, Appendix C)
    - March 2011 (Appendix D)
    - April 2011 (Water Quality Board, Appendix C)
    - June 2011 (Appendix C)
    - July 2011 (Appendix C)
    - January 2012 (Water Quality Board, Appendix C)

DWQ has been understanding and supportive of Coalville City's need to move their wastewater treatment facilities. DWQ participated in some of the meetings with the Bureau of Reclamation (BOR), including a site visit in March 2011, and understands that BOR is unwillingness to continue to lease the land or sell the land at the existing site or sell additional land to Coalville City.

DWQ wants Coalville to make the best decision for the community for the right reasons with all of the alternatives in front of them. They have reinforced their support of Coalville City's decision by committing funds to the wastewater treatment facilities project. The Water Quality Board, which is the arm of the Utah Division of Water Quality that authorizes State Revolving Fund expenditures, committed a funding package of $4.742M to the Coalville City wastewater treatment facilities project on April 6, 2011. This funding package includes a loan in the amount of $1.65M at zero percent interest over 20 years and a grant of $3.092M. This is about 1/2 of the project costs. The letter authorizing this project funding is included in Appendix C. On January 25, 2012 Coalville City again went before the Water Quality Board to discuss project funding. While the other funding partner, the USDA-Rural Development, has indicated that Coalville is eligible for a $2.972M grant and a $1.770M loan, USDA has indicated that there appropriated funds for this fiscal year were sufficient to entirely fund the project. Therefore, Coalville City requested full project funding in the form of a $6.299M grant and $3.225 loan, and a design advance of $1.062M from the Water Quality Board. Their request was approved contigent upon them continuing to aggressively pursue funding through USDA-Rural Development. The agenda and support materials from this meeting are included in Appendix C. At the time of printing the minutes were not available.

2. **Bureau of Reclamation**
    - December 2006 (Appendix D)
    - February 2007 (Appendix D)
    - March 2007 (Appendix D)
    - May 2007 (Appendix D)
    - November 2009 (Appendix D)
    - April 2010 (Appendix D)

- May 2010 (Appendix D)
- February 2011 (Appendix D)
- March 2011 (Appendix D)
- June 2011 (Appendix D)
- September 2011 (Appendix D)
- January 2012 (Appendix D)

The City's existing wastewater treatment facility is located on 2.3 acres of land owned by the Bureau of Reclamation and leased to the City. The lease expires in 2014 and the Bureau of Reclamation is not willing to renew the lease or sell the land, due to concerns about the plant's location in the floodplain, thus forcing the relocation of the City's wastewater facilities.

As part of the Facility Planning effort in 2006 and 2007, J-U-B coordinated with the BOR regarding the lease. A number of emails and letters were exchanged and meetings occurred to gauge BOR opinion on the possibility of extending the lease, purchasing the 2.3 acres, or purchasing additional land. These letters and meeting minutes are included in Appendix D. The feeling at the completion of the 2007 Facility Plan was the BOR may be interested in selling but a thorough process including National Environmental Policy Act (NEPA) review and land value appraisal would be required.

Realizing the lease expires in 2014 and the need to acquire additional land, the 2007 Facilities Plan recommended that the City immediately engage the BOR relative to extending the lease, acquiring the land, and consider acquiring additional land.

From July 2008 until February 2011 the City and BOR staff held a number of meetings to discuss the property transfer. As these discussions continued there were an increasing number of requirements placed upon the City by the BOR. The BOR required the City to develop an Emergency Response Plan to address any spills. The City did see a need to modify the site grading and add some modest berming to contain something such as a tank failure. However, the BOR became adamant that an extensive berm surrounding the treatment facility would be required as part of any sale or renewal of a lease. Design criteria described by the BOR required the following: that the top of the berm match the crest of the dam; the berm have a keyway trench in the bottom extending approximately 5 feet below the native ground with an impervious material to block potential contamination; the berm be reinforced on the reservoir side in order to prevent erosion; and the berm have a crest width of approximately 10 feet with sides slopes of 1:1. This would result in a berm surrounding the treatment plant approximately 7 feet higher than the treatment plant floor and 10 or more feet above the nearby floor of the reservoir (immediately outside the lease area limits of the treatment plant). This is nearly five times greater than that necessary to contain emergency wastewater overflows. The BOR felt this could easily be accomplished for $75,000. However, the estimate that the City had prepared by an engineering firm indicated costs would likely be $550,000. Through these discussions and requirements, BOR was clear that leaving the Coalville WWTP at the existing site was a significant concession of current BOR policy; BOR could not see any "…legal way to allow the current wastewater treatment plant to remain at its present location" (copy of February 2011 letter in Appendix D).

The City and DWQ attended a meeting with Brad Shafer, Senior Advisor in Senator Bennett's office, to discuss these problems with BOR and the situation it was putting the City into. Mr. Shafer called the BOR to intervene on the City's behalf and expressed his concerns, to no

avail. As the negotiations with BOR through the latter half of 2010 began to look less favorable, the City began to investigate other options including locating a new treatment facility on non-federal lands. The December 2010 Facility Plan Update was developed for DWQ as an update to address the outcome of BOR coordination (from 2008 through 2010) and to identify a new non-Federal location for a possible new facility.

Several BOR staff members visited the site of the existing facility on January 17, 2012 to view the current site and discuss any concerns they have about decommissioning/abandoning the treatment facility.

3. Army Corps of Engineers

- March 2010 (Appendix E)
- August 2010 (Appendix E)
- September 2010 (Appendix E)
- October 2010 (site inspection, Appendix E)
- February 2011 (Appendix E)

In conjunction with the Facilities Plan Update for a new facility on a new non-Federal site, the City pursued Army Corp of Engineers (ACOE) 595 funding. The City was awarded the ACOE 595 funding in the form of a grant in the amount of $5,000,000 (copy of Signed Agreement in Appendix E). However, the 595 grant was withdrawn in December 2010 (copy of Program Manager letter in Appendix E).

4. USDA-Rural Development

Discussions with the U.S. Department of Agriculture, Rural Development are ongoing. A Notice for the Application for Federal Financial Assistance was published September 16, 2011 and September 23, 2011 in the Summit County News, and is included in Appendix K.

6.0 REFERENCES

- Boyle, Michael. Operations Manager, Snyderville Basin Water Reclamation District. Personal communication. May, 2007.
- Bureau of Reclamation. Weber River Project, Utah License Agreement. Effective October 9, 1964.
- Callahan, Kevin. Summit County. 2007.
- Coalville City. Coalville City Survey Results. 2009.
- Coalville City. Coalville City Wastewater Treatment Plan Emergency Response Plan. October 5, 2009.
- Coalville City. Fee Schedule. January 1, 2011.
- Coalville City. General Plan. December 13, 2000. Adopted December 13, 2000.
- Coalville City. Impact Fee Analysis. Lewis, Young, Robertson and Burningham. June 2008.
- Coalville City. Sanitary Sewer Model and Capital Facilities Plan. J-U-B Engineers. April 2005.
- Coalville City. Sewer and Water Rate Analysis. Lewis, Young, Robertson and Burningham. April 2009.
- Coalville City. Wastewater Treatment Facilities Plan - Draft. JUB Engineers. May 2007.
- Coalville City. Wastewater Treatment Facilities Plan – Plan Update. JUB Engineers. December 2010.
- Federal Emergency Management Administration. Map Service Center. <http://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1>. Accessed June 1, 2011.
- Federal Emergency Management Administration. The National Flood Insurance Program Community Status Book. <http://www.fema.gov/fema/csb.shtm>. Accessed September 12, 2011.
- Guide for Preparing the Environmental Report for Water and Waste Projects. USDA Rural Development. December 1998 and revised March 2008.
- Mountainland Association of Governments. 2000.
- Mountainland Association of Governments. Draft General Plan Coalville City. January 2011.
- National NAGPRA Online Databases website. Native American Consultation Database. <http://home.nps.gov/nacd/>. Accessed May 31, 2011.
- National NAGPRA website. <http://www.nps.gov/history/nagpra/>. Accessed May 31, 2011.
- National Park Service. National Register of Historic Places. <http://nrhp.focus.nps.gov/natreghome.do;jsessionid=AF8BDA4395C33E9691C6153252035C9>. Accessed May 31, 2011.
- National Wild and Scenic Rivers. Designated Wild and Scenic Rivers, Utah. <http://www.rivers.gov/wildriverslist.html>. Accessed May 26, 2011.
- Natural Resources Conservation Service. Web Soil Survey. <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>. Accessed August 22, 2011.
- U.S. Census Bureau. 2000 Demographic Profiles. < http://censtats.census.gov/cgi-bin/pct/pctProfile.pl >. Accessed May 26, 2011.

- U.S. Department of Agriculture Rural Utilities Service. Bulletin 1780-3. Preliminary Engineering Report—Wastewater Facilities. October 2, 2003.
- U.S. Department of Agriculture Rural Utilities Service. Utah Supplement to Bulletin 1780-3 Wastewater Facility. April 2009.
- U.S. Environmental Protection Agency, EJView. <http://epamap14.epa.gov/ejmap/entry.html. Accessed August 2, 2011.
- U.S. Fish and Wildlife Service. Proposed Rules: Endangered and Threatened Wildlife Plants; 12-Month Finding on a Petition to list the Bonneville Cutthroat Trout as Threatened and Endangered. Federal Register Vol. 73, No. 175. September 9, 2008.
- U.S. Fish and Wildlife Service. Endangered Species List, Summit County. < http://ecos.fws.gov/tess_public/countySearch!speciesByCountyReport.action?fips=49043. Accessed May 26, 2011.
- U.S. Fish and Wildlife Service. National Wetlands Inventory. <http://www.fws.gov/wetlands/Data/mapper.html>. Accessed May 31, 2011.
- U.S. Geological Survey. Coalville Quadrangle. 7.5 minute series (topographic). 1997.
- Utah Administrative Code. Title R317 Environmental Quality, Water Quality. < http://www.rules.utah.gov/publicat/code/r317/r317.htm>. As in effect on April 1, 2011.
- Utah Department of Environmental Quality. DEQ Interactive Map. < http://mapserv.utah.gov/DEQ/>. Accessed June 14, 2011.
- Utah Department of Natural Resources Division of Wildlife Resources. Rangewide Conservation Agreement and Strategy for Roundtail Chub Gila robusta, Bluehead Sucker Catostomus discobolus, and Flannelmouth Sucker Castomus latipinnis. Publication Number 06-18. September 2006.
- Utah Department of Natural Resources Division of Wildlife Resources. Rangewide Conservation Agreement and Strategy for Bonneville Cutthroat Trout (Oncorhynchus clark utah). Publication Number 00-19. December 2000.
- Utah Division of Air Quality. Air quality non-attainment map. www.airquality.utah.gov/images/.../NONATTAINMENT_MAP.pdf. Accessed April 25, 2011.
- Utah Division of Drinking Water (DDW). Maximum Affordable Water Bill. <http://www.drinkingwater.utah.gov/loan_program_intro.htm>. Accessed September 12, 2011.
- Utah Division of State Parks and Recreation. Easement Historic Rail Trail. October 20, 2009.
- Utah Division of Water Quality. Coalville City Utah Pollutant Discharge Elimination System Permit. Effective September 1, 2009 and expires August 31, 2014.
- Utah Division of Water Quality. Echo Reservoir TMDL Water Quality Study. 2006.
- Utah Division of Water Quality. Utah Water Quality Project Assistance Program. Handbook of Procedures Chapter 5, Review and Approval of Facility Plans and Environmental Assessments. Utah Division of Water Quality. July 31, 2006.
- Utah Division of Water Rights. Well Map. <http://www.waterrights.utah.gov/cgi-bin/wellview.exe?Startup>. Accessed July 29, 2011.
- Utah Division of Water Rights. Well Drilling Database. Accessed July 2011.
- Utah Division of Wildlife Resources. County Lists of Utah's Federally Listed Threatened(T), Endangered(E), and Candidate(C) Species, Summit County. <http://dwrcdc.nr.utah.gov/ucdc/>. Accessed May 26, 2011.
- Utah Division of Wildlife Resources. County Lists of Utah's Sensitive Species, Summit County. <http://dwrcdc.nr.utah.gov/ucdc/>. Accessed May 26, 2011.
- Utah Division of Wildlife Resources. Utah Conservation Data Center, Coalville City.

<http://mapserv.utah.gov/Wildlife/>. Accessed June 1, 2011 and August 2, 2011.

- Utah State Governor's Office of Planning and Budget. Population estimates. Accessed 2010.
- Utah State Governor's Office of Planning and Budget. Population projections. Accessed 2010.
- Utah State History. Historic Properties in Utah. <http://history.utah.gov/historic_buildings/national_register/historic_properties.html>. Accessed May 31, 2011.

7.0 LIST OF PREPARERS

Christina Osborn, P.E.
Project Engineer
J-U-B Engineers

Trevor Lindley, P.E.
Project Manager
J-U-B Engineers

Jim Goodley, P.E.
Project Engineer
J-U-B Engineers